

COVID-19 SURVEY: COMPARING VIEWS OF INVESTORS, COMPANIES, AND PHYSICIANS

THE COWEN INSIGHT

Perceptions of U.S. health risk and health care system preparedness were viewed as "moderate" across three groups surveyed, with risk mainly to susceptible populations and U.S. either prepared or to be significantly stretched. Physicians are most pessimistic about timing of vaccine or therapeutic with companies most optimistic. Investors and companies share view of GDP slowdown but no recession.

Cowen surveyed the 2,200+ participants at its 40th Annual Health Care Conference in Boston early last week to gain views on perception of COVID-19 human health risk, preparedness of the U.S. health care system, outlook for a vaccine or therapeutic, and risk to the U.S. economy. The results are summarized below and detailed on the following pages.

INVESTORS - We surveyed investors (151 responded) on both the first and second day of our conference to determine whether opinions changed after discussions with managements and physicians. Responses were similar on the two days.

- **Health Risk** - About 50% of investors view risk as moderate (mainly to susceptible populations), with another 20-30% viewing it as modest (a bit worse than seasonal flu).
- **Preparedness** - 26-37% of investors view regions as "prepared with only some being stretched" while 29-35% view "most regions likely to be stretched."
- **Availability of Vaccine or Therapeutic** - 35% of investors think a vaccine will be available in 12-18 months, 23-30% believe it could take longer - 18-24 months, while 17-21% think it could take 2+ years.
- **Economic Risk** - 40-48% of investors see GDP slowdown but no recession, 28-30% see major disruption/recession, 14-20% view risk as modest.

COMPANIES - Thirty-two companies responded to our survey:

- **Health Risk** - 56% of companies view risk as moderate, with 34% viewing it as modest.
- **Preparedness** - 66% of companies view most regions as prepared with only some being stretched, while 22% view most regions as likely to be stretched.
- **Availability of Vaccine or Therapeutic** - 52% of companies think a vaccine will be available in 12-18 months, 23% believe it could take longer - 18-24 months, while 19% think it could be done in 6-12 months.
- **Economic Risk** - 66% of companies see GDP slowdown but no recession, 19% see major disruption/recession, 13% assess risk as modest.

PHYSICIANS - Thirty-three physicians responded to our survey:

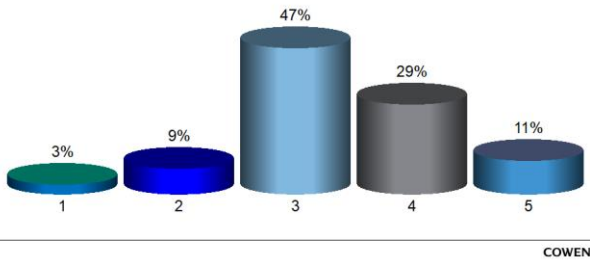
- **Health Risk** - 70% of physicians view risk as moderate, 12% see little risk, 9% have modest concern.
- **Preparedness** - 39% of KOLs view most regions as prepared with only some stretched, 27% view most regions as likely to be stretched. 18% think the hurdle is modest.
- **Availability of Vaccine or Therapeutic** - 33% of KOLs think a vaccine will be available in 12-18 months, 21% believe 18-24 months, while 24% view it as 24+ months away.

COVID-19 SURVEY OF INVESTORS, COMPANIES, AND PHYSICIANS

Investor Views

COVID-19 Survey — Perception Of Health Risk – March 2nd

- 1) On a scale from 1 to 5, how would you describe the risk to the U.S. population presented by COVID-19?
1. Extreme risk (majority of population faces one of biggest risks to human health in decades)
 2. Major risk (more than 25% of population will be suffer significant morbidity)
 3. Moderate risk (mainly to susceptible populations in form of both morbidity/mortality)
 4. Modest risk (somewhat more concerning than seasonal flu)
 5. Little risk (likely will fade fairly quickly with low-level morbidity, few deaths)

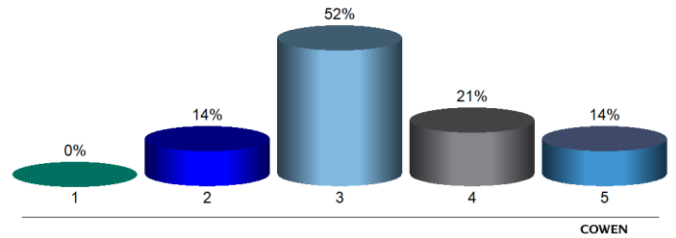


Source: Cowen and Company 2020 Health Care Conference

COVID-19 Survey — Perception Of Health Risk – March 3rd

On a scale from 1 to 5, how would you describe the risk to the U.S. population presented by COVID-19?

- 1) Extreme risk (majority of population faces one of biggest risks to human health in decades)
- 2) Major risk (more than 25% of population will be suffer significant morbidity)
- 3) Moderate risk (mainly to susceptible populations in form of both morbidity/mortality)
- 4) Modest risk (somewhat more concerning than seasonal flu)
- 5) Little risk (likely will fade fairly quickly with low-level morbidity, few deaths)



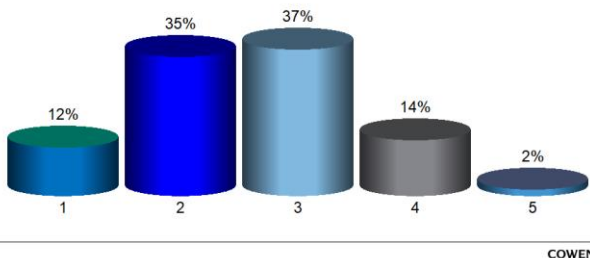
Source: Cowen and Company 2020 Health Care Conference

Perception Of Health Risk To U.S. Population

About 50% of investors view risk as moderate (susceptible populations at risk), with another 20-30% viewing it as modest (somewhat more concerning than seasonal flu). Responses did not change significantly between the first and second day, with the weighted average of 3.4 on day one and 3.3 on day two.

COVID-19 Survey — Preparedness – March 2nd

- 2) On a scale from 1 to 5, how would you describe preparedness of the U.S. health care system in staff, equipment/facilities and supportive therapies relative to COVID-19?
1. Completely unprepared; major shortages will result
 2. Most regions will be significantly stretched
 3. Some regions will be stretched but most will take in stride
 4. A modest hurdle, but surmountable
 5. Completely prepared

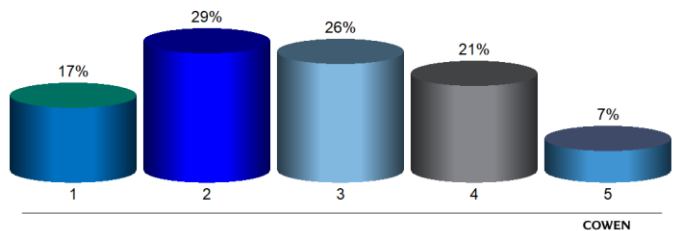


Source: Cowen and Company 2020 Health Care Conference

COVID-19 Survey — Preparedness – March 3rd

On a scale from 1 to 5, how would you describe preparedness of the U.S. health care system in staff, equipment/facilities and supportive therapies relative to COVID-19?

- 1) Completely unprepared; major shortages will result
- 2) Most regions will be significantly stretched
- 3) Some regions will be stretched but most will take in stride
- 4) A modest hurdle, but surmountable
- 5) Completely prepared



Source: Cowen and Company 2020 Health Care Conference

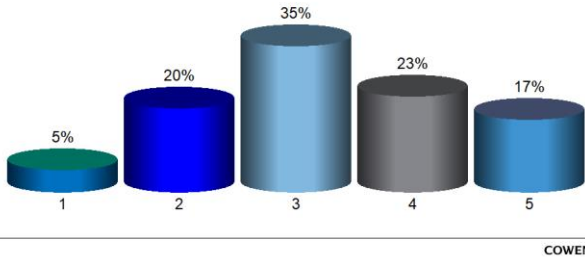
Perception Of Preparedness Of U.S. Health Care System

26-37% of investors view regions as prepared with only some being stretched, 29-35% of investors view most regions as likely to be significantly stretched, while 14-21% view the hurdle as modest. Responses did not change significantly between the first and second day, with the weighted average of 2.6 on day one and 2.7 on day two.

COVID-19 Survey — Availability Of Vaccine Or Therapeutic – March 2nd

3) A widely available vaccine or therapeutic likely will be available in:

- 1. <6 months
- 2. 6-12 months
- 3. 12-18 months
- 4. 18-24 months
- 5. 24+ months

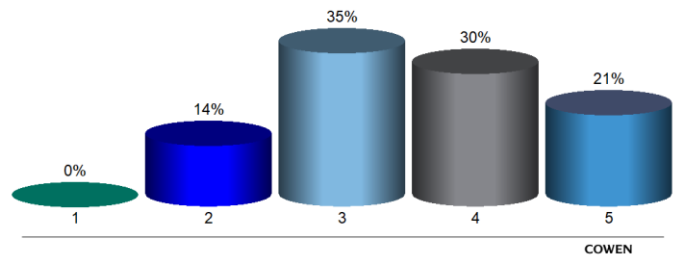


Source: Cowen and Company 2020 Health Care Conference

COVID-19 Survey — Availability Of Vaccine Or Therapeutic – March 3rd

A widely available vaccine or therapeutic likely will be available in:

- 1) <6 months
- 2) 6-12 months
- 3) 12-18 months
- 4) 18-24 months
- 5) 24+ months



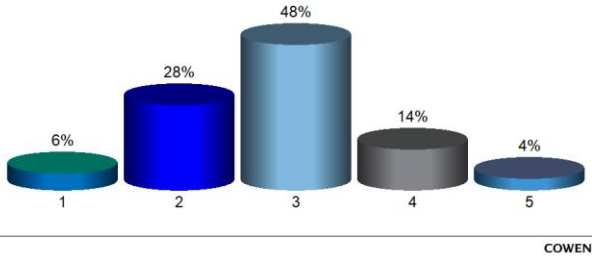
Source: Cowen and Company 2020 Health Care Conference

Availability Of Vaccine Or Therapeutic

35% of investors think a vaccine will be available in 12-18 months, 23-30% believe it could take longer - 18-24 months, while 17-21% think it could take 2+ years. Responses did not change substantially between the first and second day, with the weighted average of 3.3 on day one and 3.6 on day two.

COVID-19 Survey — Perception Of Economic Risk – March 2nd

- 4) On a scale from 1 to 5, how would you describe the risk to the U.S. economy presented by COVID-19?
1. Extreme risk (disruptions to economy will put U.S. in depression)
 2. Major risk (disruptions to economy will result in recession)
 3. Moderate risk (GDP growth will be impacted, but never turn negative)
 4. Modest risk (Modestly worse than typical winter disruptions)
 5. Little risk (likely will fade fairly quickly with low impact on productivity and output)

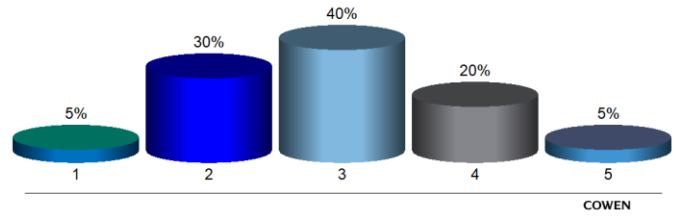


Source: Cowen and Company 2020 Health Care Conference

COVID-19 Survey — Perception Of Economic Risk – March 3rd

On a scale from 1 to 5, how would you describe the risk to the U.S. economy presented by COVID-19?

- 1) Extreme risk (disruptions to economy will put U.S. in depression)
- 2) Major risk (disruptions to economy will result in recession)
- 3) Moderate risk (GDP growth will be impacted, but never turn negative)
- 4) Modest risk (Modestly worse than typical winter disruptions)
- 5) Little risk (likely will fade fairly quickly with low impact on productivity and output)



Source: Cowen and Company 2020 Health Care Conference

Perception Of Risk To The U.S. Economy

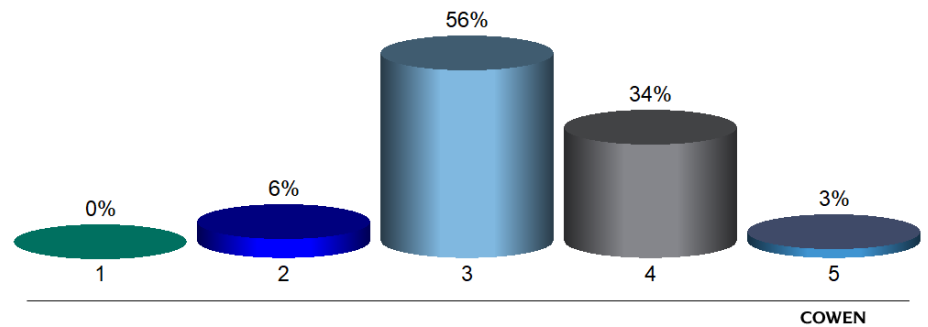
40-48% of investors think GDP will be impacted but never turn negative, 28-30% think there will be a recession, while 14-20% view the risk as modestly worse than a typical winter disruption. Responses did not change significantly between the first and second day, with the weighted average of 2.8 on day one and 2.9 on day two.

Company Views

COVID-19 Survey – Perception Of Health Risk

On a scale from 1 to 5, how would you describe the risk to the U.S. population presented by COVID-19?

- 1) Extreme risk (majority of population faces one of biggest risks to human health in decades)
- 2) Major risk (more than 25% of population will be suffer significant morbidity)
- 3) Moderate risk (mainly to susceptible populations in form of both morbidity/mortality)
- 4) Modest risk (somewhat more concerning than seasonal flu)
- 5) Little risk (likely will fade fairly quickly with low-level morbidity, few deaths)



Source: Cowen and Company 2020 Health Care Conference

Perception Of Health Risk To U.S. Population

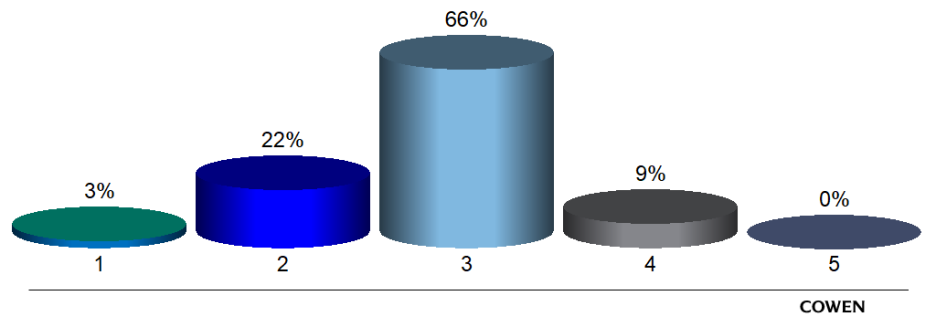
56% of companies view risk as moderate (susceptible populations at risk), with another 34% viewing it as modest (somewhat more concerning than seasonal flu). The weighted average response was 3.3.



COVID-19 Survey – Preparedness

On a scale from 1 to 5, how would you describe preparedness of the U.S. health care system in staff, equipment/facilities and supportive therapies relative to COVID-19?

- 1) Completely unprepared; major shortages will result
- 2) Most regions will be significantly stretched
- 3) Some regions will be stretched but most will take in stride
- 4) A modest hurdle, but surmountable
- 5) Completely prepared



Source: Cowen and Company 2020 Health Care Conference

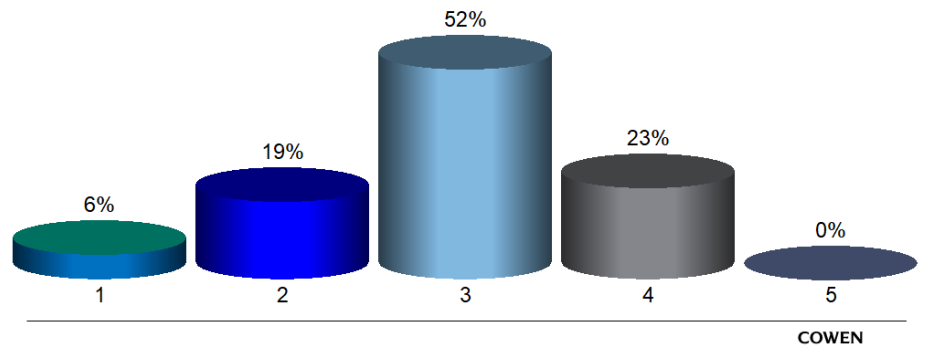
Perception Of Preparedness Of U.S. Health Care System

66% of companies view regions as prepared with only some being stretched while 22% of companies view most regions as likely to be significantly stretched. The weighted average response was of 2.8.

COVID-19 Survey – Availability Of Vaccine Or Therapeutic

A widely available vaccine or therapeutic likely will be available in:

- 1) <6 months
- 2) 6-12 months
- 3) 12-18 months
- 4) 18-24 months
- 5) 24+ months



Source: Cowen and Company 2020 Health Care Conference

Availability Of Vaccine Or Therapeutic

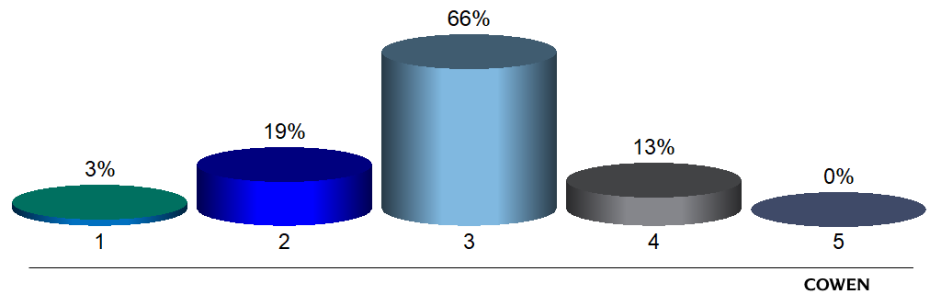
52% of companies think a vaccine will be available in 12-18 months, 23% believe it could take longer - 18-24 months, while 19% think it could be ready in 6-12 months. The weighted average response was of 2.9.



COVID-19 Survey – Perception Of Economic Risk

On a scale from 1 to 5, how would you describe the risk to the U.S. economy presented by COVID-19?

- 1) Extreme risk (disruptions to economy will put U.S. in depression)
- 2) Major risk (disruptions to economy will result in recession)
- 3) Moderate risk (GDP growth will be impacted, but never turn negative)
- 4) Modest risk (Modestly worse than typical winter disruptions)
- 5) Little risk (likely will fade fairly quickly with low impact on productivity and output)



Source: Cowen and Company 2020 Health Care Conference

Perception Of Risk To The U.S. Economy

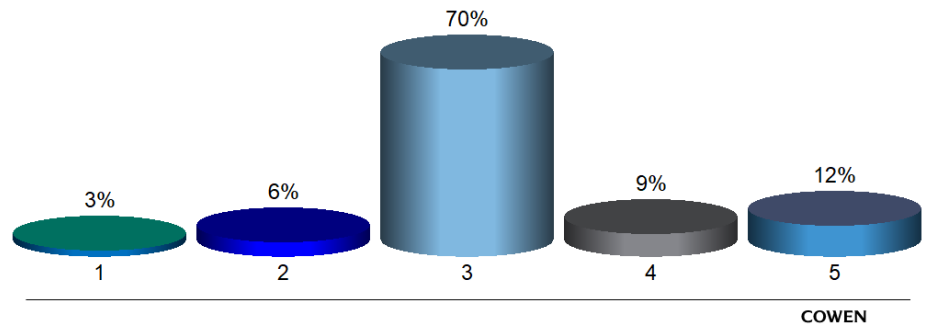
66% of companies think GDP will be impacted but never turn negative, 19% think there will be a recession, while 13% view the risk as modestly worse than a typical winter disruption. The weighted average response was of 2.9.

Physician Views

COVID-19 Survey – Perception Of Health Risk

On a scale from 1 to 5, how would you describe the risk to the U.S. population presented by COVID-19?

- 1) Extreme risk (majority of population faces one of biggest risks to human health in decades)
- 2) Major risk (more than 25% of population will be suffer significant morbidity)
- 3) Moderate risk (mainly to susceptible populations in form of both morbidity/mortality)
- 4) Modest risk (somewhat more concerning than seasonal flu)
- 5) Little risk (likely will fade fairly quickly with low-level morbidity, few deaths)



Source: Cowen and Company 2020 Health Care Conference

Perception Of Health Risk To U.S. Population

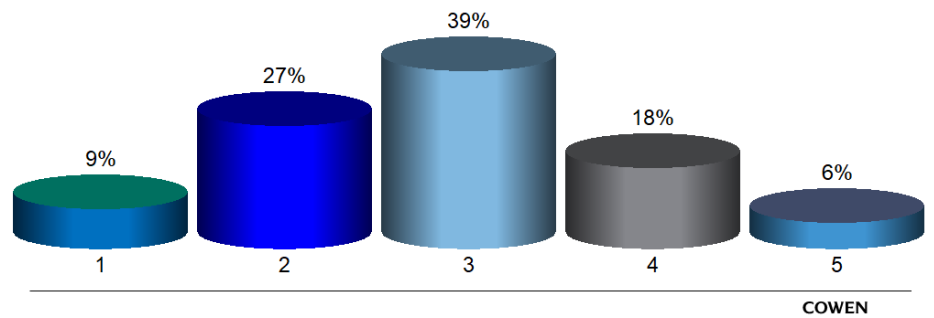
70% of physicians view risk as moderate (susceptible populations at risk), 9% view it as modest (somewhat more concerning than seasonal flu) and 12% see little risk. The weighted average response was 3.2.



COVID-19 Survey – Preparedness

On a scale from 1 to 5, how would you describe preparedness of the U.S. health care system in staff, equipment/facilities and supportive therapies relative to COVID-19?

- 1) Completely unprepared; major shortages will result
- 2) Most regions will be significantly stretched
- 3) Some regions will be stretched but most will take in stride
- 4) A modest hurdle, but surmountable
- 5) Completely prepared



Source: Cowen and Company 2020 Health Care Conference

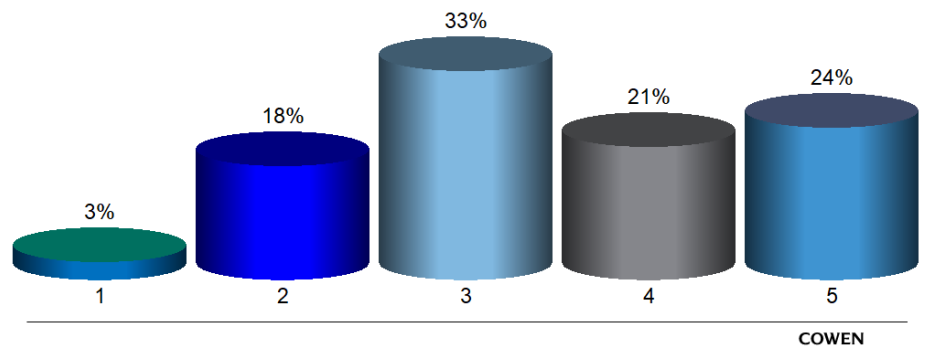
Perception Of Preparedness Of U.S. Health Care System

39% of physicians view regions as prepared with only some being stretched, 27% view most regions as likely to be significantly stretched, while 18% view it as a modest hurdle. The weighted average response was of 2.8.

COVID-19 Survey – Availability Of Vaccine Or Therapeutic

A widely available vaccine or therapeutic likely will be available in:

- 1) <6 months
- 2) 6-12 months
- 3) 12-18 months
- 4) 18-24 months
- 5) 24+ months



Source: Cowen and Company 2020 Health Care Conference

Availability Of Vaccine Or Therapeutic

33% of physicians think a vaccine will be available in 12-18 months, 21% believe 18-24 months, while 24% view it as 24+ months away. The weighted average response was of 3.5.



VALUATION METHODOLOGY AND RISKS

Valuation Methodology

Pharmaceuticals/Major

Our valuation methodology is primarily based on current year and forward P/E multiple, but also considers total return/PE ratio, and market cap/free cash flow metrics.

Investment Risks

Pharmaceuticals/Major

Risks include: (1) competitive dynamics globally; (2) potential regulatory delays, rejections, or failures of pipeline products; (3) intellectual property challenges; (4) economic sensitivity, pricing pressures and/or weakening consumer demand in developed markets; (5) economic and/or political uncertainty in emerging markets; (6) changes in tax laws; (7) outlook for dividends; and (8) fluctuations in foreign exchange rates.

ADDENDUM

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The recommendation contained in this report was produced at March 07, 2020, 20:18 ET, and disseminated at March 08, 2020, 06:00 ET.

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Outperform (1): The stock is expected to achieve a total positive return of at least 15% over the next 12 months

Market Perform (2): The stock is expected to have a total return that falls between the parameters of an Outperform and Underperform over the next 12 months

Underperform (3): Stock is expected to achieve a total negative return of at least 10% over the next 12 months

Assumption: The expected total return calculation includes anticipated dividend yield

Cowen and Company Equity Research Rating Distribution

Distribution of Ratings/Investment Banking Services (IB) as of 12/31/19

Rating	Count	Ratings Distribution	Count	IB Services/Past 12 Months
Buy (a)	505	63.05%	130	25.74%
Hold (b)	291	36.33%	12	4.12%
Sell (c)	5	0.62%	0	0.00%

(a) Corresponds to "Outperform" rated stocks as defined in Cowen and Company, LLC's equity research rating definitions. (b) Corresponds to "Market Perform" as defined in Cowen and Company, LLC's equity research ratings definitions. (c) Corresponds to "Underperform" as defined in Cowen and Company, LLC's equity research ratings definitions. Cowen and Company Equity Research Rating Distribution Table does not include any company for which the equity research rating is currently suspended or any debt security followed by Cowen Credit Research and Trading.

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