

# BEYOND THE HYPE: UNDERSTANDING AI AND THE OPPORTUNITIES

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## *Innovation Starts Small...*

***One of the most prevalent investor discussions so far in 2023 has been the recognition of the potential benefits - and risks - of Artificial Intelligence (AI).***

The topic has, unsurprisingly, created debate regarding where the potential for investment lies and whether the winners have already been decided. In this paper, we briefly articulate Emerald's position on the topic of AI and discuss areas of opportunity across the entirety of the capital spectrum.

- Many investors mistakenly believe AI will be dominated by Large-and-Mega-Cap Companies. Emerald believes that while this is true in some segments, small-and-mid-cap companies will see substantial opportunities as well.
- To understand the landscape, investors must first realize what AI is, and isn't.
- The emergence of AI will create a need for a new ecosystem to support its growth - across hardware, software, systems, and infrastructure.
- The application of AI for productivity enhancement will have broad-reaching implications across a myriad of industries and will potentially cause meaningful market share shifts among incumbents.
- Emerald believes that only through proven, fundamental, bottom-up research can investors successfully navigate the rapidly changing investment landscape of AI for both identifying the beneficiaries as well as avoiding the endangered.

## ***Artificial Intelligence - Beyond Large- and Mega- Cap***

Investment opportunities within artificial intelligence (AI) have become a major topic of discussion throughout the investment community and society at large. Clearly, there will be significant amounts of capital invested, created, and squandered as the AI investment cycle evolves. Many investors believe that due to the enormous computing power required to create AI systems, investment opportunities in AI are limited to 1) venture-backed “unicorns” (inaccessible to most investors) and 2) large-or-mega-cap public companies. Throughout Emerald’s 30+ year history, we have steadfastly believed small-cap equities are a worthy investment vehicle for leveraging emerging secular trends – something which many investors mistakenly ignore. We contend AI is no different.

To unpack the reasoning behind this assertion, it is important to: understand what AI is (and isn’t); know how it differs from traditional software; break down the elements of an AI system; and look at how those systems are implemented.

### ***AI - WHAT IS IT?***

In broad terms, AI systems are another evolutionary step in programming. Traditional software is highly structured such that every input, action, computation, and process is mapped and codified by rules written into the program. This necessitates potentially millions of lines of code and very precise instructions for even relatively simple operations. AI, by contrast, uses comparatively few instructions and algorithms which “learn” through exposure to vast amounts of data. We will not attempt to delve into the philosophical debate and ramifications of true artificial intelligence vs simulated intelligence, and while we believe ethical considerations for a technology as powerful as AI are highly relevant, we assert the breathtaking current capabilities of AI represent highly sophisticated, simulated intelligence and not true sentient intelligence.

AI systems can largely be grouped into variations of two main types: 1) a specialized, application-specific model that enables a method to solve a particular problem or 2) a “large language model (LLM)” that utilizes a massive database of text to broadly approximate general intelligence. The creators of either type of model amass a database of information (images, documents, experimental results, etc.) that are believed to be at least somewhat relevant to the model’s stated goal. That data is then fed into a series of algorithms which identify and gauge correlations between millions/billions of variables. The model is then exposed to new data, and the model’s output is evaluated, creating a feedback loop that further enhances the model. This process is generally referred to as “Training.” Introducing new information to an AI model is known as “Inferencing” and the cycle of training/inferencing is repeated continuously while the model continues to evolve, learning from each new interaction. As the point cloud becomes more

complex, the answers give the appearance of becoming more “intelligent,” but in the absence of a good correlation within the model, systems still provide an output that oftentimes bears no relevance to the input query and are known as “hallucinations.”

At the heart of any AI system is a processing core; these are highly specialized processors capable of handling billions of variables to produce astonishingly precise outputs that create the appearance of “intelligence.” These processors are unique in a number of ways – they are immensely complex and built at the most demanding processing nodes with transistor counts measuring in the hundreds of billions per server; they are remarkably power hungry, using 3X-5X the amount of power versus a traditional datacenter server (with roadmaps articulating as much as 10X); they are interconnected with other AI servers at breathtakingly high data rates, requiring an evolution in communication speeds; and they utilize memory in unique ways, requiring more immediate memory access than traditional systems.

### ***OPPORTUNITIES FOR TODAY AND TOMORROW***

We are not going to attempt to speculate on the greatly debated societal implications of AI running amok or the risk of causing an “extinction-level” cataclysm, but we acknowledge that AI stands to impact almost every aspect of our world. Most people don’t realize they already interact with multiple forms of AI on a near-daily basis. For example, Siri, Google, Bing, Meta, YouTube, Spotify, TikTok, and other popular sites/apps utilize some form of AI for their recommendation engines to maximize users’ engagement, thereby maximizing advertising revenue and consumer spend. In addition, companies use AI to create imagery for advertising, students utilize AI for “help” with homework and tests, lawyers implement AI for drafting basic documents, and it is estimated that over 75% of programmers currently use AI tools with >30% of newly written code suggested by AI (many contend a good deal of those suggestions do not work, but the trend is undeniable).

Discussions regarding unmanned systems used for military and defense applications are ongoing, and while none have been officially fielded by the US Department of Defense, there are numerous experimental systems that are able to exercise some form of autonomy in a combat situation. Given the cost of manned systems, the sophistication of peer adversaries, and the desire to protect the warfighter, it is almost a foregone conclusion that AI in the battlespace will become a reality over time.

Emerald’s life-sciences analysts posit there is the potential for machine learning and/or AI bio-simulation to help drug development by accelerating the process of active molecule discovery, finding potential new applications or combinations of existing drugs, and simulation of some preclinical and toxicological studies. All three of these approaches have been aided by

computational efforts in the past, and AI should accelerate that progress. We would point out that the Food and Drug Administration (FDA) will likely be very slow to adopt AI-driven approaches by virtue of the fact that it is an organization focused on patient safety. Even so, we believe investment opportunities will emerge over time.

As an active growth manager, Emerald is keenly focused on transformational technologies that can disrupt the status quo in a particular industry. Machine learning/AI represents a technology capable of disrupting the status quo for multiple industries. There is no debate that AI and the applications it enhances are secular growth markets for the foreseeable future. Historically, these are the types of moments where small, disruptive, pure-play technology companies can become market share leaders and displace larger incumbents.

### ***OPPORTUNITIES LIE BEYOND LARGE-AND-MEGA-CAPS***

Today, when investors talk about AI, most are focused on either the companies building large language models attempting to recreate general intelligence, or companies focused on designing the processors themselves. We concur that the capital required to create and run these large language models, as well as the semiconductor chips necessary to perform the calculations, is such that most smaller capitalization companies will not be able to become leaders in those specific segments. However, we strongly contend that while these models/processors are critically important to the overall success of AI, those segments will not be the only investable trends as the AI market evolves; indeed, opportunities exist across the entire market cap spectrum. As a general reminder, the capital spending (Capex) and cost-of-goods-sold (CoGS) of large- and mega- cap companies represents revenue for mid- and small-cap firms.

AI-focused workloads are causing a fundamental re-architecting of the datacenter in its entirety. This change is the result of multiple factors – all of which create opportunities within smaller, often pure-play companies. While by no means a comprehensive list, below we highlight some potential examples of system(s), hardware, and infrastructure investments advantaged by the growth of AI:

- The chips required for AI are some of the most complex designs ever imagined and require the most advanced manufacturing methods, as well as a significantly increased reliance on complex packaging technologies. The emergence of generative AI has accelerated advanced packaging adoption and newer heterogeneous packaging technologies. Thus, while semiconductor packaging and test has historically been a highly cyclical industry, AI may add a secular growth driver that could amplify a cyclical recovery in 2024 after 2023's pronounced contraction.
- An AI server is a specialized piece of equipment. Many of the larger AI companies require highly customized server designs for their AI systems. This creates an opportunity for

contract manufacturers with requisite hardware engineering skills to gain significant market share. For many large AI companies, supply chain relationships, and flexibility to rapidly design, customize, optimize, and produce AI systems is of paramount importance during this early stage of the market.

- The power requirements of an AI server are multiple times greater than a typical server due to the immense computational load. Power is becoming THE fundamental requirement of a datacenter, and the availability of power is the gating factor of datacenter growth. Requirements for power per rack are increasing dramatically, but space allocated per rack is largely unchanged. The heat generated by AI servers causes multiple issues and thus cooling becomes a more meaningful problem as density and heat increase. In response, power supplies are being redesigned to utilize more efficient compound semiconductors that can deliver more power and generate less heat while cooling technology is evolving to better handle operating temperature limitations.
- Datacenter operators are faced with demand that is forecast to meaningfully outstrip current capacity due to the proliferation of AI applications and the additional power requirements. McKinsey estimated that in the US alone, 35GW of total datacenter capacity will be needed in 2030 versus just 17GW in place in 2022. Whether this goal is achievable is subject to debate, but the demand for datacenter power is undeniable, which is leading to a potential investment cycle in datacenter operators that desire to build AI-optimized datacenters with power, cooling, and reliability requirements specific to batch-AI workloads (as opposed to mission critical, low latency workloads).
- Beyond power and cooling, the infrastructure of a datacenter is evolving to accommodate the higher bandwidth requirements of machine learning and AI. Optical technology is transitioning to higher speeds and potentially coherent light to better manage bandwidth requirements. Debate continues regarding a transition from direct-attach copper cables to either active copper or optical, which may present yet another infrastructure investment opportunity.

Memory and memory architectures are expected to undergo an evolutionary step to accommodate the requirements of AI, and although the timing is somewhat uncertain, a transition to a new technology potentially brings with it both a product and IP investment cycle.

## **APPLICATIONS OF AI IN THE MARKETPLACE**

Below we discuss some examples of software and services that may be advantaged by AI as well as some examples of industries potentially jeopardized by the proliferation of AI. Importantly, we believe the ability to proactively identify segments at risk from AI is a benefit increasingly unique to active, research-based managers.

We believe that applications utilizing artificial intelligence will continue to evolve over the next several years. As mentioned previously, most people have already interacted directly with some form of AI through a recommendation engine, virtual assistant, or chatbot; however, the influence of AI in applications is dramatically more far-reaching.

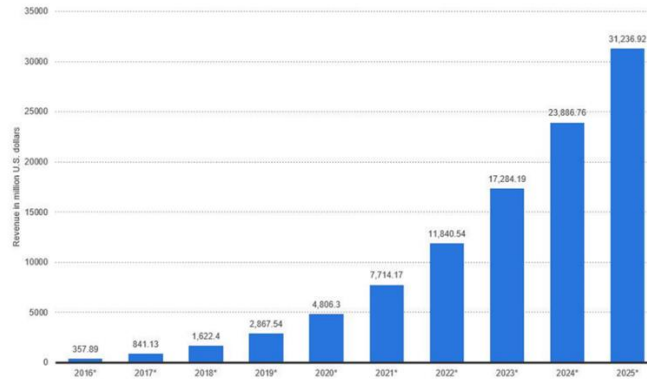
Many enterprise software vendors have already integrated some AI functionality into their products to help provide advanced analytics, sentiment analysis, or text generation. At this point, most AI integration has been focused on maintenance automation and process optimization, but its use is expected to proliferate broadly.

IT Services and software development, not surprisingly, have been early adopters. Many have begun to use AI to facilitate better software development using machine learning and predictive analytics, enabling developers to predict and fix bugs, test software more efficiently, and understand user behavior.

Adoption of AI is not limited to traditional technology companies. Firms are using AI internally to increase efficiency by automating routine tasks such as data entry, billing and collections, and customer relationship management. The financial services, legal, and real estate industries are beginning to accept AI's ability to provide drafts of basic documents. The power of AI-enabled predictive analytics also extends into industrial use cases where they can be applied toward preventative maintenance, which will lead to lower maintenance costs and downtime. According to a recent Ernst & Young survey, 92% of oil and gas companies worldwide are investing in AI or planning to do so in the next two years. And the impact of AI is already evident, as 50% of oil and gas executives are using it to solve challenges across their organization to address subsurface, drilling, and production workflows. A recent study from Statista (shown below) illustrates the anticipated growth from AI-enabled enterprise applications worldwide through 2025.

Enterprise artificial intelligence market revenue worldwide 2016-2025

Revenues from the artificial intelligence for enterprise applications market worldwide, from 2016 to 2025 (in million U.S. dollars)



Generative AI models (ChatGPT being the most well-known example) hold immense potential in revolutionizing content creation by autonomously generating novel and high-quality content, mimicking human-like creativity based on learned data patterns. This technology can reduce manual workload and accelerate dynamic content creation and personalization in fields like digital marketing, entertainment, design, and journalism. The ability to rapidly and convincingly create stylized images based on consumer sentiment, summarize large volumes of text, and create realistic voice-overs can provide enormous efficiency within the entertainment, journalism, marketing, and graphic design segments.

### CHALLENGES AND CONCERNS

It is important to recognize, however, these efficiencies can carry risks – and costs. The efficiencies AI could potentially deliver may well come with meaningful dislocations in the job market within those industries. Impacts have already been felt in the education technology sector as AI homework assistance proliferates. As an aside, this impact occurred even given the current limitations of AI technology, where in the absence of a direct “answer,” the system will “hallucinate” and essentially make one up. As compelling as the thought of AI is, users must be able to trust the output it provides or its application to high-value problems may be more limited.

The “hallucination” problem notwithstanding, AI faces several potential issues as its evolution continues. One of the most direct challenges is the nature of the data used to “train” the system. In traditional programming “garbage-in garbage-out” referred to the program itself. In the case of AI, if the training data is corrupted, incorrect, or intentionally misleading, the model would provide incorrect, incoherent, biased, or dangerous responses. Additionally, there is an ever-present risk of AI being used for cyberattacks, through some form of coordinated attack, or simply a prolific

misinformation campaign. Data protection and integrity, already important across the IT spectrum, will become increasingly so. Lastly, AI (at least to this point) has grown unfettered by regulation. Whether a technology like AI should evolve without guardrails is a subject for debate at another time, investors (and society) must accept the reality that in the face of AI's power, regulation of some kind in the future is probable.

### ***WE WILL SAY "WE REMEMBER WHEN...."***

Investors (and society in general) from different eras remember certain moments from their past when they saw their world change. Whether that moment was represented by the fax machine, the cellphone, the personal computer, the iPod, or the Internet, the timeline would be denoted by "before the..." and "after the...." We believe that machine learning and AI are delivering that moment right now. Listening to the headlines, it is easy to conclude the winners in the AI race have already been decided, and they are the large- and mega-cap names we have come to expect. Investment opportunities are not limited to large language models or processing chips and Emerald contends there are AI-exposed investment opportunities across the entirety of the capitalization spectrum, and many remain unrecognized, with their market opportunity just emerging. AI systems are driving innovation and technological evolution to support the infrastructure required - and those innovations span materials, semiconductor packaging, power, cooling, datacenters, communications, and others. The ability of AI to deliver advanced analytics across a myriad of industries, as well as providing potentially dramatic efficiency gains to vertical applications, will drive market share shifts that have yet to occur; and there will certainly be winners and losers. Emerald continues to assert that through active, bottom-up, fundamental research can investors proactively identify these growth opportunities that rarely get the name recognition of their large- and mega- cap brethren.

### ***AI VIA EA: THE EMERALD ADVANTAGE***

As a firm with over 30 years of experience in fundamental, bottom-up, small-cap growth research, we believe our team of analysts and portfolio managers have demonstrated our ability to proactively identify AI beneficiaries and deliver related investment opportunities to our clients across small, mid, and all cap portfolios, and we expect to continue to deliver on our clients' behalf as AI evolves and proliferates further into our daily lives.

## IMPORTANT DISCLOSURE

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Mr. Amsterdam is a Portfolio Manager of the Emerald Mid Cap Growth and Emerald Growth Opportunities portfolios. He is also a Senior Research Analyst and a member of the Emerald Advisers Technology Research Team. He has been with Emerald since 2001 and currently focuses his efforts on network infrastructure, optical technologies, embedded electronics, and unified communications. Prior to joining Emerald Asset Management, Mr. Amsterdam spent a decade investing in, and advising, early stage technology companies as a founding managing director of PA Early Stage Partners, a \$50M early stage venture capital fund and senior associate of TLVentures, an \$800M venture capital fund associated with Safeguard Scientifics, Inc. He is a graduate of Lehigh University.



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Mr. Fisher is a Senior Analyst, for Emerald Research. Mr. Fisher focuses his research efforts on emerging growth companies in the Computer Software, Information Technology, Professional Services, Healthcare Services and Medical Devices industries. He began his career at Emerald as an intern in 1995. Due to his generation of ideas, networking and due diligence skills, he progressed to Research Analyst in 1996 and to Senior Research Analyst in 2000. Prior to joining Emerald, Mr. Fisher attended the University of Delaware.



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Research Analyst

Dr. Jones is a Senior Research Analyst for Emerald Advisers, focusing on Technology. He joined the firm in the summer of 2013 after a postdoctoral fellowship in melanoma research and nanotechnology at the Penn State College of Medicine. Dr. Jones received his PhD in Pharmacology in the spring of 2012 from the Pennsylvania State University, Hershey Medical Center. He has authored papers in the fields of pharmacogenetics, cancer research, nanotechnology, and drug metabolism. He received his MBA from the Pennsylvania State University in 2009, where he was inducted into the Beta Gamma Sigma National Business Honor Society. Dr. Jones received his BS degree in Biochemistry and Molecular Biology from Penn State University in 2006.

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May 24, 2023  
Terry Smith PhD, MBA

(BBIO-Nasdaq)  
Initial Report

Current Price	\$16.42
52-week High	\$28.63
52-week Low	\$15.65
Price Target	\$30.00

Rating	Buy
Shares Out	74.6M
Market Cap	1,225.1M
Avg. Daily Vol	1,403.6K

FY23 EPS	-\$4.06
EPS Growth Rate	NM
FY23 PE	NM
FY23 PEG	NM

Book Value/Share	\$2.54
Cash/Share	-\$3.12
Insider Ownership	27%
Institution Ownership	78%

## Business Description

BridgeBio Pharma, based in Palo Alto, CA, is a late-clinical stage biopharmaceutical company focused on delivering therapies for patients with genetic diseases. Their robust pipeline covers an array of verticals, including precision cardiorenal, mendelian disorders, precision oncology, and gene therapies. The company anticipates eight Phase III readouts over the next five years, with five expected to enable entry into \$1B+ markets.

## Competitive Advantages

- Infigratinib for achondroplasia has best in class potential**– Infigratinib is in Phase II clinical development for the treatment of achondroplasia. Infigratinib is an inhibitor of FGFR 1, 2, and 3. Achondroplasia is the most frequent cause of disproportionate short stature and is the result of mutations in the FGFR3 gene that causes constitutive activity and excessive expression of chondrocyte proliferation in the growth plate of long bones.
  - There are an estimated 10k treatable patients in the US and EU with achondroplasia, and another 7-10k with hypochondroplasia (the result of an FGFR3 activating mutation at N540K). Should BiMarin and BridgeBio be able to open the hypochondroplasia market, it would double the TAM to \$6B.
  - Infigratinib is a once-daily oral drug that inhibits the mutated FGFR3 receptor, stimulating bone growth. Early data suggests that it is superior to BioMarin’s daily subcutaneous injection vosoritide. If approved, we expect infigratinib would take majority share from vosoritide, resulting in a \$2B peak sales opportunity at a \$330k US list price. Superiority is a major selling point in this market as these drugs only work when the growth plates are open. Theoretically, more rapid growth will result in increased adult height.
  - The recently completed phase 2 PROPEL2 study included ten patients in a high-dose cohort of 0.25mg/kg once daily to assess the mean increase in baseline in annualized height velocity (AHV) at six month follow up. On average, the mean change in AHV at six months was +3.38cm/year which compares to the 2.01cm/year of vosoritide at six months in phase 2 and declined to 1.57 in phase 3. The safety profile remained clean in the high dose cohort with no drug related TEAEs in the cohort. In addition, patients treated with infigratinib at 0.25mg/kg are starting to show upper body:lower body ‘normalization’ which vosoritide has been unable to show.
  - Infigratinib was approved as a cancer medicine and withdrawn from the market by BridgeBio. It was used at a dose of 125mg/day. The achondroplasia dose is 0.25mg/kg which is approximately 7mg/day. There is composition of matter IP in the US until 2033 and additional patents filed that would protect the drug until 2040.
- Encaleret provides a superior solution to patients with ADH1** – ADH1 is caused by a mutation of the CASR gene that results in increased sensitivity to extracellular calcium, causing suppression of parathyroid hormone at normal calcium concentrations. This leads to hypocalcemia, hyperphosphatemia, and greater calcium concentration in the urine which is associated with long-term kidney complications. Traditional therapies for ADH1 increase calcium secretion, promoting kidney calcification. The company estimates that there are 4k symptomatic and identified patients in the US.
  - The ongoing phase 2b trial enrolled 13 patients with ADH1 and revealed normalized mean values of blood calcium, urinary calcium, and blood PTH by day 5 and treatment. These benefits were sustained for 24 weeks at which 92% of patients achieved normal blood calcium levels in the absence of standard of care and 77% had achieved normal 24-hour urinary calcium excretion.
  - A phase 3 open label, two-arm clinical study was initiated in December 2022 and will compare the effects of encaleret to standard of care over 24 weeks in 45 ADH1 patients. Following a SoC maintenance

period, participants will be randomized 2:1 to the encaleret or SoC doses and will undergo 20-week titration followed by a 4-week maintenance period. The primary endpoint is normalization of urine and serum calcium levels. Topline data is expected in early 2024.

- **Acoramidis for ATTR-cardiomyopathy**– ATTR-CM affects 200k patients in the United States. ATTR-CM is caused by the buildup of transthyretin protein in the left ventricle of the heart, causing the walls to stiffen such that it can no longer properly relax and fill with blood. As the disease progresses, protein aggregation can become so severe that the chamber is unable to adequately pump blood resulting in heart failure. Tafamadis is approved and Alnylam hopes to have a second drug approved later this year.
  - Like Tafamadis, Acoramidis stabilizes the disease causing TTR tetramer and inhibits its dissociation into monomers. Acoramidis was designed as a “super stabilizer” and is also 4x more potent than Tafamadis. Superior efficacy was expected.
  - The phase 3 study is called ATTRIBUTE-CM and it enrolled 632 patients. It failed to show a difference in the six-minute walk test compared to placebo at twelve months in Part A of the study. Part B will read out next month and will follow patients for 30 months to look for a difference in all cause mortality and cardiovascular hospitalization. We believe it failed in Part A because the patients enrolled in the study were significantly earlier in their disease course than patients were in the Tafamadis study. These same patients are followed for 30 months, and we are uncertain if the trial will be able to detect a difference on the primary endpoint. We believe the drug is at least as good as Tafamadis, but again, the patients are not as sick and per management’s recent public comments, the event rate is tracking in the low 20’s as opposed to their expectation in the mid-30’s at the start of the trial.
  - There were encouraging signs in part A of the study—namely that NT-proBNP remained stable on the drug arm while placebo deteriorated, serum TTR increased 38%, and there were 27% fewer treatment emergent adverse events leading to death on drug vs placebo with 6.2% of placebo patients dying vs 4.5% of acoramadis treated patients.
  - Tafamadis is a \$3B drug that will go generic in the US in 2028 and in the EU in 2026. Pfizer estimates that 25-50% of scripts in the US do not get filled because it is a Medicare Part D drug and can have an out-of-pocket copay of \$14k. This is estimated to be reduced to \$2k as the IRA is implemented.

## Assessment of Management

The company is led by Co-founder and CEO Neil Kumar. He has a background of successful business development at MyoKardia and was previously at Third Rock and McKinsey. He is very well connected in the industry and has crafted a very interesting pipeline at BridgeBio. The company has a large leadership team as there are several scientific verticals each with their own leadership. This will need to be streamlined if the company encounters setbacks.

Corporate governance is in-line with peers.

The company has a classified board of 14 members. Emerald believes the company should move to a de-classified board which is in-line with best practices.

KKR Genetic Disorder L.P. owns 19% of the company, a position they have held since the series A in 2016.

## Growth Drivers

- **We believe Acoramidis data in July is a clearing event**– Following a disappointing miss on the 12-month 6-minute walking distance phase 3 endpoint, regulatory approval hinges on 30-month survival data. No one expects it to work yet most investors are expecting significant stock weakness. We justify a valuation in the 20’s without acoramadis and believe that investors will be buyers on weakness once this trial is reported. If the trial is positive (and the delta is driven by survival), there could be 100% upside to the stock. We believe there is a 30% chance that this happens for reasons outlined in the “competitive advantages” section.
- **Infigratinib for achondroplasia** – The company presented six month data in June and will present longer data cuts showing the durability of effect through 2023 and 2024. They also plan to start phase 3 by year end 2023.
- **Infigratinib for hypochondroplasia** – The company will start a clinical trial to look for a signal in hypochondroplasia this year. More importantly, Biomarin is expected to release their phase 2 data with vosoritide this year and begin a phase 3 program. Both drugs work by inhibiting FGFR3 and we believe the market will appreciate that is vosoritide works, infigratinib is likely to work.

- **Encalaret** – Phase 3 data will read out in early 2024. We assume a 75% probability of success and believe there is no competition and 4,000 patients identified in the United States.
- **BBP-631 (AAV5 gene therapy for CAH)**– ‘631 is a gene therapy for congenital adrenal hyperplasia. The company has dosed four patients at two dose levels. To date, BridgeBio management states that biomarkers are going the right direction. At the moment, this program is too early to include in our valuation, but if proof of concept is established, we would need to add this program. We expect some data later this year or early next year.

### Issues / Risks

- We believe the company’s debt situation is manageable, but if there are a string of pipeline failures, the \$1.5B in debt could become problematic.
- Clinical risk across all programs. A safety problem with infigratinib would be most problematic. We believe the dose is about 1/15<sup>th</sup> the oncology dose and expect safety to be OK, but they have only treated twelve patients for six months at 0.25mg/kg.
- Regulatory risk—the path forward for any of BridgeBio’s clinical candidates may not be as straightforward as we or the company believes.
- Intellectual property risk—we believe infigratinib has composition of matter protection to 2033 and the potential for new IP to be issued that would extend it to 2040. If BridgeBio is unable to protect their intellectual property, shares would be affected.

### Summary and Recommendation

We recommend a small position in front of the acoramadis “part B” readout in July and would be interested in adding to our position if there is material stock weakness on the failure of that study.

We use a sum-of-the-parts analysis to value shares of BBIO at \$30/share. For our price target calculation, we assume 170M shares outstanding, and include the \$1.5B in debt they have on their balance sheet. Note the sum-of-the parts below equals \$43.50/share. However, the \$1.5B in debt and the incremental \$1B they need to achieve profitability reduce the price target to \$30/share. Should acoramadis fail, our price target would be \$28 as that would remove ¼ of the burn.

- Infigratinib in achondroplasia: We assume a 75% probability of success, we assume \$2.5B in peak sales for probability adjusted peak sales of \$1.875B. We use a 3x multiple and discount it back five years to value this program at **\$3.2B** (\$18/share).
- Infigratinib in hypochondroplasia: We assume a 40% probability of success, we assume \$3B in peak sales for probability adjusted peak sales of \$1.2B. We use a 3x multiple and discount it back six years to value this program at **\$1.8B** (\$10.50/share).
- Encalaret for ADH1: We assume a 75% probability of success and assume \$1.2B in peak sales for probability adjusted peak sales of \$900M. We use a 3x multiple and discount it back four years at 12% to value this program at **\$1.7B** (\$10/share).
- Acoramadis in ATTR: We assume a 30% probability of success and \$1.2B peak sales for probability adjusted peak sales of \$400M. We use a 3x multiple and discount it back three years to value this program at **\$850M** (\$5/share).



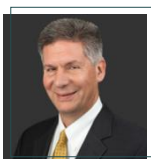
# EMERALD DIVERSIFIED SMALL CAP GROWTH

## SEASONALITY AND HIGHER LONG-TERM YIELDS LOWER THE BOOM ON EQUITIES

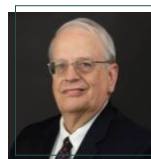
SINCE 1928, THE S&P 500 has closed in negative territory 52 times during September, more than any other month, according to Yardeni Research. With September of 2023 now in the record books, you can make that 53 times, with the last month of the third quarter certainly living up to its billing. The treasury market hit a tipping point as the collision of a persistently stronger labor market, waning disinflation resulting from the surge in oil prices, a rapidly widening fiscal deficit and increasing bond supply, propelled U.S. Treasury yields higher across the curve. The long-end of the curve hit escape velocity with the 10-year yield breaching 4.80% and the 30-year yield approaching 5.0%, levels for each not witnessed since 2007. As yields surged, equity and bond markets retreated, with the S&P 500 (-4.77%), the Russell 1000 (-4.70%), and the Russell 2000 (-5.89%) each declining mid-single digits, while the Bloomberg US Aggregate Government Treasury Long Index fell (-7.29%). The depth of the September market retrenchment pushed equity market returns for the third quarter into negative territory across all market capitalizations and styles.

### KEY POINTS:

- ***The depth of the September market retrenchment pushed equity market returns for the third quarter into negative territory across all market capitalizations and styles.***
- ***The Emerald Small Cap Diversified Growth portfolio underperformed the Russell 2000 Growth Index for the third quarter driven by negative selection effect.***
- ***At the sector level, underperformance within the consumer discretionary and healthcare sectors more than offset the positive contribution to return from holdings within the basic materials and energy sectors.***
- ***As we enter the fourth quarter of 2023, the portfolio currently holds the largest active exposures in the healthcare, consumer staples and financials sectors.***



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Small capitalization stocks remained a relative laggard with the Russell 2000 falling (-5.13%) for the quarter and trailing the Russell 1000 which declined by a more modest (-3.15%). From a style perspective, value led across the capitalization spectrum with the Russell 2000 Value (-2.96%) outpacing the Russell 2000 Growth (-7.32%). At the sector level, weakness within the Russell 2000 Growth index was broad-based, with only the energy sector (+11.18%) registering a positive return for the third quarter, whereas the telecommunications (-18.73%), utilities (-14.57%), and healthcare (-14.29%) sectors led to the downside.

The rising cost of capital weighed particularly hard on the non-revenue/non-earnings generating companies within the benchmark, with these cohorts underperforming the Russell 2000 Growth by 311 bps and 643 basis points respectively, according to an October 1, 2023, report from Steve DeSanctis, Equity Strategist at Jefferies. The relative underperformance of the healthcare sector similarly weighed on the fastest growers as measured by sales growth, with that cohort underperforming the Russell 2000 Growth benchmark overall by approximately 196 basis points.

## PORTFOLIO REVIEW

The Emerald Small Cap Diversified Growth portfolio underperformed the Russell 2000 Growth Index for the third quarter driven by negative selection effect. The tailwinds that helped drive the portfolio's relative outperformance in the second quarter turned to headwinds, as the healthcare sector and the higher-multiple, faster-growers and non-earners lagged. At the sector level, underperformance within the consumer discretionary and healthcare sectors more than offset the positive contribution to return from holdings within the basic materials and energy sectors.

The consumer discretionary sector was the portfolio's largest detractor to return for the period. Rising concerns over the direction of consumer spending in the wake of rising gas prices, decelerating late August and September spending trends, waffling consumer confidence, and the resumption of student loan payments weighed heavily on sentiment in the

more service-oriented industries within the sector. These headwinds combined with more challenged stock selection drove relative underperformance within the restaurant, specialty retail, casinos and gambling, airlines, and recreational services industries. At the stock level, the top detractors to return included Churchill Downs and Jack in the Box. Shares of Churchill Downs, a leading operator of sports entertainment and gaming facilities, reported solid Q2-23 financial results but fell 3% shy of the sell-side consensus analyst estimates for revenues and adjusted EBITDA. The shortfall was largely a result of the fallout from the horse safety concerns at Churchill Downs Racetrack in the wake of the 149<sup>th</sup> Kentucky Derby and softer than expected results from the company's portfolio of regional casinos. We continue to hold shares of Churchill Downs and believe the company has the most compelling growth story in the sports entertainment and casino gaming industries with a strong pipeline of new facility openings and expansions expected over the next two years that we estimate will contribute to a more than doubling of the company's annual adjusted EBITDA from 2022 levels when fully ramped. In the case of franchisor and restaurant operator Jack in the Box, the company reported strong fiscal third quarter financial results with better-than-expected earnings driven by higher system same store sales and improving restaurant level margins. The shares, however, came under pressure as management elected to only reiterate guidance for FY2023 as opposed to raising it, eliciting concern about the trajectory of the fourth quarter sales and resulting implications for FY 2024 guidance. These stock specific concerns were further compounded by the rising concerns regarding the impact of anti-obesity medications on consumption trends and more recently the passing of the FAST Act in California which will raise minimum wages to \$20 per hour for fast food workers in 2024. We believe these concerns are overstated and with the shares now trading at less than 10x 2024 EPS and 9x EV/EBITDA, the pullback is overdone. The management team of Jack in the Box has been executing well and we are optimistic that the company's focus on culinary innovation and value will continue to drive industry leading comparable store sales. Initiatives to improve productivity are translating into improved restaurant level margins, refranchising initiatives are progressing ahead of



expectations and recent initiatives to jumpstart unit growth are bearing fruit. Emerald has elected to maintain its position.

Performance within the healthcare sector also detracted from relative performance for the quarter, driven largely by the allocation effect as stock selection was a positive contributor to return. From an allocation perspective, Emerald's large nominal (avg. weight 29%) and active exposure (avg. overweight +700 bps) proved to be a significant headwind to performance, despite the positive contribution from stock selection, given the sizeable underperformance of the Russell 2000 Growth healthcare sector (-14.29%) as compared to the Russell 2000 Growth (-7.3%). Positioning within the sector was an additional headwind as the portfolio's concentration of holdings within the biotechnology industry and overweighting to the medical equipment, healthcare services and medical services industries proved to be a negative as these industries further underperformed the index as the dual headwinds of rising rates and perceived threats to future demand as a result of broad adoption of the anti-obesity medications drove significant multiple compression across these industries. At the stock level the most noteworthy detractors to return included: Treace Medical, Transmedics Group Inc. and DocGo Inc. Shares of Treace Medical Concepts, an orthopedic medical devices company with an innovative solution for bunion surgery, was the largest detractor to return. Shares of the company succumbed to meaningful selling pressure as concerns over rising competition in the bunion market, more than offset strong second quarter financial results and positive revisions to forward guidance. Based on our initial due diligence we believe the pullback in the shares has overstated the impact on the business and as a result have maintained our position in the shares of Treace Medical Concepts. In the case of TransMedics Group, a provider of transplant organ care platforms, the company also reported better than expected second quarter financial results, with reported revenue growth of 152%, and raising full year guidance. The stronger than expected results provided little support, as shares of TransMedics Group similarly suffered the meaningful multiple compression that was evident in many high growth, high multiple stocks within the medical devices sector. Shares of mobile health solutions and transportation solutions, DocGo

Inc. was also a top detractor. In this situation, although the company reported solid second quarter results, shares were negatively impacted by unfavorable media reports on their New York City contract for providing services to the migrants and asylum seekers coming to New York City from the southern border raising questions regarding the contract scope. Negative sentiment was further compounded when these same media reports highlighted a discrepancy in the education credentials of the CEO cited in his biography. This misstatement was ultimately acknowledged by the CEO, and the Board of DocGo prudently and swiftly acted to replace him. We take management credibility very seriously and believe the Board did the right thing to restore credibility. Subsequently we had the opportunity to meet with the incoming CEO and are confident that this latest series of events, while disappointing, are unlikely to impact the growth trajectory of the business. Encouragingly, in the wake these negative headlines DocGo has announced new contracts with MainLine Health in Philadelphia and the South Central Ambulance Services NHS Foundation Trust in the UK. Emerald has maintained its position in the shares of DocGo.

Partially offsetting the above detractors to return was relative outperformance from the basic materials and energy sectors. Within the basic materials sector the positive contribution to return was driven solely by the outperformance of the shares of Carpenter Technologies, a provider of specialty metals including premium alloys and stainless steel. The company is benefitting from the post-pandemic recovery and catch-up in the new commercial aerospace deliveries, strong demand for defense products (due to the Russian-Ukrainian War), and a stealthily expanding space sector. Specialty material availability remains so tight, as evidenced by reports of nickel-based material shortages, that management reportedly already closed its order book for 2024 (orders are out 75+ weeks). Travel demand continues to recover, with demand for new narrow body aircraft remaining strong, though Boeing and the engine manufacturers (Pratt & Whitney and CFM) continue to struggle with quality and performance issues, causing an already aging fleet to continue longer in-service. This represents a favorable near-term setup for the company as its Athens, AL facility remains the only qualified facility in the



industry with capacity available. Carpenter also has exposure to Energy (5%), Transportation (10%), Medical (15%), and Industrial (20%), and all end markets continue to expand. Emerald continues to be optimistic regarding the outlook for the shares of Carpenter Technologies and has maintained our position.

Holdings and positioning within the energy sector also contributed positively to performance. The portfolio's overweight position to the energy sector which was the best performing sector within the Russell 2000 Growth this quarter, and strong selection within the oil equipment and services industry were the key drivers of the portfolio's relative outperformance this quarter. At the stock level, shares of oil and gas services company, Tetra Technologies, were the largest contributor to return. Tetra Technologies preannounced and then delivered record above-consensus second quarter results. Strong offshore completions fluids activity and a seasonal peak in the company's European industrial calcium chloride business contributed to the above consensus results. Tetra has 30% of its revenues coming from international markets and is continuing to drive margin expansion through automation and additional cost savings initiatives. Tetra also continues to make progress on its Bromine and Lithium development efforts with the signing of an agreement with a subsidiary of Exxon for the joint development of its Lithium assets. The company continues to drive free cash flow and is positive on its opportunities to sell its propriety Pureflow Zinc Bromine chemistries to a growing line-up of extended life battery companies. We continue to maintain a position in Tetra, as we believe we are in the early innings of a multi-year upcycle for offshore activity and see significant upside to results from the company's deepwater fluids projects in Europe and the Gulf of Mexico. We believe the company could double its earnings over the next two years with potential upside from Tetra's nascent low carbon businesses.

As we enter the fourth quarter of 2023, the portfolio currently holds the largest active exposures in the healthcare, consumer staples and financials sectors. Thoughts on those sectors are highlighted below.

- The healthcare sector represents the portfolio's largest nominal and active exposure. At the industry level, the portfolio currently holds the largest nominal and relative overweight positions within the medical equipment, biotechnology, pharmaceuticals, and medical services industries. We continue to be focused on medical devices and diagnostic companies that are profitable and not trading on a revenue multiple. For therapeutics, we are focused on profitable companies and those with quality assets generating revenue with a view towards profitability. Approximately 70% of our therapeutics (biotech + pharma) exposure is in companies that have revenue.
- The portfolio also exited the third quarter with an overweight position within the consumer staples sector. We remain positive on the fundamental outlook for growth-oriented consumer packaged goods companies. We see mounting evidence that the broad-based cost inflation and supply chain issues that plagued the industry throughout 2022 are abating, which should result in higher profit margins entering 2024. We continue to focus on companies with disruptive brands, category leadership positions, strong secular growth opportunities, and improving profit margins that may enable them to navigate an often-turbulent business environment, resulting in industry leading revenue and earnings growth.
- Emerald also held an overweight position within the financial sector driven by holdings within the bank, full line insurance, investment services, and property and casualty insurance industries. The largest concentration of exposure is held within the full line and property casualty insurance industries where Emerald continues to focus on companies with strong balance sheets, and exposure to growing



specialty end-markets with sustained pricing power.

## MARKET OUTLOOK

When will the Federal Reserve stop raising rates and when will they cut? That is the riddle the market has been trying to solve since the Federal Reserve embarked on this hiking cycle. Treasuries have been repricing since the Silicon Valley Bank failure. Over this time the 10-year Treasury yield has risen approximately 153 bps, first as a reflection of better-than-expected growth and falling recession probabilities, and most recently in response to the growing momentum behind the higher for longer interest rate regime supported by resilient labor market, and the recent surge in oil prices. However, with more than 500 bps of Federal Funds rate increases now in the rearview mirror, and no rate relief in sight, concerns are rising that the longer rates stay high, and the tighter financial conditions become, the more likely something is going to break. Surging fiscal deficits, government disarray, waffling consumer confidence and decelerating consumer spending through September added further to this growing consternation. The early October Hamas attack and declaration of war from Israel, the prospect of U.S. involvement and the potential impact to energy prices only adds to the building wall of worry. While that question is unlikely to be resolved in near-term, we believe the significant tightening in financial conditions since the Federal Reserve meeting in September, the more recent dovish commentary from Fed officials, and the flight to quality resulting from the war in Israel, will likely result in some retrenchment in Treasury yields in the near-term and provide some breathing room for equities.

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**... WHILE WE HAVE BEEN EARLY IN OUR CALL FOR A SHIFT IN LEADERSHIP BACK TOWARD SMALL CAPITALIZATION STOCKS, TACTICALLY WE BELIEVE THAT GIVEN THE SIGNIFICANT YEAR-TO-DATE RELATIVE UNDERPERFORMANCE OF THE RUSSELL 2000 (+2.54%) TO THE RUSSELL 1000 (+13.0%), THERE IS A NEAR-TERM OPPORTUNITY FOR SMALL CAPITALIZATION STOCKS TO CLAW BACK SOME OF THAT RECENT UNDERPERFORMANCE.**  
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Corporate earnings season is set to kick off this week and given the underlying strength in forecasted third quarter economic growth, we believe earnings season could offer additional near-term support to the market as we enter the seasonally strongest period for equity returns. In this regard, while we have been early in our call for a shift in leadership back toward small capitalization stocks, tactically we believe that given the significant year-to-date relative underperformance of the Russell 2000 (+2.54%) to the Russell 1000 (+13.0%), there is a near-term opportunity for small capitalization stocks to claw back some of that recent underperformance. According to a September 30, 2023 report from Steve DeSanctis Equity Strategist at Jefferies, the Russell 2000 rallied more than 10% during the fourth quarter 12x in its 44-history, with those rallies largely occurring when small caps have lagged large caps through the first 9-months of the year.

On a longer-term basis, the sizeable underperformance of the small cap segment remains an outlier relative to history with the rolling 5-year return for the Russell 2000 standing at 2.7% vs. 10% for the Russell 1000, a differential of 7.3% which falls in the 7<sup>th</sup> percentile relative to history, according to same report



cited above. The sizeable underperformance over the rolling periods has pushed the relative valuation of the Russell 2000 to the Russell 1000 into the 7th percentile vs. history, a level last reached in February 2002, with the index trading at a double-digit discount relative to the long-term average based on trailing P/E, forward P/E, price to book, price to cash flow, price to sales and P/E to growth. It is also noteworthy, according to same report, that this record streak of large capitalization outperformance has been driven by a subset of the Russell 1000 index, with the top 10 names now accounting for 28.8% of the Russell 1000 index, and over 51.2% of the Russell 1000 Growth Index. For reference, at the peak of the Tech Bubble, the top-10 positions within those indices accounted for 23.8% and 36.5%, respectively.

Ultimately something must give, and while it is always difficult to call the exact inflection point, we believe that a durable resumption in small capitalization stock leadership will be predicated on a further deceleration in the rate of inflation, a stabilization in employment gains and wage growth, a definitive end to the Federal Reserve hiking cycle, and further confidence in a reacceleration in the corporate earnings growth in 2024.

Emerald, as always, remains vigilant and focused on utilizing our fundamental bottom-up research process to identify the most attractive growth opportunities within the small capitalization universe.

#### Top Ten Contributors

Reata Pharmaceuticals, Inc.
TETRA Technologies, Inc.
Super Micro Computer, Inc.
Carpenter Technology Corp.
TriNet Group, Inc.
MACOM Technology Solutions Holdings, Inc.
Northern Oil and Gas, Inc.
Thorne HealthTech, Inc.
Celsius Holdings, Inc.
Cactus, Inc.

#### Top Ten Detractors

Treace Medical Concepts, Inc.
TransMedics Group, Inc.
DocGo Inc.
Montrose Environmental Group Inc.
Model N, Inc.
Churchill Downs Inc.
ICU Medical, Inc.
NeoGenomics, Inc.
Jack in the Box Inc.
Sun Country Airlines Holdings, Inc.



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# INTERNAL REPORT

## TriNet Group, Inc.

July 5, 2018  
Joseph W. Garner & Derek L. Fisher

(TNET - NYSE)  
Initial Report

Current Price	\$56.87
52-week High	\$57.08
52-week Low	\$32.24
Price Target	\$77.00

Rating	Buy
Shares Out	70.3M
Market Cap	3,997.6M
Avg. Daily Vol	355.6K

FY18 EPS	\$2.71
EPS Growth Rate	15%
FY18 PE	20.4
FY18 PEG	#N/A

Book Value/Share	\$3.72
Cash/Share	-\$4.89
Insider Ownership	38%
Institution Ownership	62%

### Business Description

**TriNet Group**, based in Dublin, CA, is a leading provider of human resources (HR) solutions to small- and mid-size businesses. The company helps its clients mitigate certain employer-related risks and manage many complex and burdensome administrative and compliance responsibilities associated with employment. TriNet's solutions include payroll processing, tax administration, employee benefits and an HR tech platform with online and mobile tools that allow clients and worksite employees (*WSEs*) to store, view, and manage HR-related information and conduct a variety of HR-related transactions (*PTO, 401k, insurance claims, etc.*). In 2017, TriNet processed **\$37.1 billion** in payroll payments for approximately **14,800** clients with approximately **325,000** WSEs.

### Competitive Advantages

- **A Professional Employer Organization (PEO) Operating Under a Co-Employment Model** – TriNet Group operates under a co-employment model, under which employment-related responsibilities are contractually allocated between the company and its clients. For example, TriNet assumes responsibility for items such as remittance of WSE salaries, wages, and certain other compensation and related tax reporting and remittance, provision and maintenance of workers' compensation insurance and claims processing, provision and administration of group health, welfare, and retirement benefits, and compliance with applicable laws related to employee benefits. The co-employment model enables TriNet to aggregate employees among multiple clients in order to access large group benefit pricing. As such, TriNet currently ranks as the **2nd** largest employer in California and the **4th** largest employer in New York. **The company's size and scope has enabled it to place pressure on the insurance carriers to reduce administrative fees, which in some cases have been as high as 14% and have been reduced to as low as 7%.**
- **Leader in a Highly Fragmented Market** - The PEO market is highly fragmented with over **780** PEO service providers nationwide. **TriNet ranks as the second largest PEO** with a market share of approximately **18%**, trailing only **ADP's TotalSource** offering, which holds a market share of **23%**. Most PEOs are relatively small and focus on a specific state or region. TriNet is relatively unique with its multi-geographic region expertise, which is a particular advantage for companies with employees and/or locations in multiple states. TriNet most frequently competes against local or regional players and only competes against larger providers, such as **ADP, Paychex, or Insperity** in roughly **25%** of new customer opportunities. **A key component of TriNet's business model is leveraging its scale for the benefit of its clients.** This includes providing cost effective employee benefit and insurance programs generally not available, or available only at cost prohibitive price points, to small- and mid-sized businesses. In addition, TriNet's scale also serves to diversify the company's risk over a larger base of employees.
- **Vertical Market Focus** – TriNet Group is organized into five vertical market segments: **TriNet Financial Services, TriNet Life Sciences, TriNet Nonprofit, TriNet Technology, and TriNet Main Street.** Management estimates that these five vertical markets encompass **29 million** WSEs nationwide, representing **49%** of the total available market. TriNet's vertical market structure is a key competitive differentiator as it allows the company to customize product /service offerings and pricing by market to address specific vertical market needs and interests. TriNet's two largest competitors, **ADP** and **Insperity**, employ more of a "one size fits all" strategy.
- **TriNet has a Relatively Strong Balance Sheet** – As of March 31, 2018, TriNet had over **\$330 million** in cash, which is up from **\$184 million** at the end of 2016. Total debt was **\$413 million** at the end of Q1-18 and the company's leverage ratio stood at only **1.3x** trailing-twelve-month adjusted EBITDA. The company's cash flow is also strong with operating cash flow of **\$253 million** and only **\$38 million** of capital expenditures in 2017.

## Assessment of Management

TriNet Group is led by President & CEO **Burton Goldfield**. Mr. Goldfield has served in his current capacities since 2008. Prior to joining the company, Mr. Goldfield served as CEO of privately-held SaaS provider **Ketera Technologies**, Senior VP – Worldwide Field Operations at **Hyperion Solutions** and VP of Worldwide Sales for **IBM's Rational Software** division. Mr. Goldfield has been instrumental in leading the company through the challenging integration of **Gevity HR**, the company's recent software integration initiative (*see Growth Drivers*), and re-positioning the company for growth. He has also upgraded the senior management team in several areas as the company has sought to improve operational efficiency and controls, upgrade its technological infrastructure, enhance its financial management practices, improve sales force productivity, and add expertise in key areas such as insurance. Recent additions include CFO **Richard Beckert** (*formerly served as CFO of CA Technologies*), Chief Revenue Officer **Barrett Boston** (*formerly served as President of the Americas for TravelClick and VP of IBM's Big Data and Software Analytics unit*), and Senior VP of Insurance Services **Ed Griese**. Mr. Griese is a former executive in the health insurance industry with over 30-years of experience in the industry, including serving as President and CEO of **Health First Health Plans** and President of **Munich Health North America**. He has been instrumental in driving the growth and profitability of TriNet's health insurance business.

We believe TriNet Group has adequate corporate governance practices with a largely independent Board of Directors (*eight of nine members*), an independent Board Chairman, and executive compensation levels that are largely in line with industry peers, including meaningful performance incentives. However, we would prefer to see TriNet move to a non-classified Board of Directors. Insiders also own a meaningful portion of the company's total outstanding shares (38%), of which 27.7% is held by the company's private equity sponsor **Atairos Group**.

## Growth Drivers

- **Underpenetrated SMB Market** - The PEO industry represents only 6% of the 59 million small- and medium-sized business worksite employees (*WSEs*) in the US. **We believe the penetration rate of PEOs will increase dramatically over the next decade**, driven by significant tailwinds from rising health care and workers' compensation insurance rates and the increasing volume and complexity of Human Resources regulations. Further, as the larger PEOs, such as TriNet, continue to gain scale, their ability to offer robust, efficient, and affordable HR-related services increases, making the PEO-model more attractive to small- and medium-sized business owners. **As a result, we believe larger PEOs, such as TriNet, have the potential to grow revenues consistently at a 10% or greater rate.**
- **Completion of Software Integration Clears Runway for Growth** - TriNet recently completed the consolidation of various software platforms on which portions of its business. The company now operates on a single unified system as of April 2018. The completion of the process enables the company to realize operational efficiencies and devote software development resources into enhancing the functionality and capability of the existing system, such as developing mobile apps, improving the user interface, and further enhancing the reliability of payroll processing. The integration process enabled management to re-price insurance offerings that were underpriced relative to the underlying risk. The company experienced both increased customer churn during the implementation process and higher profit margins on retained clients. The final portion of the customer base transitioned onto the unified platform in April 2019. Going forward, we expect client churn to improve from the low 20% range to a level closer to the industry average of 20%. In addition, the company is re-emphasizing new client sales efforts now that the software integration is behind them. The portions of TriNet's business that were not subject to the software integration and insurance re-pricing have been growing in line with the PEO industry growth rate of approximately 10%. **The lower churn rate combined with accelerating new client sales activity should enable the company to return to sequential WSE growth in 2H-18 and approach, if not exceed, the PEO industry growth rate of approximately 10% in 2019.**
- **Unit Revenue Growth** - TriNet's revenue per average WSE per month grew 7% y/y to \$780 in 2016, 7.8% to \$841 in 2017, and 12% to \$912 in Q1-18. The growth is a function of favorable pricing (*particularly on Insurance Services*) and greater adoption of TriNet's menu of product and service offerings. **We believe TriNet has the potential to sustain unit revenue growth in a mid- to upper-single-digit range, particularly as it increases investment in product and service innovation.**
- **Insurance Services Driven Profit Margin Expansion** - In 2017, TriNet received a significant earnings boost from a decline in insurance costs, boosting the **Insurance Services** gross margin to 12.5% from 6.7% in the prior year period. This was driven by reduced administrative fees and lower than forecasted enrolled medical

costs. TriNet's per enrollee TTM medical cost trend was in the range of **3.5%** to **4.0%** (*versus historical levels in the high-single-digit range*), which was attributed to lower medical utilization and reduced prescription drug price increases (*prescription drugs represent roughly 25% of total spend*). TriNet has shifted some of its insurance plans from guaranteed policies to risk-based policies, which resulted in a disproportionate decline in administrative fees relative to the higher risk profile. Management sees opportunities for further administrative fee declines as they increase scale and move to consolidate insurance vendors in specific geographic markets. **We estimate each 100 basis point improvement in the Insurance Services gross margin boosts EBITDA by \$28 million, net income by \$25 million, and EPS by \$0.35 per share.**

- **Acquisitions** - TriNet has been an active consolidator in the PEO industry, using acquisitions as a vehicle to enter new or under-penetrated geographic markets and vertical markets. Now that TriNet has the software integration initiative behind them, we believe the company could once again become active with its M&A strategy, particularly with small, tuck-in acquisitions.

## Issues / Risks

Key issues and risks include the following:

- TriNet's revenue growth is a function of growing the number of WSEs covered and the level of revenue per WSE. As such, the company could be adversely impacted by an economic downturn that results in a reduction in the workforce, particularly among the company's small- and medium-size business clients.
- Adverse changes in the competitive environment, potentially pressuring both net client gains and unit revenues.
- The ability of management to execute on its new client sales initiatives, especially now that the software integration is behind the company and investor expectations for improved WSE growth are higher.
- In the past, TriNet was identified as having eight deficiencies under Sarbanes Oxley. Management has worked to address these deficiencies, primarily by implementing automated procedures to replace manual processes. The company has currently resolved all remaining deficiencies. However, if any additional deficiencies should arise they could adversely impact the company's operational and financial performance.
- Management's ability to identify attractive acquisition candidates and effectively assess the quality of any acquired insurance books of business. This is particularly important for workers' compensation plans, which have longer tails on adverse events.
- TriNet's private equity sponsor, Atairos Group, has been a patient and supportive investor during the company's challenges in 2015 and 2016. In the event that Atairos Group seeks to liquidate its 27.7% ownership position, it could represent a short-term overhang on TriNet Group's share price.

## Summary and Recommendation

**TriNet Group is a leading player in the large, under-penetrated, and highly fragmented PEO services industry.** The company's size, scale, vertical market expertise, and multi-geographic region expertise position it well to gain market share. With the software integration, and related client churn behind them, the company appears poised to return to growth in its base of over **316k** Worksite Employees, leading to a re-acceleration in revenue growth from **7%** in 2017 to a **low- to mid-teens growth rate** in 2019. TriNet has realized a significant improvement in its profitability and earnings growth, as the company worked through the software integration, re-priced workers' comp offerings, and realized administrative cost savings on health insurance offerings, resulting in adjusted EBITDA growth of **52%** and adjusted EPS growth of **65%** in 2017. The sell-side consensus 2018 EPS estimate implies growth of **36%** to **\$2.71 per share** and we believe this estimate could prove conservative by **\$0.25 per share** or more. TriNet Group shares appear attractively valued at **19.1x** our 2019 EPS estimate of **\$2.99 per share** and **16.7x** our 2018 EPS estimate of **\$3.42 per share**. We believe TriNet shares will trade toward the upper-end of the company's historical trading range of **17x-25x** FY1 EPS, given the prospects for revenue acceleration and strong EPS growth. As a result, our 12- to 18-month price target is **\$77 per share**, or **22.5x** our 2019 EPS estimate, representing upside potential of **35%**. We rate TriNet Group shares as a **BUY**.

## Financial Summary

TNET	Annual Results	FY17A	FY18E	FY19E	FY0a	3-17	6-17	9-17	12-17
	Revenue	809M	860.0M	942.1M	Revenue	807.6M	800.5M	819.3M	848.0M
EPS	1.99	2.71	2.95	EPS	0.41	0.56	0.60	0.92	
Y-Y Rev Growth	7.0%	6.3%	9.5%						
Y-Y EPS Growth	192.9%	36.2%	8.8%						
<b>Comments</b> Estimates reflect sell-side consensus				<b>FY1e</b>	<b>3-18</b>	<b>6-18</b>	<b>7-18</b>	<b>12-18</b>	
				Revenue	861.0M	208.4M	213.6M	218.0M	
				EPS	0.75	0.67	0.63	0.60	
				Y-Y Rev Growth	6.6%	-74.0%	-73.9%	-74.3%	
				Y-Y EPS Growth	82.9%	20.1%	4.2%	-35.3%	



PEO Industry	FY End	Share Price	52-wk High	52-wk Low	Market Cap. (\$M)	EV (\$M)	FY2018	FY2019	LT Growth	FY2018	FY2019	FY2018	FY2019	FY2018	FY2019	FY2018	FY2019	
							EPS	EPS	Rate (%)	P/E	P/E	Rev (\$M)	Rev (\$M)	EBITDA	EBITDA	EV/EBITDA	EV/EBITDA	
Automatic Data Processing, Inc.	ADP	Jun	\$133.77	\$140.34	\$101.31	\$58,880.2	\$58,637.4	\$4.32	\$5.11	14.47	31.0x	26.2x	\$13,281.4	\$14,241.6	\$2,845.13	\$3,277.32	20.6x	17.9x
Paychex, Inc.	PAYX	May	\$68.63	\$70.25	\$54.24	\$24,333.0	\$24,274.7	\$2.84	\$3.07	8.12	24.2x	22.3x	\$3,600.7	\$3,819.1	\$1,493.84	\$1,600.22	16.2x	15.2x
Insperty, Inc.	NSP	Dec	\$97.25	\$101.25	\$35.00	\$4,043.1	\$3,791.8	\$3.41	\$3.86	16.50	28.6x	25.2x	\$3,765.9	\$4,159.2	\$217.30	\$244.43	17.4x	15.5x
TriNet Group, Inc.	TNET	Dec	\$55.20	\$57.08	\$32.24	\$3,997.6	\$3,264.2	\$2.71	\$2.95	15.00	20.4x	18.7x	\$860.0	\$942.1	\$304.08	\$337.01	10.7x	9.7x
						\$22,813.5	\$22,492.0				26.0x	23.1x					16.26x	14.57x