

Biopharma

THE NEXT HORIZON

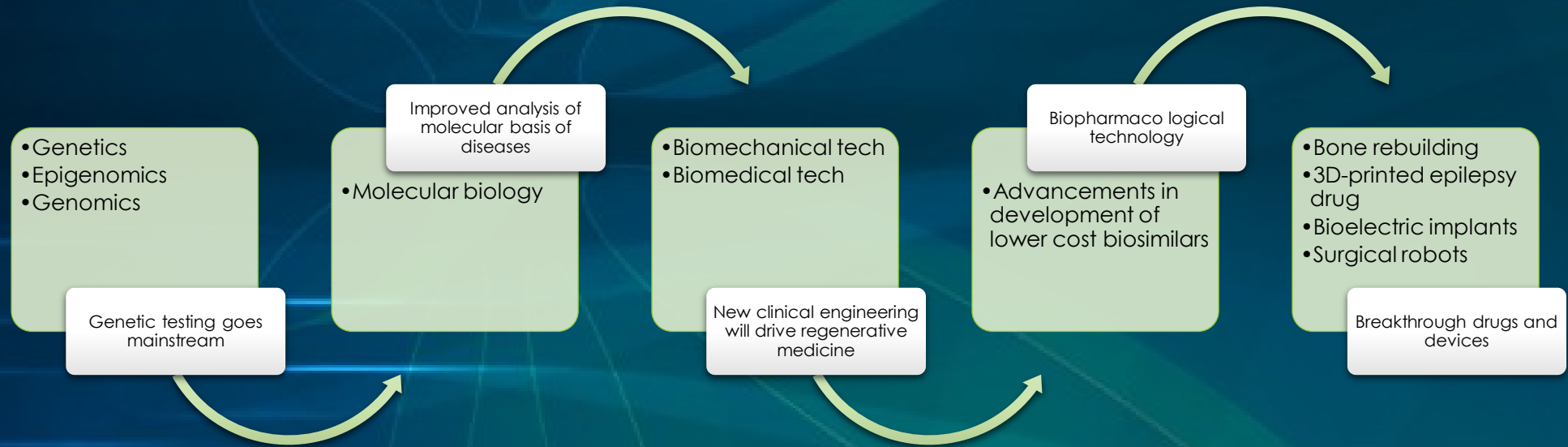


THALASSA
CAPITAL LLC

Live Better and Longer Lives

- New trends in biotech:
 - Gene therapy
 - Cell therapy
 - Immunotherapy
 - Leveraging Big Data
 - Customized treatments

Trends in Clinical Innovation (source: Deloitte 2017)



Increasingly Diverse Pipelines

- Biotech companies are building more comprehensive portfolios of projects
 - Rapid growth of patents
 - Increasing understanding of VC community of biotech financials
 - Alternative ventures and spinouts

Disruptive Future

- Interaction between drugs and genetic makeup of patient improves targeting of therapies
- The above knowledge combined with robust and low-cost genetic profiling should improve treatment outcomes and accelerate clinical trials
- This should eventually reduce the cost of drug development

Some Specific Areas of Interest

- Regenerative medicine and disease remission
- Orphan drugs
 - High margins
- Immuno-oncology
 - Transformative drugs
 - Strong pricing power
 - Potential \$28 billion market by 2021

Corporate Trends and Sustainable Growth

- Partnering prowess
 - Functional networks of academic, industry and regulatory partners
- Shared accountability
 - Defining ownership of projects
- Purposeful action
 - Alignment of actions to a common set of values
- Nimble adaptability
 - Willingness to embrace and adapt to dynamic market conditions

Deloitte 2017

Some Market Statistics continued

- Global prescription drug sales projected to be at \$1.2 trillion by 2024 with a CAGR of 6.9%
- Global biotech products in 2018 were 53% versus 34% in 2010
- Global medical devices market was valued at \$425.5 billion in 2018 and is expected to be \$613 billion by 2025
- Health Care spending a % of global GDP: 10.5%
- Oncology is expected to have 20% share of global market by 2024 and a 11.4% CAGR growth
- Global orphan drug sales are expected to have twice the CAGR of non-orphan drugs at 12.3% in the 2019-2024 period

Deloitte 2020

Innovation is Everywhere

- As of December 2019, 180 start-ups were engaged in utilizing AI technology for drug development
- IoT solutions, additive manufacturing and other new systems can help reduce the time it takes to release a drug product from 100 days to seven
- Smart outsourcing strategies can deliver significant reduction in manufacturing cost. The global outsourcing market is expected to increase at a CAGR of 8% over the next few years and reach \$35.5 billion by 2023

Deloitte 2020

Growth via M&A

- The value of deals continue to increase. In the first three quarters of 2019, a total of \$182 billion worth of M&A transactions was completed versus \$135 billion in the same period in 2018
- The US had 480 companies as targets and 537 as acquirers while China had 411 targets and 382 acquirers
- In the future, we expect increasing innovation from smaller companies putting pressure to large companies to execute acquisitions

Deloitte 2020

Specialization and ROC

- Specialty areas drive the highest return on capital:
 - Antivirals: 26%
 - Robotic: 21%
 - Musculoskeletal: 20%
 - Cardio: 20%
 - Oncology: 18%

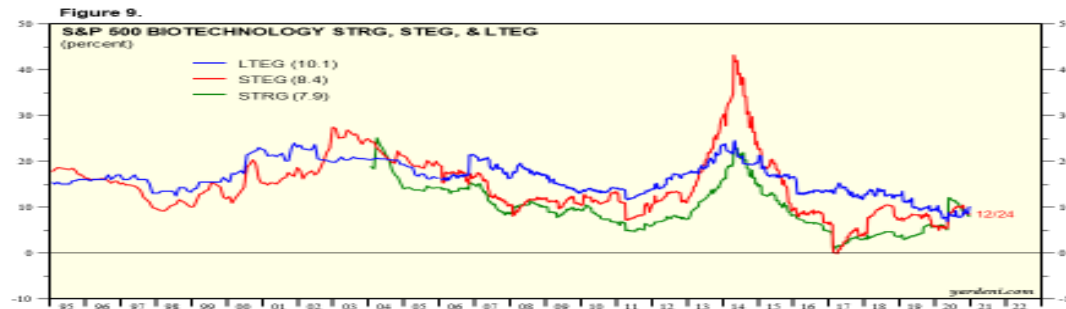
Deloitte 2020

Challenges

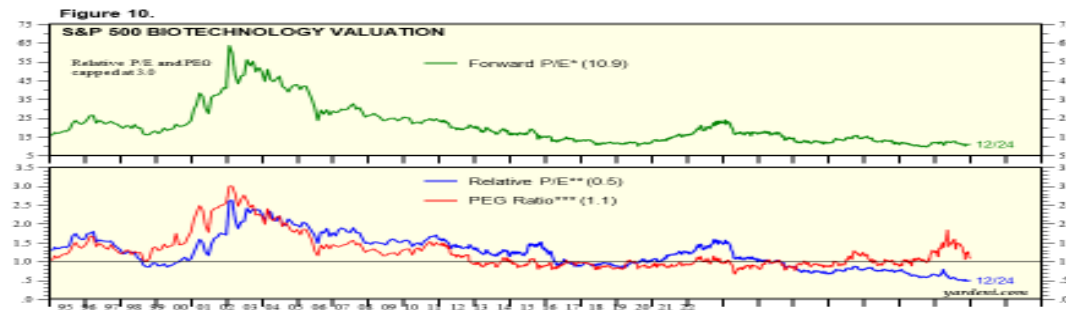
- Growth in the sector will encounter technological and operational challenges
- Regulatory framework
 - i.e. price cost-containment measures and value-based pricing
- Cybersecurity and IP protection
- A biopharmaceutical molecule can contain anywhere between 2,000 and 25,000 atoms
- Large-scale biotech manufacturing facilities cost between \$200 million and \$500 million
 - Similar-scale small molecule facilities cost “only” \$30 million to \$100 million

Sector Valuations

Forward Growth & Valuation



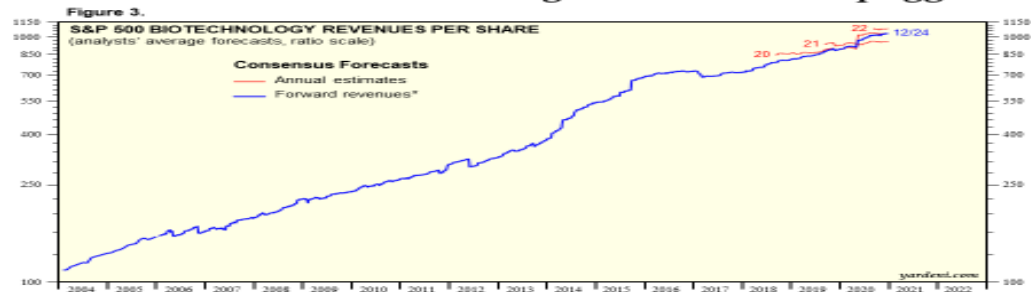
* STEG is year-ahead forward consensus expected short-term earnings growth. STRG is year-ahead forward consensus expected short-term revenue growth. LTEG is five-year consensus expected long-term earnings growth.
 Monthly data through 2020, weekly thereafter.
 Source: I/B/E/S data by Refinitiv.



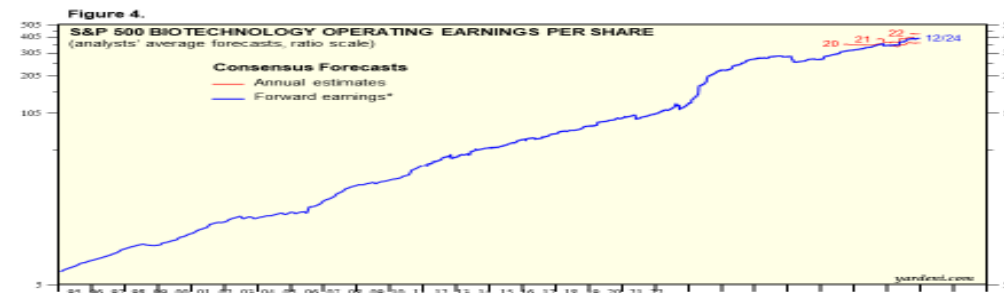
* Price divided by 12-month forward consensus expected operating earnings per share.
 ** Sector or industry forward P/E relative to S&P 500 forward P/E.
 *** Sector or industry forward P/E relative to sector or industry consensus 5-year LTEG forecast.
 Source: I/B/E/S data by Refinitiv.

Historical Earnings Growth

Forward Revenues & Earnings with Annual Squiggles



* Time-weighted average of consensus estimates for current year and next year. Monthly through December 2005, then weekly.
Source: I/B/E/S data by Refinitiv.



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Source: I/B/E/S data by Refinitiv.

NASDAQ Biotech Index Yearly Returns

Year	Beginning Price	Ending Price	Gain or Loss	Percent Gain or Loss
1994	197.88	161.40	-36.48	-18.44%
1995	161.40	304.30	142.90	88.54%
1996	304.30	303.31	-0.99	-0.33%
1997	303.31	303.10	-0.21	-0.07%
1998	303.10	437.31	134.21	44.28%
1999	437.31	881.78	444.47	101.64%
2000	881.78	1084.51	202.73	22.99%
2001	1084.51	908.79	-175.72	-16.20%
2002	908.79	496.85	-411.94	-45.33%
2003	496.85	724.14	227.29	45.75%
2004	724.14	768.52	44.38	6.13%
2005	768.52	790.31	21.79	2.84%
2006	790.31	798.39	8.08	1.02%
2007	798.39	834.96	36.57	4.58%
2008	834.96	729.54	-105.42	-12.63%
2009	729.54	843.57	114.03	15.63%
2010	843.57	970.17	126.06	15.01%
2011	970.17	1084.72	114.55	11.81%
2012	1084.72	1430.81	346.09	31.91%
2013	1430.81	2369.53	938.72	65.61%
2014	2369.53	3177.52	807.99	34.10%
2015	3177.52	3540.44	362.92	11.42%
2016	3540.44	2772.73	-767.71	-21.68%
2017	2772.73	3356.61	583.88	21.06%
2018	3356.61	3043.62	-312.99	-9.32%
2019	3043.62	3786.54	742.92	24.41%

How Do We Build Our Portfolio?

- Drugs and R&D diversification
- Mix of highly specialized R&D outfits with larger traditional pharmaceutical companies
- Our sources: institutional research (JP Morgan), academic resources (MIT Biotechnology Group reports), tracking of industry peers' portfolios, specific stock technical analysis
- Approximately 40 names across the market cap spectrum
- Usually, no name exceeds 6% of allocation but we could gear up to 10%

Portfolio Details

- Investment Characteristics:
 - A diversified portfolio of large, mid and small cap companies focused on the Biopharma sector
 - Minimum investment: \$100,000
 - Daily liquidity, managed account structure
 - Suggested long term approach
 - Custodian: Schwab
 - Management fee: 1%
 - Investment Advisor: THALASSA CAPITAL LLC

How to Make a Connection

- Schedule a meeting to discuss:
 - Portfolio implementation
 - Investment community involvement
 - Administrative paperwork
- Davide Accomazzo, CIO
 - Tel: 310-867-2255
 - Email: da@thalassacapital.com
- Yuri Bujko, CEO
 - Tel: 310-867-2255
 - Email: yb@thalassacapital.com