

Message

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**From:** Danise Yam [/O=THERANOS ORGANIZATION/OU=FIRST ADMINISTRATIVE GROUP/CN=RECIPIENTS/CN=DYAM]  
**Sent:** 12/8/2013 7:02:21 AM  
**To:** Valeska Hintz [vhintz@theranos.com]  
**CC:** Elizabeth Holmes [eholmes@theranos.com]  
**Subject:** RE: 409A Valuation Report

Hi Valeska,

Attached please find the final 409A report.

Thanks,

Danise

**From:** Valeska Hintz  
**Sent:** Saturday, December 07, 2013 7:31 PM  
**To:** Danise Yam  
**Cc:** Elizabeth Holmes  
**Subject:** 409A Valuation Report

Hi Danise, could you please send me the final 409A valuation report for September 30, 2013. Thank you.

Best regards,

Valeska

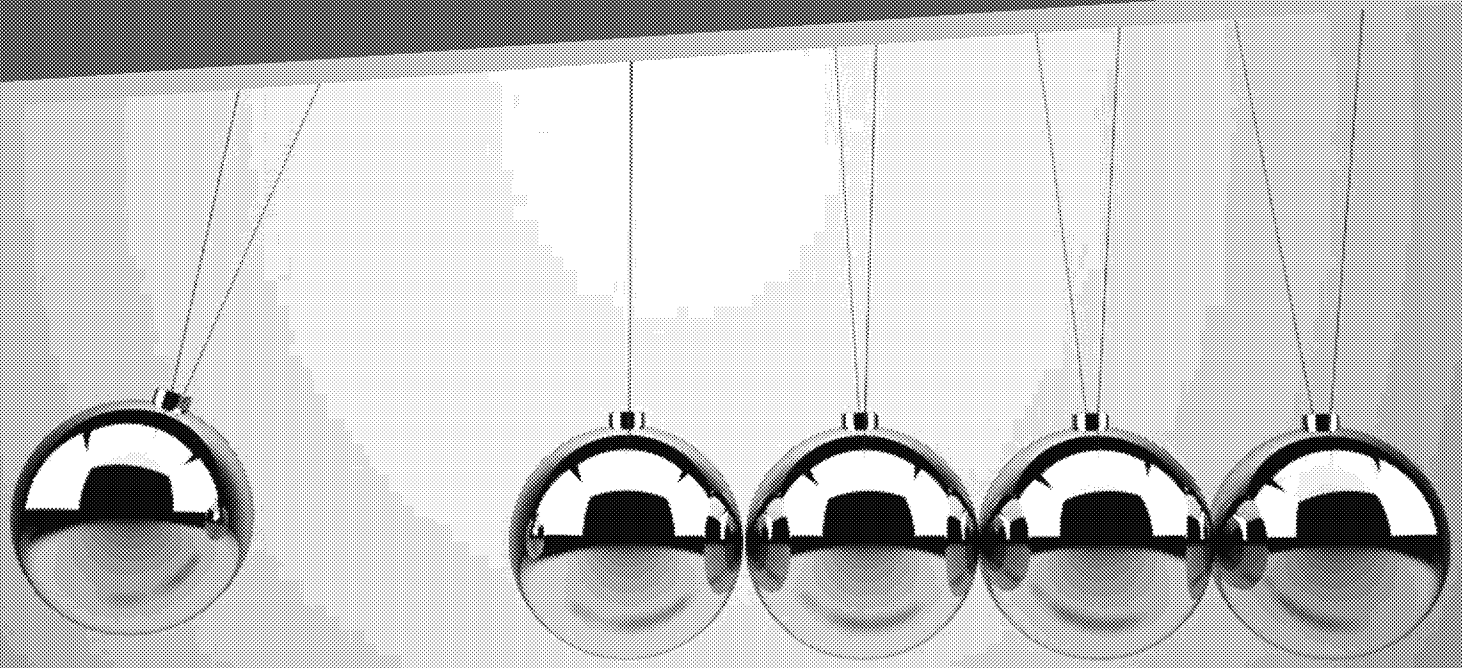
Valeska Pederson Hintz

Theranos, Inc.

Senior Corporate Counsel

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# Theranos, Inc.

FMV of common stock as of September 30, 2013

December 06, 2013

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## ENGAGEMENT OVERVIEW

### Background

Aranca, Inc. ('Aranca') has been engaged by Theranos, Inc. ('Theranos' or the 'Company') to conduct valuation analysis of the Company and prepare a written report to express our opinion on the Fair Market Value (FMV) of its common stock, on a minority and non-marketable basis, as of September 30, 2013 (the 'Date of Valuation').

### Engagement Objective and Scope

- We understand this report and its conclusions ('Valuation' or the 'Opinion') would be used by the Company's Board of Directors (and authorized Board committees) solely in connection with determining the exercise price for granting options to its employees to comply with IRC§409A, and as an input for valuations pursuant to SFAS 123 (R) for financial reporting purposes.
- Internal Revenue Service ('IRS') introduced new regulations IRC§409A in October 2004. To avoid violation of IRC §409A and consequent tax liabilities, companies must issue stock options at or above their grant date Fair Market Value as defined in IRS Revenue Ruling 59-60. This requires privately held companies to establish the Fair Market Value of the underlying securities to set up the exercise price of stock options. This report is intended to satisfy the requirements of IRC§409A for an Independent Appraisal of privately held companies.
- SFAS 123 (R), issued in December 2004, requires the value of all share-based payments to be recognized in the income statement. The statement requires public and non-public companies to measure the cost of employee services received in exchange for equity instruments, based on the Fair Value of awards on the grant date.
- In preparing our analysis, Danise Yam, Corporate Controller (management), provided information regarding Theranos' business, products and services, operations, past performance and financial results, financial condition, developments, and budgets. Aranca assumes the information provided and representations made are accurate and reliable, and fairly represent the financial position and prospects of the Company as on the valuation date. The validity and accuracy of this appraisal report depend upon the reliability and accuracy of basic data provided by management.
- The contents of this appraisal report and opinion of value stated herein may not be used for any purpose other than stated, and Aranca makes no assurances as to the accuracy or suitability of this valuation for purposes other than stated without its written consent.
- The analysis, opinions, and conclusions reported herein are limited by the reported assumptions and limiting conditions. (Please refer Exhibit 14 for 'General Assumptions and Limiting Conditions'.)

## Standard of Value

Aranca has determined the Fair Market Value of the Company's common stock based on appraisal standards, valuation methodologies and approaches in conformity with IRS guidelines to consider 'all relevant facts and circumstances' and appraisal guidelines endorsed by the AICPA in its Practice Aid<sup>1</sup> and other widely recognized valuation standards.

IRS Revenue Ruling 59-60, which outlines in general the approach, methods, and factors to be considered in valuing the shares of the capital stock of closely held corporations for estate and gift tax purposes, defines Fair Market Value, in effect, as:

*"The price at which the property would change hands between a willing buyer and a willing seller when the former is not under any compulsion to buy and the latter is not under any compulsion to sell, both parties having reasonable knowledge of relevant facts."*

Court decisions frequently state, in addition, that the hypothetical buyer and seller are assumed to be able, as well as willing, to trade and be well informed about the property and the market for such property.

In other words, in application of Fair Market Value standard, Aranca assumes:

- As of the valuation date, cash equivalent is paid for the Company being appraised.
- The seller is not 'compelled' or 'motivated' to sell interest in the Company due to business distress.
- The buyer is rational, but not 'motivated', to acquire interest in the Company due to certain synergistic benefits, which may not be available to other market participants.
- In other words, the buyer is not an existing shareholder, creditor, related, or controlled entity, which could be anticipated to pay higher or lower value than the arms length 'financial buyer' due to reasons associated with those considerations.
- The seller and buyer have reasonable information and knowledge of relevant facts and events that are known or knowable as of the valuation date.

FAS 123(R) defines 'Fair Value'<sup>2</sup> as:

*"The amount at which an asset (or liability) could be bought (or incurred) or sold (or settled) in a current transaction between willing parties, that is, other than in a forced or liquidation sale."*

AICPA finds the definition of Fair Market Value in Revenue Ruling 59-60 consistent with the definition of Fair Value in Generally Accepted Accounting Principles (GAAP)<sup>3</sup>.

<sup>1</sup> AICPA Practice Aid Series 2004 -- 'Valuation of Privately Held Company Equity Securities Issued as Compensation'

<sup>2</sup> SFAS 123 (R), Glossary, Appendix E

<sup>3</sup> AICPA Practice Aid Series 2004 -- 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page 7, Footnote 8.

## Scope of Analysis

During the course of our valuation analysis, we have conducted limited reviews, inquiries, interviews, discussions, and analyses, which, in our opinion, were deemed to be appropriate for this valuation analysis. Our review and analysis includes, but is not limited to, the following:

1. Discussions and interviews with members of Theranos' senior management concerning the addressable markets, assets, significant milestones in its business plan, financial and operating history, future plans, key value drivers, projected operations, and exit options and scenarios, among others.
2. Review of financial statements for financial years December 31, 2008, through December 31, 2012. Review of un-audited financial statements ending September 30, 2013.
3. Review of forecasted financial statements for financial years ending December 31, 2013, through December 31, 2017, as provided by the Company.
4. Review of capitalization summary and summary of outstanding options and warrants of the Company as on the valuation date.
5. Review of the latest amended and restated Certificate of Incorporation dated June 30, 2010.
6. High-level secondary research and analysis on Theranos' markets and the industry in which it operates. Analysis of the Company's operating history, products and services, and competitive position, among others.
7. Research and analysis of financial data available from public sources of certain public companies operating in the same or similar industries, which, in our opinion, are comparable to the Company.
8. Review and analysis of certain other available Company documents, industry statistics, forecasts, and studies.

## Declaration

I hereby certify to the best of my knowledge and belief:

The statements of fact contained in this report are true and correct. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, impartial, and unbiased professional analyses, opinions, and conclusions.

I have no present or prospective interest in the property that is the subject of this report, and I have no (or the specified) personal interest with respect to the parties involved.

I have performed following services for Theranos within the three-year period immediately preceding acceptance of the assignment, as an appraiser or in any other capacity:

- Valuation analysis of the Company and prepare a written report to express opinion on the 'Fair Market Value' of the Company's common stock, on a minority and non-marketable basis, as of July 1, 2011.
- Valuation analysis of the Company and prepare a written report to express opinion on the 'Fair Market Value' of the Company's common stock, on a minority and non-marketable basis, as of July 1, 2012.

I have no bias with respect to the property that is the subject of this report or the parties involved with this assignment. My engagement in this assignment was not contingent upon developing or reporting predetermined results. My compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, amount of the value opinion, attainment of a stipulated result, or occurrence of a subsequent event directly related to the intended use of this appraisal.

My analysis, opinions, and conclusions were developed, and this report has been prepared in conformity with the Uniform Standards of Professional Appraisal Practice (USPAP) and the ASA BV Standards.

I was assisted by Bharat Ramnani and Manpreet Singh during this independent appraisal process. No person other than those identified has any significant professional input during this independent appraisal process.

## Summary of Findings

Based on our analysis and after considering all relevant factors described in the detailed report presented hereinafter, in our opinion, as of September 30, 2013, the minority and non-marketable basis Fair Market Value of its common stock, as a class, is \$0.17 per share.



**Principal Appraiser**

Hemendra Aran

Head, Valuation Services

Date of Report: December 06, 2013

## COMPANY OVERVIEW

### Brief Company Profile

Established in May 2004, Theranos, Inc. is a Delaware corporation headquartered in Palo Alto, California. Theranos, a biomedical systems company, aims to employ its unique technology to personalize medical treatment through electronic devices that can read, transmit, and profile data of any aspect of an individual's health status. Pharmaceutical companies and physicians can then analyze the data to realize target profiles of their drugs and better patient care. In 2008, the Company started shipping devices for validation contracts (developing partnerships with pharmaceutical companies to validate the technology for its introduction to large-scale clinical studies).

#### Quick facts – Theranos, Inc.

<b>Established</b>	May 2004
<b>Headquarters</b>	Palo Alto, CA
<b>Founders</b>	Elizabeth Holmes
<b>Product/Service Offering</b>	Healthcare information systems
<b>Total Funding</b>	126.39 million
<b>Investors</b>	Healthcare distributors
<b>Revenues (as of Sep 13)</b>	Just launched products

Theranos monetized its technology by entering into deals with large biopharmaceutical companies. Management believes the technology would help these companies improve their key therapies by rapidly optimizing the risk-benefit profiles of drugs, and thereby, shorten the duration of clinical trials. The Company's devices could also facilitate cost-effective care for healthcare providers. Clinicians could obtain quantitative information on disease progression and the efficacy of key compounds during and after clinical studies. Theranos plans to enter into the direct-to-consumer market by promoting its products through pharmacies and boutique nutritional shops.

In 2010, the Company developed smaller versions of its devices. However, 2011 onward, Theranos did not pursue new contracts for commercial use of these products and focused on the development of robust versions of its product models in preparation for targeting the general consumer market. The Company had previously received funding from its pharmaceutical partners through pre-payments for contracts. In 2013, the Company's product development and manufacturing is on track and products are launched in the market Q3 of FY13. Theranos also entered into a long term partnership with Walgreens. The Walgreen pharmacies shall serve as in-store sample collection centres for the Company. Walgreen is the nation's largest pharmacy chain with more than 8100 pharmacies. With Walgreens nationwide reach, the Company's lab testing service shall become more accessible for the customers.

The Company will continue to depend on its partners for providing the desired funding the next year as well to ensure the sustainability of its business due to its high cash burn rate.

### Financing History and Capital Structure

As of the valuation date, Theranos had secured four rounds of financing of over \$126 million. The Company's total diluted capital structure consists of preferred capital (36.33%), common stock (49.66%), and options and warrants (14.01%). Total preferred capital was divided among Series A, B, C, and C1 shareholders. Each Preferred shareholder shall have the right to obtain liquidation preference of 1x and convert into common shareholder in the ratio of 1:1 (refer [Exhibit 9](#)).

The rights/preferences of each class of shareholders are as follows:

Class of Stock	No. of Shares	Issue Price	Invested Capital	Participation Cap	Conversion Ratio
Series A	46,320,045	\$0.150	\$6,948,007	NA	1:1
Series B	54,162,965	\$0.185	\$10,000,000	Unlimited	1:1
Series C	58,896,105	\$0.564	\$33,217,403	Unlimited	1:1
Series C-1	18,508,335	\$3.00	\$55,525,005	Unlimited	1:1
Series C-1*	1,380,000	\$15.00	\$20,700,000	Unlimited	1:1
Common	245,014,100	-	-	-	-
<b>Total</b>	<b>424,281,100</b>		<b>126,390,415</b>		

**Liquidation Preference:** In the event of any liquidation, dissolution, or winding up of Theranos, Series C and C-1 Preferred shareholders shall be entitled to receive, prior and in preference to Series B Preferred, Series A Preferred, and Common stakeholders, an amount per share equal to liquidation preference specified for such share of Series C and Series C-1 Preferred stocks, as applicable, plus any declared but unpaid dividend on such share of Series C or Series C-1 Preferred stocks, as applicable. After the payment of liquidation preference for Series C and Series C-1 Preferred stocks, if the Company's assets legally available for distribution to Series A and Series B Preferred stockholders are insufficient to permit the payment of liquidation preferences of such holders, plus all declared but unpaid dividends on such shares, the entire assets legally available for distribution shall be distributed among Series B Preferred stockholders on a pro rata basis in proportion to the liquidation preference they would be entitled to receive. After the payment of liquidation preference of Series B Preferred stock, Series A Preferred Shareholders would be entitled to receive an amount equal to the liquidation preference for such shares on a pro rata basis.

**Dividends:** Preferred stockholders shall be entitled to receive dividends, as and if declared by the Company's Board of Directors, prior and in preference to any declaration or payment of dividend to common stockholders. The right to receive dividends on shares of any series of preferred stock shall not be cumulative.

**Participation:** Subsequent to the payment of the full liquidation preference of preferred stock, the remaining assets, if any, shall be ratably distributed among common stockholders. Series B, C, and C-1 shareholders have unlimited participation in receiving the corresponding amount in proportion to their liquidation preferences upon the liquidation, winding, or dissolution of the Company.

**Conversion:** Preferred shareholders have the right to convert to common stock in the ratio of 1:1.

## **Products & Technology Solutions**

Theranos has introduced personalized information systems to medicine. These systems enable patients to monitor stimulated levels of targeted analytes (a substance or chemical constituent determined in an analytical procedure) throughout the course of treatment or disease progression. Theranos' systems simultaneously run high and low sensitivity assays (a procedure in molecular biology for testing or measuring the activity of a drug or biochemical in an organism) to detect changes in the levels of markers directly induced by a drug. The monitors wirelessly communicate the results to medical personnel through a bioinformatics server. These systems monitor profiles ranging from drug efficacy, patient safety, and risk of adverse reaction (of drugs such as Vioxx) to the presence of Sexually Transmitted Diseases (STD), fertility monitors, and indicators of disease progression.

Theranos' technology platform analyzes blood samples and wirelessly analyzes the data in real-time on a server accessible on an individual's PDA or computer. Thus, the Company's products could be a direct challenge to conventional blood testing and data analysis infrastructure. Conventional methods of blood testing and analysis are time-consuming and any adverse drug effect on patients or clinical condition cannot be measured instantly. This, in turn, delays remedial measures. The Theranos infrastructure, which is convenient and faster, would be preferable since it enables users to extract better information from healthcare tests. Clinicians could use these systems to comprehensively profile disease progression and accurately characterize disease states, patient health, and efficacy & safety of a treatment on an individual basis.

## **Target market**

Theranos is pursuing a focused strategy to introduce its technology pipeline in target markets. In line with this, the Company is sequencing product releases for each application to target end markets that can most quickly adopt and commercialize the systems. Once fairly established in the market, Theranos aims to expand its product applications to the direct-to-consumer applications to enable monitoring of anything, anytime in an automated manner. With its innovative technology, the Company is in the process of developing a product capable of screening, monitoring, and supporting therapeutic administration and disease detection encompassing various disorders from vitamin deficiencies to emotional depression, diabetes to cancer chemotherapy, and contraception to congestive heart failure.

Theranos' systems could be applicable in the following markets:

- i) Pharmaceutical clinical trials (focused on phase IV)
- ii) Prescription medicines
- iii) Physicians' office, clinics, and hospitals
- iv) Health Maintenance Organizations (HMOs), insurance agencies, and governments
- v) Direct-to-consumer (through pharmacies and other shops)
- vi) Livestock and niche applications



## Technology

Key features of the Theranos technology include:

- Blood chemistry system that is more sensitive than cutting-edge laboratory analytical tools
- Fully integrated finger-prick blood monitoring system that eliminates the need to draw venous blood
- An integrated blood sampling port, which samples and analyzes blood droplet automatically without an individual ever viewing the sample being withdrawn
- Telecommunications and video communications with clinic, peer groups, and other relevant parties
- Real-time bioinformatics analysis of data and profiling on an individual's cell phone or Personal Digital Assistant (PDA)
- Web interface for patient, physician, and pharmaceutical companies
- Enables testing of a patient at home rather than a clinic
- Synchronizes clinical data and each patient record with data generated at home, providing complete analysis or health status of an individual
- Generates biomarker data indicating drug efficacy or new targets for novel pharmaceutical compounds

These systems comprise three components:

- **Device:** It is capable of extracting assay data from disposable cartridges and transmitting it via a wireless link to a remote database posted by Theranos.
- **Cartridge:** It is a consumable containing reagents to measure the concentration of target drug as well as defined markers for efficacy and safety of that drug and disease state in a patient's blood sample..
- **Ambulatory Bioinformatics Communication System (ABCS):** It is a database and proprietary analytical communications software for retrieving, transmitting, and analyzing data from Theranos Cartridges and patients' records. ABCS is upgraded at scheduled intervals.

## Market Overview

The entire pharmaceutical and theranostics market is regulated by the Food and Drug Administration (FDA). All new drug developments have to follow the FDA's stringent norms. Adherence to these norms tends to escalate costs and time required in drug development. The theranostics industry aims to address this issue by providing quick and more accurate testing methodologies to improve the drug risk profile.

The market is fragmented with players of all sizes. However, small firms have been observed to usually commence operations as niche service providers to the pharmaceutical industry. Over a period, these firms are acquired by large pharmaceutical companies. Theranostics has attracted many small- to medium-sized companies despite the challenge of being a new industry. The market's leading participants are larger pharmaceutical and diagnostics companies such as Roche and Abbott.

## Competitive Landscape

The theranostics industry is characterized by several small startups that eventually seek collaboration with larger companies as a strategy to enhance their competitiveness. Some of the companies operating in the industry are as follows:

Company	Business
 THERANOSTICS HEALTH	<p><b>Theragnostics Health:</b> Founded in 2006, the company is shaping and creating a new healthcare and disease management system, in which individual patients are provided the best customized treatments. Its core technology platform measures the activity of several biomarkers in disease pathways, thus enabling companies to accurately profile their drug candidates and facilitate efficient and effective drug development. The platform also enables physicians to offer optimized therapies to patients.</p>
	<p><b>Cholestech Corporation:</b> The company's Cholestech LDX system provides accurate and affordable diagnostic testing for cholesterol and related lipids, blood glucose, inflammation, and liver enzymes. The Cholestech LDX lipid profile and glucose test is appropriate for assisting identification of those at risk of metabolic syndrome, a precursor to coronary heart disease and Type 2 diabetes. Cholestech was acquired by Inverness Medical Innovations in September 2007.</p>
	<p><b>Sequenom:</b> The company develops innovative technology, products, and diagnostic tests that target and serve discovery and clinical research, and molecular diagnostics markets. Sequenom's proprietary system MassARRAY® is a high-performance DNA analysis platform that efficiently and precisely measures the amount of genetic target materials and variations therein.</p>
	<p><b>Clinical Data, Inc.:</b> It is a global biotechnology firm developing targeted therapeutics, and genetic and pharmacogenomic tests for detecting serious diseases and predicting drug safety, tolerability, and efficacy. Clinical Data's PGxHealth division is leveraging its biomarker discovery expertise to develop pharmacogenomic tests. The company uses Familion and PGxPredict tests for predicting drug response.</p>
	<p><b>Somanetics Corporation:</b> The company is the pioneer and leader of cerebral and somatic oximetry, providing US clinicians with the first adult cerebral oximeter, pediatric cerebral oximeter, and simultaneous brain &amp; body oximeter. This noninvasive patient monitor continuously measures changes in blood oxygen levels in the brain and body of patients. Currently, the INVOS® system is used in more than 700 hospitals in the US, including 80% of the centers performing pediatric cardiac surgery, and over 1,200 installations internationally.</p>

## Management Team

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### **Elizabeth Holmes, Founder, CEO**

Elizabeth is President and CEO of Theranos since she founded the Company in 2003. She left Stanford University to build Theranos around her breakthrough patents and a vision of enabling individuals to take control of their health through real-time diagnosis and monitoring, and treating targeted ailments noninvasively. Elizabeth took the Company from concept to reality, driving a major transformation in healthcare and pharmaceutical industries.

### **Gary Frenzel, VP, Assay Systems**

Gary received his BS in Biology from Texas A&M University and went on to distinguish himself as an expert protein chemist and laboratory manager in R&D. He has managed the production of antibody conjugates for clinical trials in Europe and developed reagents, clinical cell separation systems, and multiplex assays, among others. His experience includes perfecting purification and conjugation processes, developing analytical methods for testing reagent quality, and obtaining ISO certification at various research foundations and commercial laboratories. Prior to joining Theranos, Gary was at Surromed Corporation, where he designed and developed methods for detecting variables that differentiate the state of disease from that of health.

### **Sunny Balwani, President, Chief Operating Officer**

Sunny is President and Chief Operating Officer of Theranos. He is an entrepreneur and a computer scientist. He began his professional career at Lotus Development Corporation, after which he worked at Microsoft in several roles. Later, Sunny started his own company in the B2B ecommerce sector, which was later sold to CommerceOne. He holds an MBA degree from UC Berkeley and an undergraduate degree from UT Austin.

## Risks

Theranos faces the following key risks:

- **Funding risk:** Guideline public companies are at an advanced stage of enterprise development. Being listed companies, they have better access to funding from capital markets and debt facilities. On the other hand, being a private company, Theranos has limited access to various funding options. Although its cash balance is \$31 million as of the valuation date, the Company will continue to incur a high cash burn rate due to huge R&D expenses in the near future and will be able to sustain its business operations for the next one and a half years. Thereafter, the Company would again need to raise capital to fund its operations.
- **Market acceptance of products:** Theranos develops novel devices, which were just launched in the market. Market acceptance of the products depends on the willingness and ability of patients and healthcare companies to adopt new technologies, and their perception of safety, efficacy, and benefits of the new technology and services compared to other competing products. If patients and healthcare communities are unable to adopt the new technology due to issues on performance, pricing, or availability of other substitutes or factors, the Company's top line may be affected.
- **Rapidly changing diagnostics devices market:** Factors such as changes in federal and state regulations and cost reduction pressures have led to rapid and continuous changes in the diagnostics devices market. Predicting the market's future growth with certainty will be difficult. The success of the diagnostics business depends on several factors such as product differentiation, product acceptance as a replacement for or supplement to traditional product offerings, effectiveness of sales and marketing efforts with customers and employees, ability to bring out new and additional products and services beneficial to customers, as well as the ability to obtain, retain, and renew contracts with big customers along with favorable pricing as the competition increases. Failure to manage any of these changes in the market will adversely affect the revenues and results of operations of the diagnostics business.
- **Required clearances for commercialization of newly developed medical devices:** The future performance of Theranos is highly dependent on the timely receipt of necessary regulatory approvals from FDA through clearance of a Premarket Notification 510(k) or Premarket approval (PMA) for its newly developed medical devices. Regulatory approval can be a lengthy, expensive, and uncertain process, and regulatory processes are subject to change, which can lead to increased costs and unanticipated delays. Failure to obtain FDA clearance would hamper the commercialization of diagnostics medical devices in the US, which could affect the future results of operations.
- **Defending technological intellectual property (IP) rights:** Theranos' products would be unique and innovative as it would utilize proprietary developed technology. Therefore, the Company must protect its technology from counterfeit through patents and IP rights in order to maintain its competitive position for a reasonably longer period. The competitive edge could be eroded if Theranos fails to defend its IP rights, thereby adversely affecting revenue growth.
- **Key employees:** The pharmaceutical industry rests on high-quality human capital; however, it faces a perpetual dearth of skilled personnel. Shortage of skilled personnel may force the Company to spend additional funds on recruiting and retaining talents. Also, limited financial resources may force Theranos to compromise on quality manpower or defer its expansion plans. Either option is less than ideal and may negatively impact top-line forecasts.
- **Product liabilities:** The testing, manufacturing, marketing, and sales of products can expose the Company to potential product liability claims. This, in turn, would consume significant financial and management resources, and result in judgments over and above the amount of liability insurance.

## Stage of Enterprise Development

The AICPA describes six stages of enterprise development based on varied factors as depicted below:

Stage	Description
<b>One</b>	Enterprise has no product revenue to date and limited expense history, and typically an incomplete management team with an idea, plan, and possibly some initial product development. Typically, seed capital or first-round financing is provided during this stage by friends and family, angels, or venture capital firms focusing on early-stage enterprises, and the securities issued to those investors are occasionally in form of common stock, but more commonly in form of preferred stock.
<b>Two</b>	Enterprise has no product revenue, but substantive expense history, as product development is under way and business challenges are thought to be understood. Typically, a second or third round of financing occurs during this stage. Typical investors are venture capital firms, which may provide additional management or board of directors' expertise. The typical securities issued to those investors are in the form of preferred stock.
<b>Three</b>	Enterprise has made significant progress in product development, key development milestones have been met (for example, hiring of a management team), and development is near complete (for example, alpha and beta testing), but there is no product revenue. Typically, later rounds of financing occur during this stage. Typical investors are venture capital firms and also strategic business partners. The typical securities issued to those investors are in form of preferred stock.
<b>Four</b>	Enterprise has met additional key development milestones (for example, first customer orders, first revenue shipments) and has some product revenue, but is still operating at a loss. Typically, mezzanine rounds of financing occur during this stage. Also, it is frequently in this stage that discussions would commence with investment banks for an IPO.
<b>Five</b>	Enterprise has product revenue and has recently achieved breakthrough measures of financial success such as operating profitability or breakeven or positive cash flows. A liquidity event of some sort, such as an IPO or a sale of the enterprise, could occur in this stage. The form of securities issued is typically all common stock, with any outstanding preferred converting to common upon an IPO (and perhaps also upon other liquidity events).
<b>Six</b>	Enterprise has an established financial history of profitable operations or generation of positive cash flows. An IPO could also occur during this stage.

As of the valuation date, the following factors were considered to determine Theranos' stage of development:

<b>Management Team &amp; Operational History</b>	The Company has an experienced management in place comprising people from biomedical and therapeutics fields with several years of collective experience.
<b>Product/Service Offering</b>	Theranos has previously developed a product named Theranos System 1.0, which was targeted at pharmaceutical companies to facilitate clinical trials. It provides customized, individual-patient solutions in real-time for drug discovery and clinical medicine. In 2011, the Company changed its strategy of developing smaller versions of medical devices to target healthcare companies. In 2013, the development of smaller versions of medical devices was on track, and the Company launched the product in the market in Q3 of 2013.
<b>Customers</b>	Theranos is positioning its system for use by pharmaceutical and biotechnology companies with drugs in clinical trials. The Company is now dealing with big pharmaceutical companies for its clinical trials of drugs.
<b>Funding</b>	Since its inception, Theranos has raised preferred funding of about \$126.39 million through Series A, B, C, and C-1.
<b>Revenues &amp; Profitability</b>	Theranos generated revenues of \$0.52 million in FY11. The Company is expected to garner revenues of \$50 million in FY13. It is operating at a loss as of the valuation date, and is expected to start generating profits from FY16.

Conclusion: Stage of enterprise development for Theranos: **Four**

## INDUSTRY OVERVIEW

Theranos is a healthcare systems company that manufactures devices for determining any adverse effect of a drug on a patient on medication. Theranos' system can be used by clinicians to examine specimens such as blood, urine, and tissue donations, derived from the human body, to diagnose diseases or infections. These tests can be conducted at a laboratory or at home for use by consumers. Hence, the Company is broadly categorized into Medical Diagnostics Industry and can be classified under the **In Vitro Diagnostics Industry**.

### Medical Diagnostics Industry

Medical diagnosis refers to both the process of attempting to determine or identify a possible disease or disorder and the opinion arrived at by this process. In the field of medicine, it means the investigation and identification of disease states.

The modern diagnostics industry generally falls into two broad categories:

- **In vitro diagnostics (IVD):** It involves removal of samples of tissue such as blood, saliva, and biopsy from living organisms. This industry includes sales of automated and high-throughput analyzers and readers that handle and analyze results.
- **In vivo diagnostics:** It involves testing and observing tissue and function in living organisms. It utilizes X-ray, magnetic resonance imaging, and computed tomography techniques, etc which come under medical imaging, as well as electrocardiography and electroencephalography that come under monitoring procedures.

### In Vitro Diagnostics Industry

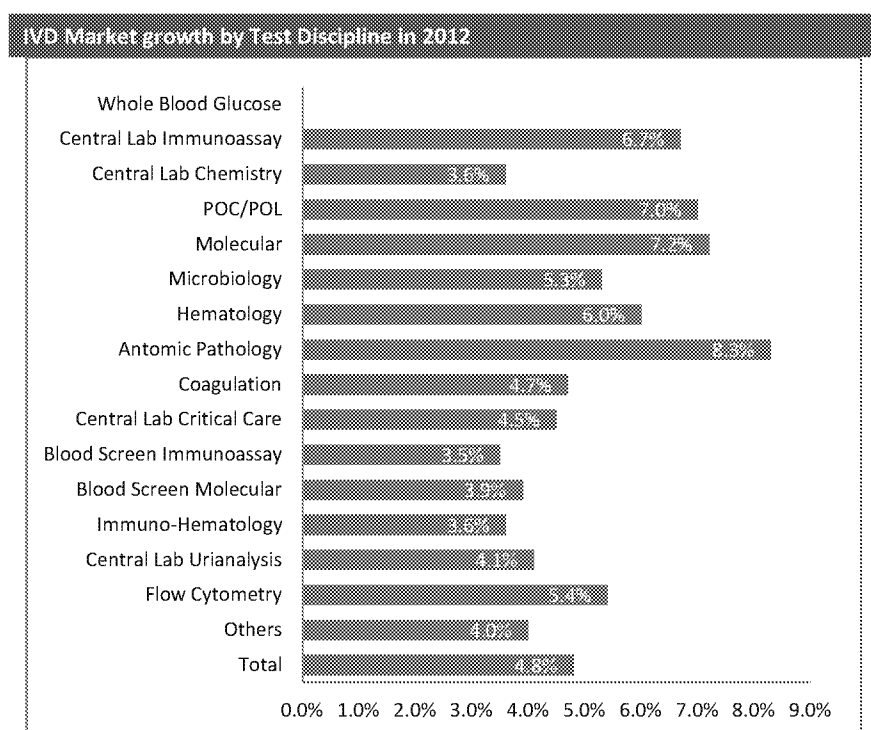
The IVD industry manufactures reagents, analytical instruments, and accessory products used to perform diagnostic laboratory tests. The three put together are referred to as IVD systems.

**Reagents** are solutions of highly specific biological or chemical substances that are able to react with target substances in samples. This process yields a product that can be measured or seen.

**Analytical instruments** are machines and equipment that automate the process, and are used to bring samples and reagents together. These measure the result or other qualities and parameters in samples.

**Accessory products**, produced by the IVD industry, include software programs used to run the instrumentation and control solutions that check the performance of the systems.

Growth in the IVD industry in 2012 can be mapped as follows:



Source: Enterprise Analysis Corporation, 2013



## Market Players

Roche Diagnostics (Germany), Abbott Diagnostics (USA), Beckman Coulter (USA), BD Diagnostics (USA), and Siemens Diagnostics (Germany) are the major players in the IVD market.

## Drivers and Trends

Following factors majorly drive this growth:

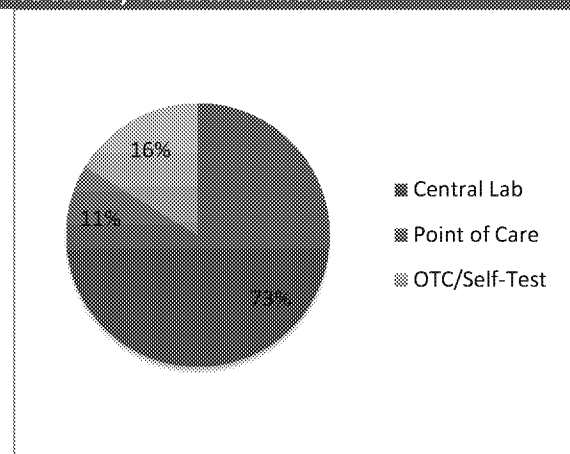
- \* Aging demographics:

The probability of disease incurrence increases in individuals above the age of 65. The 78 million baby boomers born during 1946–64 have started turning 65 from 2011. Old age and obesity are major risk factors for chronic diseases, which would require frequent testing. This coupled with the increasing patient awareness, preventive testing and self testing offer a substantial growth opportunity to the industry.

- \* High insurance density

The percentage of people without health insurance decreased from 15.7% in 2011 to 15.4% in 2012 in the US as per the US Census Bureau. Moreover, after the passing of the Patient Protection and Affordable Care Act in 2010, the US IVD industry will have an increased market of 30 million newly insured Americans driving higher volumes of testing and other services.

IVD sales by Test Location in 2012



Source: Enterprise Analysis Corporation, 2013

- \* Decentralized laboratory testing:

Another term for Point-of-care testing, decentralized laboratory testing is gaining momentum due to its accessibility and minimum infrastructure needs. These tests can be performed in the physicians' office, emergency rooms, intensive care units, or even patients' homes.

Near Patient diagnosis and monitoring can significantly improve outcomes, reduce costs and therefore profoundly change therapy decisions. Thus there is a lot of R&D focus on developments of these POC equipments. This can be reflected from the fact that the Point-of-care testing sales were \$5.32 billion in 2012 and are forecasted to increase to \$9.03 in 2019 at a CAGR of 7.9%. Also the lack of adequate infrastructure in developing countries is propelling the growth of POC testing.

- \* Genetic testing to see a high adoption rate:

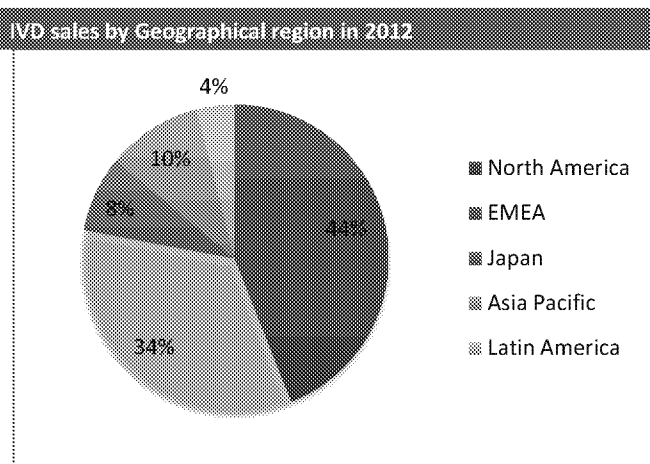
The genetic testing market is expected to grow at a CAGR of 10.3%. Personalized medicine, Direct to consumer genetic testing & increasing application of genetic testing in the diagnosis of infectious diseases will drive the adoption rate of genetic tests in the near future. Convenience, accessibility, and use of genetic tests in rapid diagnosis of respiratory & infectious diseases, especially STDs like HIV/AIDS is driving the market growth

- \* Technological advancements:

Advances such as automation, biosensor technology, miniaturization, integration of workstations, and information technology (IT) optimizing laboratory workflow would drive growth of the overall IVD market. Technological advances have also made Point-of-care testing to be more effective. Integration of IT with Point-of-care testing devices has improved data management and connectivity.

- \* Emerging markets:

Developing countries like India, China & Brazil are gaining importance. While Brazil is receiving huge Government funding, Asia is forecasted to clock revenues of \$17.20 billion by 2016. China is the fastest growing economy within Asia, forecasted to reach revenues of \$1.24 billion by 2016. The Health Reform in China made headway in increasing the insurance coverage to 94% along with the primary healthcare system. Huge untapped markets & growth potential due to low penetration, Government initiatives for healthcare awareness, increasing elderly population etc are the major growth drivers in developing countries. Pricing pressures & unfavorable reimbursement scenario for tests in developed countries is thus leading to increased healthcare spending in emerging countries.



Source: Enterprise Analysis Corporation, 2013

## Challenges

- ✱ Complex regulatory framework:

Compliance to country-specific regulations slows down the IVD market growth, for instance, the US FDA's Quality Systems Regulations (QSR) and Europe's IVD Directive, which require foreign and domestic manufacturers to have in place a quality system for the design and production of their devices that are to be commercially distributed.
- ✱ Restrictive Healthcare Reforms:

Though the recent Patient Protection and Affordable Care Act (PPACA) increased the insurance coverage in US, it had certain adverse effects on the IVD industry. For instance, the PPACA imposes an additional 2.3 excise tax on import and resale of medical devices in US beginning 2013. There will also be a new reporting and disclosure requirement on device manufacturers for any "transfer of value" to healthcare providers, and any investment interests held by physicians. Failure to do so will result in penalties up to \$150,000. Thus, the PPACA as well as other health care reform measures that may be adopted in the future could have a material adverse effect on the industry.
- ✱ Competition:

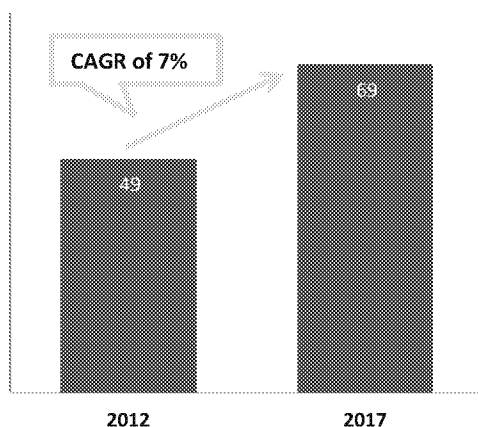
Increasing competition from emerging economies is one of the major challenges faced by the developing countries. Though US still holds the biggest market share in the IVD market, the favorable market conditions in the developing countries are offering them a huge potential to grow at a faster pace than the developing nations. This imposes huge pricing pressures on the developed markets, forcing them to make R&D investments in developing and manufacturing new products & technologies that anticipate the customer need and help the companies maintain a competitive edge. Delay in launch, marketing and distribution of new products can adversely affect their brand & positioning in the market.
- ✱ Negative impact of inclusion of developing countries:

The rising popularity of emerging markets has made them the new expansion target for the IVD industry. However the unavailability of proper infrastructure and the lack of strict Government regulations, lead to the quality of tests performed and accuracy of test results being questioned along with the adherence to regulatory guidelines.
- ✱ Unfavorable Reimbursement structure:

Many customers rely on Government funding and reimbursements by Medicare in the US. The financial crisis led to deep cuts in the healthcare budgets leading to reduced reimbursements for the customers and unavailability of capital for Clinical diagnostics & Life Sciences companies for introduction of innovative products. This unfavorable reimbursement scenario might discourage future capital investments, which would also hamper growth of this market.

## Outlook

IVD Industry Revenue CAGR 2012-2017



Source: Research and Markets, 2013

Global recession coupled with reimbursement pressures have led to a muted IVD industry sales growth, lower than the 6% annual growth seen before the recession peaked in 2008. However, as per a report by Research and Markets by 2017 IVD sales will climb near the \$70 billion mark.

In 2012, the Americas had accounted for the largest share of the global in vitro diagnostic market, followed by Europe. However, the BRIC countries represent the fastest-growing markets due to the economic growth, the rising number of chronic diseases, and an increasing awareness about the use of in vitro diagnostic tests to control the spread of diseases. Moreover, the economic slowdown, pricing pressures, and high competition in mature countries will compel companies to focus on emerging markets.

In order to counter rising costs and competitions, industry consolidation and long-term partnerships will have a significantly high impact in the coming years. In the near future, personalized medicine and customized solutions shall gain importance. The future envisions diagnostics and pharmaceutical companies working together with a shift noticed in priority towards better customer service and enhanced data management systems.

## ECONOMIC OVERVIEW

The value of a company or its assets cannot be determined in isolation of the overall economic trends in geographic regions in which the entity operates. The review of economic trends is imperative while valuing a company, as the performance of a business, to a large extent, depends on the economic environment in which the company operates or sells its products/services. The following section briefly discusses the economic conditions and outlook for the US economy, as the company under consideration generates most of its revenues from the domestic market.

### General Economic Conditions

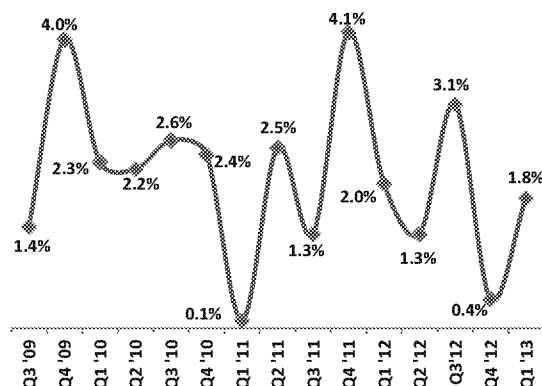
The economy has continued to recover from the financial crisis and recession, but the pace of recovery has been slower than as anticipated by FOMC participants and many others. Since the recession trough in mid-2009, growth in real gross domestic product (GDP) has averaged only a little more than 2 percent per year.

Economic data indicates US' real GDP expanded at an average annualized rate of 1.8% during the first quarter of 2013 vis-à-vis 0.4% in the previous quarter. The growth was mainly due to the increase in the demand of Personal Consumption Expenditures (PCE), private inventory investment, and residential fixed investment. The annual GDP for 2012 was \$15.68 trillion. It represents 25.30% of the world economy.

Economic Indicators	Key Developments
<b>Real GDP</b>	According to Bureau of Economic Analysis, the annual GDP for 2012 was \$13.59 trillion. The real GDP in the first quarter of 2013 increased 1.8% as compared to 0.4% in the previous quarter. It expanded at a CAGR of 1.06% during 2005-12 periods.
<b>Trade Deficit</b>	Total exports and imports in March 2013 were \$184.3 billion and \$223.1 billion respectively resulting to a trade deficit of \$38.8 billion. Current Account deficit was \$106.1 billion in the first quarter of 2013 as compared to \$102.3 billion in the previous quarter.
<b>Consumer Spending and Government Spending</b>	Consumer spending increased 2.6% in the first quarter of 2013, after surging 1.8% annually in the previous quarter. Government spending on the other hand decreased by 4.8% in the first quarter of 2013 as compared with decrease of 7.0% in the previous quarter.
<b>Unemployment</b>	The unemployment rate fell to 7.7% in the first quarter of 2013 as compared to 7.8% in the previous quarter.
<b>Interest Rates</b>	The yield on 30-day T-bill decreased to 0.07% in first quarter of 2013 after increasing to 0.09% in fourth quarter of 2012. The 10-year yield increased to 1.95% in first quarter of 2013 after decreasing to 1.71% in fourth quarter of 2012. Yield on 20-year Treasury Inflation Protected Security (TIPS), with principal and interest payments adjusted for inflation, increase to 0.19% from 0.00% over the same period.
<b>Consumer Prices and Inflation Rates</b>	In March 2013, the Producer Price Index (PPI) increased by 1.1% on a seasonally adjusted basis after increasing to 1.3% in January. During the same period, the Consumer Price Index (CPI) increased by 1.5% on a seasonally adjusted basis after increasing to 1.6% in January.

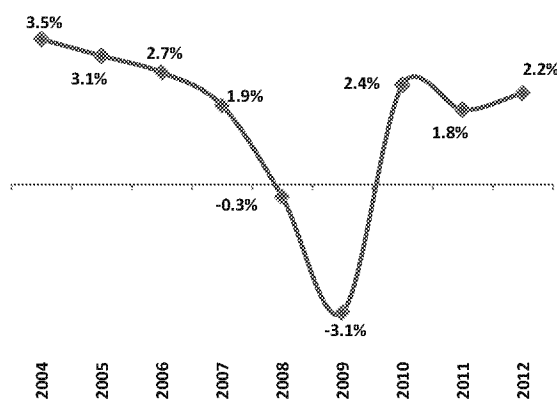
## Gross Domestic Product

### Real GDP growth rate\* - Quarter-wise



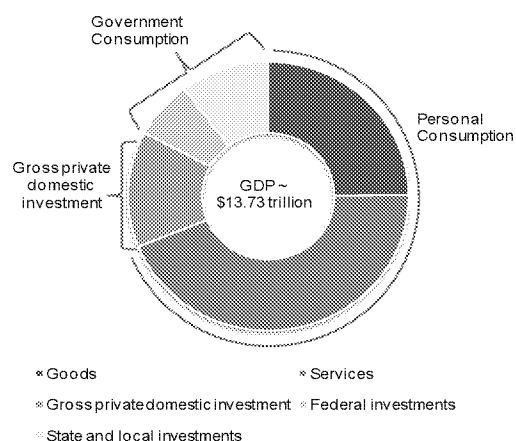
- According to Bureau of Economic Analysis, the real GDP in the first quarter of 2013 increased at 1.8% as compared to 0.4% in the previous quarter. The growth was mainly due to the increase in the demand of Personal Consumption Expenditures (PCE), private inventory investment, and residential fixed investment.
- Real PCE increased 2.6% in the first quarter of 2013 after an increase of 1.8% in the previous quarter.
- The real private investment increased 0.57% in the first quarter of 2013 after decreasing to 1.52% in the previous quarter.
- Real residential fixed investment expanded 14.0% in the first quarter of 2013 after increase of 17.6% in the previous quarter.

### Real GDP growth rate\* - Annual



- Real GDP (chained 2005) was \$13.59 trillion during 2012 as against \$13.30 trillion in 2011, an increase of 2.2% on year-over-year basis. Real GDP showed a Compounded Annual Growth Rate (CAGR) of 1.06% during 2005-12 periods.
- Real Personal Consumption Expenditure (PCE) decreased 1.8% in 2012 as compared to increased of 2.4% in 2011.
- Gross Private Domestic Investment decreased 1.2% in 2012 after an increase of 1.5% in 2011.
- Government consumption expenditures and gross investment decreased 1.8% in 2012 after increasing to 3.3% in 2011.
- Market value of the nation's output of goods and services (current dollar GDP) increased 4.0% or \$609.1 billion in 2012 as against \$576.8 billion in 2011.

### Real GDP components\* - Q1 2013

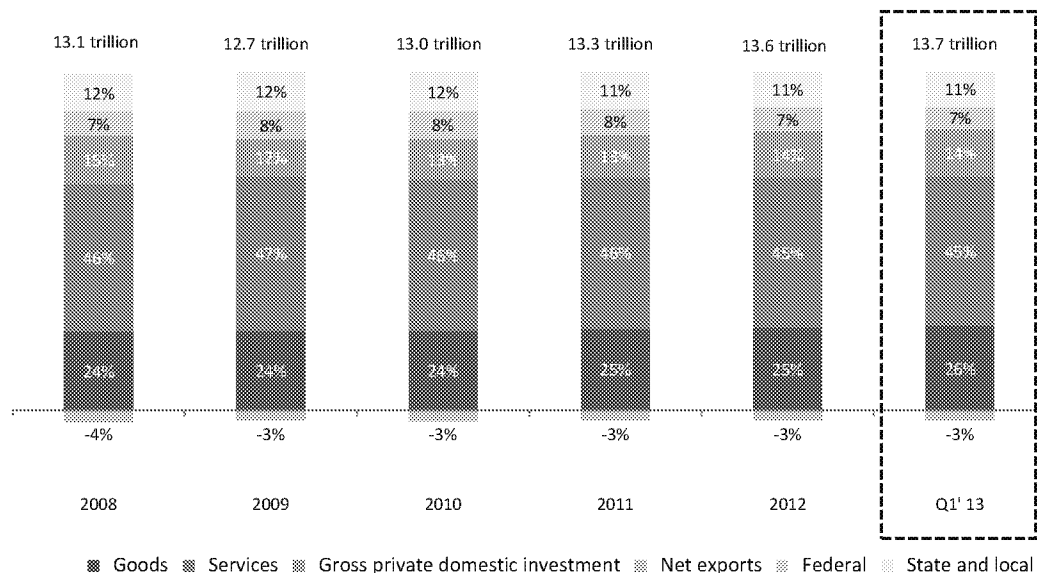


- PCE comprises of Goods and Services. Goods are bifurcated into two parts, durable and non-durable; durable goods increased 7.6% and non-durable goods increased 2.8%. Services increased 1.7% in the first quarter of 2013.
- Gross Domestic Investment consists of residential and non residential fixed investment. Real residential fixed investment expanded 14.0% in the first quarter of 2013 and real non-residential fixed investment increased 0.4% in the first quarter of 2013.
- Government Consumption comprises of federal and state and local expenditure. Federal government's consumption expenditure and gross investment (a part of the government's consumption expenditure) decreased 8.7% in the first quarter of 2013. State and local government consumption expenditure and gross investment decreased 2.1% in first quarter of 2013.

Source: Bureau of Economic Analysis

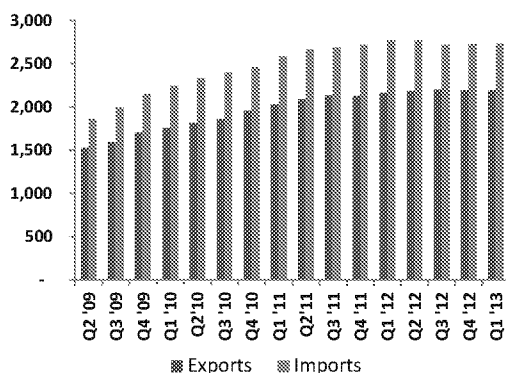
\*Seasonally adjusted annual rates, excluding net export of goods and services (negative values)

### Historical Real GDP Components



### Trade Deficit

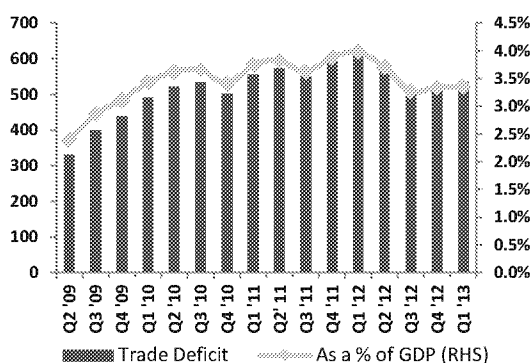
#### External trade\* (in \$Billions)



#### Key Highlights

- Trade gap fell for a second month in a row in March 2013. In March the total exports and imports were \$184.3 billion and \$223.1 billion respectively resulting into a trade deficit of \$38.8 billion, a drop of 11.0% as compared to February 2013.
- In March 2013, exports decreased due to decrease in foods, feeds, and beverages (\$1.1 billion); automotive vehicles, parts, and engines (\$0.3 billion); industrial supplies and materials (\$0.3 billion); capital goods (\$0.3 billion); and consumer goods (\$0.3 billion). However there was an increase in other goods (\$0.2 billion).
- In March 2013, imports decreased due to decrease in consumer goods (\$3.4 billion); capital goods (\$1.5 billion); industrial supplies and materials (\$1.4 billion); and automotive vehicles, parts, and engines (\$0.8 billion). However there was an increase in other goods (\$0.9 billion).

#### Trade deficit\*



#### Key Highlights

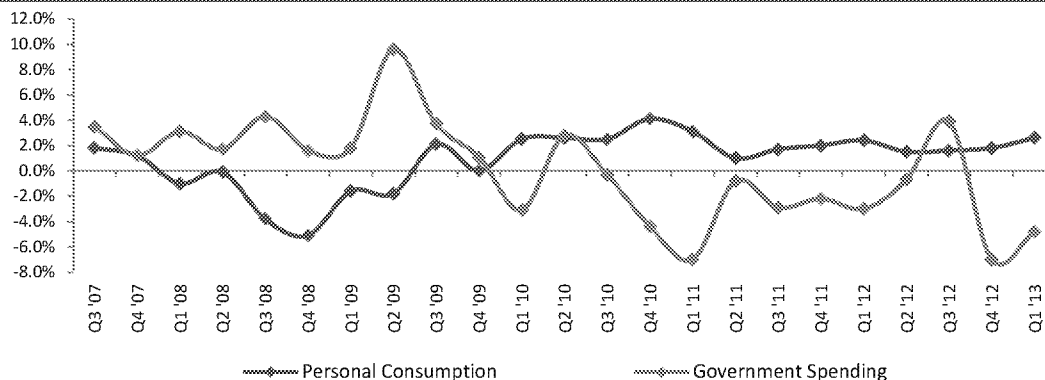
- In the first quarter of 2013, the trade deficit was \$536.1 billion as compared to \$530.2 billion in the previous quarter, an increase of 3.4% of GDP.
- The current account deficit increased to \$106.1 billion in first quarter 2013 from \$102.3 billion in the previous quarter.
- Trade deficit with China decreased to \$17.89 billion in March 2013 from \$26.06 billion in December 2012. Trade deficit with China reached a record high in 2012, totaling \$315.1 billion vis-à-vis \$295.4 billion in 2011.
- Trade deficit with European Union increased to \$9.89 billion in March 2013 from \$8.49 billion in December 2012.

Source: Bureau of Economic Analysis, \$ in Billion  
\*figures are seasonally adjusted at annual rates



## Consumer Spending

### Consumer Spending & Government Spending\*



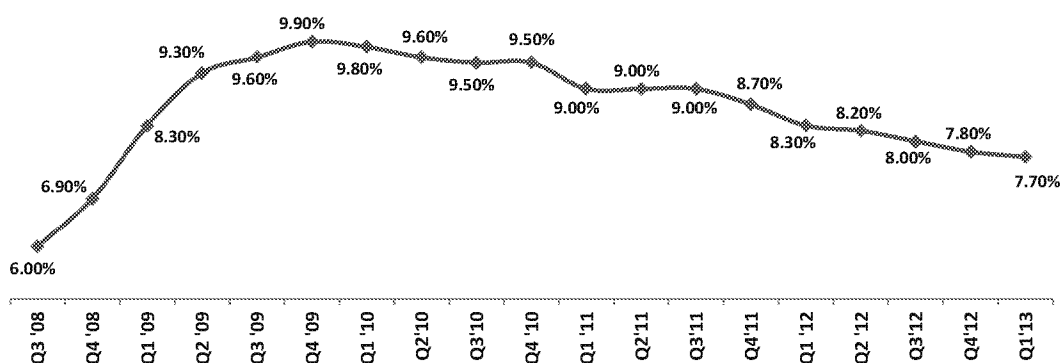
- Consumer spending grew at a seasonally adjusted at annual rates (SAAR) of 2.6% in the first quarter of 2013, after surging 1.8% annually in the previous quarter. Government spending on the other hand decreased at SAAR by 4.8% in the first quarter of 2013 as against 7.0% decrease in the previous quarter.
- National defense expenditure decreased 12.0% in the first quarter of 2013 after 22.1% decline in previous quarter. Non-defense federal expenditure decreased 2.1% in the first quarter after an increase of 1.7% in the previous quarter.
- In real GDP, the durable goods segments spending on motor vehicles & parts, furnishings & durable household equipment and recreational goods and vehicles increased 23.0%, 8.0% and 20.0%, respectively, in the first quarter of 2013. In the non-durable goods segment, expenditure on Food and beverages purchased for off-premises, consumption gasoline & other energy goods and clothing & footwear increased by 11.0%, 12.0% and 5.0% respectively.

Source: Bureau of Economic Analysis

\*figures are Seasonally Adjusted at annual rates

## Unemployment

### Unemployment rate\*



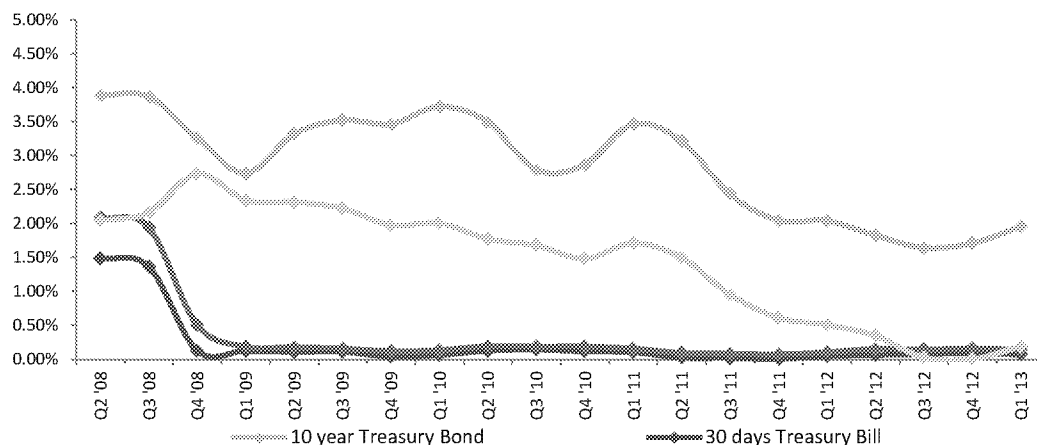
- The unemployment rate fell to 7.7% in the first quarter of 2013 as compared to 7.8% in the previous quarter. The unemployment rate was 8.2% and 8.0% in the second and third quarters of 2012.
- There was a fall in the number of unemployed persons (11.74 million) and the unemployment rate of 7.6% in March 2013 as compared to December 2012 (12.21 million) and 7.8%.
- According to the US Bureau of Labor Statistics, monthly non-farm payroll employment increased merely by 88,000 in March 2013 as compared to a rise of 155,000 in December 2012.
- In March 2013, employment increased in the field of healthcare, professional and business services, but declined in the field of retail trade.

Source: Bureau of Labor Statistics

\*figures are averaged quarterly and Seasonally Adjusted at annual rates

## Interest Rates

### Interest rates\*



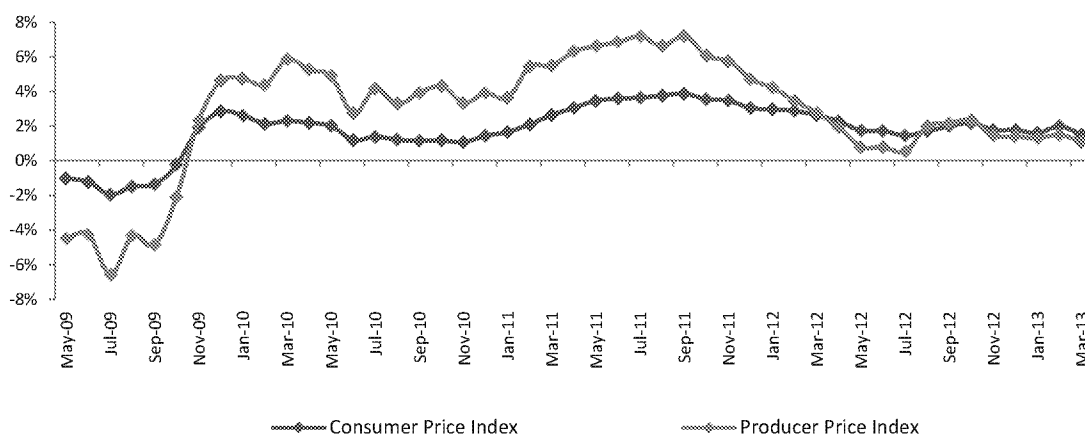
- The chart above illustrates that the yield on 30-day T-bill decreased to 0.07% in first quarter of 2013 after increasing to 0.09% in the fourth quarter of 2012. The 10-year yield increased to 1.95% in first quarter of 2013 after decreasing to 1.71% in fourth quarter of 2012. Yield on 20-year Treasury Inflation Protected Security (TIPS), with principal and interest payments adjusted for inflation, increase to 0.19% from 0.00% over the same period.
- Federal Open Market Committee (FOMC) has maintained federal funds rate at 0–0.25% since the last quarter of 2008. It expects to keep the federal fund rate at this level till the unemployment rate is above 6.5%.
- Given the economic uncertainty in the US, the committee may keep interest rates at low levels and continue to purchase \$85 billion a month in debt securities, which includes mortgage-backed securities of \$40 billion and long-term treasury security of \$45 billion.

Source: The Federal Reserve Board endings

\*Represents quarterly data

## Consumer Prices and Inflation Rates

### Consumer Price Index and Inflation Rates\*



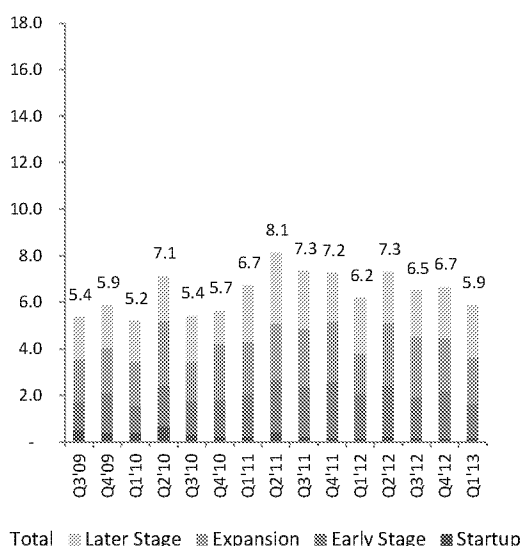
- In March 2013, the Producer Price Index (PPI) increased by 1.1% on a seasonally adjusted basis after increasing to 1.3% and 1.5% during January and February respectively.
- In March 2013, the Consumer Price Index (CPI) increased by 1.5% on a seasonally adjusted basis after increasing to 1.6% and 2.0% during January and February respectively.
- According to FOMC, the inflation rate between one and two years ahead is expected to be merely 0.5% more than the committee's expected 2.0% rate in the long-run goal.

Source: Bureau of Labor Statistics

\*figures are Seasonally Adjusted at annual rates

## Venture Capital Industry

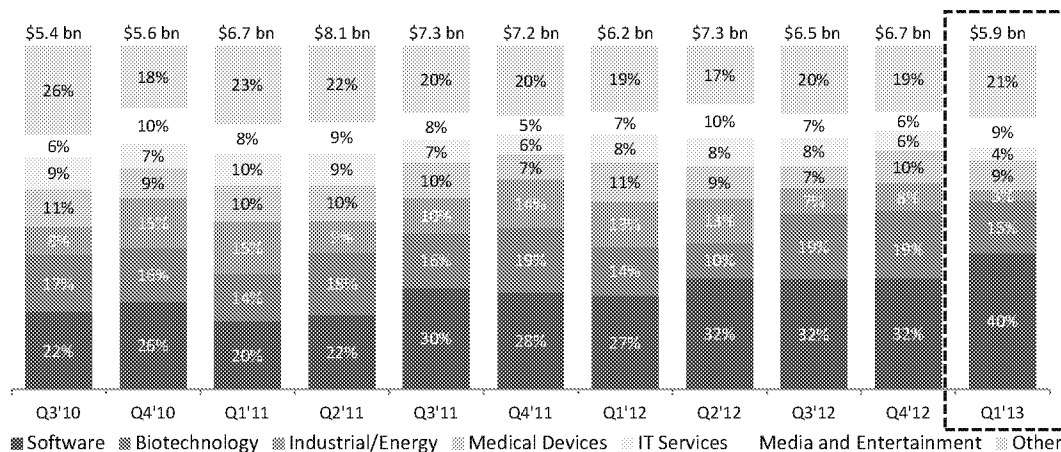
### Total VC Investment by Stage of development\*



- During the first quarter of 2013, VC investment across sectors was \$5.9 billion as compared to \$6.7 billion in the fourth quarter of 2012. The number of deals over the same period decreased to 863 from 1,013.
- Investments in seed stage companies increased by 11% to reach at \$178 million, on the other hand the number of deals were reduced by 22.0% to reach at 52 in the first quarter of 2013.
- Investments in companies across early stages decreased by 28.0% to reach at \$1.5 billion, the number of deals were reduced by 17.0% to reach at 393 in the first quarter of 2013.
- Investment in expansion stage companies decreased 13.0% to reach at \$2.0 billion, the number of deals was also reduced by 13.0% to reach at 217 deals in the first quarter of 2013.
- In the first quarter of 2013, investments in later stage companies increased 2.0% to reach at \$2.2 billion, the number of deals was reduced by 9.0% to reach at 201 deals in the first quarter of 2013.

Source: NVCA/PWC Money Tree Report, Q1 '13  
\*figures are seasonally adjusted at annual rates

### Venture Capital Investment by Industry\*



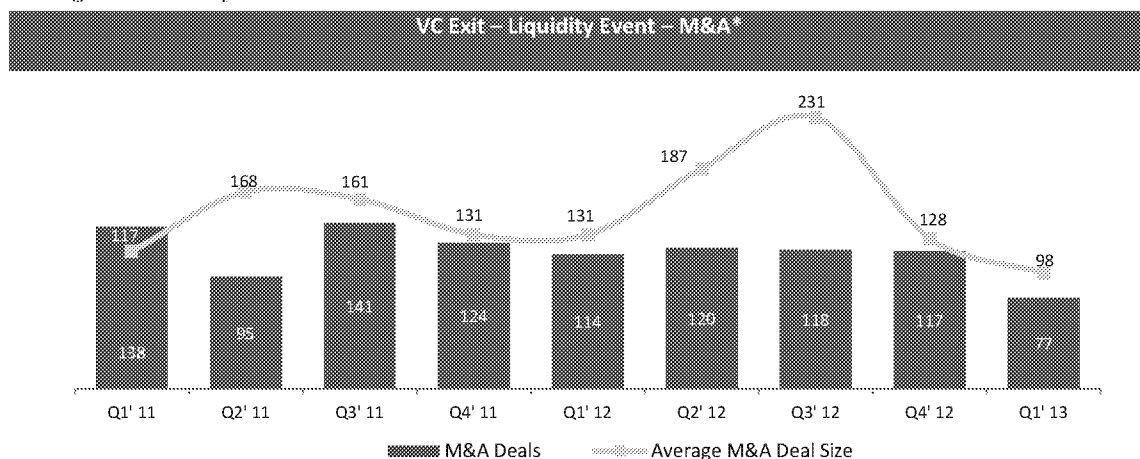
- Approximately \$2.3 billion was invested in the Software industry during the first quarter of 2013, up 8.0% from previous quarter. The industry also recorded the highest number of deals (329), however it decreased by 18.0% from the previous quarter.
- Investments in the Industrial Energy sector declined 63.0% to \$0.19 billion in the first quarter of 2013. The number of deals for the same period was 59; a decrease of 12.0% over the previous quarter. The Medical Devices and Equipment sector had investments of \$0.51 billion in the first quarter of 2013, a 20.0% decrease as compared to previous quarter. The number of deals also decreased by 10.1% in the first quarter of 2013, to reach at deal of 71.
- Investments in the Biotechnology industry declined 33.0% to \$0.87 billion in the first quarter of 2013. The number of deals for the same quarter was 96, a decrease of 30.4% from the previous quarter. Investments in the Media and Entertainment sector totaled \$0.50 billion, a 37.0% increase from the previous quarter. The number of deals for the same period was 86; a decrease of 7.5% from the previous quarter. Investment in IT Services was \$0.24 billion in the first quarter of 2013, down 41.0% from the fourth quarter of 2012. On the other hand, the number of deals for the same period was 68, an increase of 3.0% from the previous quarter.
- Overall VC investments declined in the first quarter of 2013 as compared to the previous quarter, both in terms of dollar and deal terms. While investments in the software industry and Media and Entertainment sector increased, that in the biotechnology, Medical Devices and Equipment sector, Industrial Energy sector and IT Services declined.

Source: NVCA/ PWC Money Tree Report, Q1 '13 \*figures are Seasonally Adjusted at annual rates

## M&A and IPOs in VC Space

An exit event is an important aspect of the VC investment strategy. Two of the most prominent strategies pursued by VCs to exit a venture are mergers and acquisitions (M&A) and initial public offerings (IPOs).

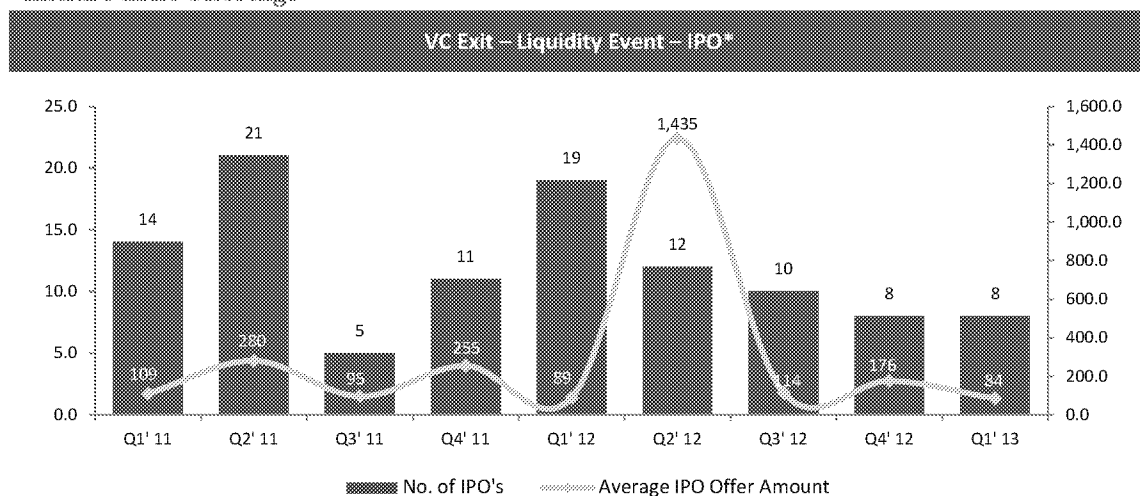
### Mergers and Acquisitions



- In the first quarter of 2013, the number of M&A deals declined to 77 from 117 in the previous quarter. The average disclosed deal value also decreased to \$98.4 million from \$127.9 million.

Source: NVCA/PWC Money Tree Report, 2013 Q1, \$ in Million \*figures are seasonally adjusted at annual rates

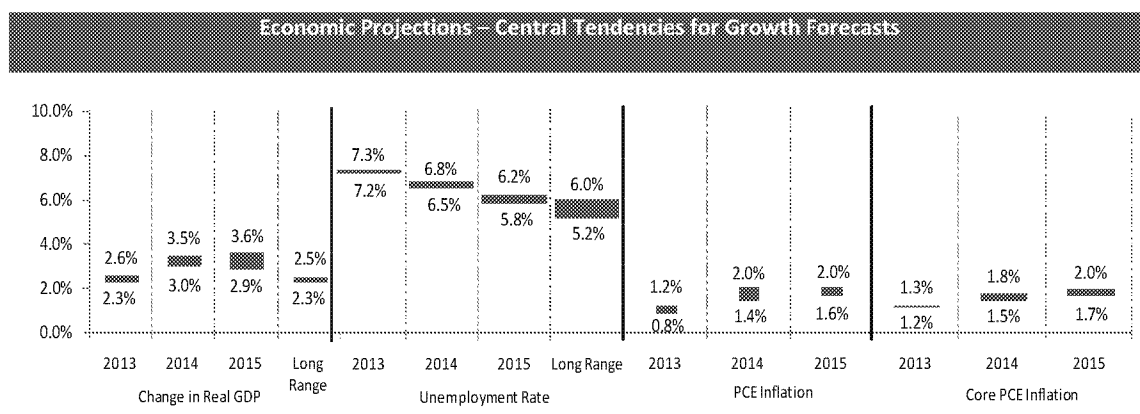
### Initial Public Offerings



- 8 venture-backed IPOs (aggregating \$0.672 billion) were executed during the first quarter of 2013. The number of IPO's was constant as compared to previous quarter, but the average IPO offer amount decreased by 52.3% from the previous quarter.

Source: NVCA/PWC Money Tree Report, 2013 Q1, \$ in Million \*figures are Seasonally Adjusted at annual rates

## Outlook



Source: Economic Projections of Federal Reserve Board Members and Federal Reserve Bank Presidents, March 2013

- According to BBVA Research Report, it expects to have a moderate growth during the first two quarters due to fiscal cliff such as increase in federal taxes and uncertainty lingers. However the economy would show a sign of recovery from second quarter once the fiscal measures are adaptable to the business and consumers. The report expects annual growth of GDP to be 1.8% during 2013 and increase to 2.7% by end of 2016.
- According to the report, the economy not only faces domestic issues but also volatility problems from Europe, mainly related to political developments in Spain and Italy. Apart from crisis in Europe, there are also other issues relating to uncertainty in exchange rate policies, decline in credit rating of the U.S. economy. In order to increase the U.S. economy by the end of 2013, the government has to stabilize the above condition and take control on the full sequester.
- According to BBVA report, it expects non-farm employment is expected to reduce from 1.7% in 2012 to 1.4% in 2013. Nominal Personal Income is expected to increase from 3.5% to 4.6% during the same period. The 10 year Treasury note is expected to be 2.3% during 2013 and further increase to 3.7% by the end of 2016.
- The Federal Reserve revised its GDP growth estimate for 2013 to 2.3–2.6%. The unemployment rate is expected to decrease marginally in 2013. Inflation, as measured by the annual change in the price index for personal consumption expenditure is estimated to be in around 0.8–1.2% during 2013 and expect it to remain constant at 2.0% during 2014–15 respectively.

**Conclusion:** On a whole the U.S. economy has been substantially improved as compared to 2012. CBO has also revised the U.S. budget by expecting higher revenues and lower expenses. In order to improve the U.S. economy, the government not only needs to moderate the revenue volatility, but need to poise between taxation and spending in a more cautious fiscal environment. Focusing on new budget norms and fiscal resiliency would be a better option rather than going back and working on the old norms.

## VALUATION ANALYSIS

### General Principles

Business valuation is guided by two fundamental economic principles:

- Principle of 'future benefits': A rational buyer will not buy an asset at a price that exceeds the cash flows the asset is expected to generate in the future, adjusted for risks associated with achieving those streams of cash flows and time value of money.
- Principle of 'substitution': A rational buyer will not buy an asset at a price that exceeds the cost to acquire or recreate a similar asset with similar or greater economic utility.

The company's value is determined on a 'going-concern value' or 'liquidation value' premise.

- Going-concern value: This premise assumes that the company will continue to do business in the foreseeable future, in which case, the potential investor will evaluate expected returns and associated risks on a continuing basis. It assumes the highest use and best exploitation of all business inputs such as land, labor, and capital, brought together. The value thus generated is generally greater than the mere sum of the parts.
- Liquidation value: This is the estimated amount shareholders expect to receive on immediate sale of the company after settlement of external liabilities and cost of liquidation, if it were to go out of business.

Broader-level approach followed for determining FMV of common stock

#### Broader level approach followed for determining FMV of Stock

##### Valuation Approaches

Income Approach (DCF) ✓

Market Approach

*Guideline Transaction*

*Guideline Trading Multiple* ✓

*BackSolve Method*

Cost Approach

##### Discounts

Weighted Avg. Cost of Capital

Cost of Equity ✓

Discount for Lack of Marketability ✓

Discount for Lack of Control

##### Allocation Methods

Current Value Method (CVM)

Option Pricing Method (OPM) ✓

Probability Weighted Expected Return Method (PWERM)

##### Conclusion

FMV = \$0.17 per share



To arrive at the Fair Market Value of Theranos' common stock, we first determined the Equity Value of the entire Company at a 'non-controlling' level, using different valuation methods as explained in the sections below. The Equity Value derived was then allocated among different classes of shareholders based on the appropriate methodologies prescribed in the AICPA Practice Aid<sup>4</sup> for the allocation of Equity Value. Thereafter, the Equity Value allocated per share to common stock, as a class, was adjusted for Discount for Lack of Marketability (DLOM) to arrive at the Fair Market Value of the Company's common stock.

### Equity (Enterprise) Valuation Methods

According to guidelines prescribed by the AICPA Practice Aid<sup>5</sup>, all valuation methodologies applied for the valuation of a privately held company can be broadly classified under three approaches:

1. The Market Approach
2. The Income Approach
3. The Cost or Asset Approach

AICPA Practice Aid further states that in performing a valuation, an appraiser should consider all three approaches and select the most appropriate approach or approaches. The selection should consider factors such as the history, nature, and stage of development of the company; the nature of its assets and liabilities; capital structure; and the availability of a reliable, comparable, and verifiable data that will be required to perform the analysis.

According to the Uniform Standards for Professional Appraisal Practice ('USPAP'), *"An appraiser must develop value opinion(s) and conclusion(s) by use of one or more approaches that are necessary for credible assignment results"*<sup>6</sup>.

(For detailed theory, please refer Exhibit 5.)

<sup>4</sup> AICPA Practice Aid Series 2004 -- 'Valuation of Privately Held Company Equity Securities Issued as Compensation'

<sup>5</sup> AICPA Practice Aid Series 2004 -- 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page # 8, Para # 13

<sup>6</sup> USPAP, Rule 9-4 (a)

## Equity Value Determination

- In our understanding, a prospective investor would evaluate investment in a company such as Theranos considering the expected returns and associated risks on the basis of continued future operations. Accordingly, we valued the Company's Equity Value on a going-concern basis.
- In our analysis of Theranos, we considered Market and Income approaches. Under the Market approach, we applied the Guideline Public Companies' (GPCS) trading multiples approach. Under the Income approach, we applied the Discounted Cash Flow (DCF) analysis.
- We have not employed the Cost approach in our valuation analysis. Generally, this approach is suitable when liquidation of the company being valued is imminent. The Cost approach focuses on the value that each individual asset is expected to realize on liquidation near the valuation date. The approach may sometimes be suitable for valuations on a going-concern basis in cases where the company being valued has huge and significant investments in tangible assets or where earnings generated from operations are insignificant relative to the value of its operating assets (e.g., real estate companies and startups). Therefore, for the purposes of this analysis, the Cost approach is considered the weakest; hence, it was not applied.
- Applicability of different valuation methodologies was evaluated based on factors including, but not limited to, the Company's development stage, significant milestones in its business plan, operating history, industry in which it operates, availability and quality of relevant data for each approach, and discussions with management about expected exit scenarios.
- Factors such as reliability of financial forecasts, as well as magnitude and materiality of assumptions required to build them were analyzed while weighing DCF. Similarly, weight to market-based method was assigned considering the number of GPCS and the extent to which Theranos was comparable to the shortlisted guideline public companies. Parameters considered for comparison include business lines, revenue model, size of revenues and stage of development.
- In our opinion, future expectations of returns, growth, and inherent risks associated with investment in a company in the development stage similar to Theranos can be measured by both Income and Market approaches. Accordingly, we assigned equal weights to the Equity Values arrived through DCF and Guideline Public Companies' Trading Multiples Method.

## Discounted Cash Flow (Income approach)

Our DCF analysis is based on financial forecasts provided by management for 2011 through 2017. (Please refer **Exhibit 3** for financial projections.) We conducted a limited and high-level review on the reasonability of key assumptions used to develop financial projections provided by management. Based on discussions with management, these estimates were suitably adjusted to reflect the most likely view of Theranos' prospects prevailing at the valuation date.

### Equity Value

Under the DCF approach, we first forecasted free cash flows generated from the Company's operations, i.e., net profit assuming full taxation, adjusted for non-cash expenses, changes in working capital, and capital expenses. Thereafter, free cash flows were discounted to arrive at the present value as of the valuation date. To arrive at the Equity Value, the sum of the present values of all future cash flows and terminal value was taken into consideration. To this sum, we added the cash balances as of the valuation date and the sum of the present value of all future reasonably realizable tax benefits to arrive at the Equity Value.

### Cost of Equity or the Discount Rate (CoE)

Discount rate is the rate of return that a willing financial buyer, acting rationally, would expect to receive from an investment to compensate for the inherent risks and the time value of money. This rate of return should also be acceptable to a willing seller with the same knowledge of facts, as explained in the Fair Market Value definition. We applied the widely used Capital Asset Pricing Method (CAPM) to build up the Cost of Equity (CoE) for Theranos. The Cost of Equity under CAPM is generally calculated as:

$$\text{Cost of Equity} = R_f + \beta * (R_m - R_f)$$

- $R_f$  is the Risk-Free Rate
- $\beta$  is the Beta
- $R_m$  is the Market Return
- $(R_m - R_f)$  is the Market Risk Premium

### Size Premium

Since the CoE arrived at using the standard CAPM equation (as shown above) fails to capture the investment risks associated with the stocks of small or early-stage companies, Aranca added a Size Premium (SP) based on Ibbotson Associates' study<sup>7</sup>.

### Company-Specific Risk Premium

Aranca added the Company-Specific Risk Premium (CSRP) to account for the additional return that a prospective investor would expect to compensate for the additional risks involved in investing in Theranos. Our determination of CSRP was based on the analysis of various risks that the Company is exposed to, as detailed in the Risks section. We also considered the rates of return expected by venture capitalists for companies in different stages of financing, as described in the two publications identified in the AICPA Practice Aid.

Rates of Return		
Stage of Development	Plummer <sup>8</sup>	Scherlis and Sahlman <sup>9</sup>
Start-Up	50–70%	50–70%
First Stage or 'Early Development'	40–60%	40–60%
Second Stage or 'Expansion'	35–50%	30–50%
Bridge/IPO	25–35%	20–35%

<sup>7</sup> Ibbotson Associates

<sup>8</sup> Plummer, James L., QED Report on Venture Capital Financial Analysis, Palo Alto: QED Research, Inc., 1987.

<sup>9</sup> Scherlis, Daniel R. and William A. Sahlman, "A Method for Valuing High-Risk, Long Term, Investments: The Venture Capital Method," Harvard Business School Teaching Note 9-288-006, Boston: Harvard Business School Publishing, 1989.

We studied the *Venture Economics* publication presented in the AICPA Practice Aid, illustrating the average rates of returns for various venture capital funds for the period ended December 31, 2002.

Type of Fund	5-Year Return	10-Year Return	20-Year Return
Early/Seed Stage <sup>10</sup>	51.4%	34.9%	20.4%
Balanced <sup>11</sup>	20.9%	20.9%	14.3%
Later Stage <sup>12</sup>	10.6%	21.6%	15.3%
All Ventures	28.3%	26.3%	16.6%

We also observed the CSRP & SP of guideline public comparables estimated using the total beta approach. Total beta, which measures a stock's risk relative to the market (which has a Tβ equal to 1.0), captures total risk, including systematic as well as unsystematic risk (size and company-specific risk). Thus, it makes intuitive sense to use the total beta of publicly traded stocks to assist in benchmarking company-specific risk for a privately held firm. One can then use the following equation to derive the total beta to measure unsystematic or company-specific risks.

$$T\beta = \beta / R = \phi_s / \phi_m$$

Wherein Tβ is a stock's total beta, β is a stock's beta, R is the correlation coefficient between a stock and the market (S&P 500), φ<sub>s</sub> is a stock's standard deviation, and φ<sub>m</sub> is the market's standard deviation. The CSRP of guideline companies derived using the total beta approach ranged between 1.00% and 3.82%, with a mean and median of 4.10% and 3.41%, respectively.

To determine the appropriate discount rate for Theranos, we conducted a qualitative analysis of risk factors defined under the Risks section for Theranos and guideline public companies such as Alere, Inc, Medidata Solutions, Abaxis, Inc, Cerner Corp, Paraxel International Corp and OraSure Technologies. Each of the risk factors was arranged on significance basis and analyzed. The companies were then compared on each factor to determine the extent of company-specific risk that can be attributed to Theranos. The CSRP of comparable companies was taken as a benchmark to determine CSRP for the Company. Risk factors analyzed are as follows:

- **Less visibility in terms of achieving the revenue targets:** The Company has just launched its products; its products are yet to gain market acceptance. Although the product launch was on track, the uncertainty is high in terms of meeting the financial projections.
- **Funding risk:** Guideline public companies are at an advanced stage of enterprise development. Being listed companies, they have better access to funding from capital markets and debt facilities. On the other hand, being a private company, Theranos has limited access to various funding options. Although its cash balance is \$31 million as of the valuation date, the Company will continue to incur a high cash burn rate due to huge R&D expenses in the near future and will be able to sustain its business operations for the next one and a half years. Thereafter, the Company would again need to raise capital to fund its operations.

Based on our review of specific risks involving Theranos and comparative analysis relative to guideline public companies, we allocated 7% as the appropriate CSRP measure for the Company.

We determined beta of 1.09 as appropriate for Theranos based on the third quartile beta of the guideline public companies estimated by un-levering beta of each company to their individual debt/equity ratios and re-levering to the trimmed average debt/equity ratio of the selected comparables.

Based on inputs of risk-free rate at 2.76% (Source: Bloomberg), Beta at 1.09, market risk premium at 6.11% (Source: 2013 Ibbotson study), and Size premium of 6.03% (Source: 2013 Ibbotson study), in addition to the 7% CSRP, we determined the discount rate of **22.43%** as the appropriate expected rate of return from investment in Theranos' Equity.

<sup>10</sup> Seed Stage is defined by Venture Economics as including investments in portfolio companies that have not yet fully established commercial operations and may involve continued research and development. Early Stage is defined by Venture Economics as including investments in portfolio companies for product development and initial marketing, manufacturing, and sales activity.

<sup>11</sup> Defined by Venture Economics as including investments in portfolio companies at a variety of stages of development (Seed Stage, Early Stage, Later Stage).

<sup>12</sup> Defined by Venture Economics as including financing for the expansion of a company that is producing, shipping, and increasing sales.

Cost of Equity		Source
Beta	1.09	Bloomberg
Market Risk Premium	6.11%	Ibbotson 2013
Size Premium	6.03%	Ibbotson 2013
Risk-free rate	2.76%	Bloomberg
CSRP	7%	
<b>Cost of Equity</b>	<b>22.43%</b>	

*Considering the adjoining inputs, Theranos' cost of equity stood at 24.08%.*

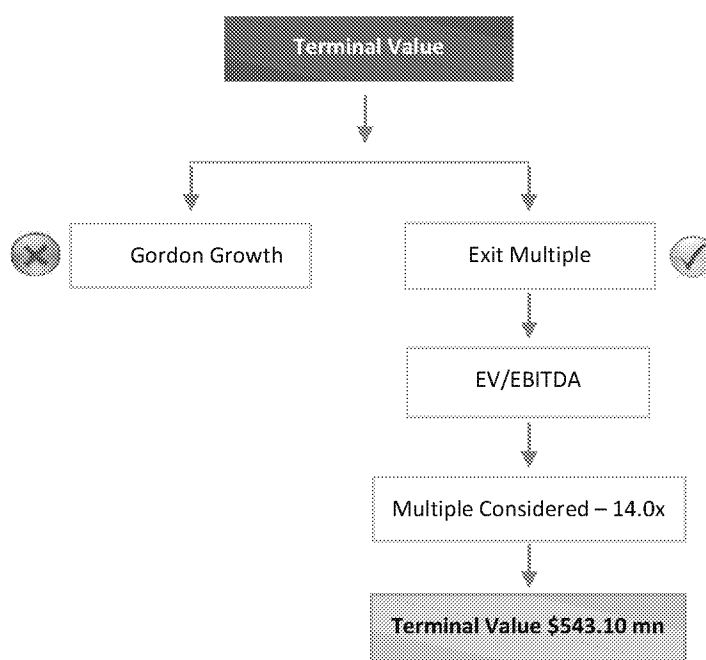
#### Terminal Value

To arrive at the terminal value, we considered applying the Gordon growth method as well as an exit multiple based on valuation metrics of guideline public companies.

The Gordon Growth Method of computing the terminal value assumes a constant growth in cash flows until perpetuity, which is more appropriate in the case of companies that have reached a highly mature level of operations. Since, the Company is not expected to reach a mature level of operations by FY17, it would not be appropriate to use the Gordon Growth Method. Considering Theranos is expecting revenue in the form of large deals from big pharmaceutical companies, its revenue stream could be volatile in the coming years and even in 2017 (in which exit multiple is applied). Furthermore, in our opinion, financial projections beyond FY17 would require one to make a number of assumptions, which cannot be supported objectively for a company such as Theranos with a smaller operating history and, thus, would make the analysis highly subjective and speculative. Consequently, we determined the Company's terminal value by applying an exit multiple in FY17 based on observable GPCs historical trading multiples.

We observed the range of Price/Earning, EV/Revenue, and EV/EBITDA multiples for guideline public companies prevailing at the date of valuation. Considering Theranos is likely to make profits by FY16, we concluded the P/E or EV/EBITDA multiple would be more appropriate for arriving at the terminal value. However, looking at the forecasts, the Company is not expected to face tax liabilities in FY16 despite being profitable as Theranos would be enjoying benefits from Net Operating Losses (NOLs). Hence, applying P/E multiple would not be appropriate since net profits would not be adjusted for taxes by then. Hence, applying the EV/EBITDA multiple would provide the most appropriate measure of terminal value.

We observed that guideline public companies have historically traded at EV/EBITDA multiples ranging from 7.9x to 29.9x during FY10-LTM, with a mean ranging between 13.6-18.5x and median 11.4-16.6x. As of the valuation date, the Company has successfully launched its product in the market and the management is confident of achieving its business plans. Theranos is expected to register a substantial growth in revenues, higher than most of the GPCS. However, the Company still faces significant risk as its achievability of forecasts is highly contingent on the market acceptance of its product and successful execution of the business plans in the future. Based on higher risk and better growth prospects than GPCS, we deemed it appropriate to apply a multiple of 14x (mean of median multiples of last three years), to the EBITDA estimate for 2017 to determine the terminal value of the Company's equity.



#### Equity Value

The FCFE for both the explicit forecast period and terminal value were discounted to their present values as of the valuation date by applying the discount rate determined above. Thereafter, the current balance of cash and cash equivalents as of the valuation date was added to the resultant figure to derive Theranos' Equity Value [without considering the value due to benefits on account of Net Operating Losses (NOLs)].

The FCFE considered in the analysis is calculated by considering post-tax profits. However, since Theranos has unutilized NOLs, it would enjoy significant tax savings by setting it against the profits in certain future years, the value of which needs to be determined separately. Based on the financial forecasts, we estimated the tax savings that the Company would enjoy year-on-year. These were then discounted to their present values to arrive at the value of NOLs.

Finally, the value of NOLs was added to the present value of FCFE, terminal value, and current cash equivalents to arrive at Theranos' Equity Value of **\$207.98** million using this method. (Please refer [Exhibit 6](#) for all the above calculations.) We assigned a weight of total **50%** to DCF method in the final determination of the Company's Equity Value.

## Guideline Public Companies' Trading Multiples Method

While applying the guideline trading multiples method for the valuation of privately held companies, selection of representative public companies is the most important step. Based on our research, discussions with management, and review of databases (such as Bloomberg and Reuters), we initially shortlisted **12** public companies listed on US exchanges mainly operating in the '**medical devices**' and the '**healthcare information systems**' industries.

Each of the initially shortlisted companies was analyzed for comparability to Theranos based on parameters such as business lines, market share, revenue model, size of operations, and development stage. Based on the analysis discussed above, we finally selected the **six** companies as listed below ('guideline public companies') for our valuation analysis. (Please refer [Exhibit 4](#) for detailed description.)

- OraSure Technologies, Inc. (OSUR)
- Alere, Inc. (ALR)
- Medidata Solutions, Inc. (MDSO)
- Abaxis, Inc. (ABAX)
- Cerner Corp. (CERN)
- PAREXEL International Corp. (PRXL)

Theranos is in early stage of development and is expected to achieve profitability only by FY16. Considering this, we found it appropriate to apply EV/Revenue multiple to estimate the Company's Equity Value. We applied the FY14E EV/Revenue multiple, as it captures future growth potential and is more reliable than that of later years.

Aranca conducted a comparable analysis on the selected guideline public companies individually and collectively in terms of their risk and reward profile against the Company. This is necessary before drawing any conclusions from the multiples derived from guideline public companies. Factors analyzed included quantitative and qualitative considerations, which have the potential to impact financial performance and results in the foreseeable future. Specifically, we analyzed guideline public companies' financial results and other quantifiable parameters such as revenue size, assets size, growth rates, and profitability metrics. Our key observations are:

- Theranos is in the early stage of development compared to guideline public companies. Guideline companies are mature, well diversified in terms of product features, and sizeable with better revenues and operational metrics, making them incomparable to the Company.
- As on the valuation date, Theranos had just started generating revenue. The Company forecasts to garner revenue of approximately \$50 million in FY13. This is very small compared to the LTM revenues of guideline public companies, which range from \$88 million to \$2.9 billion.
- Theranos is likely to turn profitable by FY16, whereas all shortlisted public guideline companies are already profitable and have a history of profitable operations.
- The Company's total assets fell significantly short against those of guideline public comparables.

Theranos is small in size relative to GPCs. However, the Company is likely to register a very high revenue growth rate compared to GPCs with revenues expected to increase at a CAGR of 30% during FY13–FY17.

The EV/Revenue multiple of guideline public companies for FY14E ranged between 1.5x–7.2x, with a mean and median of 3.7x and 3.3x, respectively. Considering the inherent risk in the business due to smaller scale of operations, lack of product diversification, and better growth prospects, we applied a median EV/Revenue multiple of 3.3x on Theranos' revenue estimates of FY14 to arrive at the EV of \$199.90 million. We assigned a weight of total **50%** to GPCs trading multiples method in the final determination of the Company's Equity Value. (Please refer [Exhibit 7](#) for valuation based on guideline public companies' trading multiples)

### Allocable Equity Value

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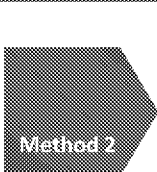
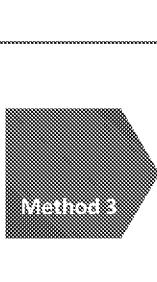
The Equity Value derived from the various approaches mentioned above after assigning appropriate weight was \$203.94 million. This value is available for allocation among existing preferred and common shareholders based on their rights and preferences (please refer Exhibit 8).



## EQUITY VALUE ALLOCATION

### Methods of Allocation of Equity Value among different classes of stockholders

For allocation of Equity Value to preferred and common stockholders, the AICPA Practice Aid primarily suggests the following three most commonly used methods:

 <p>Method 1</p>	<p><b>Current Value Method (CVM)</b></p>	<p>CVM assumes that the hypothetical liquidation event would occur on the valuation date instead of a certain date in the future as assumed under the other two methods of allocation.</p>
 <p>Method 2</p>	<p><b>Option Pricing Method (OPM)</b></p>	<p>OPM is a forward-looking approach and is appropriate for use when the range of future possible outcomes is so difficult to predict that forecasts would be highly speculative. The method considers common stock as a call option on the Equity Value as the common stock receives value only if the firm's value exceeds the liquidation preference of the preferred series.</p>
 <p>Method 3</p>	<p><b>Probability-Weighted Expected Return Method (PWERM)</b></p>	<p>This method entails a forward-looking analysis of possible future outcomes available to the enterprise, the estimation of a range of future and present values under each outcome, and application of the probability factor to each outcome as of the valuation date. The potential outcomes typically considered are in the form of exit events such as sale or merger, IPO, dissolution, or continued as private entity.</p>

Each of these methods of allocation takes into consideration the diverse rights and preferences of multiple classes of shareholders with regard to distribution of liquidation proceeds. Each of these allocation methods has its own strengths and limitations. Our selection of the most appropriate allocation method is based on discussions with management about potential exit strategies, the most likely time horizon for each exit outcome, analysis of the Company's development stage, reliability of financial forecasts, and other factors. (For detailed theory, please refer [Exhibit 10.](#))

### Methods of allocation of Equity Value applied for Theranos

Based on our analysis of progress made by Theranos in its business plan, discussions with management regarding nature and timing of potential exit outcomes, and other relevant factors, we deemed it appropriate to apply OPM as the primary method for allocation of the Company's Equity Value. Theranos has made progress in its business plan in terms of bringing together an experienced management team, launch of its products and raising financing. However, the Company is currently operating under losses and is expected to achieve operating breakeven only by FY16. Furthermore, Theranos, which is yet to gain market traction, achievability of future revenue targets is currently contingent on successful market acceptance of its product. The Company is also exposed to risks related to profitability, funding risk, competition, and other operational risks. Thus, Theranos' Equity Value depends on how well it uses opportunities and addresses challenges while following an uncharted path. Accordingly, Aranca found it appropriate to apply OPM in the case of Theranos.

We did not consider the CVM for allocation of Theranos' Equity Value based on our review and analysis of milestones achieved in its business plan.

Based on i) our review of the Company's development stage in light of the current macroeconomic scenario; ii) our discussions with management; iii) availability and reliability of estimates regarding the nature and timing horizons for exit outcomes; and iv) number and materiality of assumptions required and availability of information, we deemed it would be appropriate not to consider PWERM in our valuation analysis at this stage.

## Application of OPM

Theranos' capital structure, including dilutive securities such as common stock options, is depicted in the following table:

Existing Shareholders	# of Shares Outstanding	Original Issue	Conv. ratio	CSE	Ownership %	
					O/S	Fully
Series A	46,320,045	\$0.150	1.0x	46,320,045	10.91%	9.39%
Series B	54,162,965	\$0.185	1.0x	54,162,965	12.76%	10.98%
Series C	58,896,105	\$0.564	1.0x	58,896,105	13.88%	11.94%
Series C-1	18,508,335	\$3.000	1.0x	18,508,335	4.36%	3.75%
Series C-1*	1,380,000	\$3.000	1.0x	1,380,000	0.33%	0.28%
Common shares	245,111,810			245,111,810	57.76%	49.68%
<b>Sub total</b>	<b>424,379,260</b>			<b>424,379,260</b>	<b>100%</b>	<b>86.02%</b>
<b>Options</b>						
Options @ \$0.015	350,000	\$0.015		350,000		0.07%
Options @ \$0.03	1,264,625	\$0.03		1,264,625		0.26%
Options @ \$0.066	682,500	\$0.066		682,500		0.14%
Options @ \$0.072	4,841,855	\$0.072		4,841,855		0.98%
Options @ \$0.094	312,500	\$0.094		312,500		0.06%
Options @ \$0.17 to be issued	60,000,000	\$0.17		60,000,000		12.16%
Options @ \$0.206	785,180	\$0.206		785,180		0.16%
Common Stock Warrants @ \$0.072	741,665	\$0.072		741,665		0.15%
<b>Sub total</b>	<b>68,978,325</b>			<b>68,978,325</b>		<b>13.98%</b>
<b>Total</b>	<b>493,357,585</b>			<b>493,357,585</b>	<b>100%</b>	<b>100%</b>

Our application of the BSOP method was designed around the following broad steps:

- ✱ Step 1: Determining different levels of Equity Value (breakpoints)
- ✱ Step 2: Determining proportion of distributing the incremental Equity Value
- ✱ Step 3: Determining incremental Equity Value of each of the options
- ✱ Step 4: Incremental Equity Value distribution

### Step 1: Determining different levels of Equity Value (breakpoints)

This step entails determining the different levels of Equity Value, called breakpoints (also widely known as 'waterfall' distribution). Each consecutive breakpoint represents an incremental claim on Theranos' Equity Value by a certain class of shareholders/option holders triggered by their respective liquidation, participation, and/or conversion rights.

Event description	Participating Class	Participating shares	Strike Point
Equity value is nil	None	-	-
Liquidation preference of Series C, C-1 and C-1*	Series C, C-1 & C-1*	78,784,440	92,882,408
Liquidation preference of Series B	Series B	54,162,965	102,882,408
Liquidation preference of Series A	Series A	46,320,045	109,830,415
Options @ \$0.015 exercised	Series B,C,C-1,C-1* & Common	378,059,215	115,501,303
Options @ \$0.03 and exercised	Series B,C,C-1,C-1*,Common and Options @ \$0.015	378,409,215	121,177,441
Options @ \$0.066 exercised	Series B,C,C-1,C-1*, Common, Options @ \$0.015,\$0.03	379,673,840	134,845,700
Options @ \$0.072 and Common Stock Warrants @ \$0.072 exercised	Series B, C,C-1,C-1*, Common, Options @ \$0.015,\$0.03,\$0.066	380,356,340	137,127,838
Options @ \$0.094 exercised	Series B, C,C-1,C-1*, Common, Options @ \$0.015,\$0.03,\$0.066,\$0.072, Common Warrants @ \$0.072	385,939,860	145,618,515
Series A converts	Series B, C,C-1,C-1*, Common, Options @ \$0.015,\$0.03,\$0.066,\$0.072,\$0.094, Common Warrants @ \$0.072	386,252,360	167,248,647
Options @ \$0.17 to be issued get exercised	Series A, Series B, C,C-1,C-1*, Common, Options @ \$0.015,\$0.03,\$0.066,\$0.072,\$0.094, Common Warrants @ \$0.072	432,572,405	175,900,095
Options @ \$0.206 get exercised	Series A, Series B, C,C-1,C-1*, Common, Options @ \$0.015,\$0.03,\$0.066,\$0.072,\$0.094, \$0.19, Common Warrants @ \$0.072	492,572,405	193,632,701
Thereafter	All classes	493,357,585	

**Step 2:**  
**Determining proportion of distributing the incremental Equity Value**

After calculating the breakpoints, the proportion in which the incremental Equity Value would be distributed between each two consecutive breakpoints is determined.

Allocation Percentages	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Series A	0%	0%	100%	0%	0%	0%
Series B	0%	100%	0%	14%	14%	14%
Series C	36%	0%	0%	16%	16%	16%
Series C-1	60%	0%	0%	5%	5%	5%
Series C-1*	4%	0%	0%	0%	0%	0%
Common shares	0%	0%	0%	65%	65%	65%
Options @ \$0.015	0%	0%	0%	0%	0%	0%
Options @ \$0.03	0%	0%	0%	0%	0%	0%
Options @ \$0.066	0%	0%	0%	0%	0%	0%
Options @ \$0.072	0%	0%	0%	0%	0%	0%
Options @ \$0.094	0%	0%	0%	0%	0%	0%
Options @ \$0.17 to be issued	0%	0%	0%	0%	0%	0%
Options @ \$0.206	0%	0%	0%	0%	0%	0%
Common Stock Warrants @ \$0.072	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Allocation Percentages	Option 7	Option 8	Option 9	Option 10	Option 11	Option 12
Series A	0%	0%	0%	11%	9%	9%
Series B	14%	14%	14%	13%	11%	11%
Series C	15%	15%	15%	14%	12%	12%
Series C-1	5%	5%	5%	4%	4%	4%
Series C-1*	0%	0%	0%	0%	0%	0%
Common shares	64%	64%	63%	57%	50%	50%
Options @ \$0.015	0%	0%	0%	0%	0%	0%
Options @ \$0.03	0%	0%	0%	0%	0%	0%
Options @ \$0.066	0%	0%	0%	0%	0%	0%
Options @ \$0.072	0%	1%	1%	1%	1%	1%
Options @ \$0.094	0%	0%	0%	0%	0%	0%
Options @ \$0.17 to be issued	0%	0%	0%	0%	12%	12%
Options @ \$0.206	0%	0%	0%	0%	0%	0%
Common Stock Warrants @ \$0.072	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Step 3:**

**Determining  
Incremental Equity  
Value of each  
option**

Each consecutive breakpoint is considered a strike price in the call options on the Company's Equity Value. Using the BSOP model with other inputs as discussed above, the incremental value of each option is calculated.

Valuation using BSOP's	Option 1	Option 2	Option 3	Option 4
Value of the underlying Asset (\$)	203,940,691	203,940,691	203,940,691	203,940,691
Strike Price (\$)	-	92,882,408	102,882,408	109,830,415
S.D of the Underlying preferred share	39%	39%	39%	39%
Dividend yield	0%	0%	0%	0%
Time of Expiration (years)	3	3	3	3
Riskless Rate corresponding to option life time	0.64%	0.64%	0.64%	0.64%
Value of the common stock as an option on EV	203,940,691	117,708,744	110,002,024	104,905,721
<b>Incremental value of options</b>	<b>86,231,947</b>	<b>7,706,720</b>	<b>5,096,303</b>	<b>4,002,281</b>

Valuation using BSOP's	Option 5	Option 6	Option 7	Option 8
Value of the underlying Asset (\$)	203,940,691	203,940,691	203,940,691	203,940,691
Strike Price (\$)	115,501,303	121,177,441	134,845,700	137,127,838
S.D of the Underlying preferred share	39%	39%	39%	39%
Dividend yield	0%	0%	0%	0%
Time of Expiration (years)	3	3	3	3
Riskless Rate corresponding to option life time	0.64%	0.64%	0.64%	0.64%
Value of the common stock as an option on EV	100,903,440	97,038,062	88,296,514	86,913,201
<b>Incremental value of options</b>	<b>3,865,379</b>	<b>8,741,548</b>	<b>1,383,313</b>	<b>4,961,078</b>

Valuation using BSOP's	Option 9	Option 10	Option 11	Option 12
Value of the underlying Asset (\$)	203,940,691	203,940,691	203,940,691	203,940,691
Strike Price (\$)	145,618,515	167,248,647	175,900,095	193,632,701
S.D of the Underlying preferred share	39%	39%	39%	39%
Dividend yield	0%	0%	0%	0%
Time of Expiration (years)	3	3	3	3
Riskless Rate corresponding to option life time	0.64%	0.64%	0.64%	0.64%
Value of the common stock as an option on EV	81,952,122	70,568,305	66,485,053	58,875,997
<b>Incremental value of options</b>	<b>11,383,817</b>	<b>4,083,252</b>	<b>7,609,056</b>	<b>58,875,997</b>

Assumptions used in the BSOP model are stated below:

Term	Description	Inputs used in Theranos' case
<b>Business Equity Value</b>	Value that would be distributable to equity shareholders in case of an exit	In case of Theranos, we used the Equity Value derived using DCF and market analysis.
<b>Time to Liquidity</b>	Time of occurrence of liquidity event; this important assumption impacts the analysis	We discussed with management the potential exit outcomes and most likely timeframe for their occurrence in light of the current product development stage. Based on the discussion, we selected September 2016 (three years) as the appropriate time for a liquidity event.
<b>Risk-free Rate</b>	Rate of return on government securities with maturity equal to time to liquidity	We used 0.64% as the risk-free rate based on the yield on US government zero-coupon bond with a maturity period of approximately three years.
<b>Dividend Yield</b>	Yield on dividends	Theranos is an early-stage privately held company with no history of dividends. According to management, there is no reasonable expectation of such dividends being paid in the foreseeable future. Hence, dividend yield is assumed to be 0%.
<b>Volatility</b>	Based on volatilities of guideline companies	<p>The OPM allocates enterprise value among the different classes of shares, such as common stock and preferred stock, based on their rights and preferences. To allocate value, it treats them as call options on the enterprise value, with exercise price based on the liquidation preference of preference stock. Since we value the call option with the underlying being enterprise value, we have taken asset volatility for three years, an input to BSOP, which measures volatility of the underlying enterprise value.</p> <p>The asset volatility has been calculated using Merton's formulation based on equity volatility of the GPCs. The asset volatilities were in the range of 15.9–50.3%, with a mean, median, quartile 1 and quartile 3 of 32.7%, 32.6%, 26.4 and 38.6%, respectively. Based on the comparative analysis of Theranos with GPCs, we determined the quartile 3 measure of 38.6% as the appropriate proxy for volatility applicable to the Company.</p>

**Step 4:**

**Incremental Equity  
Value distribution**

Incremental value of each call option is distributed among different classes of shareholders based on their respective distribution proportion as calculated in step 3.

Value Allocated	Option 1	Option 2	Option 3	Option 4
Series A	-	-	5,096,303	-
Series B	-	7,706,720	-	573,390
Series C	30,839,008	-	-	623,497
Series C-1	51,549,366	-	-	195,936
Series C-1*	3,843,572	-	-	14,609
Common shares	-	-	-	2,594,848
Options @ \$0.015	-	-	-	-
Options @ \$0.03	-	-	-	-
Options @ \$0.066	-	-	-	-
Options @ \$0.072	-	-	-	-
Options @ \$0.094	-	-	-	-
Options @ \$0.17 to be issued	-	-	-	-
Options @ \$0.206	-	-	-	-
Common Stock Warrants @ \$0.072	-	-	-	-
<b>Total</b>	<b>86,231,947</b>	<b>7,706,720</b>	<b>5,096,303</b>	<b>4,002,281</b>

Value Allocated	Option 5	Option 6	Option 7	Option 8
Series A	-	-	-	-
Series B	553,264	1,247,039	196,985	696,240
Series C	601,613	1,356,014	214,199	757,082
Series C-1	189,059	426,133	67,313	237,916
Series C-1*	14,096	31,773	5,019	17,739
Common shares	2,503,771	5,643,414	891,444	3,150,799
Options @ \$0.015	3,575	8,058	1,273	4,499
Options @ \$0.03	-	29,117	4,599	16,256
Options @ \$0.066	-	-	2,482	8,773
Options @ \$0.072	-	-	-	62,240
Options @ \$0.094	-	-	-	-
Options @ \$0.17 to be issued	-	-	-	-
Options @ \$0.206	-	-	-	-
Common Stock Warrants @ \$0.072	-	-	-	9,534
<b>Total</b>	<b>3,865,379</b>	<b>8,741,548</b>	<b>1,383,313</b>	<b>4,961,078</b>

Value Allocated	Option 9	Option 10	Option 11	Option 12
Series A	-	437,236	715,533	5,527,712
Series B	1,596,317	511,269	836,687	6,463,666
Series C	1,735,815	555,948	909,803	7,028,506
Series C-1	545,487	174,709	285,909	2,208,736
Series C-1*	40,672	13,026	21,318	164,686
Common shares	7,224,054	2,313,725	3,786,386	29,250,999
Options @ \$0.015	10,315	3,304	5,407	41,768
Options @ \$0.03	37,272	11,937	19,535	150,917
Options @ \$0.066	20,115	6,442	10,543	81,448
Options @ \$0.072	142,702	45,705	74,795	577,814
Options @ \$0.094	9,210	2,950	4,827	37,293
Options @ \$0.17 to be issued	-	-	926,855	7,160,242
Options @ \$0.206	-	-	-	93,701
Common Stock Warrants @ \$0.072	21,859	7,001	11,457	88,508
<b>Total</b>	<b>11,383,817</b>	<b>4,083,252</b>	<b>7,609,056</b>	<b>58,875,997</b>

Classes	# of shares	Value	Per Share	% of EV
Series A	46,320,045	11,776,785	0.25	5.8%
Series B	54,162,965	20,381,578	0.38	10.0%
Series C	58,896,105	44,621,484	0.76	21.9%
Series C-1	18,508,335	55,880,564	3.02	27.4%
Series C-1*	1,380,000	4,166,511	3.02	2.0%
<b>Common shares</b>	<b>245,111,810</b>	<b>57,359,440</b>	<b>0.23</b>	<b>28.1%</b>
Options @ \$0.015	350,000	78,199	0.22	0.0%
Options @ \$0.03	1,264,625	269,633	0.21	0.1%
Options @ \$0.066	682,500	129,804	0.19	0.1%
Options @ \$0.072	4,841,855	903,255	0.19	0.4%
Options @ \$0.094	312,500	54,280	0.17	0.0%
Options @ \$0.17 to be issued	60,000,000	8,087,098	0.13	4.0%
Options @ \$0.206	785,180	93,701	0.12	0.0%
Common Stock Warrants @ \$0.072	741,665	138,359	0.19	0.1%
<b>Total</b>	<b>493,357,585</b>	<b>203,940,691</b>		<b>100%</b>

## Discount for Lack of Marketability ('DLOM')

Since privately held stocks are not traded on a public market, the stocks of these companies are generally not as liquid or marketable as that of a public company. This lack of marketability increases the cost of transactions involving private company stocks and reduces the Fair Market Value of these stocks. Hence, DLOM is applied to the stocks of privately held companies to derive their Fair Market Value. There are multiple approaches to calculate the DLOM of a stock that is privately held. Of these, we have used two variants of the Protective Put Approach – the Chaffee and Finnerty model (incorporating the Ghaidarov Correction).

### Protective Put Approach (Chaffee Model)

In the Chaffee Model, the cost of a put option calculated at the money acts as an estimate for the discount for lack of marketability. The value of the put option was calculated using the Black-Scholes Option Pricing Model. A put option provides a buyer the right but not the obligation to sell the investment held by him at the strike price of the put option. By purchasing a put option, the buyer ensures the liquidity of his investment, as he now has the right to sell the investment at the strike price of the put option. This cost of the put option becomes the implied discount for an investor holding stock of a privately held firm, as this stock lacks marketability. Thus, by calculating the value of a put option at a strike price equal to the value of the underlying stock, we can basically estimate the discount for lack of marketability. This is then deducted from the value of the underlying stock to arrive at the FMV.

To value the hypothetical put option, we use the Black-Scholes Option Pricing Model. Inputs used in the model are:

**Stock Price** – It is the value of the common stock pre-DLOM.

**Strike Price** – It is the value of the common stock pre-DLOM.

**Volatility** – As mentioned above, in the Protective Put Approach we are valuing the put option which becomes the implied discount for an investor holding common stock of a privately-held firm. Since we are valuing the put option with the underlying being equity value (Common Stock) of the Company, we take equity volatility, an input BSOP, to measure the volatility of the underlying equity value.

**Time to Expiry** – It is the expected time from the date of valuation until the occurrence of liquidation events, such as sale, merger, IPO or dissolution.

**Risk-Free Rate** – It refers to the risk-free rate corresponding to the life of the put option.

For Theranos, a pre-DLOM value of common stock (\$0.23) based on the OPM was used as the stock price and strike price in the put option. The time to expiry was set at three years. The equity volatility ranged between 36.14% and 85.19%, with a mean and median of 64.48% and 64.32%, respectively. Based on our comparative analysis of the Company relative to GPCs, we determined the median volatility of 64.32% as the appropriate proxy for volatility applicable to Theranos. The risk-free rate used was 0.64%, which is the yield on Treasury bonds. According to the BSOP model, the value of the put option is \$0.10 or **40.9%** of the pre-DLOM value. Since a hypothetical put option on the Company's common stock would cost 40.9% of the pre-DLOM value, the discount for lack of marketability for Theranos' common stock could be **40.9%**.

### Protective Put Approach (Finnerty Model)

To allocate a suitable DLOM (illiquidity discount) for a privately held stock, we have used the Protective Put Approach – Finnerty Model, as well. According to this approach, an Asian put option is used to calculate the Marketability Discount. This model assumes that the investor is able to purchase an "average-strike" put option (an "Asian" put). The payout on an Asian put is based on the average value of the underlying share over a period of time, rather than the final value. It reflects the investor's inability to time the market by eliminating the ability to earn average trading profits. Using this approach, we have calculated a DLOM of **26.5%**.

### Concluded DLOM

The two protective put approaches, viz., Chaffee and Finnerty are based on the OPM which considers market-specific factors in the volatility and time to liquidation event. Keeping the DLOM arrived using the above approaches as a guideline and based on the analysis of Company-specific qualitative factors listed below, we opine that a low DLOM should be applied to Theranos. Thus, a DLOM of **26.5%** was considered as the appropriate proxy applicable to the Company (Please refer [Exhibit 11](#) for complete calculation).



### Final Valuation

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After considering all relevant factors described above, we determined, as of the valuation date, the FMV of Theranos' common stock, as a class, is **\$0.17** per share (please refer [Exhibit 12](#)).

## EXHIBITS

### Exhibit 1 – Valuation Summary

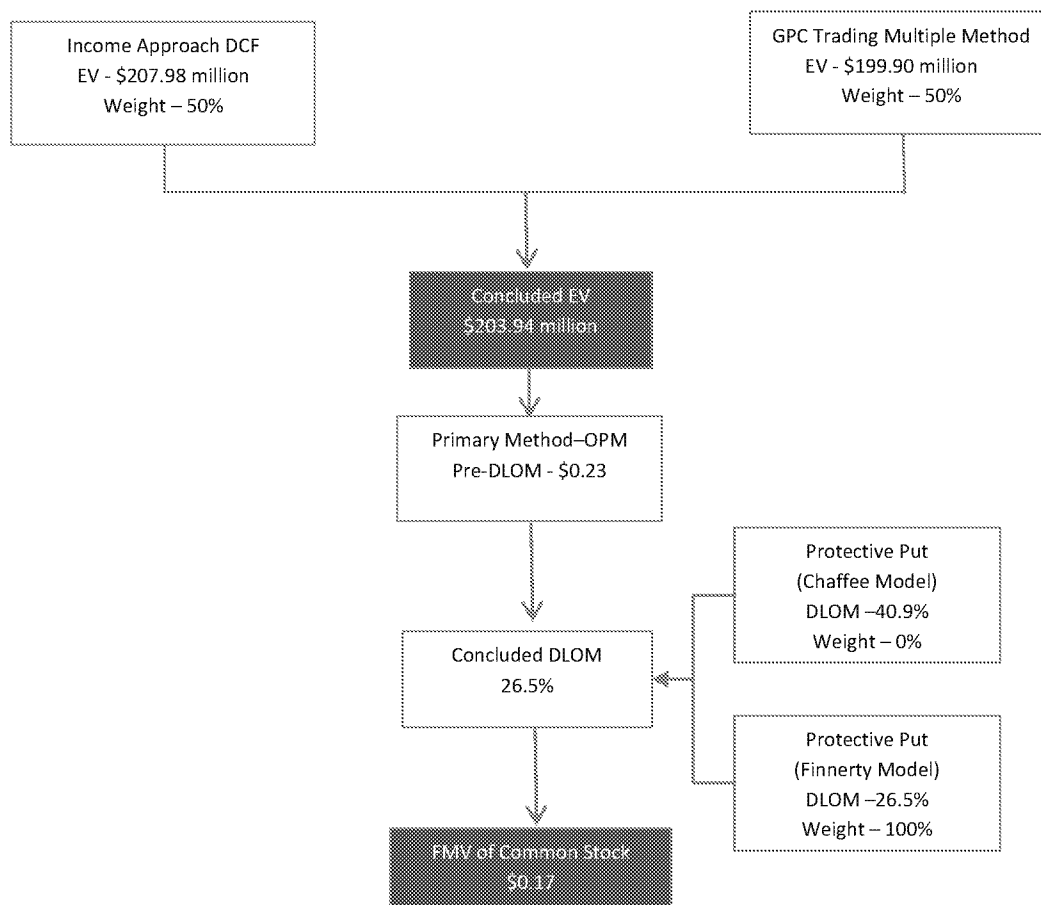


Exhibit 2 – Historical Financials

Summary Income Statement (in '000 \$)	Dec-09	Dec-10	Dec-11	Dec-12	Sep-13
	FY-A	FY-A	FY-A	FY-A	YTD-A
Revenues	2,794	1,401	518	-	-
<i>Growth (%)</i>			<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
Cost of Sales	-	306	325	74	-
Gross Profit	2,794	1,095	193	(74)	-
<i>Gross Margin (%)</i>	100.0%	78.2%	37.3%	<i>n/a</i>	<i>n/a</i>
Operating Costs	13,659	16,460	26,868	56,925	62,147
EBITDA	(10,865)	(15,365)	(26,675)	(56,999)	(62,147)
<i>EBITDA Margin (%)</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
Depreciation	565	805	1,064	2,993	3,219
EBIT	(11,430)	(16,170)	(27,739)	(59,992)	(65,366)
<i>EBIT Margin (%)</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
Income/ (Loss) - Investments & Affiliates	(37)	(46)	144	331	179
PBT	(11,467)	(16,216)	(27,595)	(59,661)	(65,193)
<i>PBT Margin (%)</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
Income Tax	-	-	-	-	-
<b>PAT</b>	<b>(11,467)</b>	<b>(16,216)</b>	<b>(27,595)</b>	<b>(59,661)</b>	<b>(65,193)</b>
<i>PAT Margin (%)</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>

Summary Balance Sheet (in '000 \$)	Dec-09	Dec-10	Dec-11	Dec-12	Sep-13
	FY-A	FY-A	FY-A	FY-A	YTD-A
Cash & Cash Equivalents	3,691	36,717	88,057	51,781	31,625
Trade Receivables	29	56	-	25,000	-
Inventory	581	-	-	7,573	11,038
Other Current Assets	193	826	665	1,833	2,835
Current Assets	803	882	665	34,406	13,873
Other Operating Assets	-	-	16,805	17,123	17,362
Other Operating Assets	-	-	16,805	17,123	17,362
Fixed Assets (Gross)	4,024	5,660	8,702	-	-
(Accum. Depreciation)	2,258	3,029	4,054	-	-
Fixed Assets (Net)	1,766	2,631	4,648	19,529	20,289
<b>Total Assets</b>	<b>6,260</b>	<b>40,230</b>	<b>110,175</b>	<b>122,839</b>	<b>83,149</b>
Trade Payables	560	440	1,238	7,669	5,460
Other Current Liabilities	967	1,298	2,839	4,583	4,510
Deferred Revenue	3,809	4,065	77,308	98,308	83,808
Current Liabilities	5,336	5,803	81,385	110,560	93,778
Other Operating Liabilities	1,530	2,606	23,464	15,987	11,959
Total Other Operating Liabilities	1,530	2,606	23,464	15,987	11,959
Long Term Debt	8,044	42	100	43,000	40,720
Debt	8,044	42	100	43,000	40,720
Paid in Capital	51,685	108,321	109,367	118,192	163,729
Other Reserves	-	9	5	-	-
Retained Earnings	(60,335)	(76,551)	(104,146)	(164,900)	(227,038)
Shareholders' Equity	(8,650)	31,779	5,226	(46,708)	(63,309)
<b>Total Liabilities</b>	<b>6,260</b>	<b>40,230</b>	<b>110,175</b>	<b>122,839</b>	<b>83,149</b>

Cash Flow Statement (in '000 \$)	Dec-10	Dec-11	Dec-12	Sep-13
	FY-A	FY-A	FY-A	YTD-A
Net Profit After Tax	(16,216)	(27,595)	(59,661)	(65,193)
Depreciation	805	1,064	2,993	3,219
Interest & Finance Costs	-	-	-	6
Adjusted Operating Cash Profit	(15,411)	(26,531)	(56,668)	(61,968)
Trade Receivables	(27)	56	(25,000)	25,000
Inventory	581	-	(7,573)	(3,465)
Other Current Assets	(633)	161	(1,168)	(1,002)
Trade Payables	(120)	798	6,431	(2,209)
Other Current Liabilities	331	1,541	1,744	(73)
Deferred Revenue	256	73,243	21,000	(14,500)
Changes in Working Capital	388	75,799	(4,566)	3,751
Change in Other Operating Liabilities	1,076	20,858	(7,477)	(4,028)
Change in Other Operating Assets	-	(16,805)	(318)	(239)
Net Change in Other Operating Assets/ Liabilities	1,076	4,053	(7,795)	(4,267)
Cash Flow from Operations	(13,947)	53,321	(69,029)	(62,484)
Net (Purchase) / Sale of Fixed Assets	(1,670)	(3,081)	(17,874)	(3,979)
Cash Flow from Investment Activities	(1,670)	(3,081)	(17,874)	(3,979)
Net Debt Taken / (Repaid)	(8,002)	58	42,900	(2,280)
Interest & Finance Costs	-	-	-	(6)
Change in Share Capital & Reserves	56,645	1,042	7,727	48,593
Cash Flow from Financing Activities	48,643	1,100	50,627	46,307
Change in Cash & Cash Equivalents	33,026	51,340	(36,276)	(20,156)
Opening Cash & Cash Equivalents	3,691	36,717	88,057	51,781
Closing Cash & Cash Equivalents	36,717	88,057	51,781	31,625

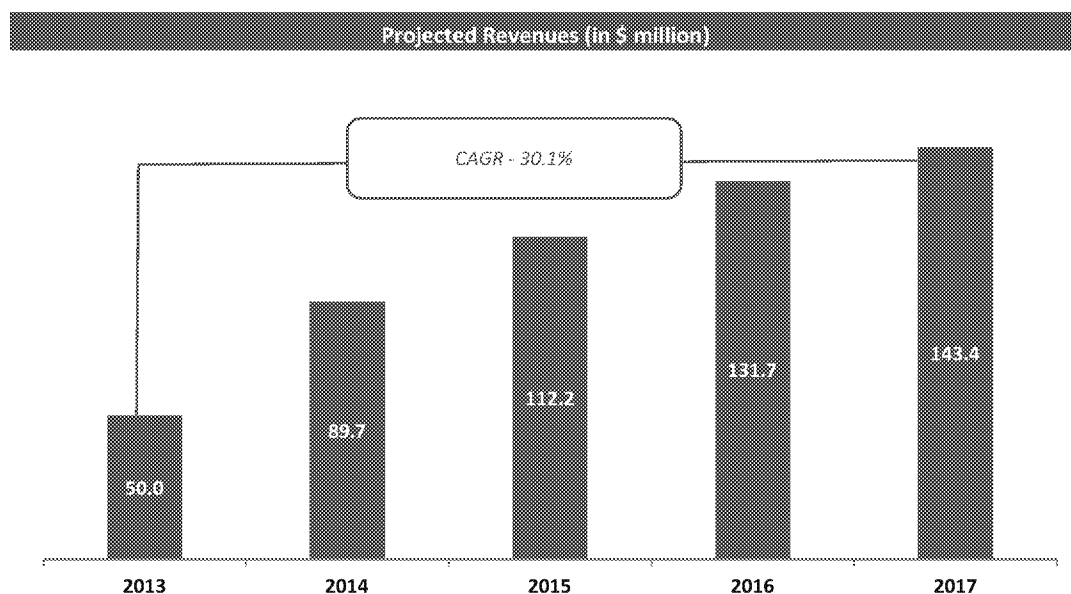
### Exhibit 3 – Financial Projections

[Back](#)

The financial projections provided by management for FY13–FY17 were reviewed by Aranca for reasonability and suitability of use, considering the objective of valuation.

#### Revenues:

Theranos expects to generate revenue from the new and robust models of its medical device, which comprises its unique technology platform and supporting hardware. Management believes the technology would help these companies improve their key therapies by rapidly optimizing the risk-benefit profiles of drugs, and thereby, shorten the duration of clinical trials. The Company's devices could also facilitate cost-effective care for healthcare providers. Clinicians could obtain quantitative information on disease progression and the efficacy of key compounds during and after clinical studies. The Company has entered into the direct-to-consumer market by promoting its products through pharmacies and boutique nutritional shops.



*"The Company's revenue is projected to expand at a CAGR of around 30.1% during 2013–17."*

**Expenses:** Theranos' expenses can be classified under costs of sales and operating expenses.

Expenses	Description	Projections
<b>COS</b>	Includes costs associated with validation and post-market contracts, mainly in maintaining the software and analyzing platform	COS are expected to increase to around 18% of revenue in FY17 from 20% in FY12.
<b>General and Administrative</b>	Comprises salaries of employees and contractors, other expenses such as lease rentals, and other corporate expenses	Expected to drop to about 14% of total revenues by FY17 from 31% in FY13.
<b>Research and Development</b>	Consists of salary expenses, facility-related costs, and materials used exclusively for R&D operations	Currently, R&D Cost is 110% of total revenues, it is expected to decline to 51% by FY17.
<b>Depreciation Plant &amp; Machinery</b>	Includes depreciation expenses of plant and equipment	These expenses are projected to increase to around 10% of revenues in FY17 from 14% in FY13.

#### Working Capital and Capital Expenditure (Capex) Assumptions

**Capex:** Theranos' capex primarily entails an outlay on Plant and Equipment and leased assets. The Company expects to incur capex of around \$15 million in FY13, which is expected to increase to about 25 million in FY17. We used the straight line method to calculate depreciation. The remaining life of existing and new assets is estimated to be three and four years, respectively.

**Working Capital:** Some of the key assumptions for working capital are as follows:

Classification	Range (over the forecast period)	Based on
Inventories	56–80 days	COS
Other Current Assets	6–14 days	Revenues
Account Payables	42–49 days	COGS, Direct costs, and Operating expenses
Other Current Liabilities	21–23 days	Operating Costs

Summary Income Statement (in '000 \$)	Dec-13	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17
	3 Mth-F	FY-F	FY-F	FY-F	FY-F	FY-F
Revenues	50,000	50,000	89,702	112,202	131,702	143,402
Growth (%)	n/a	0.0%	79.4%	25.1%	17.4%	8.9%
Cost of Sales	9,798	9,798	12,224	16,224	23,551	25,243
Gross Profit	40,202	40,202	77,478	95,978	108,151	118,159
Gross Margin (%)	80.4%	80.4%	86.4%	85.5%	82.1%	82.4%
Operating Costs	1,743	63,890	68,651	73,412	76,301	79,366
EBITDA	38,459	(23,688)	8,827	22,566	31,850	38,793
EBITDA Margin (%)	76.9%	n/a	9.8%	20.1%	24.2%	27.1%
Depreciation	8,796	12,015	19,324	23,102	21,996	24,610
EBIT	29,663	(35,703)	(10,498)	(536)	9,855	14,183
EBIT Margin (%)	59.3%	n/a	n/a	n/a	7.5%	9.9%
Interest & Finance Costs	78	84	345	185	24	24
Income/ (Loss) - Investments & Affiliates	249	428	581	578	391	10
PBT	29,834	(35,359)	(10,261)	(143)	10,222	14,170
PBT Margin (%)	59.7%	n/a	n/a	n/a	7.8%	9.9%
Income Tax	-	-	-	-	-	-
<b>PAT</b>	<b>29,834</b>	<b>(35,359)</b>	<b>(10,261)</b>	<b>(143)</b>	<b>10,222</b>	<b>14,170</b>
PAT Margin (%)	59.7%	n/a	n/a	n/a	7.8%	9.9%

Summary Balance Sheet (in '000 \$)	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17
	FY-F	FY-F	FY-F	FY-F	FY-F
Cash & Cash Equivalents	45,720	8,020	(10,035)	370	71
Trade Receivables	-	-	-	-	-
Inventory	1,500	2,691	3,366	3,951	4,302
Other Current Assets	1,925	2,021	2,122	2,228	2,339
Current Assets	3,425	4,712	5,488	6,179	6,641
Other Operating Assets	29,664	30,228	30,802	15,819	16,120
Other Operating Assets	29,664	30,228	30,802	15,819	16,120
Fixed Assets (Gross)	34,565	57,936	77,028	96,479	121,854
(Accum. Depreciation)	13,754	32,064	54,728	76,757	102,571
Fixed Assets (Net)	20,811	25,872	22,301	19,723	19,282
<b>Total Assets</b>	<b>99,620</b>	<b>68,832</b>	<b>48,555</b>	<b>42,090</b>	<b>42,114</b>
Trade Payables	8,449	10,867	10,938	12,487	12,851
Other Current Liabilities	3,653	4,205	4,483	4,732	4,935
Deferred Revenue	58,808	44,106	29,404	14,702	-
Current Liabilities	70,910	59,178	44,825	31,921	17,786
Other Operating Liabilities	18,689	9,575	3,794	11	-
Total Other Operating Liabilities	18,689	9,575	3,794	11	-
Long Term Debt	43,490	43,810	3,000	3,000	3,000
Debt	43,490	43,810	3,000	3,000	3,000
Paid in Capital	163,729	163,729	204,539	204,539	204,539
Other Reserves	5	5	5	5	5
Retained Earnings	(197,204)	(207,465)	(207,608)	(197,386)	(183,216)
Shareholders' Equity	(33,470)	(43,731)	(3,064)	7,158	21,328
<b>Total Liabilities</b>	<b>99,620</b>	<b>68,832</b>	<b>48,555</b>	<b>42,090</b>	<b>42,114</b>



Cash Flow Statement (in '000 \$)	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17
	3 Mth-F	FY-F	FY-F	FY-F	FY-F
Net Profit After Tax	29,834	(10,261)	(143)	10,222	14,170
Depreciation	8,796	19,324	23,102	21,996	24,610
Interest & Finance Costs	78	345	185	24	24
Adjusted Operating Cash Profit	38,708	9,408	23,144	32,241	38,803
Inventory	9,538	(1,191)	(675)	(585)	(351)
Other Current Assets	910	(96)	(101)	(106)	(111)
Trade Payables	2,989	2,418	71	1,549	364
Other Current Liabilities	(857)	552	278	249	203
Deferred Revenue	(25,000)	(14,702)	(14,702)	(14,702)	(14,702)
Changes in Working Capital	(12,420)	(13,019)	(15,129)	(13,595)	(14,597)
Change in Other Operating Liabilities	6,730	(9,114)	(5,781)	(3,783)	(11)
Change in Other Operating Assets	(12,303)	(564)	(574)	14,983	(301)
Net Change in Other Operating Assets/ Liabilities	(5,573)	(9,678)	(6,355)	11,200	(312)
Cash Flow from Operations	20,715	(13,289)	1,660	29,846	23,894
Net (Purchase) / Sale of Fixed Assets	(9,318)	(24,385)	(19,530)	(19,418)	(24,169)
Cash Flow from Investment Activities	(9,318)	(24,385)	(19,530)	(19,418)	(24,169)
Net Debt Taken / (Repaid)	2,770	320	(40,810)	-	-
Interest & Finance Costs	(78)	(345)	(185)	(24)	(24)
Change in Share Capital & Reserves	5	-	40,810	-	-
Cash Flow from Financing Activities	2,698	(25)	(185)	(24)	(24)
Change in Cash & Cash Equivalents	14,095	(37,700)	(18,056)	10,405	(299)
Opening Cash & Cash Equivalents	31,625	45,720	8,020	(10,035)	370
Closing Cash & Cash Equivalents	45,720	8,020	(10,035)	370	71

Exhibit 4 – Guideline Public Companies' Description

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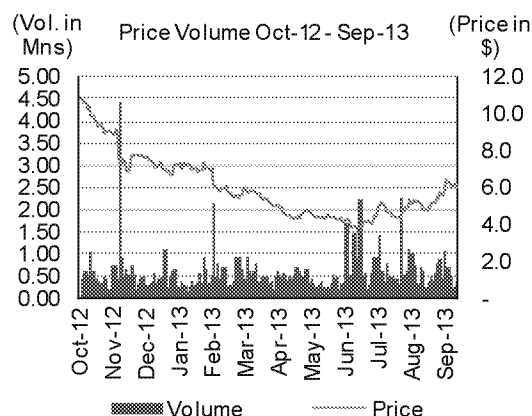
Company Name & Description

Ticker & Chart

**OraSure Technologies, Inc.**

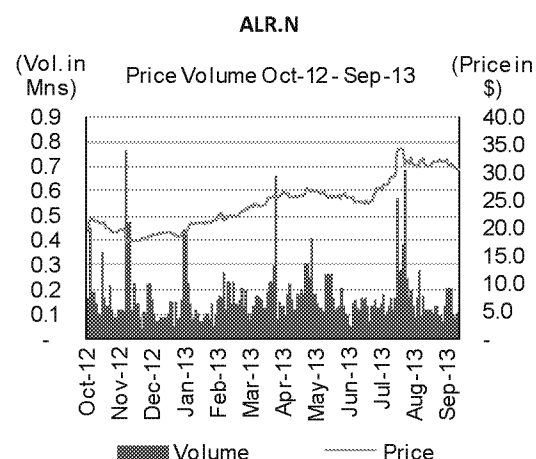
**OSUR.O**

OraSure Technologies, Inc. is engaged in the development, manufacture, marketing, and sales of oral fluid diagnostic products and specimen collection devices using the company's oral fluid technologies, as well as other diagnostic products including immunoassays and other in vitro diagnostic tests used on other specimens. It also manufactures and sells medical devices used for the removal of benign skin lesions by cryosurgery or freezing. The company's diagnostic products include tests performed on a rapid basis at the point-of-care and tests that are processed in a laboratory. OraSure Technologies operates in two segments: OraSure business and DNAG. On August 17, 2011, the company completed the acquisition of DNA Genotek, Inc. (DNAG).



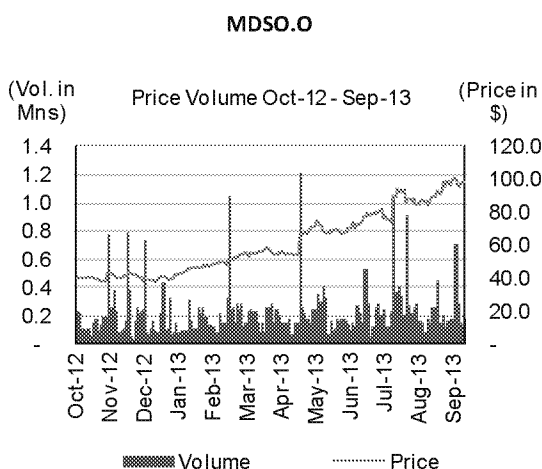
**Alere, Inc.**

Alere, Inc. provides point-of-care diagnostics and services. The company's products and services help healthcare practitioners make treatment decisions and improve outcomes for individuals living with chronic disease. Its portfolio also includes a range of health information solutions that have access to critical health data, provide clinical decision support, and facilitate performance reporting and analysis. The company's segment includes professional diagnostics, health information solutions, and consumer diagnostics. Alere supplies professional diagnostic products to hospitals, reference laboratories, physician offices, and other point-of-care settings through worldwide distribution networks. In February 2013, the company acquired Epocal, Inc.



**Medidata Solutions, Inc.**

Medidata Solutions, Inc. (Medidata) is a global provider of software-as-a-service (SaaS) clinical technology solutions. The company offers Medidata Rave, a platform that integrates electronic data capture (EDC) with a clinical data management system (CDMS) in a solution that replaces traditional paper-based methods of capturing and managing clinical data. Medidata Rave enables sponsors to manage complex trials. Medidata's customers are pharmaceutical, biotechnology and medical device companies, academic institutions, contract research organizations (CROs), and other organizations engaged in clinical trials to bring medical products and treatments to market and explore indications for existing medical products. Medidata Rave's intuitive, user-friendly internet-based technology facilitates rapid adoption by investigators, sponsors and CROs. On July 1, 2011, the company acquired Clinical Force Limited (Clinical Force).



Source: Reuters Eikon

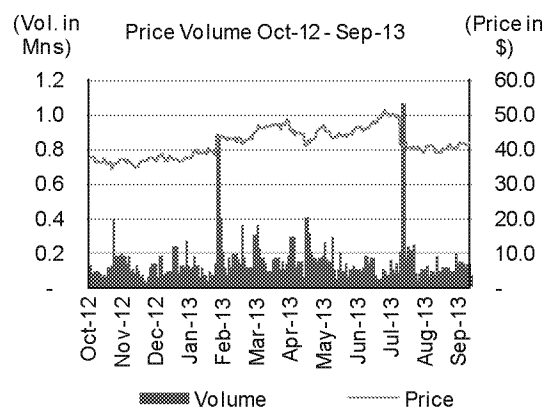
**Company Name & Description**

**Ticker & Chart**

**Abaxis, Inc.**

Abaxis, Inc. develops portable multi-test analyzer based on established principles of centrifugal analysis. Its products are capable of performing complete blood chemical constituent measurements instantly in the patient care setting.

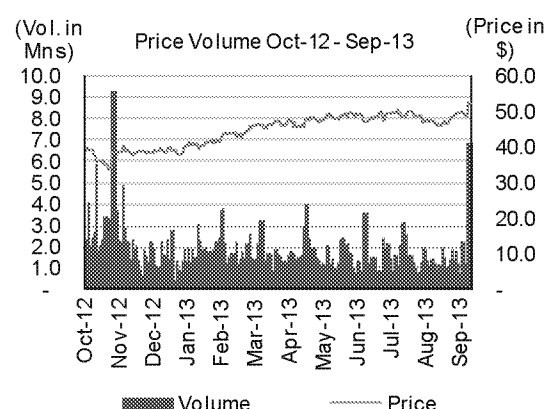
**ABAX.O**



**Cerner Corp.**

Cerner Corporation is a supplier of healthcare information technology solutions, services, devices, and hardware. Cerner's solutions optimize processes for healthcare organizations. These solutions are licensed by 9,300 facilities globally, including more than 2,650 hospitals; 3,750 physician practices; 40,000 physicians; 500 ambulatory facilities such as laboratories, ambulatory centers, cardiac facilities, radiology clinics, and surgery centers; 800 home health facilities; 40 employer sites and 1,600 retail pharmacies. It operates in two segments: domestic, which includes revenue contributions and expenditures associated with business activity in the US; and global, which includes revenue contributions and expenditure linked to business activity in Argentina, Aruba, Canada, Cayman Islands, Chile, Puerto Rico, Saudi Arabia, Singapore, Spain, and the UAE. Effective March 18, 2013, it acquired Labotix Automation, Inc.

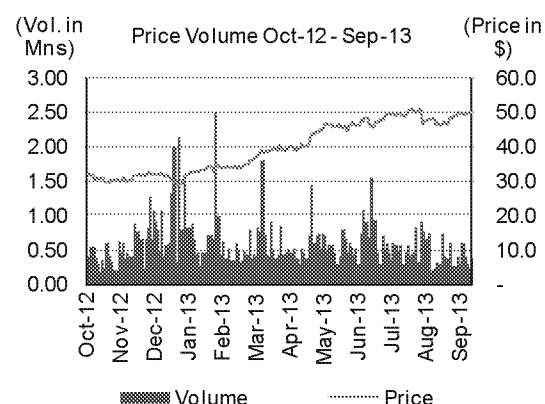
**CERN.O**



**PAREXEL International Corp**

PAREXEL International Corporation (PAREXEL) is a biopharmaceutical services company, providing a range of expertise in clinical research, medical communications, consulting, and advanced technology products & services to the global pharmaceutical, biotechnology, and medical device industries. It operates through three segments: Clinical Research Services (CRS), PAREXEL Consulting and Medical Communications Services (PCMS), and Perceptive Informatics, Inc. (Perceptive). The company's product and service offerings include clinical trial management, observational studies and patient/disease registries, data management, biostatistical analysis, epidemiology, health economics/outcomes research, pharmacovigilance, medical communications, clinical pharmacology, patient recruitment, and post-marketing surveillance. In May 2013, PAREXEL International Corp acquired the entire share capital of HERON Group Ltd.

**PRXL.O**



Source: Reuters Eikon

## Exhibit 5 – Valuation Theory

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### Market Approach

The market approach is based on the economic principle of competition (i.e., in a free market, forces of demand and supply will direct the values of businesses to a particular balance). Valuation under the market approach entails the application of appropriate market-based multiples selected from guideline public companies to parameters such as level of earnings, cash flow, revenues, invested capital or other financial factors (financial metrics) that represent the future financial performance of the subject company. This method is based on idea of determination of the price at which the company will be exchanged in the public market, and is particularly useful for valuing companies that are currently profitable and expected to continue making profits in the foreseeable future.

In some industries, certain industry-specific non-financial metrics are also used instead of financial metrics. One example of non-financial metrics would be 'price per million page views' in the online advertisement industry and 'price per subscriber' in the cable industry. The use of such non-financial metrics may be suitable for the valuation of companies in the very early stages of development with no profits and operating in industries where such metrics are generally accepted.

The multiples reflect the rate of return prospective investors will expect on their investment, which will commensurate the inherent risks associated with such investments. The multiples are believed to implicitly factor growth expectations and level of earnings that the company is expected to generate in perpetuity.

### Market Approach – Guideline Public Companies' Multiples

The most common method under the market multiples approach entails identifying suitable guideline public companies and selection of appropriate trading multiples (i.e., ratio of recently traded price to earnings, cash flows, revenues, invested capital).

Market multiples are generally expressed as a ratio of diverse variables such as:

- **Net Profit (Price to Earnings – 'P/E'):** P/E multiple, the most widely used multiple, measures the relationship between recently traded market share price of companies and their earnings per share. Earnings are calculated net of interest expense; this captures the impact of leverage (debt) during calculation of the Equity Value.
- **Cash Flows (Price to Cash Flows – 'P/CF'):** Cash flows under this multiple are calculated by adding back depreciation and other non-cash expenses. This multiple is suitable when the proportion of fixed assets and depreciation expenses is large relative to the company's total asset size, revenues, and net earnings. The multiple is particularly suitable since it offsets the differences caused by the dissimilar depreciation practices of guideline companies—these differences yield diverse P/E multiples.
- **EBITDA (Enterprise Value to EBITDA- 'EV/EBITDA'):** By using different depreciation methods, a company can inflate or deflate its earnings. Similarly, higher leverage enables a company to drive up Earnings per Share (EPS); however, this increase comes with higher risk (due to the increased leverage). Therefore, the earnings of companies with different depreciation policies and levels of leverage are not comparable. The EV/EBITDA multiple helps to overcome this shortcoming inherent in the PE multiple.
- **Revenues (Price to Revenues - 'P/S' or Enterprise Value to Revenues - 'EV/S'):** The EV/S multiple may be used for companies that exhibit negative earnings or where there is scope for manipulation of financial statements by a company's management, since it is easier to manipulate earnings than revenues. However, this multiple is more appropriate during comparison of the valuation of companies that have similar net profit margins.
- **Net Book Value (Price to Net Book Value – 'P/NBV'):** This multiple is useful for businesses such as banks and insurance companies that have significant tangible or financial assets relative to the total investment.

Market multiples are generally expressed either as current multiples (for example, Trailing Twelve Months 'TTM' multiple) or forward multiples (ratio of current price to earnings/cash flow/revenue for certain period in future (for example, 1-year forward multiple, 2-year forward multiple). The market value of a security is nothing but the amount that investors are ready to pay for benefits that are expected to flow to investors owning the security. Since the holder of the security is entitled to benefits after the date of purchase, forward trading multiples are generally considered more appropriate to value a security than current multiples, which compare the price of the security with the past performance of the company—this does not benefit an investor evaluating the investment.

However, the suitability of forward multiples is limited by the reliability and reasonableness of earnings/cash flow/revenue estimate for the selected future period, especially in the case of early stage privately-held companies due to their very limited performance history and inadequate market opinion about these estimates. Thus, in cases where future estimates are highly speculative, applying multiple on the trailing financial metrics could yield valuation results that are more reliable.

#### Market Approach – Guideline Transaction Multiples

Another variant of the market approach is the guideline transaction multiple method ('GTM'), wherein the ratio of total price paid for the public or private company to its earnings in recent mergers & acquisitions (M&A) transactions between unrelated parties is considered. This method is mostly used in combination with the income approach and other methods.

M&A transaction multiples, to some extent, include the strategic or synergistic value attributable to synergies available to the specific buyer, not available to most other market participants. To that extent, an M&A transaction may provide a better indication of the 'investment value' (i.e., value for that specific buyer) than the 'fair market value' (i.e., value to the hypothetical, rational financial buyer).

#### Market Approach – Suitability in Valuation of Privately Held Company

The market approach is theoretically preferable to other approaches because it uses direct comparisons with other companies and relies on data derived from actual market transactions. However, application of the market approach during the valuation of privately-held companies is fraught with challenges, especially during the early stages of development when financial information on the company being valued is inadequate.

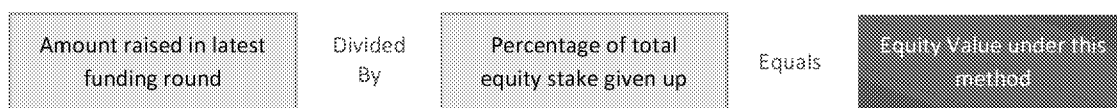
- The foremost challenge to application of the market approach while valuing companies is the selection of 'true' guideline public companies or guideline transactions with reasonable effort and cost. Even if guideline public companies exist, the market approach may not be sufficiently reliable for valuation of companies in the early stages with no earnings or insignificant revenues, since financial forecasts may be highly speculative.
- Direct application of the performance indicators of public companies may be difficult, since public companies are typically in the much later stages of development relative to privately-held companies. In such cases, as per the AICPA Practice Aid guidelines, an appraiser may need to make certain adjustments to an initial valuation arrived at using guideline companies that are not comparable to the company being valued in one regard or the other.

AICPA Practice Aid further states: "In performing valuations of early stage enterprises under the market approach, not only is it assumed that the industry, size of enterprise, marketability of the products or services, and management teams are comparable but also that the enterprise's stage of development is comparable. This assumption often renders the market approach impractical for early stage companies because the pricing data for such companies are difficult, if not impossible, to find. Furthermore, even if pricing data can be found, until product or service feasibility is achieved, comparability among early stage companies is difficult to achieve<sup>13</sup>."

#### Implied Post-Money Valuation at Latest Preferred Financing

Although very limited in use, implied post-money valuation based on the latest preferred financing is another alternate method under the market approach for determining the Equity Value of company. This method is generally used to develop an indication of Equity Value along with other valuation methods and not as the primary method of valuation.

##### Value determination



#### Approach suitable in following circumstances:

- When investors contributing to the latest preferred round are unrelated to the company
- Time lag between the financing date and the valuation date is not material

<sup>13</sup> AICPA Practice Aid Series 2004 – 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page # 25, Para # 60, 51

**Not suitable when:**

- Funds are contributed by investors who are existing shareholders in the company or are related to it in a manner that could materially impact their decision to invest

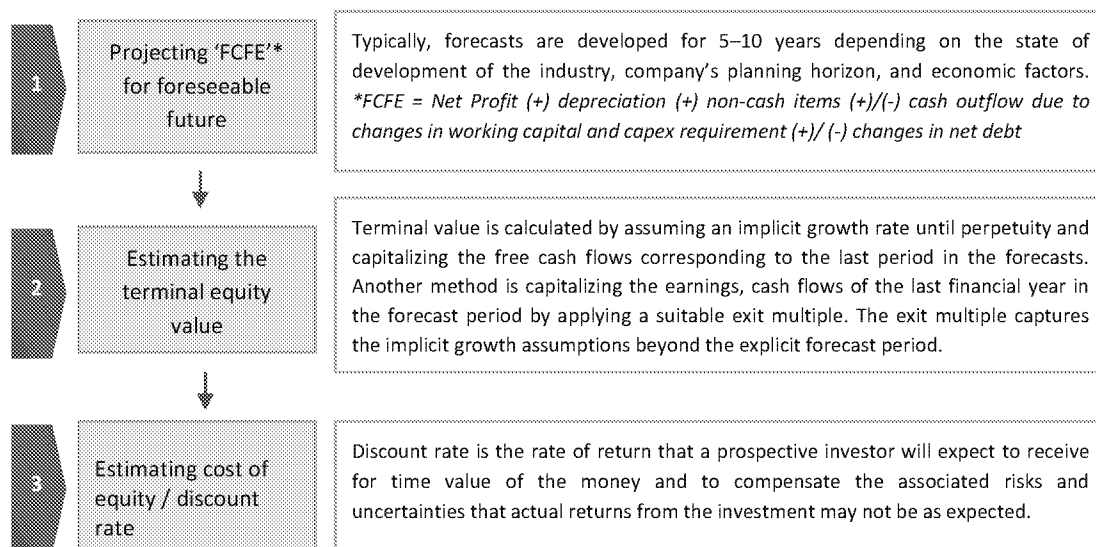
**Other Limitations**

The suitability of this method to derive the 'fair market value' of common stock may be very restricted due to following limitations:

- The method assumes all classes of equity (preferred and common stock) are equally valuable.
- Preferred shareholders generally have significantly superior economic as well as non-economic rights such as representation, preference, conversion, and other benefits that are difficult to quantify. Hence, the value associated with them cannot be isolated.

**Income Approach – Discounted Cash Flow Method**

DCF is one of the widely used methods for valuing private companies and entails three broad steps:

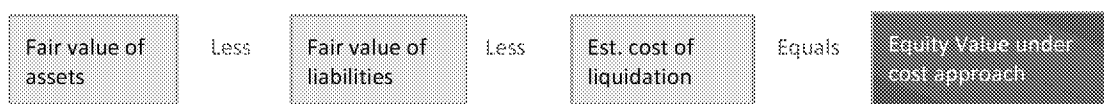


\*FCFE – Free Cash flows to Equity

The free cash flows are discounted to arrive at the present value, as of the valuation date. To arrive at the Equity Value, the sum of the present value of all future cash flows and terminal value is taken into consideration. To this sum, cash balances and the sum of the present value of all future reasonably realizable tax benefits are added to arrive at the Equity Value.

**Cost Approach – Adjusted Book Value Method**

- Estimating the value of the company under the adjusted book value method entails estimation of the fair value of each of its specific individual assets and liabilities.



**Suitability and features of cost approach**

- The cost approach is generally suitable when liquidation of the company being valued is imminent.
- The approach may sometimes be suitable for valuations under 'going-concern' basis in cases where the company being valued has huge and significant investments in tangible assets or where earnings generated from operations are insignificant relative to the value of its operating assets (for example, real estate holding companies and startups).
- While the income and market approaches focus on the cash flows likely to be generated through collective and continued exploitation of all assets, the cost approach focuses on the value that each individual asset is expected to realize on liquidation near the valuation date.

For the purposes of this analysis, therefore, the cost approach is considered the weakest and is generally applied as a secondary approach in conjunction with the income and/or market approaches.

Exhibit 6 – DCF (Income Approach)

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Equity Value	(in '000 \$)
PV of FCFE	(71,932)
Terminal Value	540,103
PV Factor	0.42
PV of Terminal Value	228,470
PV of Net Operating Losses	19,814
Equity Value	176,352
Current Cash & Cash Equivalents	31,625
<b>Total Equity Value</b>	<b>207,977</b>

Discounted Cash Flow Statement (in '000 \$)	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17
	<b>3 Mth-F</b>	<b>FY-F</b>	<b>FY-F</b>	<b>FY-F</b>	<b>FY-F</b>
Revenues	50,000	89,702	112,202	131,702	143,402
EBITDA	38,459	8,827	22,566	31,850	38,793
EBIT	29,663	(10,498)	(536)	9,855	14,183
Net Earnings (PAT)	29,834	(10,261)	(143)	10,222	14,170
Earnings Before Interest & Tax (EBIT)	29,663	(10,498)	(536)	9,855	14,183
Tax on EBIT	(11,865)	-	-	(3,942)	(5,673)
Earnings before Interest, but after Tax	17,798	(10,498)	(536)	5,913	8,510
Growth (%)	n/a	n/a	n/a	n/a	43.9%
Depreciation & Amortization	8,796	19,324	23,102	21,996	24,610
Change in Working Capital	(12,420)	(13,019)	(15,129)	(13,595)	(14,597)
Net Change in Other Operating Assets/ Liabilities	(5,573)	(9,678)	(6,355)	11,200	(312)
Net Capital Expenditure	(9,318)	(24,385)	(19,530)	(19,418)	(24,169)
Free Cash Flow to Firm (FCFF)	(717)	(38,256)	(18,449)	6,096	(5,959)
Growth (%)	n/a	n/a	n/a	n/a	n/a
Net Debt Taken / (Repaid)	2,770	320	(40,810)	-	-
Interest & Finance Costs (Tax Adjusted)	(47)	(345)	(185)	(14)	(14)
Free Cash Flow to Equity (FCFE)	2,007	(38,281)	(59,444)	6,082	(5,973)
Growth (%)	n/a	n/a	n/a	n/a	n/a
Year Fraction	0.25	1.25	2.25	3.25	4.25
Present Value Factor	0.97	0.86	0.70	0.57	0.47
<b>PV of FCFE</b>	<b>1,957</b>	<b>(32,877)</b>	<b>(41,701)</b>	<b>3,485</b>	<b>(2,796)</b>

Terminal Value Calculation	(in '000 \$)
EBITDA FYE 31-Dec-17	38,793
EV/EBITDA Multiple Exit Year	14.00
Terminal Value	543,103
Net Debt Exit Year	3,000
<b>Terminal Value of Equity</b>	<b>540,103</b>

### Exit Multiple Assumption

Company Name	Share Price <sup>(1)</sup> (\$)	Mkt Cap (\$ mn)	EV (\$ mn)	EV/EBITDA				
				2009	2010	2011	2012	LTM
OraSure Technologies Inc	6.08	338	261	n/a	n/a	n/a	n/a	n/a
Alere Inc	30.90	2,527	6,692	12.7x	12.4x	10.0x	9.3 x	11.1x
Medidata Solutions Inc	97.49	2,602	2,462	14.6x	13.8x	11.4x	24.7x	
Abaxis Inc	41.82	933	849	17.8x	20.6x	23.3x	26.7x	29.9x
Cerner Corp	50.35	17,277	16,489	12.5x	13.2x	14.1x	15.8x	19.0x
PAREXEL International Corp	49.90	2,805	2,976	6.2 x	7.9 x	9.1 x	10.3x	14.2x
<b>Count</b>				5	5	5	5	5
<b>Mean</b>				12.8x	13.6x	13.6x	17.4x	18.5x
<b>Median</b>				12.7x	13.2x	11.4x	15.8x	16.6x
<b>Multitple Selected</b>								<b>14.0x</b>

Source: Reuters Eikon

<sup>1</sup> Average Share Price for 30 days period ended on 09/30/2013

NOL (Net Operating Losses) Schedule	(in '000 \$)	Dec-13	Dec-14	Dec-15	Dec-16
		3 Mth-F	FY-F	FY-F	FY-F
Net Profit/ (Loss)for the Year		29,834	(10,261)	(143)	10,222
Opening Balance - NOLs		65,193	35,359	45,620	45,763
NOLs adjusted against Profits		29,834	-	-	10,222
Loss Accumulated		-	10,261	143	-
Closing Balance - NOLs		35,359	45,620	45,763	35,541
Tax Savings on NOLs	40.00%	11,934	-	-	4,089
Discount Factor		0.97	0.86	0.70	0.57
PV of Tax Benefit on NOLs		11,633	-	-	2,343
Sum of PV of Tax Benefits on NOLs	19,814				
<b>Tax for the Period</b>		-	-	-	-



NOL (Net Operating Losses) Schedule	(in '000 \$)	Dec-17	Dec-18	Dec-19
		FY-F	FY-F	
Net Profit/ (Loss)for the Year		14,170	18,421	23,947
Opening Balance - NOLs		35,541	21,372	2,951
NOLs adjusted against Profits		14,170	18,421	2,951
Loss Accumulated		-	-	-
Closing Balance - NOLs		21,372	2,951	-
Tax Savings on NOLs	40.00%	5,668	7,368	1,180
Discount Factor		0.47	0.38	0.31
PV of Tax Benefit on NOLs		2,653	2,817	369
Sum of PV of Tax Benefits on NOLs	19,814			
<b>Tax for the Period</b>		-	-	<b>8,398</b>

### Cost of Equity Assumptions

Company name	Re-levered Beta	R	Total Beta	Market Risk	Total Risk	Size Premium	CSRP
OraSure Technologies Inc	1.47	0.61	2.39	11.72%	17.37%	2.70%	2.95%
Alere Inc	0.58	0.57	1.02	6.29%	8.98%	1.70%	0.99%
Medidata Solutions Inc	0.91	0.36	2.55	8.31%	18.36%	1.70%	8.35%
Abaxis Inc	1.11	0.55	2.03	9.54%	15.14%	1.73%	3.87%
Cerner Corp	0.93	0.61	1.51	8.42%	12.01%	0.76%	2.83%
PAREXEL International Corp	1.01	0.48	2.12	8.96%	15.72%	1.14%	5.62%
<b>Mean</b>	<b>1.00</b>						<b>4.10%</b>
<b>Median</b>	<b>0.97</b>						<b>3.41%</b>
<b>Quartile 3</b>	<b>1.09</b>						<b>5.19%</b>

Cost of Equity Calculations	Mean
Risk Free Rate	2.76%
Beta	1.09
Equity Risk Premium	6.11%
Size Premium	6.03%
Company Specific Risk Premium	7.00%
<b>Cost of Equity</b>	<b>22.43%</b>

Exhibit 7 – Guideline Public Companies' Trading Multiples (Market Approach) [Back](#)

Company Name	Share Price	Mkt Cap	EV	EV/Revenue
				2014
OraSure Technologies Inc	6.08	338	261	2.5x
Alere Inc	30.90	2,527	6,692	2.1x
Medidata Solutions Inc	97.49	2,602	2,462	7.2x
Abaxis Inc	41.82	933	849	4.1x
Cerner Corp	50.35	17,277	16,489	5.1x
PAREXEL International Corp	49.90	2,805	2,976	1.5x
<b>Median</b>				<b>3.3x</b>
<b>Measure</b>				<b>Median</b>

Source: Reuters Eikon

Notes: (1) Avg. Share Price for 7 days period ended on 09/30/2013

(2) All Multiples calculated for Calendar Year.

Equity Value Calculation (EV/Revenue)	2014
Selected Multiple	3.3x
Measure	Median
Revenues (in '000 \$)	89,702
Enterprise Value (in '000 \$)	292,807
Add: Cash	31,625
Less:- Debt	(40,720)
Less:- Net Debt taken from Partners	(83,808)
Equity Value under different multiples, based on different time periods (in '000 \$)	199,904
Weight considered for different multiples (in '000 \$)	100%
Weighted Equity Value (in '000 \$)	<b>199,904</b>

Exhibit 8 – Concluded Equity Value

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Concluded Equity Value	EV	Weight	Value
EV – Income Approach	207,976,885	50%	103,988,443
EV – Market Approach	199,904,496	50%	99,952,248
<b>Concluded EV (Weighted Average)</b>			<b>203,940,691</b>

## Exhibit 9 – Capital Structure

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Existing Shareholders	# of Shares Outstanding	Original Issue	Conv. ratio	CSE	Ownership %	
					O/S	Fully
Series A	46,320,045	\$0.150	1.0x	46,320,045	10.91%	9.39%
Series B	54,162,965	\$0.185	1.0x	54,162,965	12.76%	10.98%
Series C	58,896,105	\$0.564	1.0x	58,896,105	13.88%	11.94%
Series C-1	18,508,335	\$3.000	1.0x	18,508,335	4.36%	3.75%
Series C-1*	1,380,000	\$3.000	1.0x	1,380,000	0.33%	0.28%
Common shares	245,111,810			245,111,810	57.76%	49.68%
<b>Sub total</b>	<b>424,379,260</b>			<b>424,379,260</b>	<b>100%</b>	<b>86.02%</b>
<b>Options</b>						
Options @ \$0.015	350,000	0.015		350,000		0.07%
Options @ \$0.03	1,264,625	0.03		1,264,625		0.26%
Options @ \$0.066	682,500	0.066		682,500		0.14%
Options @ \$0.072	4,841,855	0.072		4,841,855		0.98%
Options @ \$0.094	312,500	0.094		312,500		0.06%
Options @ \$0.17 to be issued	60,000,000	0.17		60,000,000		12.16%
Options @ \$0.206	785,180	0.206		785,180		0.16%
Common Stock Warrants @ \$0.072	741,665	0.072		741,665		0.15%
<b>Sub total</b>	<b>68,978,325</b>			<b>68,978,325</b>		<b>13.98%</b>
<b>Total</b>	<b>493,357,585</b>			<b>493,357,585</b>	<b>100%</b>	<b>100%</b>

## Rights &amp; Preferences of various classes of shareholders

Existing Shareholders	# of Shares	Liquidation Preference per share	Total LP	Participation
Series A	46,320,045	\$0.150	6,948,007	n/a
Series B	54,162,965	\$0.185	10,000,000	Unlimited
Series C	58,896,105	\$0.564	33,217,403	Unlimited
Series C-1	18,508,335	\$3.000	55,525,005	Unlimited
Series C-1*	1,380,000	\$3.000	4,140,000	Unlimited
Common Stock	245,111,810			
<b>Sub total</b>	<b>424,379,260</b>		<b>109,830,415</b>	

## Exhibit 10—Equity Value Allocation Theory

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### Current Value Method ('CVM')

The CVM assumes the hypothetical liquidation event would occur on the valuation date, instead of a certain date in the future as assumed under the other two methods of allocation.

The CVM entails two broad steps:

- a) Determining the value of the company using equity valuation approaches discussed above;
- b) Allocating that Equity Value among different classes of preferred stock based on their liquidation preferences or conversion values—whichever is greater.

CVM has the advantage of simplicity and objectiveness and is frequently used in the industry to deal with preferred stocks. However, as per the AICPA Practice Aid, the method is suitable only under the following limited circumstances<sup>14</sup>:

- When a liquidity event in the form of an acquisition or dissolution of the enterprise is imminent, and expectations about the future of the enterprise as going concern are virtually irrelevant.
- When an enterprise is at such an early stage of development that:
  - No material progress has been made on the enterprise's business plan.
  - No significant common Equity Value has been created in the business above the liquidation preference on preferred shares, and
  - There is no reasonable basis for estimating the amount and timing of such common Equity Value above the liquidation preference that might be created in the future.

The guidelines mentioned above suggest that the CVM is primarily suited for companies in very early stages of development and that as an enterprise progresses beyond that stage, the other allocation methods become more appropriate. The result obtained using this method is generally highly sensitive to changes in Equity Value. Furthermore, this is not forward-looking and fails to reflect the possibility that Theranos' Equity Value may increase or decrease between the valuation date and the date at which common stockholders will receive returns on their investments, if any<sup>15</sup>.

We did not consider the CVM for allocation of Theranos' Equity Value based on our review and analysis of milestones achieved in its business plan.

### Option Pricing Method ('OPM')

The OPM is a forward-looking approach and is appropriate for use when the range of future possible outcomes is so difficult to predict that forecasts would be highly speculative. The method considers common stock as a call option on the Equity Value as the common stock only receives value if the firm's value exceeds the liquidation preference of preferred series.

Excerpt from AICPA Practice Aid<sup>16</sup>:

"The option pricing method treats common stock and preferred stock as call options on the enterprise's value, with exercise prices based on the liquidation preference of the preferred stock. Under this method, the common stock has value only if the funds available for distribution to shareholders exceed the value of the liquidation preference at the time of a liquidity event (for example, merger or sale), assuming the enterprise has funds available to make a liquidation preference meaningful and collectible by shareholders. The common stock is modeled as a call option that gives its owner the right but not the obligation to buy the underlying enterprise value at a predetermined or exercise price. In the model, the exercise price is based on a comparison with the enterprise value rather than, as in the case of a 'regular' call option, a comparison with a per-share stock price. Thus, common stock is considered to be a call option with a claim on the enterprise at an exercise price equal to

*"OPM is a forward-looking approach that considers common stock as a call option on Equity Value."*

<sup>14</sup> AICPA Practice Aid Series 2004 – 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page # 63, Para # 154

<sup>15</sup> AICPA Practice Aid Series 2004 – 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page # 63, Para # 153

<sup>16</sup> AICPA Practice Aid Series 2004 – 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page # 61, Para # 146, 147, 148

the remaining value immediately after the preferred stock is liquidated. The option pricing method has commonly used the Black–Scholes model to price the call option.”

“The option pricing method considers various terms of the stockholder agreements, including the level of seniority among securities, dividend policy, conversion ratios, and cash allocations, upon liquidation of the enterprise. In addition, the method implicitly considers the effect of the liquidation preference as of the future liquidation date, and not as of the valuation date.”

However, OPM has also certain limitations—prominent among these is the sensitivity to certain key assumptions like volatility, which, due to absence of any trading history, is very difficult to estimate for a privately held company. Generally, volatility for the company being valued is based on the observed volatilities of public comparables. While intraday volatility in publicly traded stocks may typically range between 1% and 10%, this cannot be imitated for a privately held company. When applied for valuation of privately held company equity securities, OPM measures the change in value over several months or years unlike options traded in public markets. This makes OPM analysis heavily dependent upon subjective assumption of volatility.

#### Probability-Weighted Average Expected Return Method (‘PWERM’)

As outlined in the AICPA Practice Aid<sup>17</sup>, “under a probability-weighted return method, the value of the common stock is estimated based upon an analysis of future values for the enterprise assuming various future outcomes. The share value is based on the probability-weighted present value of expected future investment returns, considering each of the possible future outcomes available to the enterprise, as well as rights of each share class.”

This method entails a forward-looking analysis of possible future outcomes available to the enterprise, the estimation of a range of future and present values under each outcome, and application of the probability factor to each outcome as of the valuation date. The potential future outcomes that are typically considered are in the form of exit events like sale or merger, IPO, dissolution or continued as private entity.

The primary virtue of PWERM is its conceptual superiority since it explicitly captures the impact of various rights and terms attached to each class of shares under the shareholder agreements at the future date. Furthermore, PWERM is a forward-looking and dynamic method, since, instead of considering a single estimate of the Company’s value at the valuation date, it reflects on the potential economic events and outcomes at certain dates in future while determining the value as of the valuation date.

On the flip side, PWERM is often complex to implement since it entails a number of assumptions about the timing of potential future events, the estimate of the probabilities that such events will occur, and a range of values under each of the potential events at future dates. These assumptions may be very difficult to estimate and support objectively. Furthermore, in certain cases, PWERM may require building complex probability models and depend heavily upon specific methodology followed and subjectivity of estimates made by the appraiser.

In our opinion, this method is generally more suitable for companies that have made significant progress in their business plan and expect one or more exit outcomes to occur in the foreseeable future. In other words, the planning horizon of the enterprise should be sufficiently long to reasonably estimate the information about the ‘change in control events’ such as IPO and sale.

*Under PWERM, the value of the common stock is estimated based upon an analysis of future values for the enterprise assuming various future outcomes*

<sup>17</sup> AICPA Practice Aid Series 2004 – ‘Valuation of Privately Held Company Equity Securities Issued as Compensation’, Page # 59, Para # 141, 142, 143

## Exhibit 11 – Discount for lack of Marketability

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Methodology	Weight	DLOM Arrived
Options Based Methods – Chaffee Model	0%	40.9%
Options Based Methods – Finnerty Model (Ghaidarov Correction)	100%	26.5%
<b>Concluded Discount for Lack of Marketability</b>		<b>26.5%</b>

Protective Put Approach – Chaffee Model	
Stock Price	\$0.234
Strike Price	\$0.234
Volatility of the Underlying Asset	64%
Dividend Yield	0.00%
Time of Expiration (years)	3.00
Riskless Rate Corresponding to Option Life Time	0.64%
Variance	41%
Value of Put	0.10
<b>DLOM</b>	<b>40.90%</b>

Protective Put Approach – Finnerty Model	
Stock Price	\$0.234
Strike Price	\$0.234
Volatility of the Underlying Asset	64%
Dividend Yield	0.00%
Time of Expiration (years)	3.00
Riskless Rate Corresponding to Option Life Time	0.64%
Variance	41%
Value of Put	0.06
<b>DLOM</b>	<b>26.51%</b>

## Equity Volatility Assumption

Company name	Equity Volatility
OraSure Technologies, Inc.	50.28%
Alere, Inc.	37.81%
Medidata Solutions, Inc.	39.49%
Abaxis, Inc.	36.05%
Cerner Corp	25.77%
PAREXEL International Corp	33.75%
<b>Mean</b>	<b>64.48%</b>
<b>Median</b>	<b>64.32%</b>
<b>Quartile 1</b>	<b>55.25%</b>
<b>Quartile 3</b>	<b>72.08%</b>
<b>High</b>	<b>85.19%</b>
<b>Low</b>	<b>36.14%</b>
<b>Trimmed Average</b>	<b>64.24%</b>
<b>Selected</b>	<b>Median</b>

## Exhibit 12 – Fair Market Value Conclusion

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Particulars		Value
Common Stock Value (Before DLOM)		\$0.23
Discount For Lack of Marketability (DLOM)	26.5%	(\$0.06)
<b>Fair Market Value of Common Stock (Post DLOM)</b>		<b>\$0.17</b>



### Exhibit 13. – Brief Profile of Appraisal Team

**Hemendra Aran,**  
**CEO and Head of Valuation Services**

Hemendra, Founder and CEO at Aranca, heads Valuation Services. Until date, he has overseen independent valuations of over 450 privately held firms as a principal appraiser. Hemendra has extensively interfaced with securities analysts, fund managers, financial consultants, M&A advisors, tax consultants, audit firms and members from regulatory bodies. He has written four books including one titled 'Global Financial Markets Revolution: The Future of Exchanges and Capital Markets', published by McMillan. Hemendra is a sought-after media speaker and has appeared on BBC and CNBC in addition to a host of business newspapers.

Before starting Aranca, Hemendra worked at Goldman Sachs and Infosys Technologies Limited. He is a member of the Institute of Business Appraisers, Plantation, Florida, US and subscribes to IBA's Code of Ethics. Hemendra holds an MBA from London Business School and Haas School of Business, University of California, Berkeley, and a BS from Indian Institute of Technology, Chennai.

**Bharat Ramnani, ASA, Chartered Accountant**  
**Associate Vice-President, Valuation Services (Practice Lead)**

Bharat joined Aranca in 2006 and currently leads the firm's Valuations & Advisory Services practice. He has more than nine years of professional experience in corporate finance, equity research and business valuation. Bharat has executed independent business and independent valuation assignment for more than 300 US-based VC - funded privately held business across diverse industry sectors including semiconductor, software, online advertising, social media, Internet-based business and life sciences. He also manages Aranca's relationships with Private Equity clients across the globe, helping them in the valuation of their investment targets.

Prior to joining Aranca, Bharat worked with Finance team of R.A.K Ceramics in the Middle East. In this capacity, he was involved in a host of corporate finance activities including working capital, business reviews and new business evaluations. Bharat holds Accredited Senior Appraiser (ASA) designation conferred by the American Society of Appraisers and is a qualified Chartered Accountant (CPA Equivalent in India).

**Manpreet Singh, ASA**  
**Manager, Valuation Services**

Manpreet joined Aranca in 2006 and is Manager in the firm's Valuations and Financial Advisory Services Groups. He has more than five years of experience in corporate finance, having assisted over 250 companies with their valuation requirements. In addition, Manpreet has been involved in providing financial advisory services on behalf of Aranca's clients based out of the Middle East.

Manpreet is an Accredited Senior Appraiser (ASA) designated in Business Valuation. He also holds Master of Business (Finance) from Victoria University, Australia, and a Bachelor in Commerce from the University of Delhi, India.

## Exhibit 14 – General Assumptions and Limiting Conditions

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This independent appraisal report is subject to the following assumptions and limiting conditions, to be understood in conjunction with the previously presented Certification section:

- All reported facts, comments, estimates, opinions and statistical information set forth in this report have been obtained from sources believed to be accurate, reliable and knowledgeable. No liability is assumed for the content or accuracy of the data furnished by others, including information and representations provided by management to Aranca.
- Aranca and the analyst have made no attempt to verify the accuracy, veracity, conformity and topical nature of the data gathered from such sources.
- Aranca and the analyst relied on historical financial data provided by the management, as well as, verbal representations made by the management regarding this data and subsequent adjustments made to this data.
- All financial statements and other data pertaining to the Company have been provided by management and accepted by Aranca without verification, including conformity or non-conformity with generally accepted accounting principles and/or other guidelines established by recognized regulatory and other governing bodies.
- The historical financial information and any adjustments thereto and any forecasts and projections presented in this report, including attached Exhibits, are included solely to assist in the development of the value estimate presented in this report.
- We do not provide assurance on the achievability of the results forecasted by the Company because events and circumstances frequently do not occur as expected; differences between actual and expected results may be material; and achievement of the forecasted results is dependent on actions, plans, and assumptions of management.
- The conclusions of value are based on the assumption that the current level of management expertise and effectiveness would continue to be maintained and that the character and the integrity of the enterprise through any sale, reorganization, exchange, or diminution of the owners' participation would not be materially or significantly changed
- Because of the limited purpose of this presentation, the information may be incomplete and contain departures from generally accepted accounting principles and/or other guidelines established by recognized regulatory and other governing bodies. We express no opinion or other assurances on the information presented and it should not be used for any other purpose other than to assist in this valuation.