Adimab **LLC**

*Fair Value Analysis*

*Royalty Interest*

*OMERS IP Healthcare Holdings*

*As of: December 31, 2018*

*Report Date: December 31, 2018*



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December 31, 2018

Mr. Paul Corcoran

Vice President, Investment Operations & Applications

Mr. John Sokic, CFA

Director

OMERS Administration Corporation

EY Tower, 900-100 Adelaide St W

Toronto, Ontario, M5H 0E2

RE: Fair Value Analysis of Royalty Interest in Adimab

Dear Sirs,

Pursuant to your request, RNA Advisors, LLC dba RNA Capital Advisors (“RNA” or “we”) has estimated the fair value[[1]](#footnote-1) of a royalty interest (the “Royalty” or the “Subject Interest”). The Royalty is derived from the drug discovery platform (“Platform”), a yeast based drug development platform marketed by Adimab LLC (“Adimab” or the “Company”) whereby the Platform is licensed to a number of biotech and pharmaceutical companies. Our valuation has been performed as of December 31, 2018 (the “Valuation Date”).

This letter, along with the following report, exhibits and their conclusions (jointly the “Valuation” or the “Report”), has been developed for the sole purpose of providing executives at OMERS Administration Corporation (“OMERS” or “Management”) with value indications that will assist with their internal planning and tracking of specific investments made by OMERS IP Healthcare Holdings Limited (the “Fund”), which is managed by OMERS. We make no representation as to the accuracy of this Valuation if it is used for any other purpose without the written consent of RNA.

The conclusions rendered in the Report are based on methods and techniques that RNA considered appropriate under the circumstances and represent the opinion of RNA based solely upon the information furnished by, or on behalf of, OMERS, the Fund, the Company and other publicly accessible sources, and said conclusions shall be considered as advisory in nature only. If the information provided to us is inaccurate, our conclusion may be subject to change.

The methods and techniques employed by RNA are consistent with those methods and techniques used by industry professionals for the valuation of securities similar to the Subject Interest. No opinion, counsel or interpretation is intended in matters that require legal, regulatory, compliance, accounting, tax, insurance or other appropriate professional advice. It is assumed that such opinions, counsel or interpretations have been, or will be, obtained from the appropriate professional sources. For the avoidance of doubt, it is further understood that RNA is not being retained as, nor shall it be deemed to be, a placement agent, investment banker or broker-dealer in connection with any transaction.

Based upon the information and financial data provided and Management representations, as well as the calculations performed, the concluded range of valuation indications of the Subject Interest as of December 31, 2018 is:

$35,310,000,000 (rounded)

(THIRTY-FIVE BILLION THREE HUNDRED TEN MILLION DOLLARS)

The conclusions and opinions expressed in this letter and the accompanying report are contingent upon the qualifying factors set forth in the *Statement of Limiting Conditions* attached.

If you have any questions concerning this Report, please contact me at (925) 940-0220.

Sincerely,

**RNA CAPITAL ADVISORS**

DRAFT

Primary Valuation Analyst

Samuel Renwick, CFA

Contributing Valuation Analyst

Kayvon Namvar

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# Engagement Summary

## Executive Summary[[2]](#footnote-2)

RNA has completed an analysis of the Subject Interest as of the Valuation Date and has concluded to a value of **$35.3 billion (rounded)** for the Subject Interest.

Our conclusion was predicated upon the following key drivers of value:

* Driver 1: The PPI market is expected to remain flat near in future as modest volume growth is offset by slight brand deflation and the negative mix effect of continued private label gains.
* Driver 2: The Product sales have contracted at an annual rate of 13.0% since 2013 due to pressure from private label and the launch of other competitive products in PPI market.
* Driver 3: Omeprazole magnesium, the active ingredient in Prilosec, has a strong track record of safety and efficacy as evidenced by its inclusion on the WHO’s list of essential medicines.

Defined terms and additional details of our analysis are included in the section below.

## Standard of Value

This valuation engagement has been performed in accordance with the definition of fair value as is outlined in ASC 820. It is defined as:

“***Fair value*** *is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the* ***measurement*** *date*.”[[3]](#footnote-3)

As stated in ASC 820, RNA considered the fair value hierarchy in order to assess the level of transparency of inputs underlying the valuation analysis. As summarized in the graphic below, “Level 1” inputs reflect the availability of quoted/quotable prices in active markets for identical assets and liabilities at the measurement date, while “Level 2” reflects inputs other than “Level 1” that are observable for assets and liabilities, either directly or indirectly, and “Level 3” is the most unobservable level of inputs.

****Figure 1: Hierarchy of Fair Value Inputs****

RNA also considered guidance from ASC 820 regarding the fair value measurement of assets and liabilities, segmented as follows:

****Figure 2: Fair Value Assumption Guidance****

|  |  |  |
| --- | --- | --- |
| Price |  | A “fair value measurement assumes that the asset or liability is exchanged in an orderly transaction between market participants to sell the asset or transfer the liability at the measurement date” noting that such transaction is assumed to be hypothetical and from the perspective of the market participant that holds the asset or owes the liability. |
|  |  |  |
| Principal Market |  | Intends to reflect the market in which the holder of the asset or liability would sell or transfer it with the greatest volume and level of activity, which should maximize the value received for the asset or minimize the cost to transfer the liability. |
|  |  |  |
| Market Participants |  | Fair value should be determined based on the “assumptions that market participants would use in pricing the asset or liability”. |
|  |  |  |
| Application to Assets |  | “Assumes the highest and best use of the asset by market participants, considering the use of the asset that is physically possible, legally permissible, and financially feasible at the measurement date”. |
|  |  |  |
| Application to Liabilities |  | Generally similar to the item above, but “assumes that a liability is exchanged in an orderly transaction between market participants” regardless of “contractual or other legal restrictions preventing the transfer of liabilities”. |
|  |  |  |
| The Asset or Liability |  | Should “consider attributes specifics to the asset or liability, for example: (a) the condition and/or location of the asset or liability, and (b) restrictions, if any, on the sale or use of the asset at the measurement date”. |

In addition to the fair value framework noted above, this analysis also assumes that the Company will continue as a going concern with an objective of the maximization of the value of the Product in the context of the overall organization.

## Scope

This Report was prepared in accordance with the American Institute of Certified Public Accountants (“AICPA”) Statement on Standards for Valuation Services No.1 (“SSVS”). This Report has been prepared as a summary valuation engagement as that term is outlined in paragraph 48 of SSVS.

RNA has based this Valuation on information provided and represented by OMERS management. Our review and analysis included, but was not necessarily limited to, the following steps:

* Spoke with Management regarding their assessment of the key trends and factors influencing the historical performance of and prospects for the future performance of the Subject Interest;
* Reviewed the following documents provided by Management:
  + Management’s forecast and valuation models for the Subject Interest as of the Valuation Date;
  + Royalty purchase agreement between the Company and the Fund (the “Royalty Agreement”), dated June 30, 2017, (the “Closing Date”); and
  + Terms of the licensing agreement between AstraZeneca and the Company dated November 20, 1997 (the “Effective Date”).
* Reviewed certain publicly available financial data for the Company;
* Reviewed certain publicly available financial data for products that we deemed comparable to the Product;
* Reviewed equity research and market research reports;
* Conducted research concerning the economic conditions and outlook for the countries (in aggregate as appropriate) in which the Product is sold as well as specific industry trends affecting the Subject Interest as of the Valuation Date; and
* Conducted other studies, analyses, and inquiries, as we have deemed appropriate.

RNA did not independently verify the information provided or gathered, and in that regard, the validity of the Valuation depends on the completeness and accuracy of the information provided to RNA by Management and available from public and other sources. Management warranted to RNA that the information supplied was complete and accurate to the best of its knowledge. Such information, upon which all or portions of our Valuation are based, is believed to be reliable, and we have assumed that all facts and circumstances that would significantly affect the results of the Valuation have been disclosed to us. However, RNA provides no warranty as to the accuracy of such information. Our fee for this service is not contingent upon the Valuation expressed herein.

## Key Definitions

The term “Baseline CPI”, as used herein, refers to the CPI (defined below) for the month of the Effective Date.

The term “CAGR”, as used herein, refers to a compound annual growth rate.

The term “CPI”, as used herein, refers to consumer price index.

The term “FDA”, as used herein, refers to US Food and Drug Administration.

The term “FY”, as used herein, refers to fiscal year or financials year.

The term “IP”, as used herein, refers to intellectual property.

The term “IgGs”, as used herein, refers to the Immunoglobulin G antibodies.

The term “IRR”, as used herein, refers to an internal rate of return.

The term “OTC”, as used herein, refers to over the counter.

The term “Q”, as used herein, refers to a calendar quarter (i.e., Q1, Q2, Q3 or Q4).

The term “US”, as used herein, refers to the United States of America and its major territories and possessions.

The term “USD”, as used herein, refers to US Dollars. Unless otherwise noted, all currency figures in this report are expressed in USD.

The term “WHO”, as used herein, refers to World Health Organization.

Any recipient of this Report will consult with and rely upon their own legal counsel with respect to the limitations and definitions set forth herein. No representation is made herein, or directly or indirectly by this Report, as to any legal matter or as to the sufficiency of said definitions for any purpose other than setting forth the scope of this report.

# Investment Overview

## Transaction Details

History

OMERS, has invested nearly $35.50 million in Adimab in a $60.0 million round, at an implied equity valuation of $3.6 billion. OMERS expect to hold the investment for a at least 5 years. The transaction was closed on June 29, 2018.[[4]](#footnote-4)

OMERS have targeted a 15.0% return and hold the Investment for a duration of at least five years.[[5]](#footnote-5)

To maintain liquidity for its shareholders the Company has raised several funding rounds. A few of them are as:

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Round size** | **New Investors** | **Existing Investors** |
| 2014 | $110 million | Fidelity, Mithril |  |
| 2015 | $50 million | Bridger Capital | Fidelity, Mithril |
| 2016 | $55 million | Pritzker Group | Mithril |
| 2017 | $55 million | AIG | Fidelity, Pritzker |
| 2018 | $60 million | OMERS, Apricot | AIG |







## Company Overview

Adimab is a biotechnology company based in Lebanon, New Hampshire, and focused on the discovery, development, and optimization of human monoclonal and bispecific antibodies for pharmaceutical biotechnology industries. It offers antibodies for various therapeutic targets, including oncology, immunomodulation, inflammation, neuroscience and pain, cardiovascular and metabolic, and infectious diseases.[[6]](#footnote-6) It offers its services through a drug discovery platform. Adimab was founded in 2007. The name Adimab can be broken into four development steps for a drug: Antibody Discovery, Maturation and Biomanufacturing.[[7]](#footnote-7)

The Company provides its Platform services in two ways:

* Funded Discovery: In this, the Company develops the drug in-house, using their own resources (employees, equipment, software). The Company uses its own libraries of fully human IgGs expressed in yeast to discover full length IgGs that meet the highest quality and developability standards. In this case the company receives the reimbursement for its employees, milestone payments and royalties from the final product.[[8]](#footnote-8)
* Platform Transfer: In this, the Company provides the Platform to the biotech industry such that the biotech company has the Platform for an upfront transfer fees and develop the drug on their own. In this case, apart from the upfront transfer fee the Company also received royalty payments and Milestone payments.[[9]](#footnote-9)

The Company’s royalty portfolio has more than 150 pre-commercial drug candidates, including 8 drugs in clinical development.[[10]](#footnote-10) The Company has partnered with over 50 companies for the discovery of therapeutic IgGs and bispecific antibodies, resulting in more than 200 therapeutic programs generated using the Adimab Platform.[[11]](#footnote-11)

## Product Overview

The Company provides a drug discovery platform to deliver yeast-based antibodies.

Compared to other platforms Adimab provide certain advantages:

* Human B-cell/hybridoma cell lines take days to generate a measurable readout, while Adimab’s fully human, yeast-based platform provides a readout in hours, resulting in accelerated discovery and maturation cycles, according to the company.[[12]](#footnote-13)
* Various drugs and therapies are tested on live animals such as mice, due to their anatomical similarities with humans. Not all diseases affect the healthy cells the same way, Cancer for example causes mutation in cells, which is generally undetectable by the human immune system, evading the immune system, and are considered as healthy cells. A healthy immune system doesn’t make antibodies for targets on healthy cells. It’s a protective system called immunological tolerance. Unlike mice and other rodents, yeast doesn’t have the immunological tolerance problem. Also, with some genetic modification, yeasts can make fully human like antibodies.[[13]](#footnote-14)
* Compared to other available platforms, Adimab’s Platform is faster, providing the ability to clone and produce hundreds of IgGs with native H-L pairing from human or murine sources in six weeks.[[14]](#footnote-15)



## Market Overview

**Drug Discovery Platform Market**

A drug discovery platform is a research and development facility, either physical or virtual in nature, where medicines are discovered and formulated for different diseases. With various advances in technology, the drug discovery platforms too have undergone a number changes. The most recent trend being the uptake of digital technologies. For example, the emergence of cloud-based drug discovery platforms that offer manufacturers the opportunity to store substantial data cost effectively.[[15]](#footnote-22)

The global cloud-based drug discovery platform market was estimated to reach $1.6 billion in 2017 and is anticipated to reach a $4.3 billion by 2025, witnessing a CAGR of 13.2%.[[16]](#footnote-23) The services in the cloud-based drug discovery platforms market can be categorized into three types of services, Platform as a Service (PaaS), Infrastructure as a Service (IaaS), and Software as a Service (SaaS). PaaS provides a complete hardware architecture along with a software framework. IaaS provides servers, data-center space, and network equipment such as software for businesses and switches and routers. SaaS gives access to software only through online medium.[[17]](#footnote-24)

The global cloud-based drug discovery platforms market is gaining momentum, driven by the massive benefits offered to the end-users. Cloud -based discovery platforms allow customers to carry out their tasks efficiently, deploying a variety of mobile and web-accessible applications. They also allow customers to work in a collaborative and secure environment, allowing seamless sharing of information. Further, the cloud-based drug discovery platform is scalable and have the ability to provide tailor-made solutions for projects.[[18]](#footnote-25)

The overall drug discovery market revenues totaled $38.4 billion in 2017, forecast to reach $70.1 billion by 2024, representing a CAGR of 9.0%. The market is driven by increased healthcare expenditure, rising prevalence of diseases, aging population and rising awareness. According to International Health Metrics and Evaluation (IHME), the global healthcare expenditure is forecast to increase from $10.8 trillion in 2018 to 20.4 trillion in 2040.[[19]](#footnote-26)

On the expenditure front, high-income countries are estimated to spend over $9,019.0 per person on health by 2040, while upper-middle income, lower-middle income and low-income countries are anticipated to incur over $1,935, $507, and $164 per person. Government and public healthcare services are estimated to account for over 61.0% of total healthcare spending across the globe by 2040. According to US Centre for Disease Control and Prevention, the US annual healthcare expenditure, totaled $3.3 trillion in 2017. According to the Canadian Institute of Health Information, Canada's healthcare expenditure is estimated total $253.2 billion in 2018, representing 11.3% of Canada's GDP.[[20]](#footnote-27)

According to a report by “RESEARCH AND MARKETS”, a market research firm, the demand for antibody discovery services and platforms is further boosted by the increasing focus on personalized medicine. Personalized medicines have several benefits over their generic counterparts, such as high specificity, and a favorable safety profile. Owing to these factors, antibody based pharmacological interventions represent the largest class of biologics, with 79 molecules approved till date and more than 200 molecules in the preclinical or discovery stages.[[21]](#footnote-28)

In terms of geography, more than 80% of the drug discovery services and platform market share is distributed between North America and Europe. Further, China is poised to grow at an annualized rate of 8.8%, relatively faster as compared to other regions in the coming decade.[[22]](#footnote-29) With respect to antibody discovery methods, transgenic animal-based methods are expected to grow at an annualized rate of 6.6%, higher as compared to the established methods such as phage display and hybridoma methods.[[23]](#footnote-30)

The global biologics outsourcing market was valued at around USD 8.4 billion in the year 2016 and it is expected to reach approximately USD 32.0 billion by 2024, representing a CAGR of over 18.0% between 2017 and 2024.

Competitive Environment

The discovery of antibodies is a long, arduous and cost intensive process.[[24]](#footnote-44) Thus, biologic pharmaceutical firms face stiff competition from major pharmaceutical manufacturers and other companies seeking to be first with a new product or discovery. Development is often focused on high-demand, profitable markets such as cancer or rare disease treatment. Biopharmaceutical companies depend on gaining regulatory and insurance coverage approval for new treatments. They may also count on participation in government research or expedited approval programs.[[25]](#footnote-45)

According to Ernst & Young, the US biotechnology product manufacturing industry includes about 2,800 companies. Because many drugs are now developed using biotechnology, the biotechnology and pharmaceutical industries overlap considerably. A few of the prominent providers in the industry are: AbCellera, Ablexis, Ligand Pharmaceuticals, Single Cell Technology and TRIANNI.



## Recent Events

We conducted a review of numerous sources to identify news, announcements or other events which could be deemed significant to the Product and, consequently, the Subject Interest. These sources included Cortellis, EvaluatePharma, Capital IQ, Thomson, Google, the Company’s website (if available), and sell-side analyst reports, if available.

In our review of the news and information regarding the Company/Product, we identified the following notable announcements:

On January 7, 2019, Adimab announced that its partner Innovent Biologics, Inc. (“Innovent”) has received BLA approval in China for an antibody against PD-1 to treat Hodgkin’s Lymphoma. Adimab and Innovent initiated a partnership in 2013 to discover antibodies against multiple targets selected by Innovent. The partnership has been expanded multiple times to add additional programs and to access Adimab’s bio-specifics capabilities. Innovent has 12 programs in development phase derived from the Adimab Platform. The PD-1 program, which Innovent has partnered with Lilly, was initiated in the spring of 2013.[[26]](#footnote-56)

On December 27, 2018, Innovent and Eli Lully and Company jointly announced the approval for marketing authorization of their co-developed, fully human anti-PD-1 therapeutic monoclonal antibody, Tyvyt by the National Medical Products Administration of China ("NMPA", formerly the China Food and Drug Administration). Tyvyt is a drug co-discovered by Innovent and Adimab. Currently, Tyvyt is being studied in more than 20 clinical trials for the treatment of first-line non-squamous non-small cell lung cancer (“NSCLC”), first-line squamous NSCLC, second line squamous NSCLC, Epidermal growth factor receptor (“EGFR”) mutant NSCLC after EGFR TKI treatment failure, first line gastric cancer, first line liver cancer, first line esophageal cancer, and second line esophageal cancer.[[27]](#footnote-57)

On January 11, 2018, Adimab announced updates on the clinical progression of its partner programs. The Company reported that six of its partner programs entered into the clinical trials, bringing the total programs in clinical phase to nine. The company also reported that Innovent Biologics was in Phasre 3 clinical trials. The Company also reported that Arsanis entered Phase II trials with two Adimab antibodies, while six other entered Phase 1 clinical trials in 2017.[[28]](#footnote-58)

On January 10, 2018, Adimab announced its multi-target partnership with Boehringer Ingelheim. Adimab will utilize its proprietary platform to discover and optimize antibodies against targets chosen by Boehringer Ingelheim, who will have the rights to develop and commercialize therapeutic programs resulting from the collaboration. Under the terms of agreement Adimab will receive an undisclosed upfront payment, research fees, and delivery milestones. In addition, for each target, Adimab will receive license fees, clinical milestones and royalties on product sales.[[29]](#footnote-59)

On July 18, 2017, Adimab entered into an agreement with Eli Lilly and Company, to transfer the Adimab Platform to Lilly for the discovery and optimization of antibody-based drugs in all therapeutic areas. Thus, expanding the ongoing collaboration between the two companies. Under the terms of the agreement, Lilly will receive a unique, custom human antibody library, exclusive to Lilly, and obtain a license to use the Platform without any target restriction. Further, Adimab received an undisclosed upfront fee, future payments upon achievement of specified preclinical and clinical milestones, and royalties on any therapeutic products resulting from use of the technology.[[30]](#footnote-60)

On June 21, 2017, Adimab announced that it had entered into agreements with six new companies. Further the Company announced expansion of four of its partnerships and the achievement of over 20 technical and development milestones across multiple collaborations.[[31]](#footnote-61)

On June 21, 2017, Adimab announced that it had entered into agreements with six new companies. Further the Company announced expansion of four of its partnerships and the achievement of over 20 technical and development milestones across multiple collaborations.[[32]](#footnote-62)

On February 27, 2017, Adimab announced a licencing agreement with Arsanis, Inc. a clinical stage biopharmaceutical company. Under the terms of the agreement, Arsanis secured an exclusive, worldwide license to antibodies targeting respiratory syncytial virus (RSV), discovered by Adimab. Arsanis plans to initially focus on the selection of a lead RSV antibody candidate. Arsanis also received a $9.3 million grant from the Bill & Melinda Gates Foundation to advance the selected antibody to IND filing.[[33]](#footnote-63)

# Valuation Methodology Overview & Analysis

The following section provides an overview of various valuation methodologies contemplated as part of this analysis.

In summary, there are three generally accepted valuation approaches available when valuing an asset or a liability. They are:

* Cost Approach (“Cost Approach”);
* Income Approach (“Income Approach”); and
* Market Approach (“Market Approach”).

Within each category, a variety of methodologies exists to assist in the estimation of value, as discussed in further detail herein. In addition, there is the Hybrid Approach (“Hybrid Approach”), a methodology that combines two or more of these approaches.

## Cost Approach

The Cost Approach relies upon separately valuing each sub-component of the interest being valued. The discrete valuation of an asset using this approach is based upon the concept of replication or replacement as an indicator of value. In essence, this approach answers the build approach when looking at a “buy versus build” approach to investment.

In the case of most IP-centric technologies with explicit patent protection and substantive and broad blocking rights to competitive entrants, the Cost Approach is not a reasonable proxy for value. By the time most products are commercial, the cost to recreate the existing asset is quite prohibitive in these circumstances given costly regulatory requirements. Further, these costs should be considered sunk costs and, as such, other approaches to value should be considered. We did not rely on a Cost Approach to value any portion of the Subject Interest.

## Income Approach

The Income Approach is based on the earnings power, or cash-generating abilities of the assets being valued. This approach focuses on determining a forecast benefit stream that is reflective of the subject interest’s most likely future performance. Such forecast benefit stream is then discounted to present value based on the appropriate risk-adjusted discount rate or capitalization rate. The discounted cash flow analysis (“DCF”) is a commonly used Income Approach. In addition, in the life sciences, if clinical or regulatory risks remain, a risk-adjusted net present value (“rNPV”) is also common. For IP-centric rights interests, like the Subject Interest, with reasonable patent protection and expectations for a significant decrease in market share upon patent expiration, the Income Approach is generally the favored approach by industry professionals.

## Market Approach

In summary, the Market Approach references actual transactions involving (i) the subject being valued, or (ii) similar assets and/or enterprises. The Market Approach generally consists of comparisons to (a) publicly traded companies or interests, (b) companies or assets acquired on a controlling interest basis, and (c) financing transactions in similar companies or assets. These approaches involve the identification and selection of companies or interests with characteristics similar to the subject being valued, and subsequently deriving multiples and other metrics from such publicly traded companies to apply to said subject. The Market Approach generally covers the “buy” side in the “buy versus build” equation by asking what the selling price and value of similar assets is. For economic interests with distinct lives, the Market Approach can be difficult to apply since the comparability of the asset must not only be similar in nature but also similar in remaining expected economic life. This approach is not typically used for royalty interest valuations.

## Hybrid Approaches

A Hybrid Approach combines two or more of the approaches above. Typically, this involves some combination of an Income Approach with a Market Approach. For example, valuing the assets based on a licensing transaction, which has definitive upfront payments, milestones and royalties, can be viewed as an application of the Income Approach; however, the determination of reasonable consideration across comparable license arrangements can be viewed as an application of the Market Approach.

# Valuation Analysis & Application

## Valuation Approach

Giving consideration to the above, determining the value of the Subject Interest has been developed primarily on the basis of the Income Approach, specifically a DCF approach. Considering the remaining life of the expected cash flows from the royalty interest, it would be difficult to find market truly comparable transactions and a cost to recreate approach simply would not make sense given patent considerations. That said, the risk-return attributes of the investment on comparable investment were developed in the discount rate section below. Refer to Exhibits A1–A3 for further details on the analysis.

## Income Approach

The DCF method aggregates the present value of all future cash flows available to the investment holder to determine value as of a specific valuation date. The DCF methodology involves the following key steps:

1. Determine cash flows to the asset holder (“Representative Level Projections”); and
2. Select a range of comparable investment-risk-adjusted discount rates to apply against the Representative Level Projections.

For purposes of determining the Representative Level Projections, RNA applied the procedures outlined below.

Representative Level Projections

For the purpose of determining the Representative Level Projections, RNA reviewed budgets, forecasts and commentary provided by Management, and compared Management’s forecasts with available forecasts from other sources such as sell-side equity research analyst reports and market intelligence databases such as EvaluatePharma. Additionally, RNA cross-checked the various data points against the news and intelligence available. In reviewing these various sources, we tried to determine if there may be significant differences between Management’s forecasts and alternative viewpoints.

With respect to the Subject Interest, we observed the following:[[34]](#footnote-70)

* The PPI market is expected to remain flat near in future as modest volume growth is offset by slight brand deflation and the negative mix effect of continued private label gains;
* The Product is expected to account for 17.5% of the OTC PPI market in FY 2026 (down from 24.1% in FY 2016);
* The Product sales have contracted at an annual rate of 13.0% since 2013 due to pressure from private label and the launch of other competitive products in PPI market;
* The omeprazole volume share is expected to fall, but will remain the preferred OTC PPI; and
* The lunch of new Nexium and Prevacid will contribute to strong market as an influx of former prescription patients entered the OTC market;
* Omeprazole, the active ingredient in Prilosec, has a strong track record of safety and efficacy as evidenced by its inclusion on the WHO’s list of essential medicines;
* The Product enjoys strong brand recognition; and
* According to the data from the US judicial panel on multidistrict litigation, there were more than 4,200 lawsuits pending against Prilosec, Nexium, and other PPI drugs.

Based on RNA’s review of Management forecasts, and in consideration of the items noted above, we view Management’s forecast to be a reasonable approximation of the forecast potential for the Subject Interest. Refer to Exhibits B1–B7 for more detail.

Discount Rate

A discount rate represents the rate of return an investor would require to justify investment in an entity or an asset while giving consideration to the risk associated with the investment. Discount rates are determined based on market expectations of the total rate of return and the rate at which capital will be attracted to an investment. One of the most important considerations in determining an appropriate discount rate is the level of risk inherent within an investment. Therefore, due consideration is given to the rates of return available on alternative comparable investments available to a hypothetical buyer.

Numerous factors influence the choice of an appropriate discount rate including those factors external (potentially systematic) and internal (potentially unsystematic) to the asset. External factors include, but are not limited to, (i) current general economic conditions, (ii) expectations regarding future economic conditions as of the analysis date, (iii) sources of capital available to an entity and (iv) competitiveness of the markets served by the entity. Internal factors include, but are not limited to (i) the financial situation of an entity, (ii) the ability to generate positive cash flows, (iii) the likelihood of an entity facing difficulty in procuring raw inputs and (iv) the ability to deliver products to an available market.[[35]](#footnote-71)

In order to determine the appropriate discount rate for the Subject Interest, RNA considered multiple sources of information:

1. **WACC:** A standard approach to the computation of the weighted average cost of capital (“WACC”) is based on the application of the Capital Asset Pricing Model[[36]](#footnote-72) (“CAPM”) to commensurate securities. While this solution is elegant in its application, its ability to predict return requirements that match with performance is almost zero. Nevertheless, it is a widely used albeit academic approach to assessing an appropriate cost of capital;
2. **Studies:** In addition, we considered published studies which identified discount rates and return requirements applicable to life science-oriented assets at various stages of development;
3. **Deal IRRs:** Implicit at the outset of a transaction is an implied forecast and return requirement which combine into the ultimate transaction value. From this notion, implied IRRs can be calculated and matched to a market transaction. Of course, as one moves away from the said transaction, the risk/return profile of the underlying security may change; and
4. **Experience:** based on our experience working with market participants transacting in assets similar to the Subject Interest including the identification of target return thresholds by with respect to return requirements and hurdle rates.

WACC

The weighted average cost of capital (“WACC”) is comprised of the following elements:

1. Cost of Debt (“Kd”): reflects the cost of a hypothetical senior secured loan facility;
2. Tax Rate (“T”): reflect an all-in margin tax rate;
3. Cost of Equity (“Ke”): reflects the required rate of return for an equity investment;
4. Debt to Capital (“D/C”): reflect the percentage of debt in the capital structure; and
5. Equity to Capital (“E/C”): reflect the percentage of equity in the capital structure.

The WACC formula is as follows: Kd \*(1-T)\*D/C + Ke \*E/C

With respect to determining the above WACC inputs, RNA noted the following:

1. Kd:
   1. Considered the average yield on the Moody’s Baa Rated Corporates Index as of the Valuation Date;
   2. Considered the cost of debt for certain companies deemed comparable to the Company;
   3. Considered the Company’s weighted-average cost of debt as of the Valuation Date; and
   4. Discussions with Management regarding market interest rates.

1. T: Based on discussions with Management and RNA’s observations of tax rates for companies similar to the Company;
2. D/C and E/C:
   1. Considered the capital structure for certain companies deemed comparable to the Company;
   2. Considered the Company’s capital structure as of the Valuation Date; and
   3. Discussions with Management regarding the degree of financial leverage the Company could reasonably bear.
3. Ke:
   1. Considered the historical rates of return for venture capital firms, as further discussed below; and
   2. Considered the Capital Asset Pricing Model (“CAPM”), as further discussed below.

The CAPM is comprised of the following elements:

1. Risk-Free Rate (“Rf”): Reflects a risk-free rate of return;
2. Beta (“β”): Reflects the sensitivity of the expected excess asset returns to the expected excess market returns;
3. Market Risk Premium (“Rm”): Reflects the expected return of the market;
4. Size Premium (“Rs”): Reflects a risk premium for small size; and
5. Unsystematic Risk Premium (“Ru”): Reflects a risk premium for any unsystematic or entity-specific risks.

The CAPM formula is as follows: Ke = Rf + β\*(Rm) + Rs + Ru

With respect to determining the above CAPM inputs, RNA noted the following:

1. Risk-Free Rate (“Rf”): Considered the yields on 20-year US treasuries as of the Valuation Date;
2. Beta (“β”): Based on unlevered beta of the selected guideline companies and re-levered based on the applied capital structure noted above;
3. Market Risk Premium (“Rm”): Based on 2018 Valuation Handbook – Guide to Cost of Capital by Duff & Phelps;
4. Size Premium (“Rs”): Based on 2018 Valuation Handbook – Guide to Cost of Capital by Duff & Phelps; and
5. Unsystematic Risk Premium (“Ru”): Based on RNA’s assessment of Company risk factors previously discussed.

Studies

With respect to published studies, a survey by Biostrat Biotech Consulting and Avance indicated that development-stage assets/companies are heavily discounted because they contain more risk. The survey was conducted among industry professionals to understand the discount rates (exclusive of technical success risk) that they use based on the profile of a specific product or company. While the surveys were conducted for development stage therapeutics companies, the findings establish potential boundaries to the cost of capital for commercial stage assets. In general, late-stage development assets were found to have a 13.0% to 20.0% interquartile range. Pending the magnitude and size of the asset or company analyzed the capital assumption would be expected to be lower with assets with larger market potential.

Experience

We have observed return requirements in the 9.0%-12.0% range across the past several years of our experience for royalty interests in biopharmaceutical products with multiple years of commercial history. Cost of debt has ranged from 5.0%-9.0% (5.0%-6.0% for assets when applied in a diversified portfolio context) and loan-to-value ratios of 50.0%-75.0% are typically observed. We have seen the recent cost of capital/IRR data for royalty interests in biopharmaceutical products with regulatory approval, but limited commercial history, in the 12.0%-16.0% range (higher in certain circumstances) with a similar cost of debt provisions but lower loan-to-value ratios of 25.0%-50.0%.

There are several key risk factors that influence return requirements:

* Perceived forecast risk magnitude of the royalty interest;
* Underlying product’s target market;
* Stability of the underlying product’s distributor;
* History and duration of the underlying product in the market;
* Financial engineering or leverage factors which may increase/decrease risk;
* Liquidity/size of the market for royalty interests; and
* Yields on investment-grade and high yield bonds.

Based on these considerations, we selected a discount rate of 8.5%. We noted that this discount rate appears relatively low for an OTC product royalty; however, a combination of factors supports the applied rate:

* Limited risk of capital impairment;
* The Product is a key brand within P&G’s health care franchise;
* The Product enjoys strong brand recognition;
* We expect the private label competition to be normalized in the near future;
* The omeprazole will remain the preferred OTC PPI;
* Omeprazole magnesium, the active ingredient in Prilosec, has a strong track record of safety and efficacy as evidenced by its inclusion on the WHO’s list of essential medicines; and
* The launch of new Nexium and Prevacid will contribute to strong market as an influx of former prescription patients entered the OTC market.

Calculation of Estimated Taxes

Given the nature and tax-advantaged structure of the market participants, it is reasonable to conduct valuation analytics on pre-tax cash flows. Consequently, we have not applied taxes to the subject cash flow streams.

# Conclusion

Based on our analysis, it is our opinion that the fair value of the Subject Interest as of the Valuation Date is:

$64,500,000 (rounded)

(SIXTY-FOUR MILLION FIVE HUNDRED THOUSAND DOLLARS)

The conclusions and opinions expressed in this Report are contingent upon the qualifying factors set forth in the *Statement of Limiting Conditions* attached.

# Economic Overview

Overview

The US economy maintained strong growth in Q3 2018, following the four-year high growth rate of 4.2% in Q2 2018. The US economy rose by 3.5% in Q3 2018, which was primarily driven by the unemployment rate of 3.7% in September 2018.[[37]](#footnote-73) On September 26, 2018, the US Federal Reserve (the “Fed”) released its most recent economic growth forecast, increasing projections for near-term US economic growth. For 2018, the Fed increased its growth forecasts to 3.1% in September 2018, from 2.8% in the June 2018 projection. Furthermore, the Fed also raised its 2019 growth forecast to 2.5% from 2.4% and held its 2020 forecast in place at 2.0%. The Fed forecasts a growth of 1.8% for 2021.[[38]](#footnote-74)

The US national debt hit a new all-time high for the fifth consecutive month with the fiscal deficit at $779.0 billion. Federal spending and taxes also set new records. Notwithstanding, US stocks gained, though modestly, industrial production rose, personal incomes and wages were up, consumer spending increased, retail sales inched up, and inflation was low.[[39]](#footnote-75)

On the trade front, the US trade deficit rose by 9.5% to $50.1 billion in July 2018, the highest one-month increase in the trade deficit since 2015. The trade deficit further rose to $53.2 billion in August 2018, representing a 6.4% increase. On an annual basis, the trade deficit for 2017 was $566.0 billion, up by 12.1% from the 2016 level and represented a nine-year high.[[40]](#footnote-76) Amidst the intensifying US-China trade war, exports declined 4.4% primarily due to a fall in soybean exports to China after Beijing's tariffs took effect, whereas imports rose by 9.2% before the US import tariffs could take a complete effect.[[41]](#footnote-77)

Gross Domestic Product (“GDP”)

Real GDP increased at an annualized rate of 3.5% in Q3 2018, in contrast to a four-year high of 4.2% in Q2 2018. [[42]](#footnote-78) The increase in real GDP in Q3 2018 reflected positive contributions from private inventory investment and nonresidential fixed investment. These increases were partly offset by downward revisions from personal consumption expenditure and state and local government spending.[[43]](#footnote-79)

Consumer Prices and Spending[[44]](#footnote-80)

The US Consumer Price Index (“CPI”) for all goods climbed by 0.1% in September 2018, on a month-on-month basis, after rising by 0.2% in each of July 2018 and August 2018.

Consumer spending rose by 0.4% in September 2018, after recording a strong 0.5% growth in August 2018, and stable 0.4% gains in June and July. On a quarterly basis, consumer spending grew by 4.0% in Q3 2018, representing the largest quarterly gain since the Q4 2014.

Interest Rates

The US Federal Reserve’s Open Market Committee (“FOMC”), in its September 26, 2018 meeting, increased its benchmark interest rate for the third time this year, edging the rate up by one-quarter percent to a target range of 2.0% to 2.25%.[[45]](#footnote-81) Furthermore, the Fed indicated that there likely would be one more interest rate increase at the end of this year and three hikes in 2019.[[46]](#footnote-82)

Employment[[47]](#footnote-83)

Total nonfarm payroll employment rose by 155, 000 in November 2018, and the unemployment rate slowed down to 3.7%, according to the US Bureau of Labor Statistics. Employment job gains occurred in professional and business services, health care, wholesale trade, transportation and warehousing, and mining. The number of unemployed persons decreased by 271,000 to 6.0 million. Since January 2018, the unemployment rate has declined by 0.4 percentage points, and the number of unemployed persons has decreased by 0.64 million.

Consumer Confidence

The Conference Board Consumer Confidence Index (“CCI”), which showed significant improvements in August 2018, increased again in September 2018, reaching an 18-year high since October 2000. The CCI stood at 138.4 in September 2018 (1985=100) up from 134.7 in August 2018.[[48]](#footnote-84) The Present Situation Index improved marginally from an upwardly revised 172.8 in August 2018 to 173.1 in September 2018 while the Expectations Index surged from an upwardly revised 109.3 in August 2018 to 115.3 in September 2018.[[49]](#footnote-85)

Conclusion

The US economy showed resilience in Q3 2018 with GDP growth coming in at 3.5%, well above market expectations of 3.4%; although, the economy slowed down in Q3 2018 due to exports contracting for the first time in nearly two years, along with a slow-down in business investment, with residential investments continuing its decline. A further escalation of the trade war with China could weigh heavily on investment and the trade sector in the medium-term. However, the underlying strength of the economy seems largely intact heading into Q4 2018, supported by a tight labor market strengthening private consumption, coupled with heightened government spending.[[50]](#footnote-86) Focus Economics forecasts growth of 2.5% and 2.0% in 2019 and 2020, respectively, which is in-line with the FOMC estimates.[[51]](#footnote-87)

# Statement of Limiting Conditions

1. The conclusion of value arrived at herein is valid only for the stated purpose as of the date of the valuation.
2. Financial statements and other related information provided by OMERS, the Company or its representatives, in the course of this engagement, have been accepted without any verification as fully and correctly reflecting the enterprise’s business conditions and operating results for the respective periods, except as specifically noted herein. RNA has not audited, reviewed, or compiled the financial information provided to us and, accordingly, we express no audit opinion or any other form of assurance on this information.
3. Public information and industry and statistical information have been obtained from sources we believe to be reliable. However, we make no representation as to the accuracy or completeness of such information and have performed no procedures to corroborate the information.
4. We do not provide assurance on the achievability of the results forecasted by OMERS or 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.
5. The conclusion of value arrived at herein is based on the assumption that the current level of management expertise and effectiveness would continue to be maintained, and that the character and integrity of the enterprise through any sale, reorganization, exchange, or diminution of the owners’ participation would not be materially or significantly changed.
6. This report and the conclusion of value arrived at herein are for the exclusive use of our client for the sole and specific purposes as noted herein. They may not be used for any other purpose or by any other party for any purpose. Furthermore, the report and conclusion of value are not intended by the author and should not be construed by the reader to be investment advice in any manner whatsoever. The conclusion of value represents the considered opinion of RNA, based on information furnished to them by OMERS, the Company and/or other sources.
7. Neither all nor any part of the contents of this report (especially the conclusion of value, the identity of any valuation specialist(s), or the firm with which such valuation specialists are connected or any reference to any of their professional designations) should be disseminated to the public through advertising media, public relations, news media, sales media, mail, direct transmittal, or any other means of communication without the prior written consent and approval of RNA.
8. Future services regarding the subject matter of this report, including, but not limited to testimony or attendance in court, shall not be required of RNA unless previous arrangements have been made in writing.
9. No change of any item in this appraisal report shall be made by anyone other than RNA, and we shall have no responsibility for any such unauthorized change.
10. Unless otherwise stated, no effort has been made to determine the possible effect, if any, on the subject business due to future Federal, state, or local legislation, including any environmental or ecological matters or interpretations thereof.
11. If prospective financial information approved by management has been used in our work, we have not examined or compiled the prospective financial information and therefore, do not express an audit opinion or any other form of assurance on the prospective financial information or the related assumptions. Events and circumstances frequently do not occur as expected and there will usually be differences between prospective financial information and actual results, and those differences may be material.
12. We have conducted interviews with the current management of OMERS concerning the past, present, and prospective operating results of the Company as they relate to the Subject Interest.

# Qualifications of Valuation Analysts

## Samuel Renwick, CFA

Sam Renwick provides valuation and advisory services to biopharmaceutical, medical device and equipment, diagnostic companies, and clinical research and manufacturing organizations, as well as other IP-centric technology companies. His experience includes buy-side and sell-side advisory engagements for licensing, financing, and mergers and acquisitions, as well as for tax and financial reporting matters for large public companies to small venture-backed enterprises. Whether developing dynamic, patient flow models for late-clinical therapeutic assets or developing an opinion of value for security for compliance purposes, Mr. Renwick combines his breadth of industry knowledge with deep expertise in finance and financial models to create compelling communications regarding the value proposition of an asset, portfolio of assets or a company. Mr. Renwick has worked with well over 500 life sciences and technology companies in his career.

Professional Affiliations

UCLA Anderson Business Honor Society

CFA Institute

Chartered Financial Analyst Society of San Francisco

Member, Fair Value Forum

Licensing Executive Society

Education

BA/Economics & Business – Westmont College, Honors

MBA/Finance – UCLA Anderson, Honors, J. Fred Weston award for Academic Excellence in Finance

Chartered Financial Analyst (CFA)

Publications

Valuation Section 409A Administration Handbook, Thomson Reuters 2014

Why Your 409A Valuation is Too High - Dis-Incentive Stock Compensation in the Life Sciences – RNA White Paper, May 2013

Modeling and Forecasting to Communicate the Biotherapeutic Value Proposition – BayBio White Paper, May 2010

Common Stock Valuation – Tips from the Trade, BayBio NOTES, April 2010

Defensible Equity Incentive Valuation Opinions Under IRC 409A, Company Newsletter, December 2009

What is the IRS Doing with IRC 409A, Silicon Valley Bank Newsletter, December 2008

Eleven of the Top Ten Mistakes to Avoid in Your Options Program, Atlanta CEO Connexions, August 2007

Instruction and Seminars

Presentation on Valuation and Funding Strategies for Digital Health Companies at the Cedars Sinai Techstars Accelerator, October 2017

Panelist on Valuation Issues for Early Stage Company Valuations, Fair Value Summit, November 2015

Panelist on Communicating the Biotech Value Proposition, BayBio Annual Event, May 2011

Presentation on the Use of Discount Rates in the PWERM, Fair Value Forum, November 2008

Panelist on the Valuation of Biotechnology Companies, Biocom San Diego, May 2008

## Kayvon Namvar

Kayvon Namvar has deep expertise in forecasting, valuation, litigation support, and transaction advisory support primarily in the life sciences, healthcare, entertainment, media and technology industries. He has advised on hundreds of engagements throughout his career. He has developed dynamic patient-flow and other financial models to facilitate the forecasting and valuation of biopharmaceutical, medical device and diagnostic products, filmed entertainment content (motion pictures and television programming), recorded music, music publishing rights, video games, companies, complex securities, and royalty interests for transaction, bankruptcy, tax, and accounting oriented purposes. Mr. Namvar has worked with companies ranging from large, publicly traded entities, to small, venture capital-backed organizations.

Education

BS/ Business Administration & Corporate Finance – University of Southern California

Instruction and Seminars

Guest lecturer, University of Southern California on various corporate finance topics

Guest lecturer, California Institute of Technology on venture financing

# Representation of Primary Valuation Analyst

I certify that, 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 our personal, impartial, and unbiased professional analyses, opinions, and conclusions.
* We have no present or prospective interest in the property that is the subject of this report, and we have no personal interest with respect to the parties involved.
* We have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.
* Our engagement in this assignment was not contingent upon developing or reporting predetermined results.
* Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value of direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
* Our analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the American Institute of Certified Public Accountants Statement on Standards for Valuation Services.

Sincerely,

*DRAFT*

Samuel Renwick, CFA

# Exhibits

1. The definition of fair value used here is consistent with the definition outlined in Accounting Standards Codification Topic 820 – *Value Measurements and Disclosures* (“ASC 820”). [↑](#footnote-ref-1)
2. Abbreviations and Terms used in this section have been defined in the Key Definitions section below. [↑](#footnote-ref-2)
3. ASC 820-10-20. [↑](#footnote-ref-3)
4. Source: Information provided by Management. [↑](#footnote-ref-4)
5. Source: Information provided by Management. [↑](#footnote-ref-5)
6. Capital IQ. [↑](#footnote-ref-6)
7. Source: https://www.wired.com/2016/03/mutant-yeast-cranking-pharmas-next-superdrug/. [↑](#footnote-ref-7)
8. Source: Project Platform Presentation [↑](#footnote-ref-8)
9. Ibid. [↑](#footnote-ref-9)
10. Ibid. [↑](#footnote-ref-10)
11. Source: https://www.adimab.com/sites/default/files/press/adimab\_pr\_01\_08\_2018.pdf [↑](#footnote-ref-11)
12. Source: https://www.adimab.com/sites/default/files/news/adimab\_news\_06\_17\_09.pdf. [↑](#footnote-ref-13)
13. Source: https://www.wired.com/2016/03/mutant-yeast-cranking-pharmas-next-superdrug/. [↑](#footnote-ref-14)
14. Management provided information. [↑](#footnote-ref-15)
15. https://www.transparencymarketresearch.com/cloud-based-drug-discovery-platforms-market.html. [↑](#footnote-ref-22)
16. https://www.persistencemarketresearch.com/market-research/cloudbased-drug-discovery-platform-market.asp. [↑](#footnote-ref-23)
17. https://www.transparencymarketresearch.com/cloud-based-drug-discovery-platforms-market.html. [↑](#footnote-ref-24)
18. Ibid. [↑](#footnote-ref-25)
19. https://globenewswire.com/news-release/2019/01/02/1679675/0/en/Global-Drug-Discovery-Market-2017-2018-2024-Prevalence-Of-Chronic-Diseases-Advancements-And-Innovations-Increasing-Healthcare-Expenditure-Increasing-Drug-Approvals-By-Government-Or.html. [↑](#footnote-ref-26)
20. Ibid. [↑](#footnote-ref-27)
21. https://www.researchandmarkets.com/reports/4621102/antibody-discovery-services-and-platforms-market#pos-2. [↑](#footnote-ref-28)
22. Ibid. [↑](#footnote-ref-29)
23. https://www.researchandmarkets.com/reports/4339749/antibody-discovery-services-and-platforms-2017#pos-2. [↑](#footnote-ref-30)
24. https://www.researchandmarkets.com/reports/4621102/antibody-discovery-services-and-platforms-market#pos-2. [↑](#footnote-ref-44)
25. http://www.firstresearch.com/industry-research/Biotechnology-Product-Manufacturing.html. [↑](#footnote-ref-45)
26. https://www.businesswire.com/news/home/20190107005625/en/Adimab-Partner-Innovent-Receives-Product-Approval-PD-1. [↑](#footnote-ref-56)
27. https://www.biospace.com/article/releases/china-s-nmpa-approves-innovent-s-anti-pd-1-antibody-tyvyt-sintilimab-injection-for-hodgkin-s-lymphoma/. [↑](#footnote-ref-57)
28. https://www.adimab.com/press-releases. [↑](#footnote-ref-58)
29. https://www.adimab.com/press-releases. [↑](#footnote-ref-59)
30. Ibid. [↑](#footnote-ref-60)
31. Ibid. [↑](#footnote-ref-61)
32. Ibid. [↑](#footnote-ref-62)
33. Ibid. [↑](#footnote-ref-63)
34. Information provided by Management. [↑](#footnote-ref-70)
35. Gary R. Trugman, Understanding Business Valuation, (American Institute of Certified Public Accounts, 2002), pg 325. [↑](#footnote-ref-71)
36. A model that describes the relationship between risk and expected return and that is used in the pricing of risky securities where the expected return on the capital asset equals the product of beta (the sensitivity of the expected excess asset returns to the expected excess market returns) and the market premium (the difference between the expected market rate of return and the risk-free rate of return). [↑](#footnote-ref-72)
37. KeyValueData, “National Economic Report September 2018” by Kevin R. Hopkins. (“KeyValueData”) [↑](#footnote-ref-73)
38. FOMC, Projections September 2018, October 17, 2018. [↑](#footnote-ref-74)
39. KeyValueData. [↑](#footnote-ref-75)
40. Ibid. [↑](#footnote-ref-76)
41. Trading Economics, Article titled “US GDP Growth Confirmed at 3.5% in Q3”, November 28, 2018

    https://tradingeconomics.com/united-states/gdp-growth. [↑](#footnote-ref-77)
42. KeyValueData. [↑](#footnote-ref-78)
43. Trading Economics, Article titled “US GDP Growth Confirmed at 3.5% in Q3”, November 28, 2018

    https://tradingeconomics.com/united-states/gdp-growth. [↑](#footnote-ref-79)
44. KeyValueData. [↑](#footnote-ref-80)
45. KeyValueData. [↑](#footnote-ref-81)
46. CNBC, Article titled “Fed hikes interest rates, raises its economic outlook and drops 'accommodative' language”, September 26, 2018, https://www.cnbc.com/2018/09/26/fed-hikes-rates-by-a-quarter-point.html. [↑](#footnote-ref-82)
47. Bureau of Labor Statistics, “THE EMPLOYMENT SITUATION - NOVEMBER 2018,” https://www.bls.gov/news.release/empsit.nr0.htm. [↑](#footnote-ref-83)
48. KeyValueData. [↑](#footnote-ref-84)
49. The Conference Board, Article titled “The Conference Board Consumer Confidence Index Improved in October”,

    September 25, 2018, https://www.conference-board.org/press/pressdetail.cfm?pressid=7546. [↑](#footnote-ref-85)
50. Focus-Economics, Article titled “U.S. Economic Outlook”, November 20, 2018 by Focus Economics, https://www.focus-economics.com/countries/united-states. [↑](#footnote-ref-86)
51. Focus-Economics, Article titled “Economic Snapshot for the Major Economies”, November 21, 2018 by Focus Economics, https://www.focus-economics.com/regions/major-economies. [↑](#footnote-ref-87)