AN ARANCA REPORT

Theranos, Inc.

FMV of common stock as of December 15, 2014

31st December 2014

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VALUATION & ADVISORY SERVICES • INVESTMENT RESEARCH • BUSINESS RESEARCH • PATENT RESEARCH

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01.

ENGAGEMENT OVERVIEW

1.1. 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 December 15, 2014 (the 'Date of Valuation').

1.2. 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 7.12** for 'General Assumptions and Limiting Conditions'.)

1.3. 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[1] 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 arm's 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'[2] 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)[3].

[1] AICPA Practice Aid Series 2004 – 'Valuation of Privately Held Company Equity Securities Issued as Compensation'
[2] SFAS 123 (R), Glossary, Appendix E
[3] AICPA Practice Aid Series 2004 – 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page 7, Footnote 8.

1.4. 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, 2011, through December 31, 2013. Review of financial statements ending December 15, 2014.
3. Review of forecasted financial statements for financial years ending December 31, 2014, through December 31, 2018, 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.
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.

1.5. 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.
- 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, 2013.
- 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 September 30, 2013.
- 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 September 30, 2014

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 Manish Goyal during this independent appraisal process. No person other than those identified has any significant professional input during this independent appraisal process.

1.5.1. 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 December 15, 2014, the minority and non-marketable basis Fair Market Value of its common stock, as a class, is $1.44 per share.

Principal Appraiser

Hemendra Aran, Head, Valuation Services

Date of Report: December 31, 2014

02.

COMPANY OVERVIEW

2.1. Brief Company Profile

Quick facts – Theranos, Inc.	
Established	May 2004
Headquarters	Palo Alto, CA
Founders	Elizabeth Holmes
Product/Service Offering	Healthcare information systems
Investors	Healthcare Distributors
Revenues (as of FY2018)	~$500 million

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 samples. From lab order, to processing, to results, every aspect of the testing is connected through a secure online network. The patient and the physician can always have answers quickly and accurately, right when they need it. Pharmaceutical companies and physicians can then analyze the data to realize target profiles of their drugs and better patient care. Theranos' Clinical Laboratory Improvement Amendments (CLIA)-certified technology requires only a few drops of a patient's blood sample to perform most of the tests, ranging from common panels to specialized tests. This is in contrast to the conventional testing technologies, which require multiple vials of samples for deriving the same test results. The blood sample is collected in a "nanotainer"(a vial smaller than the fingernail). All samples are processed using automated devices at centralized facility with no manual intervention.

The Company's website lists more than 240 laboratory tests. Theranos is adding more tests to this list. The test results can be obtained in less than four hours. In addition, these tests cost ≤50% of the Medicare reimbursement rates and are reimbursed by major insurance carriers Medicare and Medicaid (please refer section 7.11 for details). Theranos believes that if all the tests are performed at these costs in the US, the Company could save $98 billion for Medicare and $104 billion for Medicaid over the next decade. The cost of fertility testing in most laboratories is $2,000, whereas the cost of Theranos' new fertility panel would be $35.

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).

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.

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 were 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. After the acquisition of Alliance Boots, Walgreens has emerged as the nation's largest pharmacy chain, with more than 11,000 stores across 10 countries. With Walgreens nationwide reach, the Company's lab testing service shall become more accessible for the customers. Furthermore, the wellness centers in Walgreen are open seven days in a week, from late at night to early in the morning for customers' convenience.

Most other laboratories perform blood tests on equipment purchased from outside vendors such as Siemens and Roche Diagnostics. The US FDA has to approve the use of these devices before they are sold in the market. However, as Theranos manufactures its testing equipment, FDA approval is not required as long as the Company does not sell the equipment or move these out of its laboratories. Despite this fact, Theranos has submitted all relevant data to the US FDA for approval of its testing equipment.

The Company employs 700 people. In addition to its headquarters, the Company has a 265,000-square foot facility in Newark, California, which manufactures the devices for testing blood samples. Theranos also owns 4,000 vehicles for collecting samples.

Recently, in partnership with Walgreens, Theranos has opened centers in 41 Walgreens pharmacies (40 in the Phoenix and one in Palo Alto).

2.2. Financing History and Capital Structure

As of the valuation date, Theranos had secured multiple rounds of financing of over $770 million. The Company's total diluted capital structure consists of preferred capital (40.19%), common stock (52.21%), and options and warrants (4.61%). Total preferred capital was divided among Series A, B, C, C1, and C2 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.

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

Class of Stock	No. of Shares	Issue Price	Invested Capital	Participation Cap	Conv. Ratio
Series A	46,320,045	$0.150	$6,948,007	Unlimited	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	21,841,668	$3.000	$65,525,004	Unlimited	1:1
Series C-1*	6,500,032	$15.000	$97,500,480	Unlimited	1:1
Series C-2	32,808,229	$17.000	$557,739,893	Unlimited	1:1
Common shares - Class A	52,305,170				
Common shares - Class B	250,658,055				
Total	**523,492,269**		**770,930,787**		

Liquidation Preference: In the event of any liquidation, dissolution, or winding up of Theranos, Series C, C-1 and C-2 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, Series C-1 and Series C-2 Preferred stocks, as applicable, plus any declared but unpaid dividend on such share of Series C, Series C-1 or Series C-2 Preferred stocks, as applicable. After the payment of liquidation preference for Series C, Series C-1 or Series C-2 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 A, B, C, C-1 and C-2 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.

2.3. 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. The Company validates its assays according to the US FDA, International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH), and World Health Organisation (WHO) guidelines.

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.

To perform the medical tests, Theranos' device require only a few drops of blood sample as against multiple vials required by the conventional testing equipment. 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. The company has also expanded 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

2.4. Technology

Key features of the Theranos technology include:

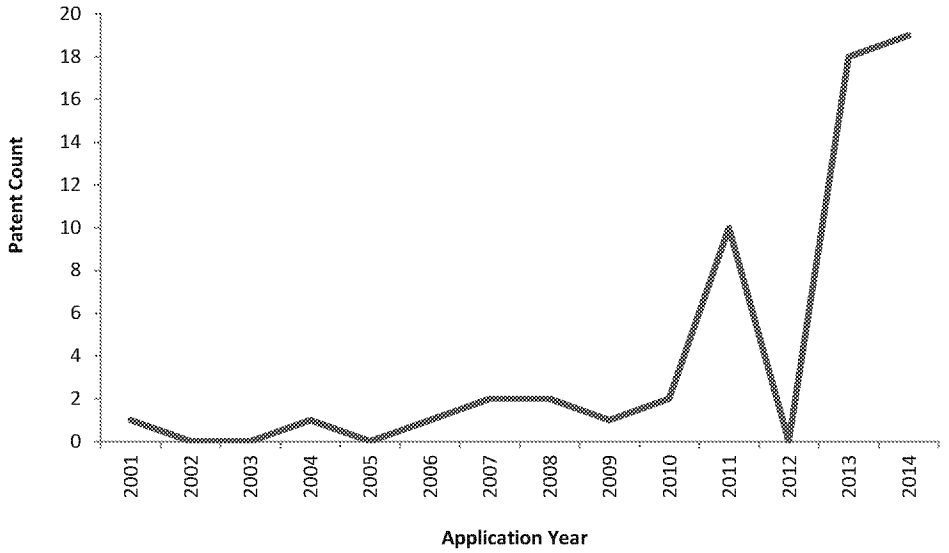
- Blood chemistry system that is more sensitive than cutting-edge laboratory analytical tools
- Fully integrated finger-prick blood monitoring system that eliminates the need to draw venous blood
- An integrated blood sampling port, which samples and analyzes blood droplet automatically without an individual 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.

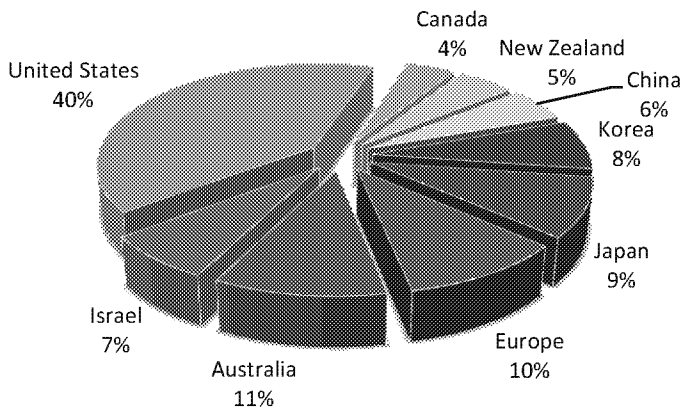
2.5. IP Overview

Theranos filed its first patent in 2001 pertaining to the assessment of HIV infectivity status using a novel diagnostic method. Right from its first filing, the focus of the technology was on point-of-care technologies for real-time sampling using nano-samples for quick and accurate diagnosis. Initially, it was meant for the detection of specific analytes; however, from 2007, Theranos started filing patents for multiple sample analysis. In 2009, the Company also began filing patents related to healthcare surveillance and monitoring system; the system allowed real-time assessment and prediction of clinical outcomes and risks related to certain diseases. These breakthrough technologies are the key selling points aligned with market sentiment concerning easy, quick, affordable, and customer friendly healthcare solutions.



Theranos' patent portfolio has expanded exponentially over the past five years. This can be attributed to the fact that the diagnostics market is going to boom in the coming years, mainly driven by the challenges presented by current diagnostic methods. According to a report *"Scientific Advancement and Culture of Wellness Converge to Drive Booming New Market"* by PwC, the market for customized healthcare and wellness solutions would grow to $452 billion by 2015. This market includes technologies from high-tech storage to data sharing.

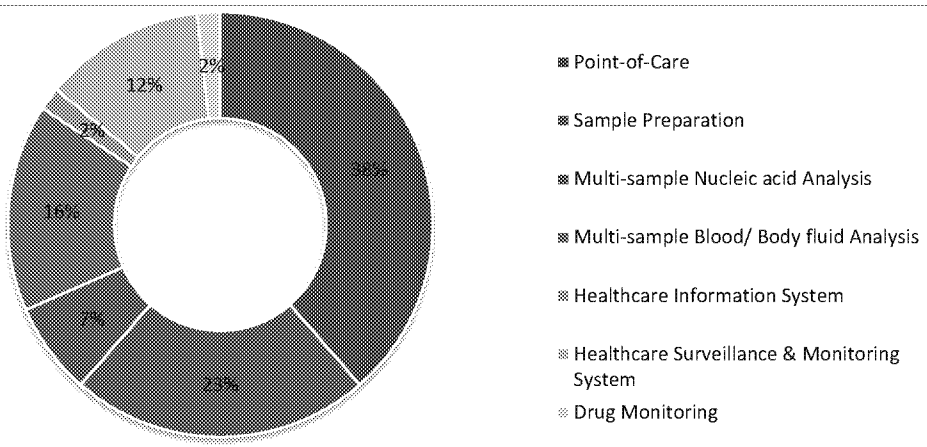
In the past five years, Theranos has explored the domain of healthcare surveillance and monitoring system and digital health, focusing on providing real-time data to doctors. Additionally, the Company is focusing on niche domains such as mapping of future trends and prediction of disease occurrence and personalized medicine, which are set to boom in developed nations such as the US, where the current market for personalized medicine is worth $232 billion and is projected to expand at a CAGR of 11%.



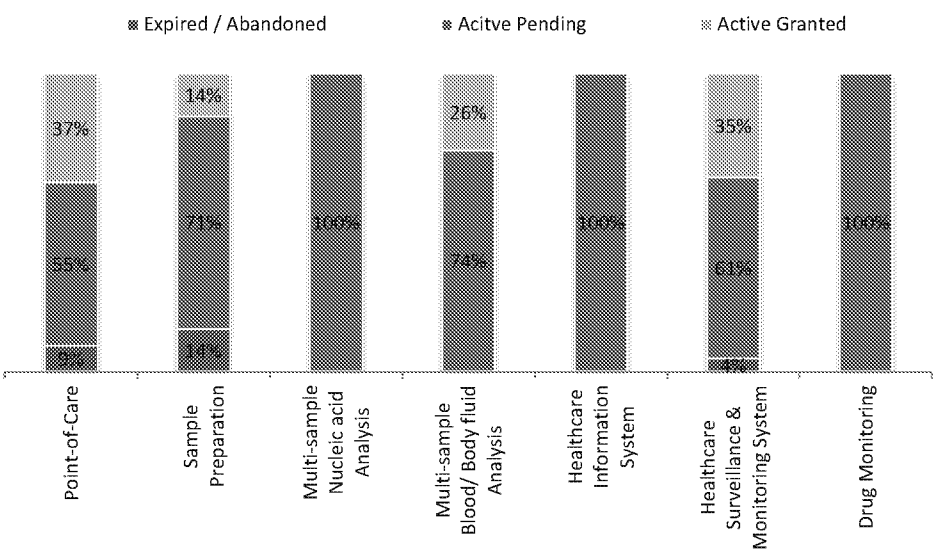
California-based Theranos has the highest number of patent filing in the US. Apart from the US, it has significant number of filings in other developed countries such as Australia, Japan, South Korea, and Israel and a few countries in Europe. The high number of filings in these countries aligns with the fact that these countries are major absorbers of the diagnostics and personalized medicine market owing to:

- Rising aging population;
- Favorable government policies; and
- High importance given to improving the overall healthcare status of the country.

Theranos' technologies have revolutionized the *in vitro* diagnostics space. Point-of-care technologies dominate their portfolio, followed by sample preparation and multi-sample analysis technologies. Healthcare surveillance and monitoring, which constitute an integral part of Theranos solutions, also hold considerable percentage stake in the portfolio.

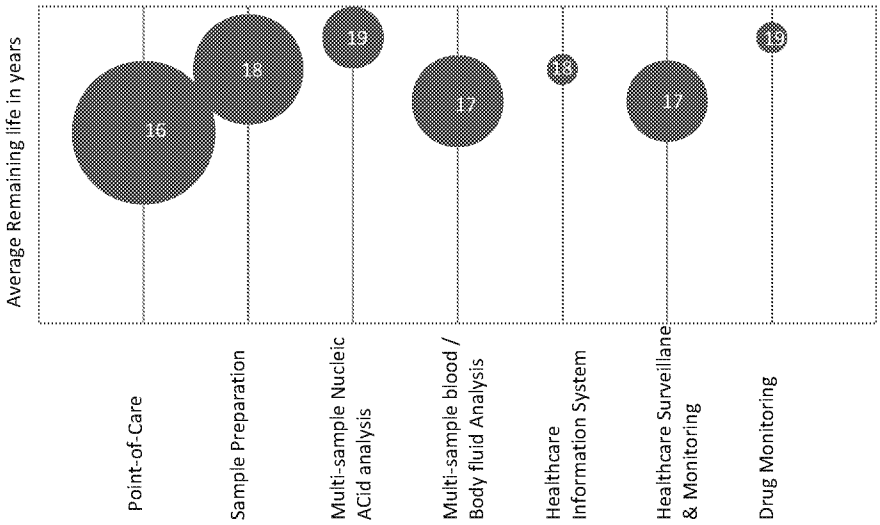


Most of the patents in Theranos' portfolio are in pending state as they have been filed recently. However, a considerable percentage of patents are granted for point-of-care (37%), healthcare surveillance & monitoring (35%), and multi-sample blood analysis (26%). All these technologies constitute the basis of Theranos' current market solutions.



Theranos has patents in various technology segments, with the earliest patent technologies related to point-of-care systems having an average useful life of 16 years. Theranos has most recently filed

patents in the domains of drug monitoring and multi-sample nucleic acid analysis; the maximum available average life of these patents is 19 years.



***The data labels in above chart represent number of years of average remaining useful life and the size of bubble is proportional to the percentage of patents in the technology segment.*

Theranos has a strong patent portfolio around its unique key solutions in the diagnostics domain. A brief snapshot of key solutions, associated technology features, and corresponding key patents is presented below:

Key Solutions	Technology Features	Key Patents**
Technology	Micro-samples: Devices and methods using small volume of samples to perform multiple tests in an efficient manner	US8435738B2, WO2014015191, US20140057770A1, US20140020457A1
	Rapid detection: Portable devices, methods, and reagents for rapid detection of diseases	US8669047B2, US8778665B2, US20140170688A1
	Precision: Devices and methods for carrying out high-precision diagnosis	US8475739B2, US8697377B2, US8007999B2
Multiple Affordable Tests	Cost effective: Devices or disposable assay units for performing sample analysis in a cost effective manner by preventing additional sample preparation procedures	US8088593B2, EP2205968B1, US20140057255A1
	Efficient: Devices performing multiple analyses using single sample, in few steps	EP2436400B1, US20140073043A1
Digital Tools	Easy accessibility: Systems and network connectivity which provides access to medical reports from anywhere using portable electronic devices	US8392585B1, US8862750B2, US20140095189A1
Experience	Needleless and painless sampling: Systems which help in collecting samples in a painless and comfortable manner	WO2014039909A1, WO2014145935A1

***Key patents only represent examples of above mentioned technical categories.*

Note: The IP analysis is based only on DWPI data available on Thomson Innovation.

2.6. 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.

2.7. 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	**Theranostics Health:** 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.
CHOLESTECH	**Cholestech Corporation:** 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.
SEQUENOM	**Sequenom:** 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.
CLINICAL DATA	**Clinical Data, Inc.:** 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.

2.8. Management Team

Elizabeth Holmes, Founder and Chairman, 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.

Sunny Balwani, President, Chief Operating Officer

Sunny is the 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.

Samuel Nunn, Director

Samuel served as a United States Senator from Georgia for 24 years and as the Chairman of the Senate Armed Services Committee and the Permanent Subcommittee on Investigations. He is currently the Co-chairman and Chief Executive Officer of the Nuclear Threat Initiative (NTI), a charitable organization working to reduce global threats from nuclear, biological, and chemical weapons. He has served on a number of corporate boards, including Chevron Corporation, the Coca-Cola Company, Dell Computer Corporation, and General Electric Company.

William H. Frist, Director

Dr. Frist is a nationally recognized heart and lung transplant surgeon, a former US Senate Majority Leader, and the Chairman of the Executive Council of Cressey & Company. He represented Tennessee in the US Senate for 12 years, where he served on both the Health and Finance committees. He was elected the Majority Leader of the Senate having served fewer total years in Congress than anyone in history. His leadership was instrumental to the passage of the 2003 Medicare Prescription Drug Improvement and Modernization Act and the US President's Emergency Plan for AIDS Relief (PEPFAR), the national commitment for fighting HIV/AIDS globally.

George P. Shultz, Director

George has had a distinguished career in government, academia, and business. He is one of the two individuals who have held four different federal cabinet positions. He has taught at three of the US's top universities; for eight years, he was the president of a major engineering and construction company. Since 1989, he has been a Distinguished Fellow at Stanford University's Hoover Institution. He is a recipient of the Medal of Freedom, the US' highest civilian honor.

James N. Mattis, Director

James is a retired United States Marine Corps General who last served as the 11th Commander of the United States Central Command. He previously commanded United States Joint Forces Command and concurrently served as NATO's Supreme Allied Commander Transformation (SACT). Prior to that, he commanded the I Marine Expeditionary Force, the United States Marine Forces Central Command, and the 1st Marine Division during the Iraq War. General Mattis retired after serving the US defense forces for more than 41 years.

William H. Foege, Director

Dr. Foege is an epidemiologist and former director of the US Center for Disease Control and Prevention (CDC) who has left an indelible mark in the field of global health. Recognized as the health innovator behind the successful campaign to eradicate smallpox in the 1970s, Dr. Foege received the Presidential

Medal of Freedom in 2012. He served as a Senior Medical Advisor at the Bill and Melinda Gates Foundation from 1999 until his retirement in 2011.

William J. Perry, Director

William is an entrepreneur, mathematician, and engineer who was the United States Secretary of Defense under President Bill Clinton. He also served as Deputy Secretary of Defense for Research and Engineering. William has extensive business experience and currently serves on the boards of several high-tech companies and as Chairman of Global Technology Partners. He was the Founder and President of Electromagnetic Systems Laboratory (ESL), Inc. He is currently the Michael and Barbara Berberian Professor (emeritus) at Stanford University, with a joint appointment at the Freeman Spogli Institute for International Studies and the School of Engineering.

Henry A. Kissinger, Director

Henry is the Chairman of Kissinger Associates, Inc., an international consulting firm. He served as the Assistant to the President for National Security Affairs from 1969 to 1975 and as the Secretary of State from 1973 to 1977. He has received numerous awards in recognition for his work in foreign policy, including the Nobel Peace Prize and the Presidential Medal of Freedom. Dr. Kissinger serves on the boards of numerous government, corporate, and non-profit organizations. He is the author of several books; his most recent book, On China, was published in 2011.

Gary Roughead, Director

Gary is a retired United States Navy Admiral who served as the 29th Chief of Naval Operations after holding six operational commands. He is one of the only two officers in the US Navy's history to have commanded both the Atlantic and Pacific fleets. Ashore, he served as Commandant at the US Naval Academy. He was also the Navy's Chief of Legislative Affairs and the Deputy Commander of the US Pacific Command during the relief efforts following the 2004 tsunami in Southeast Asia and the Indian Ocean. He is a Distinguished Fellow at the Hoover Institution. He also serves on the board of Northrop Grumman Corporation.

Richard Kovacevich, Director

Richard serves as the Vice President of San Francisco Symphony. He served as the Chief Executive Officer of Wells Fargo & Company from 1998 to 2007 and Chairman of the Board from 2001 to 2009. Prior to Wells Fargo, he served as Chief Executive Officer of Norwest Corp. until its merger with Wells Fargo. Richard held numerous executive positions including Division General Manager of General Mills and head of regional retail banking at Citicorp. He currently serves on a number of corporate boards, including Cargill Inc., The Clearing House LLC, Cisco Systems Inc., and as a member of the Federal Reserve's Federal Advisory Council.

Riley P. Bechtel, Director

Riley is the Chairman of the Board and a Director of Bechtel Group, Inc. He joined the company full-time in 1981 and served in a variety of operational roles, both domestically and overseas. He has held various positions at Bechtel Group, including Chief Executive Officer, Chief Operating Officer, and Vice President. Prior to Bechtel, he practiced law at Thelen, Marrin, Johnson & Bridges.

2.9. 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.
- **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.
- **Defending technological intellectual property (IP) rights:** Theranos' products would be unique and innovative as it would utilize proprietarily 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.

2.10. Stage of Enterprise Development

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

Stage	Description
One	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.
Two	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.
Three	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.
Four	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.
Five	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).
Six	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:

Management Team & Operational History	The Company has an experienced management in place comprising people from biomedical and therapeutics fields with several years of collective experience.
Product/Service Offering	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, Theranos commenced the development of smaller versions of medical devices and launched these by the third quarter of 2013.
Customers	Theranos is positioning its system for use by pharmaceutical and biotechnology companies with drugs in clinical trials. Furthermore, the Company opened centers in 41 Walgreens pharmacies.
Funding	Since inception, Theranos has raised preferred funding of about $770 million through Series A, B, C, C-1, and C-2 rounds.
Revenues & Profitability	Theranos generated revenues of $0.52 million in FY11. The Company is expected to garner revenues of $500 million in FY18. As of the valuation date, Theranos is operating at a loss and is expected to start generating profits FY16 onward.

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

03.

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.**

3.1. 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.

3.2. In Vitro Diagnostics Industry

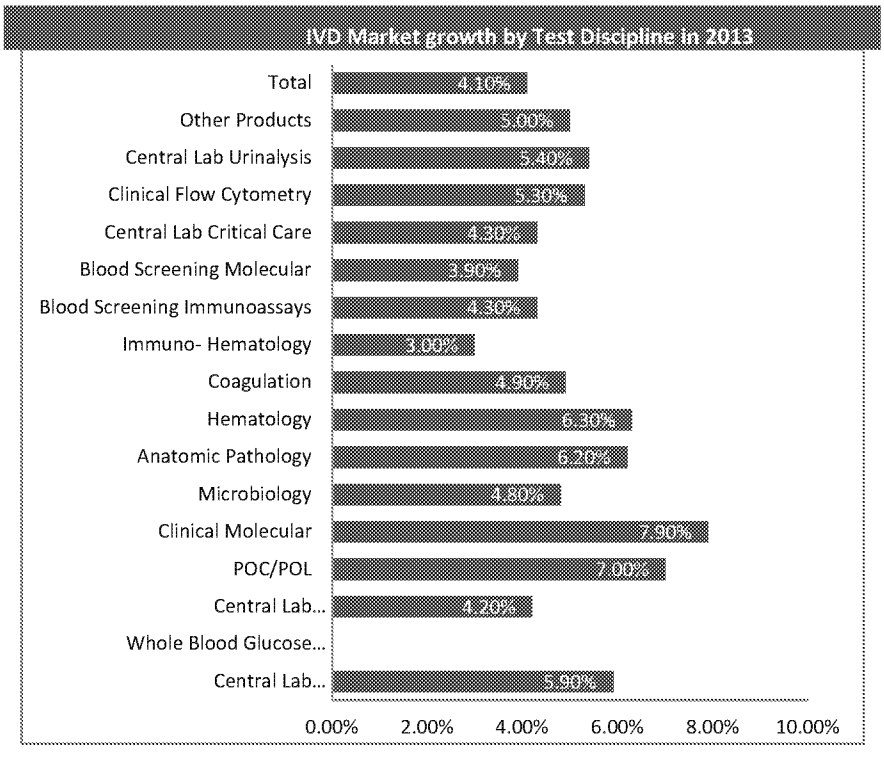
The IVD industry manufactures reagents, analytical instruments, and accessory products used to perform diagnostic laboratory tests. The three put together are referred to as IVD systems.

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 2013 can be mapped as follows:



Source: Enterprise Analysis Corporation, 2014

3.3. 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.

3.4. Drivers and Trends

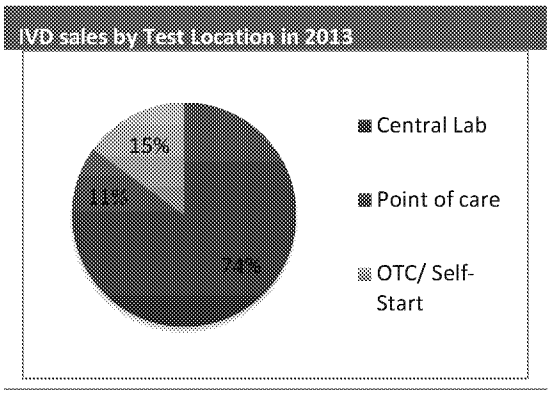
Following factors majorly drive this growth:

- 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 15.4% in 2012 to 13.4% in 2013 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 30-35 million newly insured Americans driving higher volumes of testing and other services.



Source: Enterprise Analysis Corporation, 2014

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 $5.8 billion in 2013 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.

- Growing molecular diagnostics segment:

The more dynamic segments in the US IVD market include microbiology, molecular diagnostics, and histology. The leading growth rates of molecular diagnostics and histology in the US IVD market are based on their utility in cancer detection and monitoring. Molecular diagnostics is the fastest growing segment for technological additions to clinical labs as well as one of the fastest and most dynamically growing product spaces. Growth in this segment has also contributed toward growth in other IVD segments such as histology, microbiology, and blood bank testing.

- Genetic testing to see a high adoption rate:

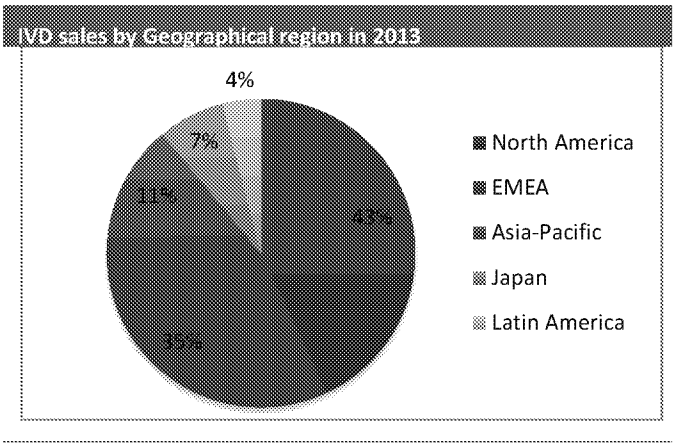
The genetic testing market is expected to grow at a CAGR of 10.3%. Personalized medicine, Direct to consumer genetic testing & increasing application of genetic testing in the diagnosis of infectious diseases will drive the adoption rate of genetic tests in the near future. Convenience, accessibility, 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 on $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, 2014

Increase in healthcare expenditure: Healthcare expenditure has increased over the past few years. According to the US Department of Health & Human Services, national health spending would reach $4.6 trillion and account for almost 19.6% of GDP by 2020. The number of patients seeking and continuing treatment is expected to rise along with growth in healthcare expenditure.

Merger & acquisition activity: Demand for medical diagnosis has increased as it provides more accurate results. As a result, many non-traditional companies (earning less than 50% of revenues from the diagnostics sector) have entered the sector to compete with traditional clinical diagnostics and diversified lab players. Non-traditional companies that entered this market through acquisitions are pharmaceutical companies, life science tool companies, and diversified conglomerates, among others.

3.5. Challenges

- Developing companion diagnostics:

IVD manufacturers need access to appropriate technology platforms in order to deliver companion diagnostic for clinical trials and, eventually, patient testing. A companion diagnostic is a medical device, often in vitro, which provides essential information for the safe and effective use of a corresponding drug. The main challenges in developing companion diagnostics include access to high-quality specimens with correlated clinical annotations, decreasing volume of available tumor tissue, the need for increased assay sensitivity, and the rapid emergence of new biomarkers and medical data.

- 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.

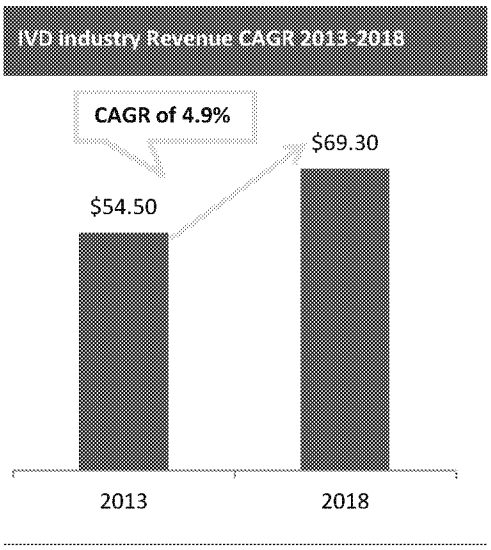
- Negative impact of inclusion of developing countries:

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.

3.6. Outlook



Source: Enterprise Analysis Corporation, 2014

Despite global economic and industry challenges, the IVD markets are growing at twice the rate of global pharmaceutical industry. The global IVD market size was $54.5 billion in 2013 and is expected expand at a CAGR of 4.9% to reach $69.3 billion in 2018.

Due to stagnation in mature markets, companies are shifting their focus toward emerging economies such as China and Brazil.

According to the latest report by Research and Markets, Asia-Pacific is forecast to be the fastest growing market, expected to grow at a CAGR of 7.49% from 2014 to 2020. The IVD market in emerging economies is evolving, primarily due to widespread awareness and increased healthcare spending capabilities. Demand in these markets is further strengthened by high demand for technologically advanced equipment for early and precise diagnosis of diseases.

In 2013, 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.

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.

04.

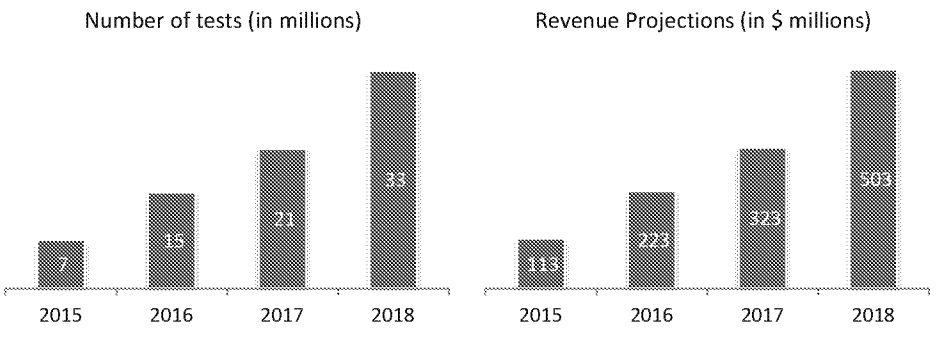
Business Plan Review

Theranos' management has developed financial projections for the business based on their review of the market opportunity, operational plan of commercializing the service offering, and the tie up with Walgreens. The forecasts have been developed using a bottom-up approach, driven by the Company's plan to expand its point-of-care locations and number of tests per day. The management believes that a significant demand potential exists. Aranca has evaluated the available underlying assumptions used for developing the financial forecasts. This section presents our review of the Company's financial projections and the underlying assumptions.

4.1. Licensing Contracts and Revenue Estimates

- Theranos plans to launch its service offering in 200–300 point-of-care locations across the US in FY2015. Due to its innovative technology, the Company is able to charge a comparatively lower price of about $35 per test on an average.
- This price is significantly lower than the prevailing test charges and is expected to significantly increase the number of tests serviced by Theranos.
- Theranos has assumed that it would be able to conduct about 67 tests per day across its 300 test centers and thereby generate revenues of about $110 million in FY2015. Beyond 2015, it expects to see an improvement in the number of tests per day and centers; hence, it estimates revenues of about $500 million in 2018.

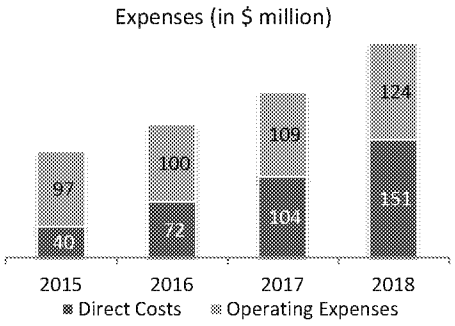
The chart below depicts revenues and number of tests per year during the forecast period.



4.2. Total Expenses and Profitability

Initially, Theranos expects the cost of sales to be about 35% of revenues, which would decrease to 30% by FY2018.

After the estimation of General & Administrative (G&A) and Research & Development (R&D) expenses, the Company targets to breakeven in FY2016 and improve its EBIDTA margins to 36% by FY 2018.



4.3. Income Statement

Based on the revenue and expense projections below is the estimated income statement for Theranos.

Summary Income Statement (in $'000)	Dec-14	Dec-14	Dec-15
	15 Days-F	**FY-F**	**FY-F**
Revenues	46	150	113,452
Cost of Sales	53	53	39,708
Gross Profit	(7)	97	73,744
Operating Costs	1,785	100,031	97,025
EBITDA	(1,792)	(99,934)	(23,281)
Depreciation	-	7,095	24,336
EBIT	(1,792)	(107,029)	(47,617)
Interest & Finance Costs	-	-	711
Income/ (Loss) - Investments & Affiliates	-	363	382
PBT	(1,792)	(106,666)	(47,999)
Income Tax	-	-	-
PAT	**(1,792)**	**(106,666)**	**(47,999)**

Summary Income Statement (in $'000)	Dec-16	Dec-17	Dec-18
	FY-F	FY-F	FY-F
Revenues	223,452	323,452	503,452
Cost of Sales	71,505	103,505	151,036
Gross Profit	151,947	219,947	352,416
Operating Costs	99,961	108,977	124,401
EBITDA	51,986	110,970	228,015
Depreciation	39,236	51,453	61,558
EBIT	12,750	59,517	166,457
Interest & Finance Costs	711	711	711
Income/ (Loss) - Investments & Affiliates	533	180	192
PBT	12,572	58,986	165,938
Income Tax	-	-	-
PAT	**12,572**	**58,986**	**165,938**

4.4. Balance Sheet

Based on management's guidance and projections below is the forecasted balance sheet statement –

Summary Balance Sheet (in $'000)	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18
	F	F	F	F	F
Cash & Cash Equivalents	463,733	371,020	359,771	384,554	513,904
Inventory	8,874	3,404	6,704	9,704	15,104
Other Current Assets	18,362	4,838	5,080	5,334	5,601
Current Assets	27,236	8,242	11,784	15,038	20,705
Other Operating Assets	27,362	57,539	50,055	42,303	58,453
Other Operating Assets	27,362	57,539	50,055	42,303	58,453
Fixed Assets (Gross)	56,095	89,229	135,199	200,768	260,008
(Accum. Depreciation)	7,095	31,431	70,667	122,120	183,678
Fixed Assets (Net)	49,000	57,798	64,532	78,648	76,330
Total Assets	**567,331**	**494,599**	**486,142**	**520,543**	**669,392**
Trade Payables	8,340	13,879	16,480	16,714	22,774
Accrued Expenses	11,232	6,066	7,258	8,446	10,514
Other Current Liabilities	1,007	1,007	1,007	1,007	1,007
Deferred Revenue	93,808	70,356	46,904	23,452	-
Current Liabilities	114,387	91,308	71,649	49,619	34,295
Other Operating Liabilities	18,972	17,728	15,963	14,198	12,433
Total Other Operating Liabilities	18,972	17,728	15,963	14,198	12,433
Long Term Debt	97,896	52,969	50,933	-	-
Debt	97,896	52,969	50,933	-	-
Paid in Capital	712,249	756,766	759,197	809,340	809,340
Retained Earnings	(376,172)	(424,171)	(411,599)	(352,613)	(186,675)
Shareholders' Equity	336,076	332,594	347,597	456,726	622,664
Total Liabilities	**567,331**	**494,599**	**486,142**	**520,543**	**669,392**

4.5. Cash Flow Statement

Cash Flow Statement (in $'000)	Dec-14	Dec-15	Dec-16
	15 Days-F	**FY-F**	**FY-F**
Net Profit After Tax	(1,792)	(47,999)	12,572
Depreciation	-	24,336	39,236
Interest & Finance Costs	-	764	764
Adjusted Operating Cash Profit	(1,792)	(22,899)	52,572
Trade Receivables	13,754	-	-
Inventory	-	5,470	(3,300)
Other Current Assets	(13,754)	13,524	(242)
Trade Payables	-	5,539	2,601
Accrued Expenses	-	(5,166)	1,192
Other Current Liabilities	1,007	-	-
Deferred Revenue	(38)	(23,452)	(23,452)
Changes in Working Capital	969	(4,085)	(23,201)
Change in Other Operating Liabilities	(9,142)	(1,244)	(1,765)
Change in Other Operating Assets	-	(30,177)	7,484
Net Change in Other Operating Assets/ Liabilities	(9,142)	(31,421)	5,719
Cash Flow from Operations	(9,965)	(58,405)	35,090
Net (Purchase) / Sale of Fixed Assets	(370)	(33,134)	(45,970)
Cash Flow from Investment Activities	(370)	(33,134)	(45,970)
Net Debt Taken / (Repaid)	7,091	(44,927)	(2,036)
Interest & Finance Costs	-	(764)	(764)
Change in Share Capital & Reserves	(18)	44,517	2,431
Cash Flow from Financing Activities	7,073	(1,174)	(369)
Change in Cash & Cash Equivalents	(3,263)	(92,713)	(11,249)
Opening Cash & Cash Equivalents	466,996	463,733	371,020
Closing Cash & Cash Equivalents	**463,733**	**371,020**	**359,771**

Cash Flow Statement (in $'000)	Dec-17	Dec-18
	FY-F	FY-F
Net Profit After Tax	58,986	165,938
Depreciation	51,453	61,558
Interest & Finance Costs	764	764
Adjusted Operating Cash Profit	111,203	228,260
Trade Receivables	-	-
Inventory	(3,000)	(5,400)
Other Current Assets	(254)	(267)
Trade Payables	234	6,060
Accrued Expenses	1,188	2,068
Other Current Liabilities	-	-
Deferred Revenue	(23,452)	(23,452)
Changes in Working Capital	(25,284)	(20,991)
Change in Other Operating Liabilities	(1,765)	(1,765)
Change in Other Operating Assets	7,752	(16,150)
Net Change in Other Operating Assets/ Liabilities	5,987	(17,915)
Cash Flow from Operations	91,906	189,354
Net (Purchase) / Sale of Fixed Assets	(65,569)	(59,240)
Cash Flow from Investment Activities	(65,569)	(59,240)
Net Debt Taken / (Repaid)	(50,933)	-
Interest & Finance Costs	(764)	(764)
Change in Share Capital & Reserves	50,143	-
Cash Flow from Financing Activities	(1,554)	(764)
Change in Cash & Cash Equivalents	24,783	129,350
Opening Cash & Cash Equivalents	359,771	384,554
Closing Cash & Cash Equivalents	**384,554**	**513,904**

05.

Valuation Analysis

To arrive at the 'Fair Market Value' of Theranos's 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 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.

5.1. Valuation Summary

- In our analysis of Theranos, we considered the market and income approaches. Under the market approach, we reviewed the Backsolve method and guideline public companies' trading multiples. Under the income approach, we applied the DCF analysis.
- Emphasis on market-based methods depended on the number of guideline public companies identified as well as the extent to which Theranos was comparable to the shortlisted guideline public companies. Secondly, recent round of funding of Series C-2 preferred stock was used as a key benchmark in determining the value.
- Factors such as reliability of the financial forecasts, magnitude and materiality of assumptions required to build them were analyzed while weighing DCF.
- 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 DCF and guideline public companies' trading multiples method.
- Accordingly, we corroborated the result derived from Backsolve method with the Equity Value arrived through the DCF (Income approach) and Guideline Public Companies' (GPC) Trading Multiples (Market approach). Hence, 50% weight was given to value derived through Backsolve method, considering superiority of the recent transaction and equal weights (25% each) were assigned to DCF and GPC approaches.
- Below is the summary of the equity value determined by all three methods and concluded weighted average equity value –

Approaches	EV (in $ millions)	Weight	Value (in $ millions)
EV - Income Approach	1,771	25%	443
EV - Market Approach - GPC	1,624	25%	406
EV - Market Approach – BackSolve	1,701	50%	850
Concluded Equity Value			**1,699**

5.2. Equity (Enterprise) Valuation Methods

As per guidelines prescribed by the AICPA Practice Aid, all valuation methodologies applied for the valuation of a privately-held company can be broadly classified under three approaches:

- The Market Approach
- The Income Approach
- 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".

(For detailed theory, please refer to Exhibit 7.4)

5.3. Reverse OPM (based on Series C-2 funding transaction)

BackSolve method involves inferring the FMV of common stock based on Series C-2 funding transaction

As per the AICPA Practice Aid's 'Valuation of Privately Held Company Equity Securities Issued as Compensation', an appraiser needs to analyze the relevance of such preferred funding transactions to estimate the fair value of equity securities.

Since the last valuation, Theranos has raised around $388 million in Series C-2 preferred stock funding by issuing approximately 22.84 million shares at an issue price of $17.00 each. Based on this issue price per share and the Company's post-transaction capital structure, the implied post-money Equity Value of the Company works out to $9.3 billion. However, the valuation method used to determine the FMV of common stock must factor the differences in economic and non-economic rights between preferred stock and common stock which the implied post-money valuation ignores.

The Option Pricing Method (OPM) is a forward-looking approach and is applied 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 the preferred series.

The reverse OPM method (also referred to as the BackSolve method) involves evaluating the issue price of the Company's most recent preferred stock funding to calculate total Equity Value. In the process, this method estimates the value of other securities including the common stock, assuming allocation of total Equity Value based on diverse rights and preferences of different classes of stock.

The BackSolve method is suitable to solve for the implied Equity Value consistent with the recent transactions in the equity securities of an enterprise with unrelated investors or among unrelated investors themselves. According to AICPA Practice Aid Working Draft guidelines that are considered relevant to 409A valuations, *"the BackSolve method is the most reliable indicator of the value of the enterprise if relevant and reliable transactions have occurred in the enterprise's equity securities."* The method requires minimum subjective inputs, making it a reasonable valuation method for companies at every stage.

As per the AICPA Equity Securities Task Force guidelines, the relevance of the latest preferred funding transaction on the fair market value of the enterprise and equity securities including common stock depends on the facts and circumstances of the case. At times, when the funding transactions may

include multiple value drivers or strategic components, it is appropriate to consider the specific transaction dynamics in estimating the FMV of common stock.

On the strategic preferred stock financing transactions, the AICPA Equity Securities Task Force guidelines particularly state:

"When the transaction involves a strategic relationship in which the investor receives certain benefits over and above the value that is expected to be realized from the stock itself, the transaction may reflect a higher price for the stock than a market participant who did not receive these benefits would be willing to pay."

In such cases, the transaction price (the original issue price in the case of preferred financing transaction) may be adjusted before inferring the Enterprise Value for the purpose of valuation of the common stock.

We discussed with and questioned the Company's management over the details of Series C-2 preferred financing transaction to assess whether such strategic considerations were involved. The management did not provide us with the details of investors or term sheet documents relating to the financing transaction, stating confidentiality reasons. Hence, it would be speculative to make any adjustment for strategic premium to Series C-2 issue price, in case any.

We used the solver function using the OPM to determine the implied Equity Value at which Series C-2 preferred stock as a class obtains the OIP of $17.00 per share. (Please refer to the section on detailed discussion on value allocation). This yielded an overall Equity value of $1,700 million, which in turn translated into a pre-DLOM value of $2.01 per share of common stock. Applying a DLOM of 28.5%, the FMV of common stock on non-marketable minority basis is calculated to be $1.44 per share.

Please see detailed calculations in Exhibit 7.5.

5.4. Guideline Public Companies' Trading Multiples Method

While applying the Guideline Public Companies' Trading Multiples Method for the valuation of privately held companies, selection of representative public companies is the first step. The next step is to determine the appropriate multiple (topline versus bottom line multiples) and the current or forward year on which the multiple is applied. Based on various factors which impact the multiples commanded by the guideline public companies (GPCs) in the market and their comparability with the operational factors of Theranos, we determined the appropriate multiple and calculated the Equity Value of the Company.

5.4.1. Selection of Guideline Public Companies

Theranos has developed a disruptive technology in the 'in vitro' diagnostic space and is expected to revolutionize the market with its product. Based on our research and review of databases such as Bloomberg and Reuters, we initially shortlisted 39 listed companies mainly operating in following areas:

- Companies providing point-of-care diagnostic services in the US, i.e., companies focused on immunoassays and other in vitro diagnostic tests
- Molecular and genetics diagnostic companies which have either commercialized or are in the process of developing innovative technologies
- Companies currently developing innovative solutions in the pharmaceuticals space
- Technology providers to the diagnostic and medical device companies

The list of the initially shortlisted companies is given below:

Identified Public Companies (39)		
OraSure Technologies Inc	CombiMatrix Corp	Bruker Corp
Alere Inc	Enzo Biochem Inc	Myriad Genetics Inc
Medidata Solutions Inc	Affymetrix Inc	Trovagene Inc
Luminex Corp	Quidel Corp	Response Genetics Inc
Abaxis Inc	Genomic Health Inc	GenMark Diagnostics Inc
McKesson Corp	Cepheid	Foundation Medicine Inc
Abbott Laboratories	Nanosphere Inc	Agios Pharmaceuticals Inc
Cerner Corp	Exact Sciences Corp	bluebird bio Inc
PAREXEL International Corp	Pacific Biosciences of California Inc	Ophthotech Corp
Trinity Biotech PLC	Illumina Inc	Bio-Reference Laboratories Inc
Becton Dickinson and Co	PerkinElmer Inc	Fluidigm Corp
Heska Corp	Quest Diagnostics Inc	Qiagen NV
Sequenom Inc	Laboratory Corporation of America Holdings	Takara Bio Inc

We observed that companies in last two tiers are not directly comparable with Theranos and do not operate in the diagnostic space. Therefore, based on our analysis, we further shortlisted the following 24 companies:

Shortlisted Companies (24)		
OraSure Technologies Inc	Quidel Corp	Laboratory Corporation of
Alere Inc	Genomic Health Inc	Myriad Genetics Inc
Luminex Corp	Cepheid	Trovagene Inc
Abaxis Inc	Nanosphere Inc	Response Genetics Inc
Trinity Biotech PLC	Exact Sciences Corp	GenMark Diagnostics Inc
CombiMatrix Corp	Illumina Inc	Bio-Reference Laboratories Inc
Enzo Biochem Inc	PerkinElmer Inc	Fluidigm Corp
Affymetrix Inc	Quest Diagnostics Inc	Qiagen NV

The abovementioned shortlisted companies were further analyzed to determine the appropriate multiple. (Please refer Exhibit 7.3 for detailed description.)

5.4.2. Selection of Appropriate Multiple

Theranos is expected to generate revenues with positive margins by FY2016; it is projected to experience tremendously high growth, with revenues expanding over $500 million, along with significant improvement in operating margins in FY2018. Accordingly, operating margins are not expected stabilize until 2018 onwards. However, to apply EV/EBITDA multiple on the forward-year basis, the estimates of GPCs beyond 2016 are required, the data for which is not sufficiently available or is too speculative in nature.

Therefore, application of an Enterprise Value to Revenue (EV/Revenue) multiple is considered more appropriate for estimating Theranos' Equity Value at this stage. Theranos is expected to commercialize its product across 200–300 stores in FY2015 to generate revenue of about $113 million. The Company anticipates continuing on a high growth trajectory until 2018, with revenues of over $500 million owing to its innovative intellectual property and business plan. However, from the perspective of potential investors, considering the risks and uncertainties associated with the execution of business plan and the availability of reliable forward-looking market data, the appraiser deemed it more appropriate to consider one-year forward EV/Revenue multiple, i.e., EV/Revenues for 2015, instead of two-year forward multiple, i.e., EV/Revenues for 2016.

EV/Revenue multiple is primarily driven by the expected growth in the Company's revenues and operating margins. Few companies were excluded from our analysis for the lack of availability of relevant data and outliers.

- Trovagene, Inc. is a development-stage molecular diagnostic company and is expected to generate revenues FY2015 onward, with an estimate of multi-fold increase in revenues in FY2016. The company commands a significantly high EV/Revenue multiple of 20x+ and hence was not included in our analysis.
- Response Genetics, Inc. and Bio-Reference Laboratories, Inc. have partial estimate data points for 2015 and 2016.

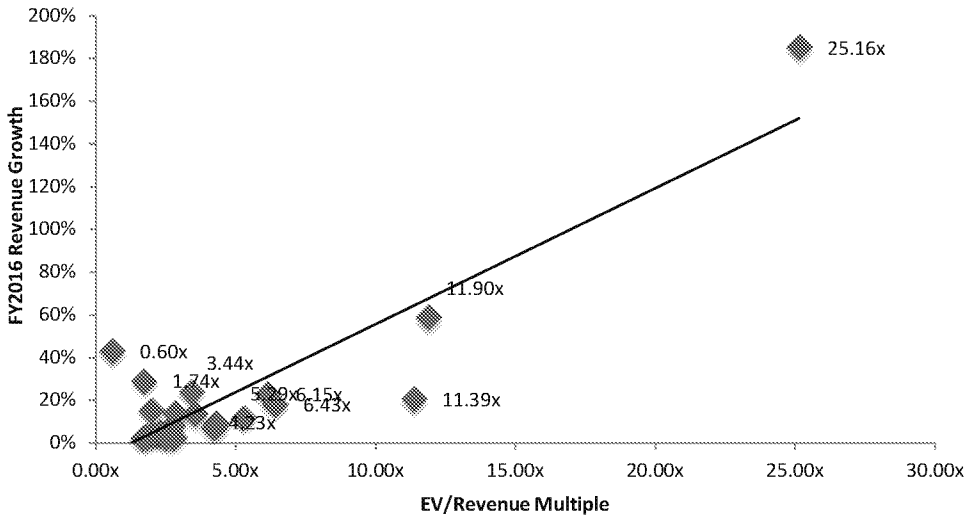
The EV/Revenue multiples of the final shortlisted companies and their expected revenue growth in FY2016 are mentioned in the following table.

Company Name	Mkt Cap ($ in million)	EV ($ in million)	EV/Revenue	Y-O-Y Revenue Growth	
			2015	2015	2016
OraSure Technologies Inc	529	430	3.54x	15%	13%
Alere Inc	3,114	7,069	2.51x	-4%	2%
Luminex Corp	761	672	2.77x	7%	8%
Abaxis Inc	1,313	1,208	5.29x	15%	12%
Trinity Biotech PLC	409	400	3.44x	10%	24%
CombiMatrix Corp	13	7	0.60x	38%	43%
Enzo Biochem Inc	198	185	n.a	n.a	n.a
Affymetrix Inc	672	733	2.05x	3%	4%
Quidel Corp	894	882	4.32x	16%	9%
Genomic Health Inc	989	884	2.84x	12%	14%
Cepheid	3,519	3,495	6.43x	17%	18%
Nanosphere Inc	43	41	1.74x	67%	29%
Exact Sciences Corp	2,248	2,041	25.16x	3945%	185%
Illumina Inc	25,739	25,748	11.39x	22%	20%
PerkinElmer Inc	4,735	5,391	2.31x	4%	5%
Quest Diagnostics Inc	9,218	12,940	1.71x	2%	2%
Laboratory Corporation of America Holdings	8,707	11,164	1.81x	3%	3%
Myriad Genetics Inc	2,481	2,321	2.81x	5%	3%
GenMark Diagnostics Inc	535	455	11.90x	31%	59%
Fluidigm Corp	816	916	6.15x	28%	23%
Qiagen NV	5,491	6,021	4.23x	5%	7%

Source: *Reuters Eikon*

In our set, we observed that companies with high revenue growth expectations in FY2016 were commanding a higher EV/Revenue multiple in FY2015. A chart representing the movement of the EV/Revenue multiples commanded versus expected growth in revenues is given below.

Chart 1: EV/Revenue multiple Analysis of comparable companies



As discussed in the business plan review section, Theranos is expected to generate revenues of about $113 million in FY2015 and $223 million in FY2016, a jump of around 97% year-on-year. EV/Revenue multiples commanded by the comparable set are in a range of 0.60x to 25.16x.

The highest multiple is attracted by the company Exact Sciences Corp.

- Exact Sciences Corporation is a molecular diagnostics company focused on the early detection and prevention of colorectal cancer.
- The company is expected to generate revenues of about $81 million and $231 million in FY2015 and FY2016, respectively, implying a year-on-year jump of 185%.
- The company is not expected to breakeven before the end of the explicit forecast period, i.e., FY2016.

Exact Sciences Corp is similar to Theranos in terms of expected growth, financial performance, and size of revenues. Thus, based on our analysis of the above set of companies, comparability with Exact Sciences Corp, and the risk return profile of Theranos, we deemed it appropriate to apply an EV/Revenue multiple of 11.0x to FY2015 revenues.

5.4.3. Equity Value Determination

Cash and cash equivalents and debt outstanding, as of the date of valuation, were adjusted from the enterprise value determined using the concluded one year forward EV/Revenue multiple as mentioned above, thereby giving a concluded Equity Value of $1.62 billion. Please see below the calculations

Equity Value Calculation (EV/Revenue) (in $'000)	2015
Estimated Revenues	113,452
Multiple Selected	11.0x
Enterprise Value	1,247,972
Add: Cash	466,996
Less:- Debt	(90,805)
Equity Value under different multiples, based on different time periods	1,624,163
Weight considered for different periods	100%
Concluded Equity Value	**1,624,163**

5.5. Discounted Cash Flow (DCF) Analysis

Income approach using discounted cash flow method for valuation analysis

DCF analysis is based on financial forecasts provided by the management for 2014 through 2018 (as discussed in busienss plan review). We conducted a preliminary review on the reasonability of key drivers and assumptions used to develop financial projections provided by the management.

Under the DCF Approach, we first forecasted free cash flows generated from the Company's operations. Capital expenses were then deducted to arrive at the free cash available. The 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 value of all future cash flows and terminal value was considered. To this sum, we added 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.

In the sections below, we discuss the assumptions and calculations of each determinant of DCF analysis:

5.5.1. Free Cash Flows (FCF)

The Company's free cash flows are calculated using the annual cash profits from its projected financials. Capital requirements are subtracted from the cash profits to arrive at the free cash flow (FCFF) available to the Company.

Below is the free cash flow statement of the Company –

Discounted Cash Flow Statement (in $'000)	Dec-14	Dec-15	Dec-16
	15 Days-F	FY-F	FY-F
Revenues	46	113,452	223,452
EBITDA	(1,792)	(23,334)	51,986
EBIT	(1,792)	(47,670)	12,750
Net Earnings (PAT)	(1,792)	(47,999)	12,572
Earnings Before Amortization Interest & Tax	(1,792)	(47,670)	12,750
Tax on EBIT	-	-	(4,462)
Earnings before Interest, but after Tax	(1,792)	(47,670)	8,287
Growth (%)	*n/a*	*n/a*	*n/a*
Depreciation	-	24,336	39,236
Change in Working Capital	969	(4,085)	(23,201)
Net Change in Other Operating Assets/ Liabilities	(9,142)	(31,421)	5,719
Net Capital Expenditure	(370)	(33,134)	(45,970)
Free Cash Flow to Firm (FCFF)	(10,335)	(91,974)	(15,929)
Growth (%)	*n/a*	*n/a*	*n/a*
Net Debt Taken / (Repaid)	(90,805)	-	-
Interest & Finance Costs (Tax Adjusted)	-	(711)	(462)
Free Cash Flow to Equity (FCFE)	(101,140)	(92,685)	(16,391)
Growth (%)	*n/a*	*n/a*	*n/a*
Year Fraction	0.04	1.04	2.04
Present Value Factor	1.00	0.90	0.75
PV of FCFE	**(100,725)**	**(83,688)**	**(12,266)**

Discounted Cash Flow Statement (in $'000)	Dec-17	Dec-18
	FY-F	FY-F
Revenues	323,452	503,452
EBITDA	110,970	228,015
EBIT	59,517	166,457
Net Earnings (PAT)	58,986	165,938
Earnings Before Amortization Interest & Tax	59,517	166,457
Tax on EBIT	(20,831)	(58,260)
Earnings before Interest, but after Tax	38,686	108,197
Growth (%)	*n/a*	*n/a*
Depreciation	51,453	61,558
Change in Working Capital	(25,284)	(20,991)
Net Change in Other Operating Assets/ Liabilities	5,987	(17,915)
Net Capital Expenditure	(65,569)	(59,240)
Free Cash Flow to Firm (FCFF)	5,273	71,609
Growth (%)	*n/a*	*n/a*
Net Debt Taken / (Repaid)	-	-
Interest & Finance Costs (Tax Adjusted)	(462)	(462)
Free Cash Flow to Equity (FCFE)	4,811	71,147
Growth (%)	*n/a*	*n/a*
Year Fraction	3.04	4.04
Present Value Factor	0.62	0.51
PV of FCFE	**2,984**	**36,574**

5.5.2. Discount Rate (Cost of Equity)

Discount rate is the rate of return that a willing financial buyer, acting rationally, would expect to receive from an investment to compensate for inherent risks involved and for the time value of money. This rate of return should also be acceptable to the 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 for Theranos. The cost of equity under CAPM is calculated as:

Cost of Equity = Rf + β * (Rm – Rf)

- Rf is the Risk-Free Rate
- β is the Beta
- Rm is the Market Return
- (Rm– Rf) is the Market Risk Premium

5.5.2.1. Size Premium

As the CoE arrived at using the standard CAPM equation (as shown above) fails to capture investment risks associated with small or early stage company stocks, Aranca added a Size Premium (SP) based on the Duff & Phelps' study .

5.5.2.2. 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 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.

Table 1: Plummer and Scherlis & Sahlman expected rate of return studies

Expected Rate of Return Studies		
Stage of Development	**Plummer[4]**	**Scherlis & Sahlman[5]**
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%***

We observed the Venture Economics publication presented in the AICPA Practice Aid, illustrating the average rates of return 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[6]	51.4%	34.9%	20.4%
Balanced[7]	20.9%	20.9%	14.3%
Later Stage[8]	10.6%	21.6%	15.3%
All Ventures	28.3%	26.3%	16.6%

[4] Plummer, James L., QED Report on Venture Capital Financial Analysis, Palo Alto: QED Research, Inc., 1987.
[5] 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.
[6] 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.
[7] Defined by Venture Economics as including investments in portfolio companies at a variety of stages of development (Seed Stage, Early Stage, Later Stage).
[8] Defined by Venture Economics as including financing for the expansion of a company that is producing, shipping, and increasing sales.

We conducted a qualitative analysis of risk factors, defined under the 'Risks' section, for Theranos and its guideline public companies. Considering that Theranos has developed its technology, achieved license to conduct tests in USA and has started commercializing the product we assigned a lower company specific risk premium of 7.50%.

The following table shows the discount rate calculations:

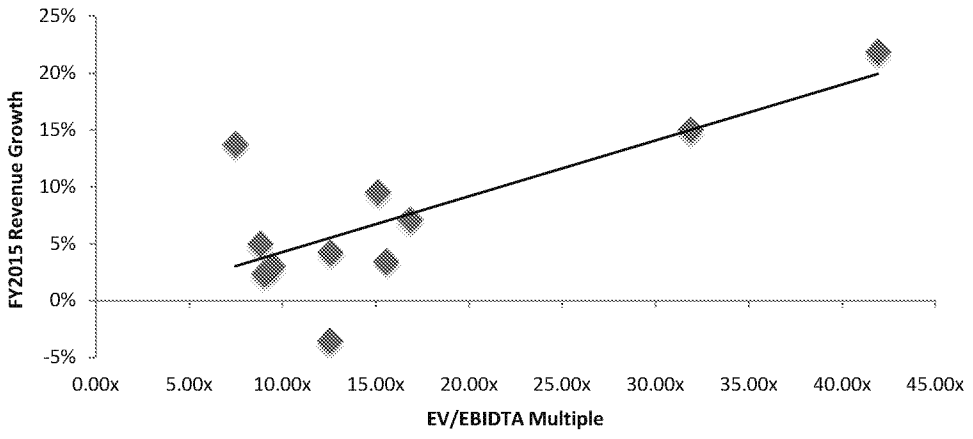
Adjusted capital asset pricing method used to calculate cost of equity

Table 2: Discount rate calculations using Capital Asset Pricing Method

Particulars	Value	Source
Risk Free Rate (Rf)	2.17%	10 year zero coupon US Treasury yield
Beta (β)	1.21	Calculated on basis of comparable companies
Equity Risk Premium (Rm – Rf)	6.18%	2014 Valuation Handbook by Duff & Phelps
Size Premium (Sp)	5.99%	
Company Specific Risk Premium (CSRP)	5.00%	Based on Aranca analysis and Expected Rate of Return Studies
Cost of Equity (CoE)	**20.65%**	

5.5.3. Terminal Value

- To arrive at the terminal value, we considered applying the Gordon Growth method that assumes a constant growth in cash flows until perpetuity as well as an exit multiple based on the valuation metrics of GPCs.
- Gordon Growth method is more appropriate in case of companies with highly mature operations. As Theranos is not expected to reach a mature level of operations by 2018, we decided to not use this method.
- We determined the Company's terminal value by applying an exit multiple based on GPCs' trading multiples. We observed the range of LTM EV/Revenue, EV/EBITDA, EV/EBIT, P/E and P/S multiples for GPCs, prevailing as of the valuation date.
- Conceptually, the profitability multiple is superior to a top-line multiple as an investor is ultimately concerned with cash flows, better represented in profitability than revenues.
- Theranos is expected to breakeven in FY2016 and achieve EBITDA margins of 45% by FY2018. Hence, we applied the EV/EBIDTA multiple to calculate the terminal value.
- Based on the discussion in GPC analysis, we observed the EV/EBIDTA multiple of 24 shortlisted companies; however, EBIDTA estimates for FY2014 were not available for 10 companies. Therefore, we analyzed the multiples of the remaining 14 companies.
- Quidel Corp and Cepheid attracted significantly higher EV/EBIDTA multiples of 45x+ as compared to the rest of the companies in the set on account of very low EBIDTA margins.
- Bio-Reference Laboratories, Inc. has partial estimate data points for 2015 and 2016.
- EV/EBIDTA multiple is governed by growth expectations in revenues and, as depicted below, high growth companies command high EV/EBITDA multiples.



- We further divided the companies based on the revenue growth expectations and made the following observations:
  - Companies with revenue growth expectations of less than 10% attracted EV/EBIDTA multiple in a range of 8.82x to 16.83x.
  - Companies with revenue growth expectations higher than 10% commanded EV/EBIDTA multiple in a range of 31.88x to 41.92x.
- Below is the details regarding the multiples and growth for all the comparable companies –

Company Name	Mkt Cap ($ in million)	EV ($ in million)	EV/EBITDA 2014	Growth 2015
Alere Inc	3,114	7,069	12.55x	8%
Luminex Corp	761	672	16.83x	21%
Abaxis Inc	1,313	1,208	31.88x	18%
Trinity Biotech PLC	409	400	15.14x	20%
Affymetrix Inc	672	733	15.59x	14%
Illumina Inc	25,739	25,748	41.92x	33%
PerkinElmer Inc	4,735	5,391	12.58x	20%
Quest Diagnostics Inc	9,218	12,940	9.03x	20%
Laboratory Corporation of America Holdings	8,707	11,164	9.45x	20%
Myriad Genetics Inc	2,481	2,321	8.82x	30%
Qiagen NV	5,491	6,021	13.81x	33%
Selected Multiple			**13.00x**	

Source: *Reuters Eikon*

- With a revenue growth of 22%, Illumina, Inc. is attracting a multiple of 40x+. On the other hand, by the end of explicit forecast period, Theranos is expected to generate revenues at a growth rate of 56%; however, it faces certain risks associated with the achievability of projections.
- Overall set has a median multiple of 13.81x and based on our analysis, we deemed 13x to be the appropriate terminal year EV/EBIDTA multiple for Theranos.

5.5.3.1. Terminal Value Calculation

The EBIDTA estimate for the terminal year is $228.1 million. Multiplying it with the exit year EV/EBIDTA multiple of 13x results into a terminal year equity value of $2.96 billion.

Terminal Value Calculation	(in $'000)
EBITDA FYE 31-Dec-18	228,015
EV/EBITDA Multiple Exit Year	13.00
Terminal Value	**2,964,195**

5.5.4. Enterprise Value

Both FCFE for the forecast period and Terminal Value were discounted to their present value at the valuation date by applying the discount rate, discussed previously. The Company's Enterprise Value (EV) was determined by adding the discounted FCFE and terminal value, as shown below:

Equity Value	(in $'000)
PV of FCFE	(157,121)
Terminal Value	2,964,195
PV Factor	0.47
PV of Terminal Value	1,387,240
PV of Tax Benefits of Amortization	-
PV of Net Operating Losses	73,685
Equity Value	1,303,804
Current Cash & Cash Equivalents	466,996
Total Equity Value	**1,770,800**

06.

Equity Value Allocation

6.1. Methods of allocation of equity value

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

Current Value Method (CVM) - 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.

Option Pricing Method (OPM) - 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 the preferred series.

Probability-Weighted Expected Return Method (PWERM) - 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 such as sale or merger, IPO, dissolution or continued as private entity.

Each of these methods of allocation takes into consideration the diverse rights and preferences of multiples 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, our analysis of the Company's development stage, reliability of financial forecasts, and other factors (for detailed theory, please refer to Exhibit 7.8).

6.1.1. 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 significant progress in its business plan in terms of assembling an experienced management team, developing an innovative service offering and commercializing it partially. However, the Company's is yet to breakeven and its projected revenue growth is dependent on its ability to successfully capitalize the growth opportunities. Its 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 determined it would be appropriate not to consider PWERM in our valuation analysis at this stage.

6.2. Application of OPM

The following table reflects Theranos' capital structure, including dilutive securities:

Class of stock	No. of shares (in '000)	OIP ($)	Conv. Ratio	CSE (in '000)	%Owned O/S	%Owned Fully Diluted
Series A	46,320	0.150	1:1	46,320	8.85%	8.44%
Series B	54,163	0.185	1:1	54,163	10.35%	9.87%
Series C	58,896	0.564	1:1	58,896	11.25%	10.73%
Series C-1	21,842	3.000	1:1	21,842	4.17%	3.98%
Series C-1*	6,500	15.000	1:1	6,500	1.24%	1.18%
Series C-2	32,808	17.000	1:1	32,808	6.27%	5.98%
Common shares - Class A	52,305		1:1	52,305	9.99%	9.53%
Common shares - Class B	250,658		1:1	250,658	47.88%	45.68%
Sub Total	**523,492**			**523,492**	**100.00%**	**95.39%**
Dilutive Instruments						
Options @ $0.015	350	0.015	1:1	350		0.06%
Options @ $0.03	1,171	0.030	1:1	1,171		0.21%
Options @ $0.066	548	0.066	1:1	548		0.10%
Options @ $0.072	2,582	0.072	1:1	2,582		0.47%
Options @ $0.094	313	0.094	1:1	313		0.06%
Options @ $0.17	3,976	0.170	1:1	3,976		0.72%
Options @ $0.206	606	0.206	1:1	606		0.11%
Options @ $1.439	15,000	1.439	1:1	15,000		2.73%
Stock Warrants @ $0.072	742	0.072	1:1	742		0.14%
Total Dilutive Instruments	**25,286**			**25,286**		**4.61%**
Fully Diluted Shares	**548,778**			**548,778**	**100.00%**	**100.00%**

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 the proportion in which the incremental Equity Value is to be distributed
- Step 3: Determining the incremental Equity Value of each option
- Step 4: Incremental Equity Value distribution

6.2.1. Determining different levels of Equity Value (breakpoints)

This step involves determining 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 (in '000)	Strike Point (in $'000)
Equity value is nil	None	-	0
Liquidation preference of Series C,C-1, C-1* and C-2	Series C, C-1 & C-1*	120,046	675,982
Liquidation preference of Series B	Series B	54,163	685,982
Liquidation preference of Series A	Series A	46,320	692,930
Options @ $0.015 exercised	Series A, Series B,C,C-1,C-1* & Common	523,492	700,783
Options @ $0.03 exercised	Series A, Series B,C,C-1,C-1*,Common and Options @ $0.015	523,842	708,640
Options @ $0.066 exercised	Series A, Series B,C,C-1,C-1*, Common,Options @ $0.015,$0.03	525,013	727,541
Options @ $0.072 and Common Stock Warrants @ $0.072 exercised	Series A, Series B, C,C-1,C-1*, Common,Options @ $0.015,$0.03,$0.066	525,561	730,694
Options @ $0.094 exercised	Series A, Series B, C,C-1,C-1*, Common,Options @ $0.015,$0.03,$0.066,$0.072, Common Warrants @ $0.072	528,884	742,330
Options @ $0.17 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	529,196	782,549
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,$0.17, Common Warrants @ $0.072	533,172	801,743
Options @ $1.439 get exercised	Series A,Series B, C,C-1,C-1*, Common,Options @ $0.015,$0.03,$0.066,$0.072,$0.094,$0.17,$0.206, Common Warrants @ $0.072	533,779	1,459,732
Thereafter	All classes	548,779	

6.2.2. Determining the proportion of incremental Equity Value to be distributed

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

Value Allocation	Option 1	Option 2	Option 3	Option 4
Series A	0.00%	0.00%	100.00%	8.85%
Series B	0.00%	100.00%	0.00%	10.35%
Series C	4.91%	0.00%	0.00%	11.25%
Series C-1	9.69%	0.00%	0.00%	4.17%
Series C-1*	2.88%	0.00%	0.00%	1.24%
Series C-2	82.51%	0.00%	0.00%	6.27%
Common shares - Class A	0.00%	0.00%	0.00%	9.99%
Common shares - Class B	0.00%	0.00%	0.00%	47.88%
Options @ $0.015	0.00%	0.00%	0.00%	0.00%
Options @ $0.03	0.00%	0.00%	0.00%	0.00%
Options @ $0.066	0.00%	0.00%	0.00%	0.00%
Options @ $0.072	0.00%	0.00%	0.00%	0.00%
Options @ $0.094	0.00%	0.00%	0.00%	0.00%
Options @ $0.17	0.00%	0.00%	0.00%	0.00%
Options @ $0.206	0.00%	0.00%	0.00%	0.00%
Options @ $1.439	0.00%	0.00%	0.00%	0.00%
Common Stock Warrants @ $0.072	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Value Allocation	Option 5	Option 6	Option 7	Option 8
Series A	8.84%	8.82%	8.81%	8.76%
Series B	10.34%	10.32%	10.31%	10.24%
Series C	11.24%	11.22%	11.21%	11.14%
Series C-1	4.17%	4.16%	4.16%	4.13%
Series C-1*	1.24%	1.24%	1.24%	1.23%
Series C-2	6.26%	6.25%	6.24%	6.20%
Common shares - Class A	9.98%	9.96%	9.95%	9.89%
Common shares - Class B	47.85%	47.74%	47.69%	47.39%
Options @ $0.015	0.07%	0.07%	0.07%	0.07%
Options @ $0.03	0.00%	0.22%	0.22%	0.22%
Options @ $0.066	0.00%	0.00%	0.10%	0.10%
Options @ $0.072	0.00%	0.00%	0.00%	0.49%
Options @ $0.094	0.00%	0.00%	0.00%	0.00%
Options @ $0.17	0.00%	0.00%	0.00%	0.00%
Options @ $0.206	0.00%	0.00%	0.00%	0.00%
Options @ $1.439	0.00%	0.00%	0.00%	0.00%
Common Stock Warrants @ $0.072	0.00%	0.00%	0.00%	0.14%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Value Allocation	Option 9	Option 10	Option 11	Option 12
Series A	8.75%	8.69%	8.68%	8.44%
Series B	10.23%	10.16%	10.15%	9.87%
Series C	11.13%	11.05%	11.03%	10.73%
Series C-1	4.13%	4.10%	4.09%	3.98%
Series C-1*	1.23%	1.22%	1.22%	1.18%
Series C-2	6.20%	6.15%	6.15%	5.98%
Common shares - Class A	9.88%	9.81%	9.80%	9.53%
Common shares - Class B	47.37%	47.01%	46.96%	45.68%
Options @ $0.015	0.07%	0.07%	0.07%	0.06%
Options @ $0.03	0.22%	0.22%	0.22%	0.21%
Options @ $0.066	0.10%	0.10%	0.10%	0.10%
Options @ $0.072	0.49%	0.48%	0.48%	0.47%
Options @ $0.094	0.06%	0.06%	0.06%	0.06%
Options @ $0.17	0.00%	0.75%	0.74%	0.72%
Options @ $0.206	0.00%	0.00%	0.11%	0.11%
Options @ $1.439	0.00%	0.00%	0.00%	2.73%
Common Stock Warrants @ $0.072	0.14%	0.14%	0.14%	0.14%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

6.2.3. Determining the incremental Equity Value of each option

Each consecutive breakpoint is considered as a strike price on 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.

Value using BSOPS (in $ millions)	Option 1	Option 2	Option 3
Value of the underlying Asset (in $ millions)	1,699	1,699	1,699
Strike Price (in $ millions)	0	676	686
S.D of the Underlying preferred share	41%	41%	41%
Dividend yield	0%	0%	0%
Time of Expiration (years)	4	4	4
Riskless Rate corresponding to option life time	1.31%	1.31%	1.31%
Value of the Call (in $ millions)	1,699	1,103	1,096
Incremental value of Options (in $ millions)	**596**	**7**	**5**

Value using BSOPS	Option 4	Option 5	Option 6
Value of the underlying Asset (in $ millions)	1,699	1,699	1,699
Strike Price (in $ millions)	693	701	709
S.D of the Underlying preferred share	41%	41%	41%
Dividend yield	0%	0%	0%
Time of Expiration (years)	4	4	4
Riskless Rate corresponding to option life time	1.31%	1.31%	1.31%
Value of the Call (in $ millions)	1,091	1,085	1,079
Incremental value of Options (in $ millions)	**6**	**6**	**14**

Value using BSOPS	Option 7	Option 8	Option 9
Value of the underlying Asset (in $ millions)	1,699	1,699	1,699
Strike Price (in $ millions)	728	731	742
S.D of the Underlying preferred share	41%	41%	41%
Dividend yield	0%	0%	0%
Time of Expiration (years)	4	4	4
Riskless Rate corresponding to option life time	1.31%	1.31%	1.31%
Value of the Call (in $ millions)	1,066	1,063	1,055
Incremental value of Options (in $ millions)	**2**	**8**	**28**

Value using BSOPS	Option 10	Option 11	Option 12
Value of the underlying Asset (in $ millions)	1,699	1,699	1,699
Strike Price (in $ millions)	783	802	1,460
S.D of the Underlying preferred share	41%	41%	41%
Dividend yield	0%	0%	0%
Time of Expiration (years)	4	4	4
Riskless Rate corresponding to option life time	1.31%	1.31%	1.31%
Value of the Call (in $ millions)	1,027	1,014	659
Incremental value of Options (in $ millions)	**13**	**354**	**659**

Key assumptions used in BSOP model are as follows –

Term	Description	Inputs used in Theranos' case
Business Equity Value	Value that would be distributable to equity shareholders in case of an exit	In the case of Theranos, we used the equity value derived using DCF, Market Approach (GPC) and Backsolve method.
Time to Liquidity	Time for occurrence of liquidity event; this important assumption impacts the analysis	We discussed potential exit outcomes with the management and the most likely timeframe for their occurrence in light of Theranos's current stage of development as well as the current economic outlook for such exits. Considering these factors, we selected four years as the expected time for a liquidity event.
Risk-free Rate	Rate of return on government securities with maturity equal to time to liquidity	We used 1.31% as the risk-free rate based on the yield on US government zero-coupon bonds with a maturity period of approximately four years.
Dividend Yield	Yield on dividends	Theranos is a privately held company with no history of dividends. According to the management, there is no reasonable expectation of such dividends being paid in the foreseeable future. Hence, the dividend yield was assumed to be 0%.
Volatility	Based on volatilities of guideline companies	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 of four years, an input to BSOP, which measures the volatility of the underlying enterprise value. The asset volatility has been calculated using Merton's formulation based on equity volatility of the GPCs. The asset volatilities are in the range of 14.78-123.74%, with a mean and median of 47.36% and 40.77%, respectively. Based on the comparative analysis of Theranos with guideline public companies, we determined a Median asset volatility of 40.77% as the appropriate proxy for four-year volatility applicable to the Company.

6.2.4. Incremental Equity Value distribution

The 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 Allocation (in $ millions)	Option 1	Option 2	Option 3	Option 4
Series A	-	-	5	1
Series B	-	7	-	1
Series C	29	-	-	1
Series C-1	58	-	-	0
Series C-1*	17	-	-	0
Series C-2	492	-	-	0
Common shares - Class A	-	-	-	1
Common shares - Class B	-	-	-	3
Options @ $0.015	-	-	-	-
Options @ $0.03	-	-	-	-
Options @ $0.066	-	-	-	-
Options @ $0.072	-	-	-	-
Options @ $0.094	-	-	-	-
Options @ $0.17	-	-	-	-
Options @ $0.206	-	-	-	-
Options @ $1.439	-	-	-	-
Common Stock Warrants @ $0.072	-	-	-	-
Total	**596**	**7**	**5**	**6**

Value Allocation (in $ millions)	Option 5	Option 6	Option 7	Option 8
Series A	1	1	0	1
Series B	1	1	0	1
Series C	1	2	0	1
Series C-1	0	1	0	0
Series C-1*	0	0	0	0
Series C-2	0	1	0	1
Common shares - Class A	1	1	0	1
Common shares - Class B	3	7	1	4
Options @ $0.015	0	0	0	0
Options @ $0.03	-	0	0	0
Options @ $0.066	-	-	0	0
Options @ $0.072	-	-	-	0
Options @ $0.094	-	-	-	-
Options @ $0.17	-	-	-	-
Options @ $0.206	-	-	-	-
Options @ $1.439	-	-	-	-
Common Stock Warrants @ $0.072	-	-	-	0
Total	**6**	**14**	**2**	**8**

Value Allocation (in $ millions)	Option 9	Option 10	Option 11	Option 12
Series A	2	1	31	56
Series B	3	1	36	65
Series C	3	1	39	71
Series C-1	1	1	14	26
Series C-1*	0	0	4	8
Series C-2	2	1	22	39
Common shares - Class A	3	1	35	63
Common shares - Class B	13	6	166	301
Options @ $0.015	0	0	0	0
Options @ $0.03	0	0	1	1
Options @ $0.066	0	0	0	1
Options @ $0.072	0	0	2	3
Options @ $0.094	0	0	0	0
Options @ $0.17	-	0	3	5
Options @ $0.206	-	-	0	1
Options @ $1.439	-	-	-	18
Common Stock Warrants @ $0.072	0	0	0	1
Total	**28**	**13**	**354**	**659**

Classes	# of shares (in $ millions)	Value (in $ millions)	Per Share	% of EV
Series A	46	98	2.12	5.78%
Series B	54	116	2.15	6.85%
Series C	59	148	2.51	8.69%
Series C-1	22	102	4.66	5.98%
Series C-1*	7	30	4.66	1.78%
Series C-2	33	558	16.99	32.81%
Common shares - Class A	**52**	**105**	**2.01**	**6.19%**
Common shares - Class B	251	504	2.01	29.67%
Options @ $0.015	0	1	2.00	0.04%
Options @ $0.03	1	2	1.99	0.14%
Options @ $0.066	1	1	1.96	0.06%
Options @ $0.072	3	5	1.96	0.30%
Options @ $0.094	0	1	1.94	0.04%
Options @ $0.17	4	8	1.89	0.44%
Options @ $0.206	1	1	1.87	0.07%
Options @ $1.439	15	18	1.20	1.06%
Common Stock Warrants @ $0.072	1	1	1.96	0.09%
Total	**549**	**1,699**		**100.00%**

6.3. Discount for Lack of Marketability (DLOM)

Since privately held stocks are not traded on a public market, the stocks of such companies are generally not as liquid or marketable as those of a public company. This lack of marketability increases the cost of transactions involving private company stocks and reduces the FMV of such stocks. Hence, DLOM is applied to stocks of privately held companies to derive their FMV. There are multiple approaches to calculate the DLOM of a stock that is privately held. Of these, we have used the Finnerty model (incorporating the Ghaidarov Correction). The DLOM arrived using this approach is around 30%.

6.3.1. Protective Put Method – Finnerty Approach (incorporating the Ghaidarov Correction)

The cost of a put option calculated at the money acts as an estimate for the DLOM. The value of the put option was calculated using the BSOP 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.

In order to value the hypothetical put option, we use the Finnerty Model. Inputs used in the model are:

- Unit Price – It is the value of the common unit pre-DLOM.
- Strike Price – It is the value of the common unit pre-DLOM.
- Volatility – It refers to the equity volatility of the underlying asset. For a private company, equity volatility would be based on guideline publicly traded companies after making adjustments for the company's small size and various other factors.
- 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.

The Finnerty Model is an Asian put option, 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 investors' inability to time the market by eliminating the ability to earn average trading profits. For Theranos, a pre-DLOM value of common unit ($2.01) based on the OPM was used as the unit price and the strike price in the put option. The time to expiry was set at around five years and equity volatility at 56%. Equity volatility was calculated to be the median equity volatilities of the shortlisted guideline public companies. We calculated a DLOM of 30% using this approach. (Please refer to Exhibit 7.9).

However, considering that the risk profile of Theranos has not significantly altered since the last valuation in September 2014, we have assumed the DLOM to be constant since the last valuation at **28.5%.**

Factors	Company's Position	Impact for DLOM
Stage of the Company	As per the AICPA guidelines the company is in the fourth stage of development	Moderate
Holding Period for Stock	Investor's do not foresee an exit event before five years	High
Financial Statement Analysis	The Company has not recorded growth in revenues and earned positive margins	High
Company's Management	Experienced Management team in place	Low
Company's Dividend Policy	The company has not been paying any dividend	High
Private Versus Public Sales of the Stock	It is a private company	High
Overall		**Moderate**

6.4. Final Valuation

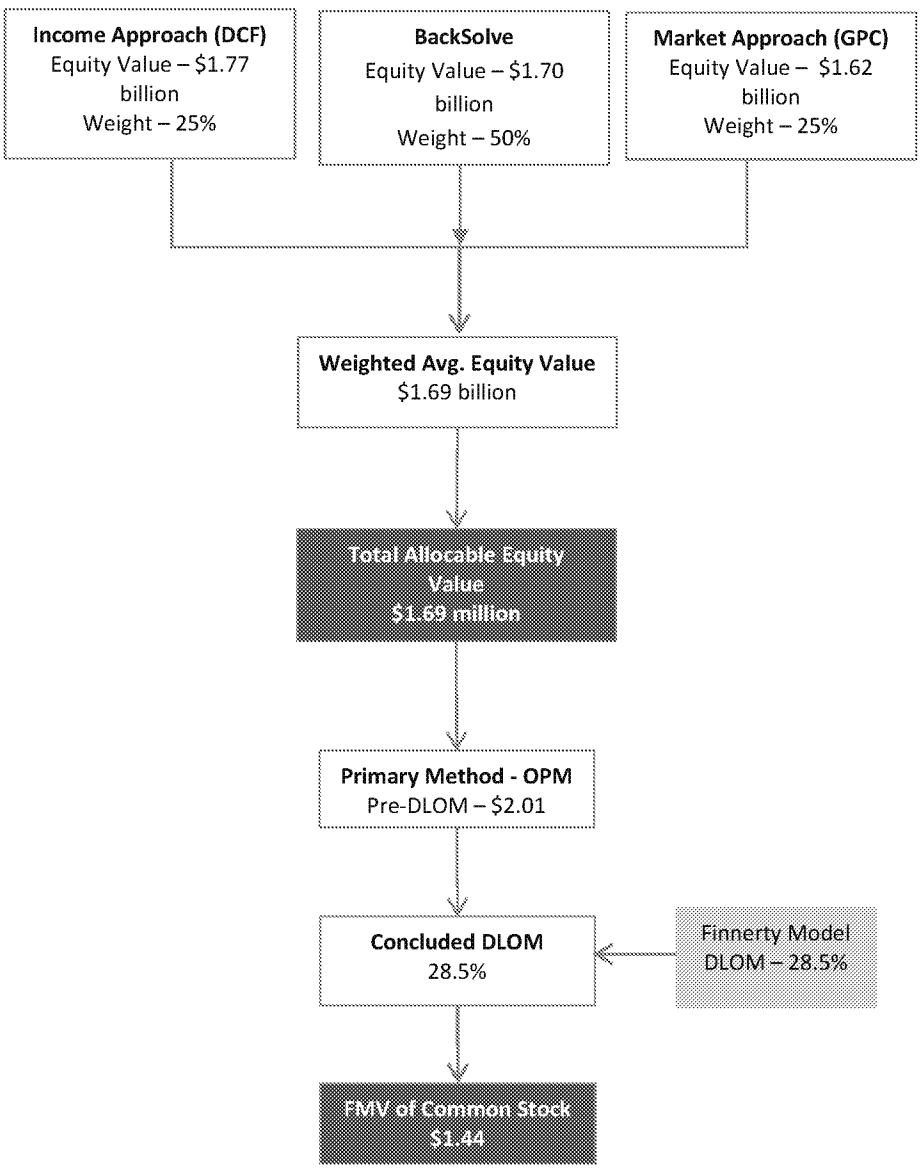
After considering all the relevant factors described above, we determined that as of the date of valuation, the FMV of Theranos common stock, as a class, is $1.44 per share –

Fair Market Value (FMV) of Common Stock		($)
Common Stock (before DLOM)		2.01
Less: Discount For Lack of Marketability (DLOM)	28.5%	(0.57)
FMV of Common stock		**1.44**

07.

EXHIBITS

7.1. Valuation Summary



7.2. Historical Financials

7.2.1. Income Statement

Summary Income Statement (in $'000)	Dec-11	Dec-12	Dec-13	Dec-14
	FY-A	FY-A	FY-A	12 Mth-A
Revenues	518	-	-	104
Cost of Sales	325	74	-	-
Gross Profit	193	(74)	-	104
Operating Costs	27,932	66,511	92,106	98,246
EBITDA	(27,739)	(66,585)	(92,106)	(98,142)
Depreciation	-	-	-	7,095
EBIT	(27,739)	(66,585)	(92,106)	(105,237)
Interest & Finance Costs	-	-	-	456
Income/ (Loss) - Investments & Affiliates	144	158	(28)	819
PBT	(27,595)	(66,427)	(92,134)	(104,874)
Income Tax	-	-	-	-
PAT	**(27,595)**	**(66,427)**	**(92,134)**	**(104,874)**

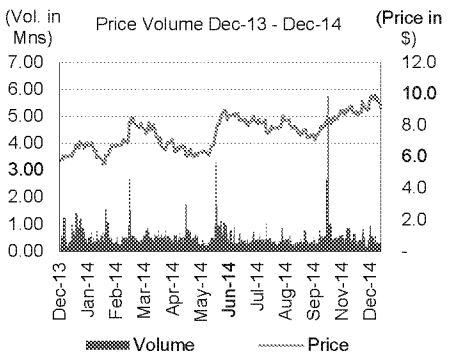
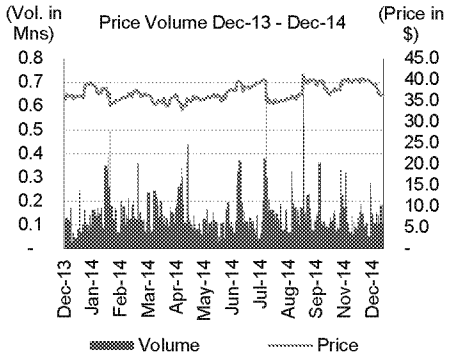
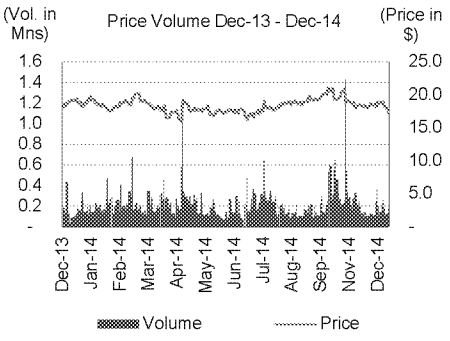
7.2.2. Balance Sheet

Summary Balance Sheet (in $'000)	Dec-11	Dec-12	Dec-13	Dec-14
	A	A	A	A
Cash & Cash Equivalents	88,056	51,785	30,959	466,996
Trade Receivables	-	25,000	-	13,754
Inventory	-	1,738	3,386	8,874
Other Current Assets	666	1,858	2,242	4,608
Current Assets	666	28,596	5,628	27,236
Other Operating Assets	16,805	17,123	26,577	27,362
Other Operating Assets	16,805	17,123	26,577	27,362
Fixed Assets (Net)	4,549	19,586	22,170	48,630
Total Assets	**110,076**	**117,090**	**85,334**	**570,224**
Trade Payables	1,238	7,669	7,525	8,340
Accrued Expenses	2,804	4,380	4,281	11,232
Deferred Revenue	77,308	98,308	83,808	93,846
Current Liabilities	81,350	110,357	95,614	113,418
Other Operating Liabilities	23,500	16,018	18,309	28,114
Total Other Operating Liabilities	23,500	16,018	18,309	28,114
Long Term Debt	-	43,173	85,676	90,805
Debt	-	43,173	85,676	90,805
Paid in Capital	109,366	118,194	147,918	712,267
Retained Earnings	(104,140)	(170,652)	(262,183)	(374,380)
Shareholders' Equity	5,226	(52,458)	(114,265)	337,887
Total Liabilities	**110,076**	**117,090**	**85,334**	**570,224**

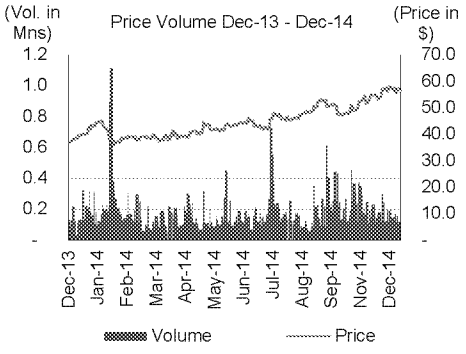
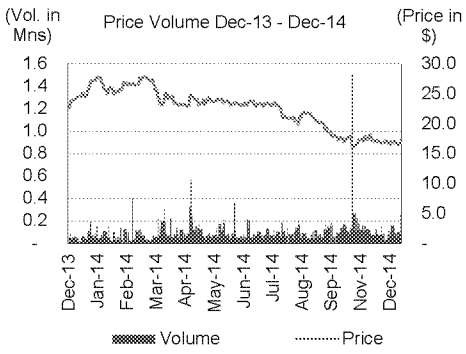
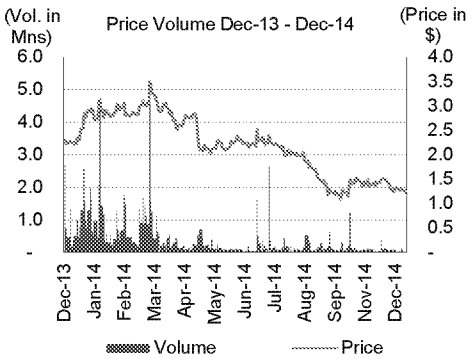
7.2.3. Cashflow Statement

Cash Flow Statement (in $'000)	Dec-11	Dec-12	Dec-13	Dec-14
	FY-A	FY-A	FY-A	12 Mth-A
Net Profit After Tax	(27,595)	(66,427)	(92,134)	(104,874)
Depreciation	-	-	-	7,095
Interest & Finance Costs	-	-	-	456
Adjusted Operating Cash Profit	(27,595)	(66,427)	(92,134)	(97,323)
Trade Receivables	-	(25,000)	25,000	(13,754)
Inventory	-	(1,738)	(1,648)	(5,488)
Other Current Assets	(666)	(1,192)	(384)	(2,366)
Trade Payables	1,238	6,431	(144)	815
Accrued Expenses	2,804	1,576	(99)	6,951
Deferred Revenue	77,308	21,000	(14,500)	10,038
Changes in Working Capital	80,684	1,077	8,225	(3,804)
Change in Other Operating Liabilities	23,500	(7,482)	2,291	9,805
Change in Other Operating Assets	(16,805)	(318)	(9,454)	(785)
Net Change in Other Operating Assets/ Liabilities	6,695	(7,800)	(7,163)	9,020
Cash Flow from Operations	59,784	(73,150)	(91,072)	(92,107)
Net (Purchase) / Sale of Fixed Assets	(4,549)	(15,037)	(2,584)	(33,555)
Cash Flow from Investment Activities	(4,549)	(15,037)	(2,584)	(33,555)
Net Debt Taken / (Repaid)	-	43,173	42,503	5,129
Interest & Finance Costs	-	-	-	(456)
Change in Share Capital & Reserves	32,821	8,743	30,327	557,026
Cash Flow from Financing Activities	32,821	51,916	72,830	561,699
Change in Cash & Cash Equivalents	88,056	(36,271)	(20,826)	436,037
Opening Cash & Cash Equivalents	-	88,056	51,785	30,959
Closing Cash & Cash Equivalents	**88,056**	**51,785**	**30,959**	**466,996**

7.3. Guideline Public Companies' Description

Company Name and Description	Ticker
OraSure Technologies Inc OraSure Technologies, Inc., is engaged in development, manufacture, marketing and sale 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 that are used on other specimen types. The Company 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 that are performed on a rapid basis at the point of care and tests that are processed in a laboratory. The Company operates in two segments: OraSure business and DNAG. On August 17, 2011, the Company completed the acquisition of DNA Genotek Inc. (DNAG).	**OSUR.O** 
Alere Inc Alere Inc. is a provider of 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. The Company's portfolio also includes a range of health information solutions that 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. The Company distributes its professional diagnostic products to hospitals, reference laboratories, physician offices and other point-of-care settings through an worldwide distribution networks. In February 2013, the Company acquired Epocal, Inc.	**ALR** 
Luminex Corp Luminex Corporation (Luminex) develops, manufactures and sells biological testing technologies and products with applications throughout the life sciences and diagnostics industries. The Company's Multi-Analyte Profiling (xMAP) technology, an open architecture, multiplexing technology, allows simultaneous analysis of up to 500 bioassays from a small sample volume, a single drop of fluid, by reading biological tests on the surface of microscopic polystyrene beads called microspheres. xMAP technology combines this miniaturized liquid array bioassay capability with small lasers, digital signal processors and software. Its xMAP technology is being used within various segments of the life sciences industry, which includes the fields of drug discovery and development, and for clinical diagnostics, genetic analysis, bio-defense, food safety and biomedical research. On June 27, 2011, the Company completed its acquisition of 100% interest of EraGen Biosciences, Inc.	**LMNX.O** 

Source: Reuters Eikon

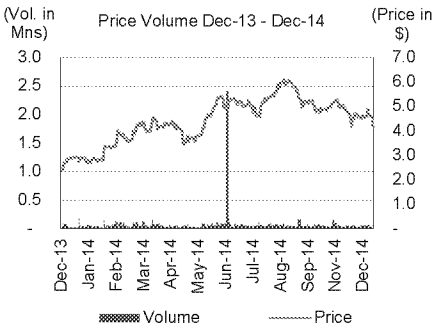
Company Name and Description	Ticker
Abaxis Inc Abaxis, Inc. (Abaxis) develops, manufactures, markets and sells blood analysis systems for use in the human or veterinary patient-care setting to provide clinicians with rapid blood constituent measurements. The Company's segments include the medical market and the veterinary market. The Company has developed a blood analysis system incorporating all of these criteria into a 5.1 kilogram (11.2 pounds) portable analyzer and a series of menu-specific, multi-test single-use reagent discs. Abaxis markets its blood chemistry analyzers in the medical market and in the veterinary market. The Company markets the blood analysis system in the medical market under the name Piccolo Xpress. It markets the blood analysis system in the veterinary market under the name VetScan VS2.	**ABAX.O** 
Trinity Biotech PLC Trinity Biotech plc (Trinity Biotech)develops, acquires, manufactures and markets medical diagnostic products for the clinical laboratory and point-of-care segments of the diagnostic market. These products are used to detect autoimmune, infectious and sexually transmitted diseases, diabetes and disorders of the liver and intestine. The Company is a provider of raw materials to the life sciences industry and research institutes globally through the Company subsidiary, Fitzgerald Industries. It markets its portfolio of over 275 products to customers in 75 countries around the world. It markets its products in the United States through a direct sales force and in the rest of the world through a combination of direct selling and a network of distributors. On July 26, 2013, it acquired Immco Diagnostics Inc.	**TRIB.O** 
CombiMatrix Corp CombiMatrix Corporation is a molecular diagnostics company. The Company operates in the field of genetic analysis and molecular diagnostics through its wholly owned subsidiary, CombiMatrix Molecular Diagnostics, Inc. located in Irvine, California. The Company operates as a diagnostics reference laboratory, providing DNA-based clinical diagnostic testing services to physicians, hospitals, clinics and other laboratories in the areas of pre-and postnatal development disorders and hematology/oncology genomics. The Company's BAC arrays enable the Company to perform aCGH studies to evaluate genomic alterations. The Company's oligo arrays allow the Company to perform aCGH on a much more refined scale than is possible with BAC technology. During the year ended December 31, 2011, it also owns a 33% interest in Leuchemix, Inc. (Leuchemix), a private drug development company focused on developing a series of compounds to address a number of oncology-related diseases.	**CBMX.O** 

Source: Reuters Eikon

Company Name and Description	Ticker

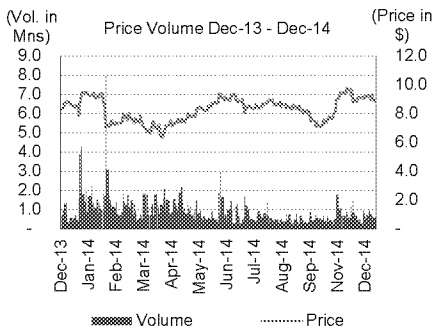
Enzo Biochem Inc — **ENZ**

Enzo Biochem, Inc. is an integrated life sciences and biotechnology company. Enzo has three segments: Enzo Clinical Labs, Enzo Life Sciences, and Enzo Therapeutics. Enzo focused on harnessing biological processes to develop research tools, diagnostics and therapeutics and serves as a provider of test services, including esoteric tests, to the medical community. Enzo has developed a portfolio of technologies with a variety of research, diagnostic and therapeutic applications. Enzo Clinical Labs segment is a regional clinical laboratory serving the New York, New Jersey and Eastern Pennsylvania medical communities. The Company's Enzo Life Sciences manufactures, develops and markets products and tools to life sciences, drug development and clinical research customers world-wide. The Company's Enzo Therapeutics segment is a biopharmaceutical venture that develops multiple approaches in the areas of gastrointestinal, infectious, ophthalmic and metabolic diseases.



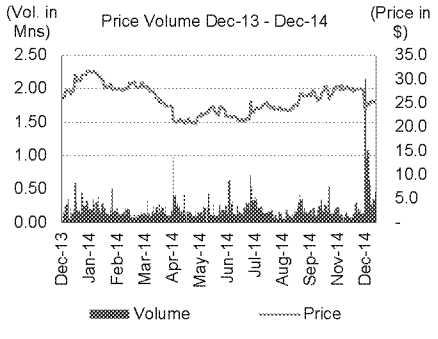
Affymetrix Inc — **AFFX.O**

Affymetrix, Inc. is engaged in the development, manufacture, sale and service of consumables and systems for genetic analysis in the life sciences and clinical healthcare markets. Affymetrix has developed its GeneChip system and related microarray technology as a platform for acquiring, analyzing and managing genetic information. The Company offers a line of products for two principal applications: genotyping and gene expression. Related microarray technology also offered by Affymetrix includes licenses for fabricating, scanning, collecting and analyzing results from complementary technologies. The Company also sells some of its products through life science supply specialists acting as authorized distributors in Latin America, India, the Middle East and Asia Pacific regions, including China. In October 2013, StoneCalibre announced that the completion of the acquisition of Anatrace, a part of Affymetrix, Inc.

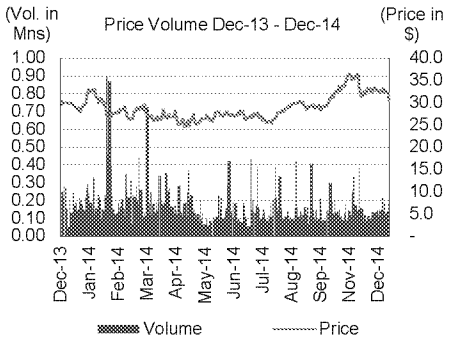
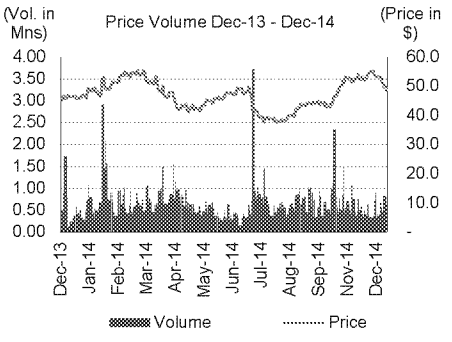
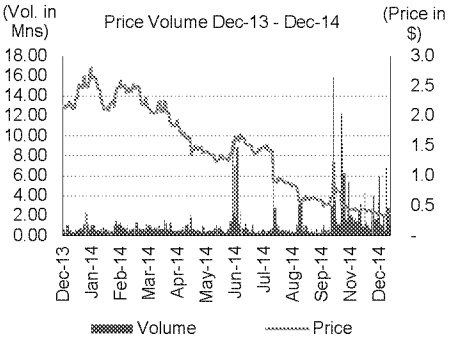


Quidel Corp — **QDEL.O**

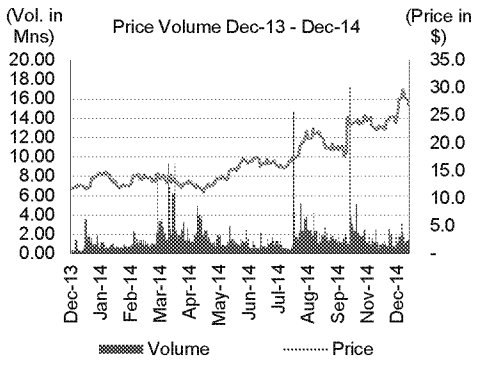
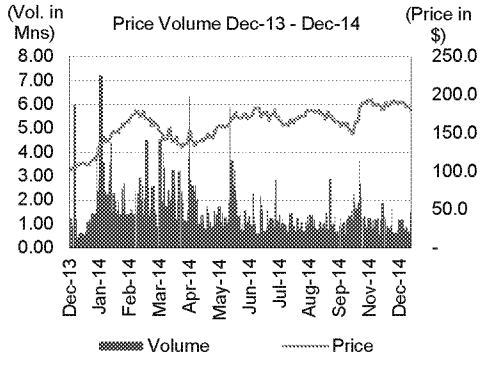
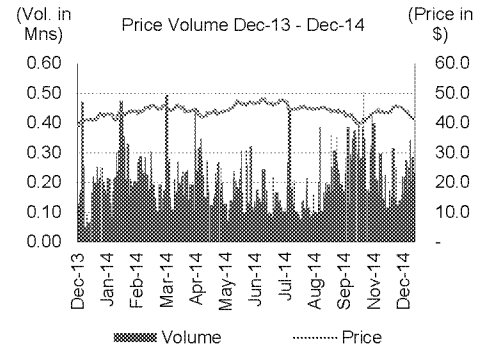
Quidel Corporation is engaged in the development, manufacturing and marketing of diagnostic testing solutions. These diagnostic testing solutions primarily include applications in infectious diseases, women's health and gastrointestinal diseases. It sells its products directly to end users and distributors, in each case, for professional use in physician offices, hospitals, clinical laboratories, reference laboratories, universities, retail clinics and wellness screening centers. It markets its products in the United States through a network of national and regional distributors, and a direct sales force. Internationally, it sells and markets primarily in Japan and Europe through distributor arrangements. It provides diagnostic testing solutions under various brand names, including QuickVue, QuickVue+, Quidel, MicroVueTM, FreshCells , D3 FastPoint, Super E-Mix, ELVIS, Sofia , Quidel Molecular, and Thyretain. In May 2013, the Company completed the acquisition of BioHelix Corporation.



Source: Reuters Eikon

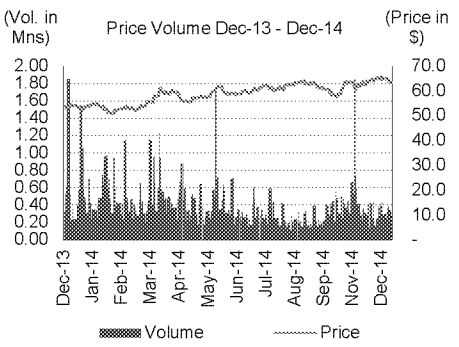
Company Name and Description	Ticker
Genomic Health Inc Genomic Health, Inc. (Genomic Health) is a molecular diagnostics company focused on the global development and commercialization of genomic-based clinical laboratory services that analyze the underlying biology of cancer allowing physicians and patients to make individualized treatment decisions. Its Oncotype DX platform utilize`s quantitative genomic analysis known as reverse transcription polymerase chain reaction (RT-PCR), in standard tumor pathology specimens to provide tumor-specific information, or the oncotype of a tumor. As of February 2012, Oncotype DX was evaluated in invasive breast cancer in 13 clinical studies involving more than 4,000 breast cancer patients worldwide. Genomic Health offers its Oncotype DX tests as a clinical service. In March 2012, the Company established a wholly owned subsidiary, InVitae Corporation.	**GHDX.O** 
Cepheid Cepheid is a molecular diagnostics company that develops, manufactures and markets fully-integrated systems for testing in the Clinical market, as well as for application in its legacy Non-Clinical market. The Company's systems enable rapid, sophisticated molecular testing for organisms and genetic-based diseases by automating otherwise complex manual laboratory procedures. The Company's two principal systems are the GeneXpert and SmartCycler. The GeneXpert system, its primary offering in the Clinical market, integrates sample preparation in addition to DNA amplification and detection. The GeneXpert system is designed for a broad range of user types ranging from reference laboratories and hospital central laboratories to satellite testing locations, such as emergency departments and intensive care units within hospitals and doctors' offices. The SmartCycler system integrates DNA amplification and detection to allow rapid analysis of a sample.	**CPHD.O** 
Nanosphere Inc Nanosphere, Inc. develops, manufactures and markets a molecular diagnostics platform, the Verigene System. The Company's nanoparticle technology provides the ability to run multiple tests simultaneously on the same sample. The Verigene System includes a bench-top molecular diagnostics workstation that is a universal platform for genomic and protein testing. The Verigene System is consists of a microfluidics processor, a touchscreen reader and disposable test cartridges. The Verigene System provides for multiple tests to be performed on a single platform, including both genomic and protein assays, from a single sample. The Company developed and launched a second generation Verigene System processor (the Processor SP) that handles the same processing steps as the Original Processor and incorporates sample preparation.	**NSPH.O** 

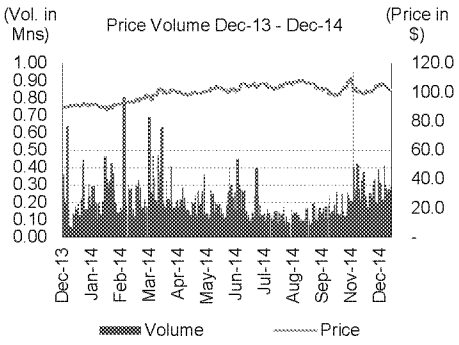
Source: Reuters Eikon

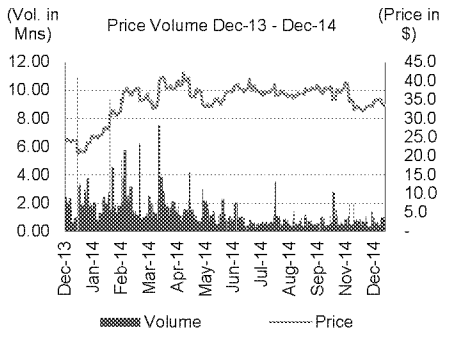
Company Name and Description	Ticker
Exact Sciences Corp Exact Sciences Corporation is a molecular diagnostics company focused on the early detection and prevention of colorectal cancer. The Company's Cologuard test is a non-invasive, stool-based deoxyribonucleic acid (DNA) (sDNA) screening test designed to detect DNA markers, which in published studies have been shown to be associated with colorectal cancer. In addition to DNA markers, its test includes a protein marker to detect blood in the stool, utilizing an antibody-based fecal immunochemical test (FIT). The Company's Cologuard test is designed to detect pre-cancerous lesions or polyps, and each of the four stages of colorectal cancer. The Company's Cologuard test includes methods that isolate and analyze the human DNA that are shed into stool every day from the exfoliation of cells that line the colon. By detecting pre-cancers and cancers early with its test, affected patients can be referred to colonoscopy, during which the polyps or lesions can be removed.	**EXAS.O** 
Illumina Inc Illumina, Inc. (Illumina) is a developer and manufacturer of life science tools and integrated systems for the analysis of genetic variation and function. The Company is organized in two business segments: Life Sciences and Diagnostics. Its Life Sciences business unit includes all products and services related to the research market, namely the product lines based on its sequencing, BeadArray, VeraCode, and real-time PCR technologies. Its Diagnostics business unit focuses on molecular diagnostics. Its customers include genomic research centers, academic institutions, government laboratories, and clinical research organizations, as well as pharmaceutical, biotechnology, agrigenomics, and consumer genomics companies. In July 2014, the Company acquired Myraqa, a regulatory and quality consulting firm specializing in IVDs, particularly companion diagnostics.	**ILMN.O** 
PerkinElmer Inc PerkinElmer, Inc. is a provider of products, services and solutions to the diagnostics, research, environmental, industrial and laboratory services markets. Through the Company's advanced technologies, solutions, and services, it addresses issues related to health and safety of people and their environment. It operates in two segments: Human Health and Environmental Health. The Company's Human Health segment concentrates on developing diagnostics, tools and applications to help detect diseases earlier and accelerate the discovery and development of critical new therapies. The Company's Environmental Health segment provides technologies and applications to facilitate the creation of safer food and consumer products, secure surroundings and energy resources.	**PKI.N** 

Source: Reuters Eikon

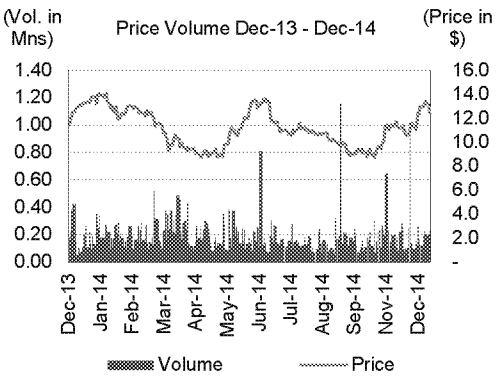
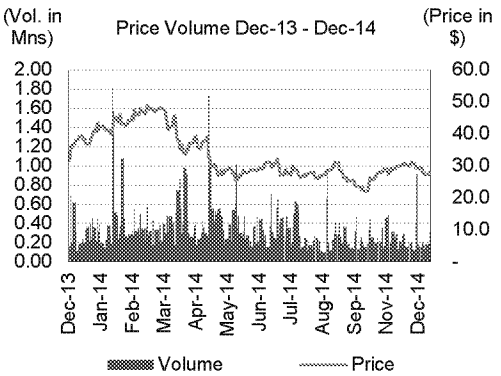
Company Name and Description	Ticker
Quest Diagnostics Inc Quest Diagnostics Incorporated (Quest Diagnostics) is a provider of diagnostic testing, information and services, providing insights that enable patients and physicians to make healthcare decisions. Quest Diagnostics offers United States patients and physicians the access to diagnostic testing services through its nationwide network of laboratories and Company-owned patient service centers. The Company provides interpretive consultation through the medical and scientific staff. The Company is a provider of clinical testing, including gene-based and esoteric testing and anatomic pathology services, and the provider of risk assessment services for the life insurance industry. The Company also is a provider of testing for clinical trials and testing for drugs of abuse. In April 2014, the Company announced the acquisition of Summit Health. Combined business will be referred to as Quest Diagnostics Health and Wellness Services.	**DGX.N**
Laboratory Corporation of America Holdings Laboratory Corporation of America Holdings is a clinical laboratory company in the United States. Through a national network of laboratories, the Company offers a range of testing services used by the medical profession in routine testing, patient diagnosis, and in the monitoring and treatment of disease. In addition, it has developed specialty and niche operations based on certain types of specialized testing capabilities and client requirements, such as oncology testing, human immunodeficiency virus (HIV) genotyping and phenotyping, diagnostic genetics and clinical research trials. It processes tests on approximately 470,000 patient specimens daily and provides clinical laboratory testing services in all 50 states, the District of Columbia, Puerto Rico, Belgium, Japan, the United Kingdom, China, Singapore and three provinces in Canada.	**LH.N**
Myriad Genetics Inc Myriad Genetics, Inc. (Myriad) is a molecular diagnostic company. The Company is focused on developing and marketing predictive medicine, personalized medicine and prognostic medicine tests. It performs all of its molecular diagnostic testing and analysis in its own reference laboratories. These technologies include the cornerstone technologies of biomarker discovery, high-throughput deoxyribo nucleuc acid (DNA) sequencing, ribo nucleic acid (RNA) expression and multiplex protein analysis. The Company uses this information to guide the development of new molecular diagnostic tests that are designed to assess an individual's risk for developing disease later in life (predictive medicine), identify a patient's likelihood of responding to drug therapy and guide a patient's dosing to ensure optimal treatment (personalized medicine), or assess a patient's risk of disease progression and disease recurrence (prognostic medicine).	**MYGN.O**



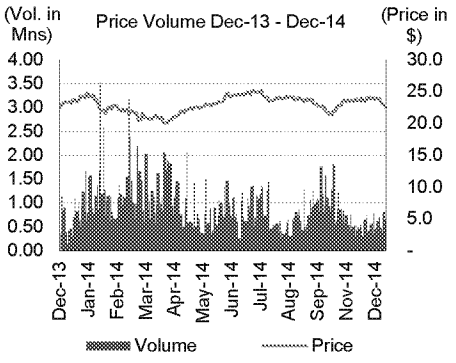




Source: Reuters Eikon

Company Name and Description	Ticker
GenMark Diagnostics Inc GenMark Diagnostics, Inc. is a molecular diagnostics company focused on developing and commercializing its eSensor detection technology. The Company's electrochemical technology enables detection of up to 72 distinct biomarkers in a single sample. Its XT-8 System has received 510(k) clearance from the United States Food and Drug Administration (FDA), and is designed to support a range of molecular diagnostic tests with a compact workstation and self-contained, disposable test cartridges. Within 30 minutes of receipt of an amplified deoxyribonucleic acid (DNA) sample, its XT-8 System produces results. The XT-8 System supports up to 24 test cartridges, which can be run independently, and are targeted for hospitals and reference laboratories. The Company is also developing its next-generation platform, the AD-8 System, to integrate DNA amplification with its eSensor detection technology to enable technicians to place a minimally prepared patient sample into its test cartridge.	GNMK.O 
Fluidigm Corp Fluidigm Corporation develops, manufactures and markets microfluidic systems such as single-cell genomics, applied genotyping and sample preparation for targeted resequencing, in the life science and agricultural biotechnology, or Ag-Bio, industries. The Company's microfluidic systems consist of instruments and consumables, including chips and reagents. It markets three microfluidic systems, including eight different commercial chips to pharmaceutical and biotechnology companies, academic institutions, diagnostic laboratories companies. The Company sells three microfluidic systems, BioMark, EP1 and Access Array. All of its systems include chip controllers that control the activation of valves, loading of reagents, and recovery or wash steps within the chips. Each chip controller comes with software to control chip and instrument operations for particular applications. In February 2014, Fluidigm Corp completed the acquisition of DVS Sciences, Inc.	FLDM.O 

Source: Reuters Eikon

Company Name and Description	Ticker
Qiagen NV QIAGEN N.V., (QIAGEN) is a holding company, which provides sample and assay technologies. The consumable products such as sample and assay kits and automated instrumentation systems provides customers to transform raw biological samples into valuable molecular information.The Company serves four customer classes: Molecular Diagnostics laboratories; Applied Testing customers in fields such as forensics, veterinary diagnostics and food safety; Pharmaceutical research and development groups, and Academic researchers. The Company market its products in more than 100 countries. The Company offers more than 500 core consumable products as well as a number of instrument solutions to automate the processing of almost all QIAGEN products used for sample preparation and subsequent analysis. On May 3, 2012, the Company acquired AmniSure International LLC.	**QGEN.O** 

Source: Reuters Eikon

7.4. Valuation Theory

7.4.1. 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.

7.4.2. 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.

7.4.3. 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).

7.4.4. BackSolve or Reverse Option Pricing Method Valuation at Latest Preferred Financing

A similar approach to the Implied Post-Money Valuation is the Reverse OPM or the BackSolve Approach. Under this approach, the value of the company is estimated by matching value allocated to latest round of preferred financing with its Original Issue Price (OIP). In this approach, the inputs of Black-Scholes Option Pricing (BSOP) allocation methodology such as risk-free rate, volatility and time to exit event, are assumed to hold true and the BSOP calculation is worked backwards to estimate the implied valuation of the company at which the latest preferred series' OIP is met.

In cases where a recent stock transaction within the company has taken place, the Equity Value estimated under the BackSolve Approach is considered as a reasonable benchmark after factoring various qualitative rights available to preferred shareholders. Typical list of rights available to preferred shareholders is:

- Board representation
- Information rights
- Right to first refusal
- Right of co-sale
- Drag along
- Protective provisions

7.4.5. 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 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[12]."

7.4.6. Income Approach – Discounted Cash Flow Method

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

Projecting 'FCFE'* for foreseeable future	Typically, forecasts are developed for 5–10 years depending on the state of development of the industry, company's planning horizon, and economic factors. **FCFE = Net Profit (+) depreciation (+) non-cash items (+)/(-) cash outflow due to changes in working capital and capex requirement (+)/ (-) changes in net debt*
Estimating the terminal equity value	Terminal value is calculated by assuming an implicit growth rate until perpetuity and capitalizing the free cash flows corresponding to the last period in the forecasts. Another method is capitalizing the earnings, cash flows of the last financial year in the forecast period by applying a suitable exit multiple. The exit multiple captures the implicit growth assumptions beyond the explicit forecast period.
Estimating cost of equity / discount rate	Discount rate is the rate of return that a prospective investor will expect to receive for time value of the money and to compensate the associated risks and uncertainties that actual returns from the investment may not be as expected.

**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.

7.4.7. 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.

Fair value of assets	Less	Fair value of liabilities	Less	Est. cost of liquidation	Equals	Equity Value under cost approach

7.4.7.1. 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.

7.5. Backsolve Calculations

Event description	Participating Class	Participating shares (in '000)	Strike Point (in $ '000)
Equity value is nil	None	-	0
Liquidation preference of Series C,C-1, C-1* and C-2	Series C, C-1 & C-1*	120,046	675,982
Liquidation preference of Series B	Series B	54,163	685,982
Liquidation preference of Series A	Series A	46,320	692,930
Options @ $0.015 exercised	Series A, Series B,C,C-1,C-1* & Common	523,492	700,783
Options @ $0.03 exercised	Series A, Series B,C,C-1,C-1*,Common and Options @ $0.015	523,842	708,640
Options @ $0.066 exercised	Series A, Series B,C,C-1,C-1*, Common,Options @ $0.015,$0.03	525,013	727,541
Options @ $0.072 and Common Stock Warrants @ $0.072 exercised	Series A, Series B, C,C-1,C-1*, Common,Options @ $0.015,$0.03,$0.066	525,561	730,694
Options @ $0.094 exercised	Series A, Series B, C,C-1,C-1*, Common,Options @ $0.015,$0.03,$0.066,$0.072, Common Warrants @ $0.072	528,884	742,330
Options @ $0.17 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	529,196	782,549
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,$0.17, Common Warrants @ $0.072	533,172	801,743
Options @ $1.441 get exercised	Series A,Series B, C,C-1,C-1*, Common,Options @ $0.015,$0.03,$0.066,$0.072,$0.094,$0.17,$0.206, Common Warrants @ $0.072	533,779	1,460,855
Thereafter	All classes	548,779	-

Percentage Allocation	Option 1	Option 2	Option 3	Option 4
Series A	0.00%	0.00%	100.00%	8.85%
Series B	0.00%	100.00%	0.00%	10.35%
Series C	4.91%	0.00%	0.00%	11.25%
Series C-1	9.69%	0.00%	0.00%	4.17%
Series C-1*	2.88%	0.00%	0.00%	1.24%
Series C-2	82.51%	0.00%	0.00%	6.27%
Common shares - Class A	0.00%	0.00%	0.00%	9.99%
Common shares - Class B	0.00%	0.00%	0.00%	47.88%
Options @ $0.015	0.00%	0.00%	0.00%	0.00%
Options @ $0.03	0.00%	0.00%	0.00%	0.00%
Options @ $0.066	0.00%	0.00%	0.00%	0.00%
Options @ $0.072	0.00%	0.00%	0.00%	0.00%
Options @ $0.094	0.00%	0.00%	0.00%	0.00%
Options @ $0.17	0.00%	0.00%	0.00%	0.00%
Options @ $0.206	0.00%	0.00%	0.00%	0.00%
Options @ $1.441	0.00%	0.00%	0.00%	0.00%
Common Stock Warrants @ $0.072	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Percentage Allocation	Option 5	Option 6	Option 7	Option 8
Series A	8.84%	8.82%	8.81%	8.76%
Series B	10.34%	10.32%	10.31%	10.24%
Series C	11.24%	11.22%	11.21%	11.14%
Series C-1	4.17%	4.16%	4.16%	4.13%
Series C-1*	1.24%	1.24%	1.24%	1.23%
Series C-2	6.26%	6.25%	6.24%	6.20%
Common shares - Class A	9.98%	9.96%	9.95%	9.89%
Common shares - Class B	47.85%	47.74%	47.69%	47.39%
Options @ $0.015	0.07%	0.07%	0.07%	0.07%
Options @ $0.03	0.00%	0.22%	0.22%	0.22%
Options @ $0.066	0.00%	0.00%	0.10%	0.10%
Options @ $0.072	0.00%	0.00%	0.00%	0.49%
Options @ $0.094	0.00%	0.00%	0.00%	0.00%
Options @ $0.17	0.00%	0.00%	0.00%	0.00%
Options @ $0.206	0.00%	0.00%	0.00%	0.00%
Options @ $1.441	0.00%	0.00%	0.00%	0.00%
Common Stock Warrants @ $0.072	0.00%	0.00%	0.00%	0.14%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Percentage Allocation	Option 9	Option 10	Option 11	Option 12
Series A	8.75%	8.69%	8.68%	8.44%
Series B	10.23%	10.16%	10.15%	9.87%
Series C	11.13%	11.05%	11.03%	10.73%
Series C-1	4.13%	4.10%	4.09%	3.98%
Series C-1*	1.23%	1.22%	1.22%	1.18%
Series C-2	6.20%	6.15%	6.15%	5.98%
Common shares - Class A	9.88%	9.81%	9.80%	9.53%
Common shares - Class B	47.37%	47.01%	46.96%	45.68%
Options @ $0.015	0.07%	0.07%	0.07%	0.06%
Options @ $0.03	0.22%	0.22%	0.22%	0.21%
Options @ $0.066	0.10%	0.10%	0.10%	0.10%
Options @ $0.072	0.49%	0.48%	0.48%	0.47%
Options @ $0.094	0.06%	0.06%	0.06%	0.06%
Options @ $0.17	0.00%	0.75%	0.74%	0.72%
Options @ $0.206	0.00%	0.00%	0.11%	0.11%
Options @ $1.441	0.00%	0.00%	0.00%	2.73%
Common Stock Warrants @ $0.072	0.14%	0.14%	0.14%	0.14%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Value using BSOPS	Option 1	Option 2	Option 3
Value of the underlying Asset (in $ million)	1,701	1,701	1,701
Strike Price (in $ million)	0	676	686
S.D of the Underlying preferred share	41%	41%	41%
Dividend yield	0%	0%	0%
Time of Expiration (years)	4	4	4
Riskless Rate corresponding to option life time	1.31%	1.31%	1.31%
Value of the Call (in $ million)	1,701	1,105	1,098
Incremental value of Options (in $ million)	**596**	**7**	**5**

Value using BSOPS	Option 4	Option 5	Option 6
Value of the underlying Asset (in $ million)	1,701	1,701	1,701
Strike Price (in $ million)	693	701	709
S.D of the Underlying preferred share	41%	41%	41%
Dividend yield	0%	0%	0%
Time of Expiration (years)	4	4	4
Riskless Rate corresponding to option life time	1.31%	1.31%	1.31%
Value of the Call (in $ million)	1,092	1,087	1,081
Incremental value of Options (in $ million)	**6**	**6**	**14**

Value using BSOPS	Option 7	Option 8	Option 9
Value of the underlying Asset (in $ million)	1,701	1,701	1,701
Strike Price (in $ million)	728	731	742
S.D of the Underlying preferred share	41%	41%	41%
Dividend yield	0%	0%	0%
Time of Expiration (years)	4	4	4
Riskless Rate corresponding to option life time	1.31%	1.31%	1.31%
Value of the Call (in $ million)	1,067	1,065	1,057
Incremental value of Options (in $ million)	**2**	**8**	**28**

Value using BSOPS	Option 10	Option 11	Option 12
Value of the underlying Asset (in $ million)	1,701	1,701	1,701
Strike Price (in $ million)	783	802	1,461
S.D of the Underlying preferred share	41%	41%	41%
Dividend yield	0%	0%	0%
Time of Expiration (years)	4	4	4
Riskless Rate corresponding to option life	1.31%	1.31%	1.31%
Value of the Call (in $ million)	1,028	1,015	660
Incremental value of Options (in $ million)	**13**	**355**	**660**

Value Allocation (in $ million)	Option 1	Option 2	Option 3	Option 4
Series A	-	-	5	1
Series B	-	7	-	1
Series C	29	-	-	1
Series C-1	58	-	-	0
Series C-1*	17	-	-	0
Series C-2	492	-	-	0
Common shares - Class A	-	-	-	1
Common shares - Class B	-	-	-	3
Options @ $0.015	-	-	-	-
Options @ $0.03	-	-	-	-
Options @ $0.066	-	-	-	-
Options @ $0.072	-	-	-	-
Options @ $0.094	-	-	-	-
Options @ $0.17	-	-	-	-
Options @ $0.206	-	-	-	-
Options @ $1.441	-	-	-	-
Common Stock Warrants @ $0.072	-	-	-	-
Total	**596**	**7**	**5**	**6**

Value Allocation (in $ million)	Option 5	Option 6	Option 7	Option 8
Series A	1	1	0	1
Series B	1	1	0	1
Series C	1	2	0	1
Series C-1	0	1	0	0
Series C-1*	0	0	0	0
Series C-2	0	1	0	1
Common shares - Class A	1	1	0	1
Common shares - Class B	3	7	1	4
Options @ $0.015	0	0	0	0
Options @ $0.03	-	0	0	0
Options @ $0.066	-	-	0	0
Options @ $0.072	-	-	-	0
Options @ $0.094	-	-	-	-
Options @ $0.17	-	-	-	-
Options @ $0.206	-	-	-	-
Options @ $1.441	-	-	-	-
Common Stock Warrants @ $0.072	-	-	-	0
Total	**6**	**14**	**2**	**8**

Value Allocation (in $ million)	Option 9	Option 10	Option 11	Option 12
Series A	2	1	31	56
Series B	3	1	36	65
Series C	3	1	39	71
Series C-1	1	1	15	26
Series C-1*	0	0	4	8
Series C-2	2	1	22	39
Common shares - Class A	3	1	35	63
Common shares - Class B	13	6	167	302
Options @ $0.015	0	0	0	0
Options @ $0.03	0	0	1	1
Options @ $0.066	0	0	0	1
Options @ $0.072	0	0	2	3
Options @ $0.094	0	0	0	0
Options @ $0.17	-	0	3	5
Options @ $0.206	-	-	0	1
Options @ $1.441	-	-	-	18
Common Stock Warrants @ $0.072	0	0	0	1
Total	**28**	**13**	**355**	**660**

Classes	# of shares (in 'millions)	Value (in $ million)	Per Share	% of EV
Series A	46	98	2.13	5.8%
Series B	54	117	2.15	6.9%
Series C	59	148	2.51	8.7%
Series C-1	22	102	4.66	6.0%
Series C-1*	7	30	4.66	1.8%
Series C-2	33	558	17.00	32.8%
Common shares - Class A	**52**	**105**	**2.01**	**6.2%**
Common shares - Class B	251	505	2.01	29.7%
Options @ $0.015	0	1	2.00	0.0%
Options @ $0.03	1	2	1.99	0.1%
Options @ $0.066	1	1	1.97	0.1%
Options @ $0.072	3	5	1.96	0.3%
Options @ $0.094	0	1	1.95	0.0%
Options @ $0.17	4	8	1.89	0.4%
Options @ $0.206	1	1	1.87	0.1%
Options @ $1.441	15	18	1.20	1.1%
Common Stock Warrants @ $0.072	1	1	1.96	0.1%
Total	**549**	**1,701**		**100.00%**

7.6. NOL Schedule

NOL Schedule (in $'000)		Dec-14	Dec-15	Dec-16
		15 Days-F	FY-F	FY-F
EBIT		(1,792)	(47,999)	12,572
Opening Balance - NOLs		374,380	376,172	424,171
NOLs adjusted against Profits		-	-	12,572
Loss Accumulated		1,792	47,999	-
Closing Balance - NOLs		376,172	424,171	411,599
Tax Savings on NOLs	35.00%	-	-	4,400
Discount Factor		1.00	0.90	0.75
PV of Tax Benefit on NOLs		-	-	3,293
Sum of PV of Tax Benefits on NOLs	73,685			
Tax for the Period		-	-	-

NOL Schedule (in $'000)		Dec-17	Dec-18	Dec-19	Dec-20
		FY-F	FY-F	FY-F	FY-F
EBIT		58,986	165,938	182,532	200,785
Opening Balance - NOLs		411,599	352,613	186,675	4,144
NOLs adjusted against Profits		58,986	165,938	182,532	4,144
Loss Accumulated		-	-	-	-
Closing Balance - NOLs		352,613	186,675	4,144	-
Tax Savings on NOLs	35.00%	20,645	58,078	63,886	1,450
Discount Factor		0.62	0.51	0.43	0.35
PV of Tax Benefit on NOLs		12,805	29,856	27,219	512
Sum of PV of Tax Benefits on NOLs	73,685				
Tax for the Period		-	-	-	**68,824**

7.7. Capital Structure

Class of stock	No. of shares (in '000)	OIP ($)	Conv. Ratio	CSE (in '000)	%Owned O/S	%Owned Fully Diluted
Series A	46,320	0.150	1:1	46,320	8.85%	8.44%
Series B	54,163	0.185	1:1	54,163	10.35%	9.87%
Series C	58,896	0.564	1:1	58,896	11.25%	10.73%
Series C-1	21,842	3.000	1:1	21,842	4.17%	3.98%
Series C-1*	6,500	15.000	1:1	6,500	1.24%	1.18%
Series C-2	32,808	17.000	1:1	32,808	6.27%	5.98%
Common shares - Class A	52,305		1:1	52,305	9.99%	9.53%
Common shares - Class B	250,658		1:1	250,658	47.88%	45.68%
Sub Total	**523,492**			**523,492**	**100.00%**	**95.39%**
Dilutive Instruments						
Options @ $0.015	350	0.015	1:1	350		0.06%
Options @ $0.03	1,171	0.030	1:1	1,171		0.21%
Options @ $0.066	548	0.066	1:1	548		0.10%
Options @ $0.072	2,582	0.072	1:1	2,582		0.47%
Options @ $0.094	313	0.094	1:1	313		0.06%
Options @ $0.17	3,976	0.170	1:1	3,976		0.72%
Options @ $0.206	606	0.206	1:1	606		0.11%
Options @ $1.439	15,000	1.439	1:1	15,000		2.73%
Stock Warrants @ $0.072	742	0.072	1:1	742		0.14%
Total Dilutive Instruments	**25,286**			**25,286**		**4.61%**
Fully Diluted Shares	**548,779**			**548,779**	**100.00%**	**100.00%**

Rights and Preferences

Class of stock	No. of shares (in '000)	OIP ($)	Invested Amt (in $'000)	Total LP (in $'000)	Participation Cap
Series A	46,320	0.150	6,948	6,948	Unlimited
Series B	54,163	0.185	10,000	10,000	Unlimited
Series C	58,896	0.564	33,217	33,217	Unlimited
Series C-1	21,842	3.000	65,525	65,525	Unlimited
Series C-1*	6,500	15.000	97,500	19,500	Unlimited
Series C-2	32,808	17.000	557,739	560,157	Unlimited
Common shares - Class A	52,305				
Common shares - Class B	250,658				
Total	**523,492**		**770,930**	**692,930**	

7.8. Equity Value Allocation Theory

7.8.1. 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, according to the AICPA Practice Aid, the method is suitable only under the following limited circumstances[13]:

- 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 the 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 the Equity Value. Furthermore, this is not forward-looking and fails to reflect the possibility that the Company's 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[14].

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.

7.8.2. 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.

7.8.2.1. Excerpt from AICPA Practice Aid[15]:

"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.

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[13] AICPA Practice Aid Series 2004 – 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page # 63, Para # 154
[14] AICPA Practice Aid Series 2004 – 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page # 63, Para # 153
[15] AICPA Practice Aid Series 2004 – 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page # 61, Para # 146, 147, 148

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 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.

7.8.3. Probability-Weighted Average Expected Return Method ('PWERM')

As outlined in the AICPA Practice Aid[16], "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.

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[16]AICPA Practice Aid Series 2004 – 'Valuation of Privately Held Company Equity Securities Issued as Compensation', Page # 59, Para # 141, 142, 143

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.

7.9. Discount for lack of Marketability Calculations

Methodology		DLOM Arrived
Finnerty Model (Ghaidarov Correction)	100%	30.3%
Concluded DLOM		**28.5%**

Inputs	
Stock Price	$2.011
Strike Price	$2.011
Volatility of the Underlying Asset	56%
Dividend yield	0.00%
Time of Expiration (years)	5.00
Riskless Rate corresponding to option life time	1.81%
Variance	31.8%

Finnerty Model (Ghaidarov Correction)	
v2T	0.61
vT	0.78
d1	0.39
d2	-0.39
Put Option Value	0.61
DLOM	**30.3%**

Economic Overview

The value of a company or its assets cannot be determined in isolation of the overall economic trends in the geographic regions in which it 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 it 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

Entering the third month of 2014, most economic variables continued to show signs of strength, albeit not uniformly. Notably, growth in the U.S. gross domestic product (GDP) for the fourth quarter of 2013—which had been downgraded last month from 3.2% to 2.4%—was upgraded on March 27 to 2.6%. This rate followed a 4.1% growth rate for the third quarter—the measure's largest jump in nearly seven years. For all of 2013, though, growth was a sluggish 1.9%, down from 2.8% in 2012. In addition, the U.S. Labor Department reported on April 4 that the number of people who held jobs in March rose for the 19th straight month, with some 192,000 new jobs being added—just shy of the 200,000 new jobs forecast. The Labor Department also revised upward its number of new hires in January and February by a total of 37,000. Simultaneously, after rising from 6.6% in January to 6.7% in February, the unemployment rate held at 6.7% in March.

Other concerns remain. Even though the Federal debt now stands at $17.6 trillion, the U.S. Congress on February 12 approved a measure that allows the President to borrow as much money as desired for the next 13 months without the constraint of a debt limit. The Congress also approved a spending bill in January to fund the Federal government through September and eliminate the threat of another government shutdown. But the budget did little to rein in either spending or taxes, which hit all-time records in FY 2013 despite a decline in the budget deficit to $680.3 billion from the previous year's $1.09 trillion. In other areas, on the positive side, industrial production was up, auto sales jumped, consumer confidence measures were all positive, and both consumer spending and retail sales rose. On the negative side, stocks showed little forward progress, both new-home and existing-home sales faltered, and gas and food prices were up sharply.

- Gross Domestic Product

The U.S. gross domestic product (GDP) grew by 2.6% in the fourth quarter of 2013, according to a March 27 report from the U.S. Bureau of Economic Analysis. That growth rate, revised upward from the February 28 estimate of 2.4% but down from the January 30 estimate of 3.2%, followed on the heels of growth rates of 4.1% for the third quarter and 2.5% for the second quarter. For all of 2013, growth was a sluggish 1.9%, down from 2.8% in 2012. However, the latest quarterly figure, the BEA said, pointed to continuing strength in the U.S. economy, with consumer spending—which accounts for two-thirds of all U.S. economic activity—being revised sharply upward.

- Unemployment

The U.S. job market picked up more ground in March than in recent months when winter storms and extreme cold cut into hiring, offering a potential sign that U.S. labor markets might be gaining momentum. Overall, some 192,000 new jobs were added in March, the U.S. Labor Department reported on April 4—the 19th straight monthly gain and just shy of the 200,000 new jobs forecast. In addition, the Labor Department revised upward its number of new hires in January and February by a total of 37,000. Previously, January and February job gains had been estimated at 113,000 and 175,000, respectively—all figures well above the 74,000 new jobs added in December. Simultaneously, after rising from 6.6% in January to 6.7% in February, the unemployment rate held there in March.

- Budget Deficit

After topping $1 trillion for each of the past four years, the Federal budget deficit fell sharply to $680.3 billion for the 12 months ending September 30 (FY 2013), far and away the narrowest budget gap since 2008, the U.S. Treasury Department reported on October 30. In comparison, the budget shortfall was $1.09 trillion in FY 2012.

- Federal Debt

After being artificially held down for five months, U.S. Federal debt jumped by a record $328 billion on October 17, soaring past $17 trillion to $17.075 trillion for the first time ever. For October as a whole, the national debt was up by $409 billion. Subsequently, on December 31, 2013, the Federal government added a net of $125.2 billion to the debt in a single day. Total debt was up by $624 billion in the first three months of FY 2014 (October to December). As of April 23, the national debt stood at $17.546 trillion.

- Federal Spending and Tax Collections

The Federal government took in a record of more than $2.87 trillion in taxes during Fiscal Year 2013, which ended on September 30, according to the U.S. Treasury Department. Then, for the first half of FY 2014, revenues again hit a record of $1.321 trillion. Yet the government still ran a $413 billion budget deficit during that time.

- Dow Jones Industrial Average Index

After reaching record highs multiple times last November and December and again periodically during the first four months of 2014, U.S. stocks by mid-April wound up little improved over both the previous month and the first four-plus months of 2014. For instance, the Dow-Jones Industrials Average, which was 16,441.35 on January 2, fell to 16,247.22 on March 17, and rebounded only partially to 16,424.85 by April 16.

- Industrial Production

After rebounding in February, U.S. industrial production rose by 0.7% in March, the U.S. Federal Reserve said on April 16. March's industrial production was lifted in part by an 0.5% increase in manufacturing output, following an 0.8% jump in manufacturing output in February, which had been the largest increase in that measure since August 2013.

- Manufacturing Sector

Economic activity in the U.S. manufacturing sector expanded in February for the 10th consecutive month, according to an April 1 report from the Tempe-based Institute for Supply Management (ISM), a private trade group.

- Productivity

The productivity of U.S. workers—a measure of employee output per hour—rose by a revised 1.8% in the fourth quarter of 2013, the U.S. Department of Labor reported on March 6 in its final estimate for the quarter. The figure was down sharply from the previously reported 3.2% for the fourth quarter, and also from the revised 3.5% growth rate for the third quarter.

- Auto Sales

Seasonally adjusted annualized car and truck sales in March were 16.4 million, well above the consensus forecast of 15.8 million and 7.2% higher than February's seasonally adjusted annualized figure. On a year-over-year basis, six of the world's top automakers posted gains, with Chrysler leading the way with a 13% jump in sales.

- New-Home

After reaching their highest level in more than five years in January, sales of new U.S. single-family homes reversed course in February, plummeting by 3.3% and dropping to a five-month low. Similarly, sales of existing U.S. homes fell by 0.4% in February, hitting their lowest level since July 2012.

- Consumer Confidence Index

The Conference Board Consumer Confidence Index, which had decreased in February, improved in March. The Index now stands at 82.3 (1985=100), up from 78.3 in February. Likewise, the Thomson Reuters/University of Michigan Index of Consumer Sentiment bounced back in April from a four-month low of 80 in March, climbing to its highest level since last July. The Bloomberg and IBD/TIPP consumer indices were also positive.

- Consumer Spending

U.S. consumer spending rose by a relatively tepid 0.3% in February following a downwardly revised 0.2% increase in January, the U.S. Commerce Department said.

- Retail Sales

Following an upwardly revised 0.7% gain in February, U.S. retail sales recorded their largest gain in one and a half years in March, jumping by 1.1% on the month.

- Consumer Price Index (CPI)

On a seasonally adjusted basis, the U.S. Consumer Price Index (CPI) for all goods increased by 0.2% in March after having risen by 0.1% in February and by an identical 0.1% in January. The index for all items less food and energy rose by 0.2% in March after having edged up by 0.1% in both January and February.

- Gasoline Prices

The retail price of a regular gallon of conventional, unleaded gasoline continued its upward march in April, jumping from $3.38 a gallon on February 17 to $3.55 a gallon on March 17 and, thereafter, to $3.65 a gallon on April 14.

- Food Prices

According to the U.S. Foodstuffs spot price index, U.S. food prices soared by 19% during the first quarter of 2014.

7.10. Comparison of Theranos test price with Medicare price

Test Name	Theranos Price (in $)	Insurance Price (in $)
ABO/RhD Blood Typing	4.10	8.20
Acetaminophen	13.91	27.82
Alanine Aminotransferase (ALT/SGPT)	3.64	7.27
Albumin	3.40	6.80
Alkaline Phosphatase (ALP)	3.56	7.11
Alpha-1-Acid Glycoprotein	10.36	20.72
Alpha-1-Antitrypsin, Total	9.24	18.47
Alpha-Fetoprotein (AFP), Serum (Maternal)	11.53	23.06
Alpha-Fetoprotein (AFP), Serum (Oncology)	11.53	23.06
Ammonia	10.02	20.03
Amphetamines	10.00	19.99
Amylase	4.46	8.91
Androstenedione	20.12	40.24
Antibody Detection	25.75	-
Antinuclear Antibodies, Screen (ANA)	8.31	16.62
Apolipoprotein (A1, B)	10.65	21.30
Aspartate Aminotransferase (AST/SGOT)	3.56	7.11
Barbiturates	10.00	19.99
Basic Metabolic Panel (BMP)	5.82	11.63
Benzodiazepines, Blood	10.00	19.99
Benzodiazepines, Urine	10.00	19.99
Beta-2 Microblobulin	11.12	22.24
Bilirubin, Direct	3.45	6.90
Bilirubin, Total	3.45	6.90
Borrelia Antibody	9.20	18.39
Brain Natriuretic Peptide (BNP)	23.33	46.66
Calcitonin	18.41	36.82
Calcium, Total	3.55	7.09
Calcium, Urine	4.15	8.29
Cancer Antigen - GI (CA 19-9)	14.31	28.61
Cancer Antigen 125 (CA-125)	14.31	28.61
Cancer Antigen 15-3 (CA 15-3)	14.31	28.61
Cancer Antigen 27.29 (CA 27.29)	14.31	28.61
Carbamazepine, Total	10.01	20.02
Carbon Dioxide	3.36	6.72
Carcinoembryonic Antigen (CEA)	13.04	26.08
Cardiolipin Antibody (ACA), IgG	17.49	34.97
CBC w/ Auto Differential WBC w/ reflex to Manual Diff (+$2.37)	5.35	10.69
CBC w/ no Differential	4.45	8.89
Celiac Panel	31.72	63.44
Chlamydia / Gonorrhea Panel + HIV with confirmation	44.95	-
Chlamydia / Gonorrhea Panel, DNA, Qualitative	29.95	96.48

Test Name	Theranos Price (in $)	Insurance Price (in $)
Chlamydia Trachomatis, DNA, Qualitative	24.12	48.24
Chlamydia/Gonorrhea, DNA Qualitative, Swab Collection	29.95	96.48
Chloride	3.16	6.32
Chloride, Urine	3.46	6.91
Cholesterol	2.99	5.98
Cholinesterase	5.28	10.56
Cocaine	10.00	19.99
Collagen Crosslinks	12.85	25.69
Complement Component 3 Antigen	8.25	16.50
Complement Component 4 Antigen	8.25	16.50
Comprehensive Metabolic Panel (CMP)	7.27	14.53
Cortisol, Total	11.21	22.41
C-Peptide	14.31	28.61
C-Reactive Protein (CRP)	3.56	7.11
C-Reactive Protein, High Sensitivity (hsCRP)	8.90	17.80
Creatine Kinase	4.48	8.95
Creatinine	3.52	7.04
Creatinine, Urine	3.56	7.11
Cyclosporine, A	12.41	24.81
Cystatin C	9.35	18.69
Cytomegalovirus (CMV) Antibody, IgG	9.90	19.79
Cytomegalovirus (CMV) Antibody, IgM	11.58	23.15
D-Dimer, Quantitative	7.00	13.99
Deamidated Gliadin Peptide (DGP) Antibody, IgA	7.93	15.86
Deamidated Gliadin Peptide (DGP) Antibody, IgG	7.93	15.83
Dehydroepiandrosterone Sulfate (DHEA-S)	15.28	30.56
Digoxin	9.13	18.25
DNA Antibody	9.44	18.88
Dolophine (Methadone)	10.00	19.99
Drug Screen, Multi Class	49.98	99.95
Ecstasy (MDMA)	10.00	19.99
Electrolytes Panel	4.82	9.64
Epstein-Barr (EBV) Antibody Panel	44.47	88.94
Erythrocyte Sedimentation Rate (ESR)	1.86	3.71
Estradiol	19.21	38.41
Estriol, unconjugated	16.63	33.25
Ethanol	7.43	14.85
Extractable Nuclear Antigen Antibodies (RNP, Smith, SSA, SSB, SCL-70, JO-1)	73.95	147.90
Ferritin	9.37	18.73
Fibrinogen	5.84	11.68
Folate	10.11	20.21
Follicle Stimulating Hormone	12.77	25.54
Gamma-Glutamyl Transferase	4.95	9.90
Gastrin	12.12	24.24
Gentamicin	11.27	22.53

Test Name	Theranos Price (in $)	Insurance Price (in $)
Glucose	2.70	5.39
Glucose Tolerance Test (GTT), Gestational Screen, 1hr, 50g	8.85	17.69
Glucose Tolerance Test (GTT), Gestational Screen, 2hr, 75g	8.85	17.69
Glucose Tolerance Test (GTT), Gestational Screen, 3hr, 100g	8.85	17.69
Gonorrhea, DNA, Qualitative	24.12	48.24
Growth Hormone (HGH)	11.47	22.93
Haptoglobin, Quantitative	8.65	17.29
hCG - Chorionic Gonadotropin, Blood Qualitative	5.17	10.33
hCG - Chorionic Gonadotropin, Pregnancy Screen, Blood Quantitative	10.35	20.70
hCG - Chorionic Gonadotropin, Urine Qualitative	4.35	8.70
Helicobacter Pylori, IgG, Serum	9.98	19.95
Hematocrit (HCT) Count, Spun	1.63	3.26
Hemoglobin (HGB)	1.63	3.26
Hemoglobin A1c (HbA1c)	6.67	13.34
Hemogram 2	3.26	6.52
Hemogram 4	8.08	16.16
Hepatic Function Panel	5.62	11.23
Hepatitis A Antibody, IgM	7.74	15.47
Hepatitis A Antibody, Total	8.52	17.03
Hepatitis B Core Antibody, IgM	8.09	16.18
Hepatitis B Core Antibody, Total (Anti-HB Core)	8.29	16.57
Hepatitis B Surface Antibody (HBsAb), Total	7.38	14.76
Hepatitis B Surface Antigen (HBsAg) w/ reflex to HBsAg confirmatory (+$7.10)	7.10	14.20
Hepatitis B Surface Antigen (HBsAg), Total	7.10	14.20
Hepatitis B, DNA, Quantitative	29.44	58.88
Hepatitis C Antibody	9.81	19.62
Hepatitis C Antibody w/reflex to Hepatitis C, RNA, Quantitative (+$29.44)	9.81	19.62
Hepatitis C Virus Genotype	117.96	353.88
Hepatitis C, RNA, Quantitative	29.44	58.88
Hepatitis, Acute	32.74	65.47
Hepatitis, Acute w/reflex to Hep C, RNA, Quantitative (+$29.44)	31.89	63.78
HER2/neu Quantitative, Serum	44.27	88.54
Herpes Simplex Type 1 (HSV-1), IgG	9.07	18.13
Herpes Simplex Type 2 (HSV-2), IgG	13.30	26.60
High-density Lipoprotein (HDL)	5.63	11.26
HIV-1, RNA, Quantitative	58.48	116.96
HIV-1/2 Ab Screen w/reflex to HIV-1/2 Antibody Differentiation (+$15.40)	9.43	18.85
HIV-1/HIV-2 Antibody, single assay	9.43	18.85
Homocysteine	11.60	23.19
IgA	6.39	12.78
IgE	11.32	22.64
IgG	6.39	12.78

Test Name	Theranos Price (in $)	Insurance Price (in $)
IgM	6.39	12.78
Insulin	7.86	15.71
Iron	4.45	8.90
Iron Binding Capacity	6.01	12.02
Lactate Dehydrogenase	4.15	8.30
Lactic Acid	7.34	14.68
Lead	8.32	16.64
Lipase	4.74	9.47
Lipid Panel	9.21	18.42
Lithium	4.55	9.09
Low-density Lipoprotein (LDL)	6.56	13.11
Luteinizing Hormone	12.73	25.46
Magnesium	4.61	9.21
Marijuana (THC)	10.00	19.99
Methadone Metabolite	10.00	19.99
Microalbumin, Urine	3.98	7.95
Microalbumin/Creatinine-Urine Random	7.53	15.06
Mumps Antibody, IgG	8.97	17.94
Myoglobin	8.88	17.75
Nuclear Antigen Antibody, Jo-1	12.33	24.65
Nuclear Antigen Antibody, RNP	12.33	24.65
Nuclear Antigen Antibody, Scl-70	12.33	24.65
Nuclear Antigen Antibody, Sm	12.33	24.65
Nuclear Antigen Antibody, SSA	12.33	24.65
Nuclear Antigen Antibody, SSB	12.33	24.65
Obstetric Panel	30.07	-
Obstetric Panel w/ HIV 1/2 Antibody Screen	39.50	90.93
Occult Blood Diagnostic, Fecal (1 card)	2.24	4.48
Occult Blood Screen, Fecal (3 cards)	2.24	4.48
Opiates	10.00	19.99
Ova & Parasites	6.12	12.23
Parathyroid Hormone (PTO)	28.36	56.74
Partial Thromboplastin Time (PTT)	4.13	8.25
Phencyclidine (PCP)	10.00	19.99
Phenobarbital	7.87	15.74
Phenytoin, Total	9.11	18.22
Phosphorus, Inorganic	3.26	6.52
Platelet Count, Automated	3.08	6.15
Potassium	3.16	6.32
Potassium, Urine	2.96	5.91
Prealbumin	10.03	20.05
Progesterone	14.34	28.68
Prolactin	13.32	26.64
Propoxyphene	10.00	19.99

Test Name	Theranos Price (in $)	Insurance Price (in $)
Protein, Total	2.52	5.04

Protein, Urine	2.52	5.04
Prothrombin Time with INR	2.70	5.40
PSA, Free	12.65	25.29
PSA, Total	12.65	25.29
Rapid Plasma Reagin (RPR)	2.94	5.87
RBC Count, Automated	2.07	4.41
Renal Function Panel	5.97	11.94
Reproductive Health Panel	59.95	-
Reproductive Monitoring Panel	34.95	-
Rheumatoid Factor, Total	3.90	7.80
Rubella Antibody, IgG	10.31	20.61
Rubella Antibody, IgM	9.90	19.79
Rubeola Antibody, IgG	8.86	17.71
Salicylate	4.88	9.75
Sex Hormone-binding Globulin (SHBG)	14.94	29.87
Sodium	3.31	6.62
Sodium, Urine	3.35	6.69
STI Comprehensive Panel	59.95	-
Stool Culture	6.49	12.97
Streptolysin O Antibody, Titer (ASO)	5.02	10.03
Syphilis Screen (Treponema Pallidum Antibody)	9.10	18.20
Syphilis Screen (Treponema Pallidum Antibody) w/ reflex to RPR (+$2.94)	9.10	18.20
T3, Free - Triiodothyronine, Free	11.65	23.29
T3, Total - Triiodothyronine, Total	9.75	19.49
T4, Free - Thyroxine, Free	6.20	12.40
T4, Total - Thyroxine, Total	4.72	9.44
Testosterone, Free	17.50	35.00
Testosterone, Total	17.75	35.49
Theophylline	9.73	19.45
Thyroglobulin	11.04	22.08
Thyroglobulin Antibodies	10.93	21.86
Thyroid Panel	49.95	-
Thyroid Peroxidase Antibody (TPO)	10.00	19.99
Thyroid Stimulating Hormone (TSH)	11.55	23.10
Thyroid Stimulating Hormone (TSH) w/ Reflex to Thyroxine, Free (Free T4) (+$6.20)	11.55	23.10
Thyroid Uptake	4.45	8.89
Thyroxine Binding Globulin	10.17	20.33
Tissue Transglutaminase (tTG) Antibody, IgA	7.93	15.86
Tissue Transglutaminase (tTG) Antibody, IgG	7.93	15.86
Tobramycin	11.08	22.16
Toxoplasma, IgG	9.90	19.79
Toxoplasma, IgM	9.90	19.80
Transferrin	8.78	17.55
Tricyclic Antidepressants, Blood	10.00	19.99

Test Name	Theranos Price (in $)	Insurance Price (in $)

Tricyclic Antidepressants, Urine	10.00	19.99
Triglycerides	3.95	7.90
Troponin	6.77	13.53
Urea Nitrogen (BUN)	2.72	5.43
Uric Acid	3.11	6.21
Urinalysis (UA), Auto	1.55	3.09
Urinalysis (UA), Complete	2.18	4.35
Urinalysis, Complete w/ Reflex to Culture & Susceptibility (+$5.55)	2.18	4.35
Urine Culture	5.55	11.10
Valproic Acid	9.32	18.63
Vancomycin	9.32	18.63
Varicella-Zoster Antibody	8.86	17.71
Vitamin B-12	10.36	20.72
Vitamin D 25-OH	20.35	40.70
WBC Count, Automated Differential	4.45	8.89
WBC, Automated (Leukocyte Count)	1.75	3.49

7.11. General Assumptions and Limiting Conditions

- This independent appraisal report is subject to the following assumptions and limiting conditions, to be understood in conjunction with the previously presented Certification section:
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- 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.
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- The contents of this valuation are an opinion of value for the purposes stated. In no way should this be construed as a recommendation to buy or sell the underlying company. Aranca and the analyst support only the opinions stated in this report and assume no responsibility for use of formulas and other approaches based on these conclusions in the future.

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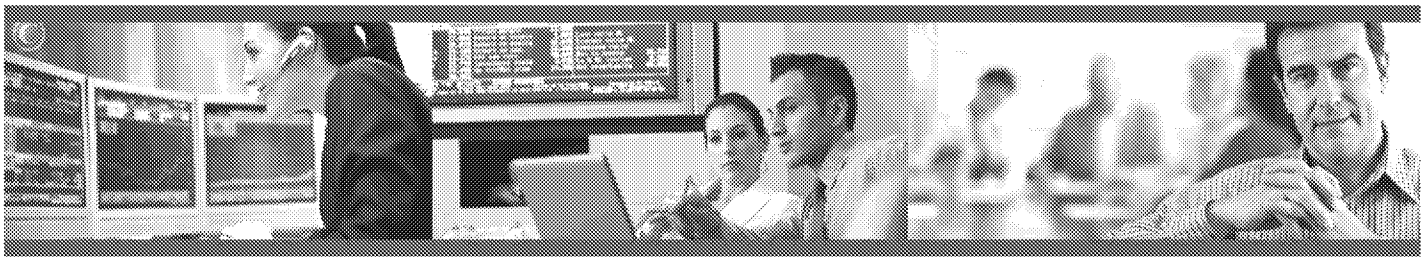

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