

Analyst Details

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RECOMMENDATION

BUY

Date 06.21.2023
Current Price \$221
Target Price \$240
Upside 9%
Industry Diagnostics & Research
Sector Health Care
Ticker MEDP
Stock Exchange Nasdaq
Shares Outstanding 33,906,455
Market Capitalization 7.52bn
EPS(2022) \$7.58
Free Float 77.73%

Medpace is a scientifically driven, global, full service clinical research organization (CRO) providing phase 1-4 clinical development services to biotechnology, pharmaceutical, & medical device industries.

INVESTMENT SUMMARY

We issue a **BUY** recommendation for Medpace with one year target price of \$240, presenting an upside potential on the closing price of \$221 on June 21, 2023. The target price is based on Discounted Cash Flow method (DCF) Valuation. Our recommendation lies in the following three reasons. (1) Medpace consistently beating earning expectations are undervalued by the market. (2) Growing trend towards clinical research outsourcing. (3) its unique position to capitalize on growing CRO industry.

Medpace beating earnings estimates is undervalued

Medpace's consistent track record of surpassing earnings estimates for the past ten quarters, and beating consensus estimates 24 times out of the last 27 earnings, highlights its ability to generate robust financial results and effectively manage its operations. This demonstrates strong revenue growth, efficient cost control measures, and successful execution of its business strategy. Medpace's consistent outperformance exemplifies its competitive advantage and positions it ahead of industry peers. Despite its impressive earnings performance, the market appears to undervalue Medpace, possibly due to factors such as limited investor awareness, industry-wide concerns, or market volatility. This undervaluation presents an opportunity for investors seeking assets with significant growth potential and higher intrinsic value. By recognizing Medpace's consistent outperformance and understanding its market position, investors can capitalize on the company's growth prospects and the potential for stock price appreciation.

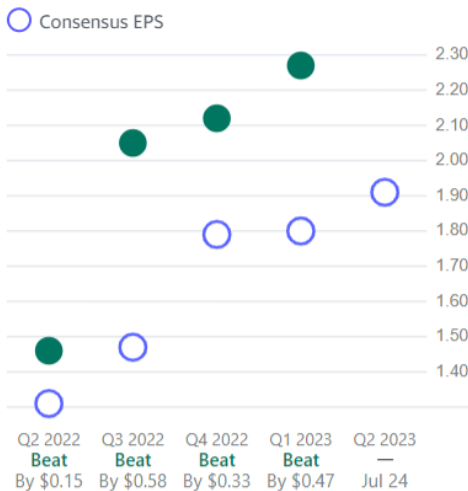
Growing trends towards clinical research outsourcing

The global clinical trials CRO market is expected to grow in the coming years due to increasing outsourcing of clinical trials by pharmaceutical and biotechnology companies and the need for cost-effective and efficient drug development. The global pandemic has increased the demand for quick, scalable, and cost-effective solutions, fueling expansion in virtual trials, AI- based technology, and adopting newer research paradigms.

Unique position to capitalize on growing CRO industry

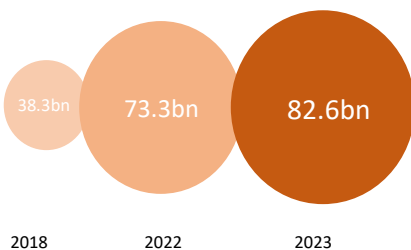
Medpace specializes in late-stage clinical trials, which are the most complex and expensive trials to conduct. This focus allows Medpace to build deep expertise in late-stage trials, which gives it a competitive advantage over CROs that offer a wider range of services. Medpace's high quality standards have helped it to attract and retain top talent, which further enhances its competitive advantage. Medpace has a strong financial position. The company has been profitable for many years and has a healthy balance sheet. This financial strength gives Medpace the resources to invest in new technologies and to expand its operations.

Figure: Medpace earnings performance



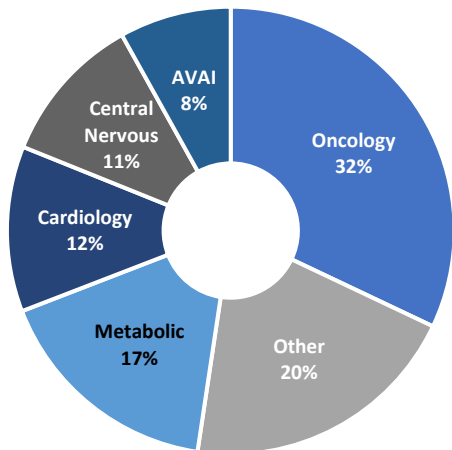
Source: Yahoo Finance

Figure: Growing CRO industry



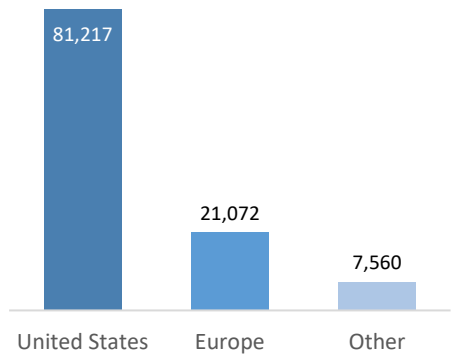
BUSINESS DESCRIPTION

Figure 1: 2022 Revenue by business segment



Source: Company data

Figure 2: 2022 operations by geography, \$ in thousands



Source: Company data

Figure 3: Hematology and oncology services



Source: Company data

OVERVIEW

Medpace Holdings Inc. is a global contract research organization (CRO) based in Cincinnati, Ohio. The company was founded in 1992 by Dr. August Troendle as Medical Research Services and currently has 5.2k employees located across 40 countries. Medpace Holdings provides Phase I-IV drug and medical device development services including regulatory services and central laboratory services. Medpace reported \$1.46bn in total revenue, from \$1.82bn business awarded, representing a net book-to-bill ratio of 1.25x and had an all-time high backlog of \$2.33bn in 2022.

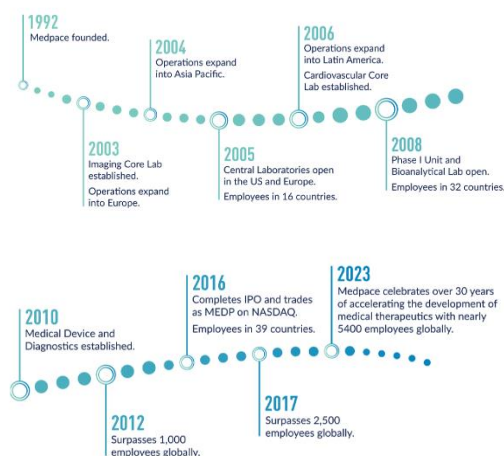
BUSINESS SEGMENT AND GEOGRAPHIC REACH

The company conducts clinical trials across all major therapeutic areas, with strength in Oncology, Metabolic Disease, Cardiology, Central Nervous System, or CNS, and Antiviral and Anti-infective, or AVAI. Oncology accounts for the largest proportion of revenue at 32%. Following that, the Metabolic sector contributes 17% to the overall revenue. Cardiology represents a notable portion of the revenue, accounting for 12%. Central Nervous services contribute 11% to the total revenue, while AVAI services contribute 8%. Lastly, other services collectively account for 20% of the generated revenue (Figure 1). The Company conducts operations in North America, Europe, Asia, South America, Africa and Australia through wholly owned subsidiaries and representative sales offices. United States constitutes a substantial portion, accounting for 74% of the total revenue. Europe contributes 19% to the revenue, with Belgium specifically representing an 11% share. The remaining 7% of revenue is attributed to other countries (Figure 2). Revenue is attributed to geographical locations based upon the location of the contracting agency. The total revenue attributable to U.S represented approximately 98% of the total revenue in 2022. This ensures consistency and clarity in reporting and helps to align with contractual obligations.

PRIMARY SERVICES HIGHLIGHTS

The company distinguishes itself by providing full-service clinical development to biopharmaceutical and medical device Sponsors from First-In-Human studies through late phase clinical development. Medpace's ability to coordinate all services under one roof empowers the company to establish an accountable, seamless, integrated, and efficient platform. This approach enhances the overall quality and speed of operations while notably reducing the necessity for duplicated management oversight by the Sponsor. Services in Medpace's are categorized by therapeutic areas include Autoimmune disease, cardiovascular, dermatology, endocrine and metabolic, gastroenterology and hepatology, hematology and oncology, infectious diseases and vaccines, Nash, neuroscience, nephrology and renal disease, ophthalmology. Medpace's hematology/oncology team has extensive clinical and research experience across a full range of solid tumor and hematologic indications and therapies from classic multi-cytotoxic agents to cutting-edge and targeted therapies (Figure 3). Medpace's endocrine and metabolic department is another important service that offers integrated models that includes central laboratories, a bioanalytical lab, an imaging lab, ECG core lab and phase 1 unit. The integration of all these services provides an accountable and seamless platform that increases quality and speed while significantly reducing Sponsor's need to duplicate management oversight.

Figure 4: Medpace history



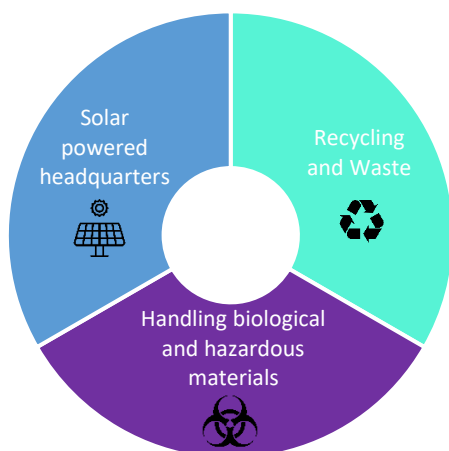
Source: Company data

COMPANY STRATEGY

The company's business strategy aims to continue to expand the market share in the growing Phase I-IV CRO market as they conduct clinical trials across all major therapeutic areas. Central to this goal is to systematically add specialized medical, regulatory, and operating experts, and refined and enhanced custom-built technologies and processes to best serve the needs of their clients. Working along these lines, the company has grown organically over 29 years and built a culture of quality that has not been disrupted by acquisitions, while the rest of the CRO industry has primarily grown through mergers and acquisitions (Figure 4).

ENVIRONMENTAL, SOCIAL AND GOVERNANCE

Figure 5: Environment at Medpace



Source: Company data

ENVIRONMENT

Medpace tries to address energy efficiencies, source sustainable supplies, and promote practices that encourage waste reduction. Within the Healthcare industry Medpace is making better progress in reaching environmental goals than its competitors (Figure 5). To reduce the carbon footprint, Medpace has begun a capital project to install solar generating capabilities at their headquarters campus in Cincinnati. Once completed, they will have added capacity to generate an estimated nearly 900,000 kWh of solar power annually. This will offset a portion of their electrical consumption with zero emissions power generation. The company places importance on recycling and waste management. Their laboratories adhere to comprehensive regulatory requirements regarding waste management. The company employs rigid operating standards and robust safety equipment to protect employees and the public from the harm that is involved in handling of hazardous waste from medical testing and sample processing.

Figure 6: Employee statistics at Medpace

5200 EMPLOYEES GLOBALLY*	64% MANAGEMENT GLOBALLY ARE WOMEN
67% ASSOCIATES ARE WOMEN	52% FEMALES AT DIRECTOR LEVEL AND ABOVE
17% NON-WHITE US WORKERS	2.3% UNCONTROLLED MEDIAN US GENDER PAY GAP

Source: Company Data March 2022, *Updated for current employees count

SOCIAL

Medpace is enhancing long term shareholder return by its commitment to social responsibility. Globally the company provides medical, dental, and vision insurance in the countries where supplemental health insurance is commonplace. In the U.S, the company offers a range of financial welfare benefits, including life insurance, disability coverage, defined contribution retirement plans and other related options. Additionally, they provide tax-advantaged lifestyle benefits and have partnered with a non-profit organization to offer on-site daycare facilities. Globally, the company provides both on-site and off-site wellness checkups and health practitioner consultations. To support work-life balance the company offers country specific paid time off and leave policies. The company exhibits a steadfast commitment to fostering a culture of diversity and inclusion, as evidenced by its workforce composition (Figure 6). Notably, 67% of all associates worldwide are women, signifying a strong representation of female employees within the organization. In terms of racial diversity, the US workforce comprises 17% non-white individuals, with 12% of management positions held by non-white

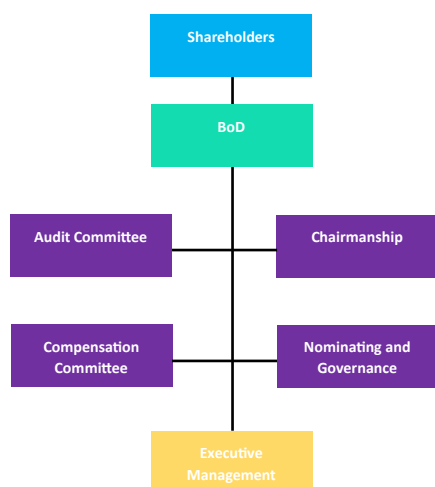
Figure 7: Medpace Safety Statistics

	2016	2017	2018	2019	2020	2021
Recordable Injury Case Rate	0.40	0.06	0.29	0.20	0.05	0.13
Serious Injury Case Rate	0.13	0.00	0.00	0.05	0.00	0.00

Source: Company data

employees. Moreover, at the global management level, 64% of positions are occupied by women, highlighting the company's dedication to gender equality. Additionally, women make up 52% of individuals at the director level and above, further exemplifying their presence in leadership roles within the company. These statistics reflect the company's ongoing efforts to promote diversity, inclusivity, and gender balance across all organizational levels. The company places significant emphasis on ensuring safety within its operations, employing various measures such as incident reporting, adherence to health and safety regulations, implementation of access control systems, deployment of on-site security personnel, and provision of training programs encompassing First Aid, CPR, and Fire Wardens. This commitment is evident in the consistently low incident rates observed over the period of analysis from 2016 to 2021. Notably, the recordable injury case rates ranged from 0.00 to 0.40, while serious injury case rates ranged from 0.00 to 0.13 (Figure 7). These statistics highlight the company's dedication to monitoring and implementing measures to further minimize risks for its associates.

Figure 8: Medpace Governance Structure



Source: Company data

GOVERNANCE

We believe Medpace has exemplary governance structure, facilitating future growth (Figure 8). We assign high value 90/100 in corporate governance based on various factors (Figure 9, Appendix A). The governance structure is in line with Nasdaq standards and allows the company to effectively conduct business globally. The company structures its executive management based on American norms with single tier BoD and executive management.

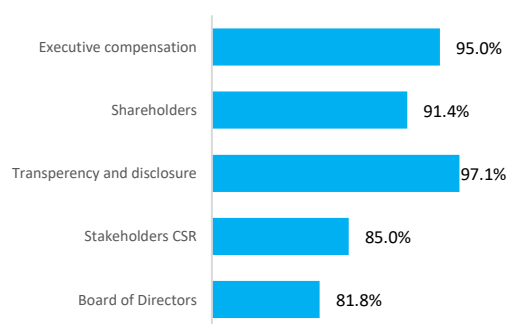
Board of directors: Medpace Board of directors has seven members possessing knowledge and experience from various fields strengthening Medpace's position for future challenges and opportunities. Company's CEO August Troendle also acts as chairman of board. Medpace has six independent board members out of seven, supporting unbiased value-creating decision making. 28% of the board members are women, a gender ratio which we think can be improved. (Appendix B).

Executive Management: The executive team comprises of five members, one of which is female, managing day-to-day operations. The executive team is highly experienced and has relevant background in their specialized fields, which contributes to Medpace in reaching its goals and vision (Appendix C).

Executive Compensation: Executive compensation is managed by internal policy which dictates fixed and variable compensation components. Most variable components are subject to EBITDA margins and revenue and bonuses are capped at 75% of the annual fixed base salary, preventing management misconduct. We believe these profit-linked compensation targets incentivize management to make strategic decisions supporting long term profitability and sustainability.

Shareholders: Medpace enjoys a diversified base of institutional shareholders. The company's free float accounts for 79.6% of outstanding shares. The largest shareholders are Medpace investors who own 20.4% of the Company. The next largest shareholders are Blackrock (10.43%), The Vanguard Group, Inc. (8.72%), Wasatch Advisors, Inc. (6.09%), etc.

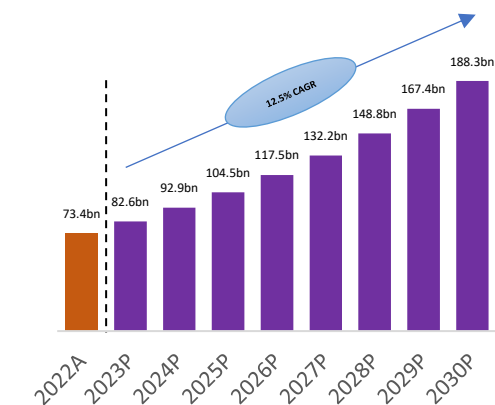
Figure 9: Medpace Governance Score Card



Source: Company data, team analysis

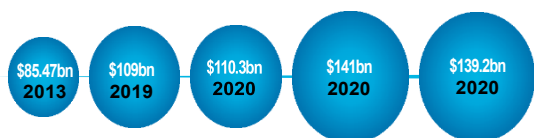
INDUSTRY OVERVIEW AND COMPETITIVE POSITIONING

Figure 10: CRO industry growth



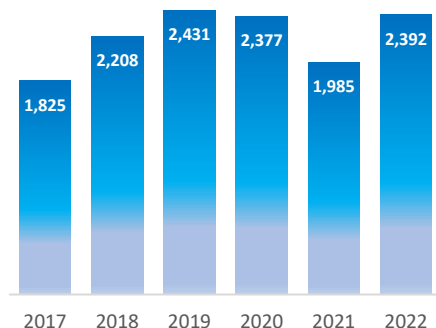
Source: Bloomberg

Figure 11: Total R&D spend, \$bn.



Source: Deloitte Analysis 2022

Figure 12: Average costs per asset (\$m)



Source: Deloitte Analysis 2022

The contract research organization (CRO) industry is at the forefront of a new revolution in the pharmaceutical industry. As the demand for new drugs and therapies grows, CROs are providing a wide range of services to help companies bring new products to market faster and more efficiently. The global CRO market was valued at USD 73.38bn in 2022 and is projected to grow from USD 82.60bn in 2023 to USD 188.3bn by 2030, exhibiting a CAGR of 12.5% during the forecast period¹ (Figure 10). The CRO industry is a key enabler of the pharmaceutical industry's innovation. By providing a wide range of services, CROs are helping companies bring new products to market faster and more efficiently.

DEMAND DRIVERS

We expect strong industry growth propelled by three key demand drivers: 1) Increasing spending, R&D activities, and Outsourcing. 2) Increasing costs of bringing new drugs to market, and 3) The increasing complexity of clinical trials. We believe Medpace is uniquely positioned to take advantage of these favorable macro trends.

Increasing R&D Outsourcing: The demand for CRO services increases drastically, as pharmaceuticals and biotechnology companies continue to invest in research and development to bring new drugs to market. Pharmaceutical companies spent, on average, over 20% of revenues on R&D in 2022, making it one of the biggest spenders in this area.² The big pharma companies put USD 139.2bn into R&D in 2022, accounting for more than 40% of global biopharma sector's total research bill last year³ (Figure 11). During COVID-19 many pharmaceutical and biopharmaceutical companies boosted their R&D and manufacturing processes to develop and distribute kits, vaccines, and drugs against the SARS-CoV-2 virus. To boost R&D many pharma and biotech companies have collaborated with CROs through long-term agreement, partnerships, and collaborations world-wide. For instance, in January 2021, ICON partnered with Pfizer and BioNTech to develop an experimental program for COVID-19 vaccines. We predict this trend to continue, removing significant roadblocks for the Contract research organizations.

Increasing costs of bringing new drugs to market: Rising costs and falling productivity, among other trends, are driving industry companies to outsource an increasing range of functions to CROs to achieve cost savings. Average cost to take a drug candidate from discovery state all the way to market launch hit USD 2.3bn in 2022⁴ (Figure 12). As a result, in 2022, average peak sales per asset were projected to be \$389 million per year, plunging from \$500 million in 2021 and closer to 2020's return rate of \$398 million (Figure 13). The decline in anticipated peak sales is driven by a longer development cycle and several unnamed high values forecasted assets that left the pipeline in 2022.⁵ Given that just 12% of new drug candidates in clinical trials are ultimately approved by the U.S. Food and Drug Administration (FDA), the risk is high. Outsourcing is essentially a risk reduction strategy. A 2017 study by the Tufts Center for the Study of Drug Development found

¹ <https://www.globenewswire.com/news-release/2023/06/19/2690303/0/en/Contract-Research-Organization-Services-Market-Size-to-Surpass-USD-188-52-Billion-by-2030-exhibiting-a-CAGR-of-12-5-.html>

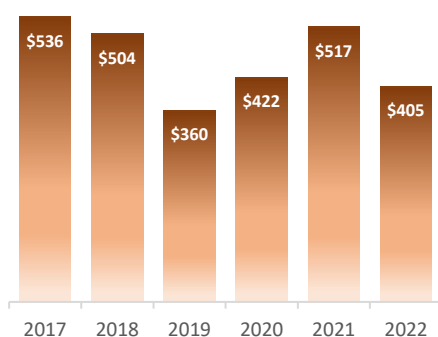
² <https://www.drugdiscoverytrends.com/top-pharma-rd-spenders-2022/>

³ <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/life-sciences-health-care/deloitte-uk-seize-digital-momentum-rd-roi-2022.pdf>

⁴ <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/life-sciences-health-care/deloitte-uk-seize-digital-momentum-rd-roi-2022.pdf>

⁵ <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/life-sciences-health-care/deloitte-uk-seize-digital-momentum-rd-roi-2022.pdf>

Figure 13: Average peak sales forecast (\$m)

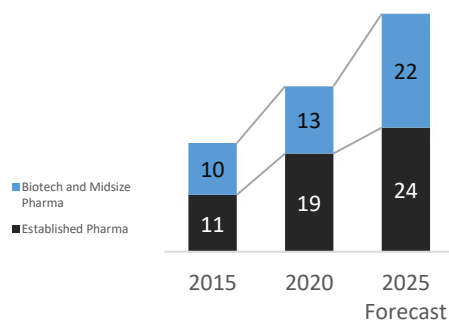


Source: Deloitte Analysis 2022

Figure 14: CRO specialties



Figure 15: Global CRO Market, by segment, \$bn



Source: McKinsey report

that CROs can help pharmaceutical companies reduce the cost of clinical trials by an average of 17%. The study also found that CROs can help pharmaceutical companies reduce the time it takes to complete clinical trials by an average of 12%. We believe that as the Pharmaceutical and Biopharmaceutical companies grow, they will shift to more outsourcing cost-effective solutions in future that will drive the growth of CRO market.

The increasing complexity of clinical trials: As drug development becomes more complex, pharmaceutical companies are increasingly turning to CROs to help them with the planning, execution, and management of their trials. New drugs are often more complex than older drugs, requiring more sophisticated clinical trials. For example, gene therapies and cell therapies are two of the most complex types of drugs being developed today, and they require specialized expertise and infrastructure to conduct clinical trials. CROs support the pharmaceutical, biotechnology and medical device industries through research services based on a contractual agreement between the sponsor and the CRO – and surveys show that CROs improve trial efficiency⁶ and increase productivity. Therefore, we believe the technological expertise and experience that CRO has over these companies will be a driving factor in the upcoming time for the CRO market.

SUPPLY DRIVERS

Expertise and Specialization: CROs offer specialized knowledge and skills in various aspects of research and development (R&D), including clinical trial management, regulatory affairs, data management, and statistical analysis. Their expertise attracts sponsors looking for specific capabilities and comprehensive support. We believe CROs that offer a full range of services as opposed to just functional services will have an advantage as they offer one-stop solutions for the companies (Figure 14).

Regulatory Compliance: CROs maintain a strong understanding of regulatory guidelines and requirements for clinical trials. They stay updated with evolving regulations and have experience working with regulatory authorities, ensuring compliance, and minimizing regulatory risks. CROs that prioritize compliance gain a competitive edge by mitigating risks, maintaining credibility, and meeting regulatory expectations.

To summarize our industry analysis, we expect the market balance to tighten in the next few years when the booming CRO demand will outpace supply. With few alternatives, Medpace is uniquely positioned to benefit through its full-service offerings, global reach, expertise, technology, and compliance.

COMPETITIVE POSITIONING

Medpace derives its competitive advantage from its comprehensive full-service Contract Research Organization (CRO) offering. Full-service CROs provide an extensive range of services, which results in greater risk reduction for sponsors compared to Functional Service Provider (FSP) CROs. Although full-service CROs tend to be more expensive, their ability to offer comprehensive services often leads to more cost reduction for sponsors. This contrasts with FSP CROs, which provide only functional services. Consequently, Medpace's provision of full-service capabilities positions the company uniquely to capture market share in the

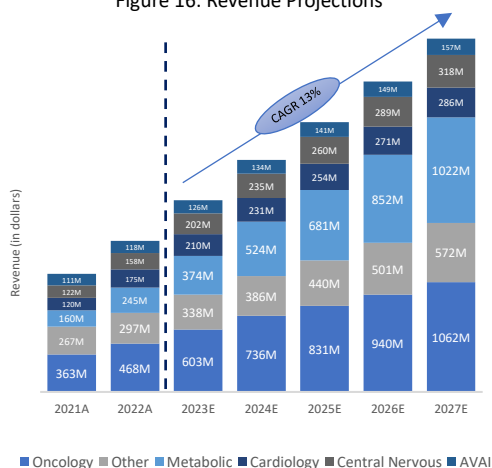
⁶ <https://www.statnews.com/2018/03/28/clinical-trials-startup-speed/>

coming years. Medpace primarily engages with small to medium size biopharmaceutical companies, which comprise approximately 90% of their client base. This market positioning provides Medpace with a competitive advantage, considering the faster growth rates observed in the small cap and midcap companies compared to larger pharmaceutical entities⁷ (Figure 15). Consequently, these smaller companies combined are expected to gain a substantial market share, surpassing that of the prominent established pharma players.

FINANCIAL ANALYSIS

Medpace - Key Financials	2020A	2021A	2022A	2023P	2024P	2025P	2026P	2027P
Revenue	925,925	1,142,377	1,459,996	1,853,205	2,244,302	2,607,399	3,001,537	3,416,206
EBIT	167,042	198,615	278,697	352,820	426,145	493,772	566,895	643,487
EBITDA	186,570	219,734	301,038	382,114	462,755	537,622	618,890	704,391
Net Income	145,384	181,848	245,368	294,263	354,390	409,844	469,805	532,610
Basic EPS	\$4.08	\$5.07	\$7.58	\$9.13	\$11.03	\$12.79	\$14.69	\$16.68
Dilutive EPS	\$3.86	\$4.82	\$7.29	\$8.78	\$10.60	\$12.29	\$14.12	\$16.03
Profitability Ratios								
Gross Margin	30.1%	28.7%	29.6%	29.6%	29.6%	29.6%	29.6%	29.6%
EBITDA Margin	20.1%	19.2%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%
EBIT Margin	18.0%	17.4%	19.1%	19.0%	19.0%	18.9%	18.9%	18.8%
NI Margin	15.7%	15.9%	16.8%	15.9%	15.8%	15.7%	15.7%	15.6%
ROE	19.0%	20.7%	36.6%	58.6%	46.3%	37.5%	31.7%	27.4%
ROIC	16.5%	17.7%	32.9%	49.3%	42.3%	35.9%	31.4%	27.9%
Leverage and Liquidity Ratios								
Total Debt/EBITDA (x)	0.70x	0.67x	0.69x	0.58x	0.57x	0.56x	0.56x	0.55x
D/E (%)	16.3%	15.5%	53.9%	35.8%	28.8%	23.8%	20.4%	17.8%
Current Ratio	1.08	1.24	0.44	0.54	0.68	0.83	0.98	1.12
Quick Ratio	1	1.10	0.37	0.47	0.61	0.76	0.91	1.05
Operational Figures								
Net Working Capital		133,695	(419,508)	(441,310)	(369,629)	(225,624)	(34,451)	212,602
Capex	(31,300)	(28,300)	(36,900)	(46,811)	(56,690)	(65,862)	(75,818)	(86,292)

Figure 16: Revenue Projections



STRONG REVENUE GROWTH DRIVEN BY MARKET TRENDS

Forecasting revenue over a 5-year period, we estimate a CAGR of 13% (Figure 16). Medpace's revenue is driven by its six segments – Oncology, Metabolic, Cardiology, Central Nervous, AVAI and others which we projected separately. We believe there is direct correlation between the Drug market and the CRO market. As the drug market expands, pharmaceutical companies need to conduct more clinical trials to test the safety and efficacy of their drugs. CROs play a crucial role in managing and conducting these trials. An increase in the drug market leads to an increased demand for CRO services in conducting and managing clinical trials. Due to rise in chronic cancer diseases, the global oncology market is expected to reach USD 628bn by the end of 2032, expanding at the CAGR of 12% over the decade.⁸ We grew the oncology segment revenue along with the lines of global oncology market. Similarly, the global Metabolic drugs market is expected to grow

⁷ <https://www.mckinsey.com/industries/life-sciences/our-insights/cros-and-biotech-companies-fine-tuning-the-partnership#/>

⁸ <https://www.globenewswire.com/en/news-release/2023/04/10/2643944/0/en/Oncology-Market-Size-to-Surpass-USD-628-Billion-by-2032-Europe-held-a-24-1-revenue-share-in-2022.html#:~:text=According%20to%20Market.us%2C%20A,for%20innovative%20and%20effective%20treatments.>

Figure 17: Projected Margins

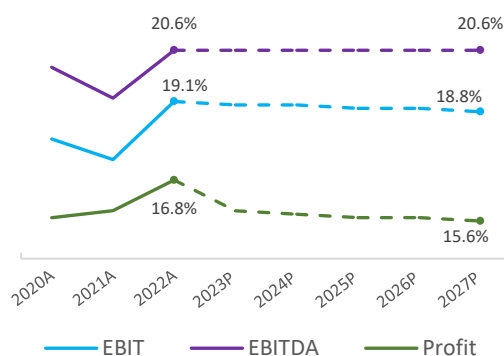


Figure 18: Margin comparison with peers

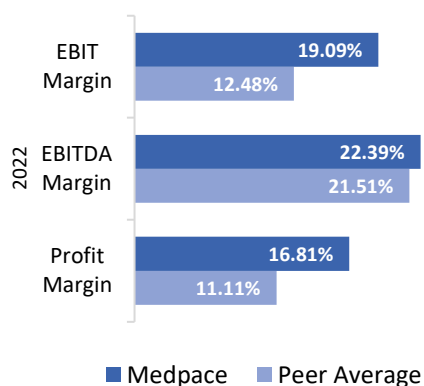
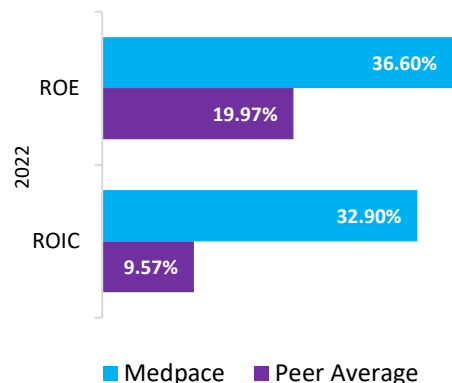


Figure 19: Superior profitability to peers



annually at CAGR of 22.6%.⁹ We expect the Metabolic segment revenue of Medpace to grow at the similar rate. The global cardiovascular devices market is significantly driven by the growing prevalence of chronic cardiovascular diseases across the globe. According to Precedence Research, the global cardiovascular devices market is expected to reach over US\$ 92.51 billion by 2030 with a registered CAGR of 6.4% during the forecast period 2021 to 2030.¹⁰ We used this data as the basis to grow the Cardiology segment revenue. An increase in the number of patients suffering CNS disorders such as neurodegenerative diseases, autoimmune and inflammatory diseases, genetic disorders, and others, is likely to be the factor to lead Central Nervous System Therapeutics Market. As a result, CNS therapeutic market is expected to grow at 9.05% CAGR. We used this data to grow the CNS segment revenue. The Anti-Viral and Anti-Infective market is expected to grow at 4.58% CAGR globally through 2028. We used this growth rate to grow the AVAI segment of the revenue. Lastly, the other segment historically grew at 12.6% CAGR. We thought this would be a good proxy but took a conservative approach to grow the other segment at 11.1% CAGR.

ROBUST FINANCIAL PERFORMANCE OUTSHINES PEERS

Medpace has been able to maintain a decent gross margin of 29.6% just a few points below peers' average. The company's EBIT margin of 19.09% was the highest among the peers' group for the year 2022 with average EBIT margin being 12.48%. We expect Medpace to maintain its EBIT margins moving forward (Figure 17). EBITDA margin of 22.39% for the company was second highest behind Charles River laboratories 25.47% and above the peer average of 21.51% for year 2022. We believe Medpace will be able to maintain its EBITDA margins. The company's Net Income for the year 2022 was 245.37M. The profit margin was 16.81%, highest among the peers' group and 5 points above the Peer average of 11.11% (Figure 18). Medpace has been consistently beating its peers in terms of profit margin in the last 5 years. This primarily stems from Medpace being a full service CRO that gives it a higher margin as compared to functional CROs.

EXCEPTIONAL FINANCIAL PERFORMANCE DRIVE INVESTOR RETURNS

In 2019 Medpace outshone its peers with a return on invested capital of 32.9% vs 9.57% and return on equity of 36.6% vs 19.97% as average of its peers (Figure 19). We expect the ROIC and ROE to increase in the next year to 49.3% and 53.6%, outshining their peers in the coming years. This will return to favorable shareholder returns with Medpace delivering a CAGR of 13% in dilutive EPS between 2023 and 2027, reaching dilutive EPS of \$16.03 (Figure 20). Moving forward, we believe Medpace to stay ahead of the peer group in terms of Return on equity and invested capital. Moving forward, we believe Medpace to return these earnings to shareholders in the form of Share buyback plan.

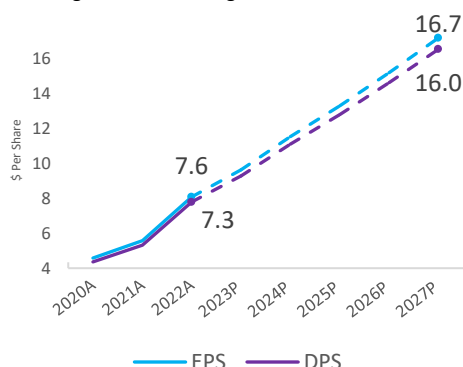
STEADY CAPEX INVESTMENTS TO SUPPORT REVENUE GROWTH

We expect the capital expenditure to grow with the growth in revenue. As a result, the capex as percentage of revenue is expected to remain constant at 2.53%. The Capex for the year 2023 will be 46 million and will rise all the way to 86 million in 2027. This Capex will be involved in the infrastructure growth in the company facilities, equipment, and technology.

⁹ <https://www.thebusinessresearchcompany.com/report/metabolic-disorders-drugs-global-market-report>

¹⁰ <https://www.precedenceresearch.com/cardiovascular-devices-market>

Figure 20: Increasing returns to investors



HEALTHY LEVERAGE AND LIQUIDITY LEAVES ROOM FOR AQISITIONS

With its healthy balance sheet, we believe Medpace is well-equipped to pursue future acquisitions. In 2022, its book D/E is 53.87% well below its peer average of 82.94%, indicating unleveraged capital structure that can easily support growth by acquisitions. We expect Medpace to take on additional debt in the coming years to fund the potential bolt on additions that the company is planning. While the peer average Debt/EBITDA multiple equaled 2.78x in 2022, Medpace could repay its debt in half a year, further indicating flexibility in terms of capital raising, with debt/EBITDA ratio of 0.55. While Medpace has the current ratio of 0.44 in 2022, we expect this to stabilize over the period and grow to 1.12 by 2027.

VALUATION

Figure 21: WACC inputs

Input	Rate	Source
Risk Free Rate	3.79%	WSJ: 10 Year US Treasury Yield
Beta	1.08	Relevered and Risk Adjusted
Equity Risk Premium	5.50%	Market risk premium from D&P May 1, 2019
Cost of Equity	9.71%	CAPM
Cost of Debt	1.42%	Annual Interest paid/Total debt
Tax Rate	18.00%	Effective Tax Rate
D/E Ratio	3.06%	Medpace data
WACC	9.46%	

Figure 22: Sensitivity analysis

	Equity value per share				
	2.0%	2.5%	3.0%	3.5%	4.0%
11.5%	164.82	172.22	180.50	189.82	200.39
10.5%	186.10	195.72	206.63	219.10	233.51
9.5%	213.12	226.00	240.88	258.26	278.82
8.5%	248.56	266.51	287.74	313.26	344.50
7.5%	297.04	323.41	355.68	396.11	448.22

	Equity value per share				
	Exit EBITDA Multiple				
	12.0x	13.0x	14.0x	15.0x	16.0x
11.5%	195.88	208.58	221.29	234.00	246.70
10.5%	203.50	216.74	229.97	243.21	256.44
9.5%	211.50	225.29	239.08	252.88	266.67
8.5%	219.90	234.28	248.66	263.03	277.41
7.5%	228.72	243.72	258.71	273.71	288.70

DCF VALUATION

Our DCF valuation employs the Free Cash Flow to the firm (FCFF) methodology to arrive at the intrinsic value of the company (Appendix F1). This model benefits Medpace's innovative company profile, allowing us to account for the high future growth prospects that the company faces regardless of its capital structure. We analyze Medpace's historical figures separately and value them as a consolidated company from 2023 onwards, with an explicit forecast period from 2023-2027.

WACC

We estimate a WACC of 9.46% (Figure 21). We arrived at pretax cost of debt by annual interest paid by total debt. Including the Tax rate of 18% we estimated the post tax cost of debt to be 1.16%. We assumed the current 10-year treasury yield as the risk-free rate. The cost of equity is calculated with the CAPM formula, reflecting the SP500 equity premium, the risk-free rate, and a re-levered beta from Industry peers, of 1.077 (Appendix E).

TERMINAL VALUE

We expect the terminal growth for the company to be at 3.0% based on the projected real GDP growth. The total enterprise value is estimated to be \$8.3bn. In the valuation the terminal value is 78.7% of the total enterprise value while the cash flows make up to 21.3% of total enterprise value. Implied terminal value exit EBITDA multiple through this analysis comes out to be 14.1x.

SENSITIVITY ANALYSIS

We analyze our DCF model's robustness to changes in the key inputs, namely WACC and terminal growth to determine their effect on our buy recommendation (Figure 22). We find that a discount rate higher than 9.5% could affect our recommendation and a decrease in terminal growth could also reduce the share value. However, we do not expect a high discount rate and less than 3.0% growth rate.

INVESTMENT RISKS

Figure 24: Summary of key risks and mitigation measures in place

Risks	Mitigation
Business Operational Risks	
B1. Contract and Financial Risks	Conduct thorough contract negotiations and credit risk assessment. Implement effective change order management processes.
B2. Operational Risks	Implement robust financial planning and forecasting practices. Focus on cost management and operational efficiency.
B3. Customer Concentration	Diversify customer base and therapeutic area expertise. Stay informed about market dynamics and regulatory developments.
B4. Clinical Trial Enrollment	Develop strong investigator networks. Implement effective patient recruitment strategies.
Regulations Risks	
R1. Industry and Regulatory Risks	Monitor industry trends and adapt service offerings. Stay informed about regulatory changes. Foster innovation and technological adaptation.
R2. Legal, Regulatory, Insurance, and Tax Risks	Establish robust compliance frameworks. Adhere to ethical guidelines. Maintain appropriate insurance coverage.
Organizational Risks	
Structural and Organizational Risks	Implement effective governance frameworks and conflict of interest policies. Foster transparency and accountability.

BUSINESS DISRUPTION

B1. Contract and Financial Risks:

The potential loss, delay, or non-renewal of contracts, as well as non-payment by customers for services rendered, could have adverse effects on Medpace's financial results. The company also bears financial risks associated with underpricing fixed-fee contracts or experiencing cost overruns. Additionally, failure to receive approval for change orders or delays in documenting them can impact financial outcomes.

B2. Operational Risks:

Medpace operates in a dynamic environment where operating results have historically fluctuated between fiscal quarters and years. Fluctuations in these results may affect the market price of Medpace's stock. Furthermore, Medpace's operating margins could decrease due to increased pricing pressure or other factors if the company fails to achieve efficiency in operating expenses or grow revenues at a rate faster than expenses.

B3. Customer Concentration:

Medpace faces the risk of customer concentration, as a limited number of customers may significantly impact its business, financial condition, results of operations, or cash flows. Dependence on specific customers or therapeutic areas increases vulnerability to changes in customer behavior, market dynamics, or regulatory developments.

B4. Clinical Trial Enrollment:

The ability to recruit suitable investigators and enroll patients for customers' clinical trials is crucial for Medpace's clinical development business. Any challenges in this area may negatively impact on the company's operations and financial performance.

REGULATIONS RISK

R1. Industry and Regulatory Risks:

Medpace faces risks in the biopharmaceutical industry due to outsourcing trends, changes in expenditures and R&D budgets, regulatory reforms, patent litigation, technological changes, and external factors that may reduce demand for CRO services.

R2. Legal, Regulatory, Insurance, and Tax Risks:

Medpace operates in a highly regulated environment, and failure to comply with contractual requirements, government regulations, ethical considerations, or healthcare laws could result in significant costs or liabilities. The company's operations involve the use and disposal of hazardous substances and waste, creating potential liabilities. Compliance with laws and regulations regarding data protection and healthcare laws is essential to mitigate risks. Fluctuations in the effective income tax rate may also adversely affect Medpace's operations.

ORGANIZATIONAL RISKS

Medpace's Chief Executive Officer and founder control a substantial amount of its outstanding common stock, potentially leading to diverging interests or conflicts with other shareholders. The company's involvement in transactions with related persons may increase the risk of allegations of conflicts of interest, potentially impairing Medpace's ability to realize expected benefits.

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Appendix A - Corporate Governance Scorecard

Board of Directors 4.1/5.0

Aligned board that reduces potential agency problems	5.0/5.0
Board members independent and owners of shares	4.0/5.0
Decisive board that makes decisions efficiently	4.0/5.0
Gender balance	3.0/5.0
Board ensures the company implements sound corporate governance	5.0/5.0
Audit committee with non-executive members	5.0/5.0
Compensation committee mainly composed by non-executive members	4.0/5.0
Nomination committee to decide executives and directors	4.0/5.0
Separation of chairman and CEO role	3.0/5.0
Board ensures there are adequate systems to identify and manage significant risks	5.0/5.0
Informed board that can give good monitoring and advice	3.0/5.0

Stakeholders CSR 4.3/5.0

Good performance in terms of ESG	5.0/5.0
CSR issues included in business model and decision-making processes	4.0/5.0
Committed to UN sustainable development goals	3.0/5.0
Stated interest and scope of increasing social welfare	5.0/5.0

Transparency and disclosure 4.9/5.0

Reports on corporate governance and code of conduct	5.0/5.0
Clear business objectives, strategy, risks, and value creation to society	5.0/5.0
Annual report includes explanatory statements about business model and financial strategy	5.0/5.0
Annual and quarterly reports delivered consistently and on time	5.0/5.0
Adequate disclosure of annual accounts	5.0/5.0
Increased transparency on issues of high stakeholder interest	4.0/5.0
Transparency - Financial statements	5.0/5.0

Shareholders 4.6/5.0

Classes of stock with the same voting rights	5.0/5.0
Ceiling on ownership/voting rights and compliance	4.0/5.0
No priority rights to any shareholder	5.0/5.0
Transparent and clear dividend policy	4.0/5.0
Annual General Meeting held yearly with a clear agenda	5.0/5.0
Shareholder value maximization within capital management	4.0/5.0
No apparent violations of minority shareholders' rights	5.0/5.0

Executive compensation 4.8/5.0

Compensation creates long-term incentives for management	5.0/5.0
Compensation composed by several parts: base pay, bonus, and equity	5.0/5.0
Capped executive bonuses	5.0/5.0
Floor on compensation: not excessive and unnecessary risk taking	4.0/5.0

Appendix B – Overview of Board Members

Name	Position	Member Since	Number of Shares	Independent	Resident	Education	Tenure (Yrs.)
August J. Troendle	Chairman	07/1992	806,643	No	Cincinnati, OH	University of Maryland, MD	31
Brian T. Carley	Audit Committee, Chair Nominating and Governance Committee	07/01/2016	7,607	Yes	Blue Ash, OH	University of Illinois, CPA	7
Fred B. Davenport Jr.	Lead Director Compensation Committee, Chair Audit Committee Nominating and Governance Committee	10/2018	2,000	Yes	Wilmington, NC	University of North Carolina - Bachelor's degree, MBA	4.8
Femida H. Gwadry-Sridhar	Nominating and Governance Committee	01/16/2023	-	Yes	Philadelphia, US	Western University, University of Toronto	0.5
Ashley M. Keating	Nominating and Governance Committee	05/17/2019	-	Yes	Cincinnati, OH	Ohio University, CPA	4.2
Robert O. Kraft	Audit and Compensation Committees Nominating and Governance Committee	07/01/2016	188	Yes	Cincinnati, OH	University of Dayton, Bachelors in Accounting, CPA	7
Cornelius P. "Neal" McCarthy III	Compensation Committee Nominating and Governance Committee	08/13/2018	164	Yes	-	Villanova university School of Law, University of Virginia	4.9

Appendix C - Executive management.

Name	Position	Appointed	Resident	Education	Tenure
August J. Troendle	Chief Executive Officer	1992	Cincinnati, OH	University of Maryland, MD	31.5
Jesse J. Geiger	President	8/1/2021	Cincinnati, OH	University of Cincinnati, CPA	1.9
Susan E. Burwig	Executive Vice President, Operations	Jan-17	Cincinnati, OH	Kent State University, Bachelor's degree, Master's degree	6.5
Stephen P. Ewald	General Counsel and Corporate Secretary	Jun-12	Cincinnati, OH	University of Cincinnati, Bachelor's degree, JD	11.1
Kevin M. Brady	Chief Financial Officer and Treasurer	8/1/2021	Cincinnati, OH	University of Cincinnati, Bachelor's degree, CPA	1.9

Appendix E1 – Revenue Projections

Therapeutic Area	2018A	2019A	2020A	2021A	2022A	2023P	2024P	2025P	2026P	2027P
Oncology	\$189,056.0 27%	\$256,766.0 30%	\$297,675.0 32%	\$362,846.0 32%	\$467,796.0 32%	\$603,101.9 33%	\$735,784.3 33%	\$831,436.2 32%	\$939,522.9 31%	\$1,061,660.9 31%
Other	\$163,983.0 23%	\$222,514.0 26%	\$215,370.0 23%	\$267,415.0 23%	\$296,914.0 20%	\$338,482.0 18%	\$385,869.4 17%	\$439,891.2 17%	\$501,475.9 17%	\$571,682.5 17%
Metabolic	\$124,837.0 18%	\$138,650.0 16%	\$126,075.0 14%	\$159,900.0 14%	\$244,682.0 17%	\$374,363.5 20%	\$524,108.8 23%	\$681,341.5 26%	\$851,676.9 28%	\$1,022,012.2 30%
Cardiology	\$95,213.0 14%	\$91,258.0 11%	\$95,153.0 10%	\$119,692.0 10%	\$174,634.0 12%	\$209,560.8 11%	\$230,516.9 10%	\$253,568.6 10%	\$271,318.4 9%	\$286,240.9 8%
Central Nervous	\$54,229.0 8%	\$65,391.0 8%	\$88,393.0 10%	\$121,548.0 11%	\$157,939.0 11%	\$202,161.9 11%	\$234,507.8 10%	\$260,303.7 10%	\$288,937.1 10%	\$317,830.8 9%
AVAI	\$77,271.0 11%	\$86,390.0 10%	\$103,259.0 11%	\$110,976.0 10%	\$118,031.0 8%	\$125,534.5 7%	\$133,515.0 6%	\$140,858.3 5%	\$148,605.6 5%	\$156,778.9 5%
Total revenue	\$704,589.0	\$860,969.0	\$925,925.0	\$1,142,377.0	\$1,459,996.0	\$1,853,204.5	\$2,244,302.3	\$2,607,399.5	\$3,001,536.7	\$3,416,206.2

Growth Rates	2018A	2019A	2020A	2021A	2022A	2023P	2024P	2025P	2026P	2027P
Oncology		35.8%	15.9%	21.9%	28.9%	28.9%	22.0%	13.0%	13.0%	13.0%
Other		35.7%	-3.2%	24.2%	11.0%	14.0%	14.0%	14.0%	14.0%	14.0%
Metabolic		11.1%	-9.1%	26.8%	53.0%	53.0%	40.0%	30.0%	25.0%	20.0%
Cardiology		-4.2%	4.3%	25.8%	45.9%	20.0%	10.0%	10.0%	7.0%	5.5%
Central Nervous		20.6%	35.2%	37.5%	29.9%	28.0%	16.0%	11.0%	11.0%	10.0%
AVAI		11.8%	19.5%	7.5%	6.4%	6.4%	6.4%	5.5%	5.5%	5.5%
Total Growth rate		22.2%	7.5%	23.4%	27.8%	26.9%	21.1%	16.2%	15.1%	13.8%

Appendix E2 – Income Statement Projections

INCOME STATEMENT									
Fiscal year	2020A	2021A	2022A	2023P	2024P	2025P	2026P	2027P	
Fiscal year end date	12/31/20	12/31/21	12/31/22	12/31/23	12/31/24	12/31/25	12/31/26	12/31/27	
Revenue	925,925	1,142,377	1,459,996	1,853,205	2,244,302	2,607,399	3,001,537	3,416,206	
Cost of sales (enter as -)	(647,199)	(814,222)	(1,027,558)	(1,304,302)	(1,579,560)	(1,835,111)	(2,112,508)	(2,404,356)	
Gross Profit	278,726	328,155	432,438	548,903	664,743	772,289	889,029	1,011,850	
Depreciation & amortization	(19,528)	(21,119)	(22,341)	(29,294)	(36,610)	(43,850)	(51,995)	(60,904)	
Selling, general & administrative (enter as -)	(92,156)	(108,421)	(131,400)	(166,789)	(201,988)	(234,667)	(270,139)	(307,459)	
Operating profit (EBIT)	167,042	198,615	278,697	352,820	426,145	493,772	566,895	643,487	
Interest income	411	18	30	30	30	30	30	30	
Interest expense (enter as -)	(104)	(123)	(2,935)	(1,060)	(1,060)	(1,060)	(1,060)	(1,060)	
Other Income/expense, net (enter as -)	1,183	3,342	7,068	7,068	7,068	7,068	7,068	7,068	
Pretax profit	168,532	201,852	282,860	358,858	432,183	499,810	572,933	649,525	
Taxes (enter expense as -)	(23,148)	(20,004)	(37,492)	(64,594)	(77,793)	(89,966)	(103,128)	(116,914)	
Net income	145,384	181,848	245,368	294,263	354,390	409,844	469,805	532,610	
Depreciation & amortization	19,528	21,119	22,341	29,294	36,610	43,850	51,995	60,904	
EBITDA	186,570	219,734	301,038	382,114	462,755	537,622	618,890	704,391	
Stock based compensation	13,784	14,469	21,412	27,179	32,914	38,240	44,020	50,101	
Adjusted EBITDA	200,354	234,203	322,450	409,293	495,669	575,862	662,910	754,492	
<u>Growth rates & margins</u>									
Revenue growth	-	23.4%	27.8%	26.93%	21.10%	16.18%	15.12%	13.82%	
Gross profit margin	30.1%	28.7%	29.6%	29.62%	29.62%	29.62%	29.62%	29.62%	
EBITDA Margin	20.1%	19.2%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	
EBIT Margin	18.0%	17.4%	19.1%	19.0%	19.0%	18.9%	18.9%	18.8%	
SG&A % of sales	10.0%	9.5%	9.0%	9.00%	9.00%	9.00%	9.00%	9.00%	
Tax rate	13.7%	9.9%	13.3%	18.00%	18.00%	18.00%	18.00%	18.00%	

Appendix E3 – Balance Sheet Projections

BALANCE SHEET								
<i>Fiscal year</i>		2021A	2022A	2023P	2024P	2025P	2026P	2027P
<i>Fiscal year end date</i>		<i>12/31/21</i>	<i>12/31/22</i>	<i>12/31/23</i>	<i>12/31/24</i>	<i>12/31/25</i>	<i>12/31/26</i>	<i>12/31/27</i>
Cash & equivalents, ST and LT marketable securities		461,304	28,265	121,128	307,142	557,819	864,799	1,233,838
Accounts receivable		186,432	253,404	321,651	389,532	452,553	520,961	592,933
Inventories and Other current assets		43,176	52,293	66,377	80,385	93,390	107,507	122,359
Property, plant & equipment		93,153	109,849	131,607	156,823	184,801	215,492	248,698
Other non current assets		875,870	908,684	1,153,412	1,396,827	1,622,814	1,868,120	2,126,206
Total assets		1,659,935	1,352,495	1,794,175	2,330,708	2,911,377	3,576,880	4,324,034
Accounts payable		25,678	33,069	36,045	39,289	42,825	46,680	50,881
Accrued expenses		159,286	210,125	266,716	323,004	375,261	431,986	491,666
Other current liabilities		27,612	47,547	60,352	73,089	84,914	97,750	111,254
Deferred revenue (current and non current)		344,641	462,729	587,352	711,306	826,385	951,303	1,082,727
Commercial paper / revolver		0	50,000	20,000	20,000	20,000	20,000	20,000
Long term debt (includes current portion)		0	0	0	0	0	0	0
Other non current liabilities		149,790	162,638	206,440	250,007	290,454	334,360	380,552
Total liabilities		707,007	966,108	1,176,906	1,416,695	1,639,840	1,882,078	2,137,081
Common stock		722,790	758,606	785,785	818,699	856,939	900,959	951,060
Retained earnings		234,984	(359,827)	(156,124)	107,706	426,990	806,235	1,248,285
Other comprehensive income/loss		(4,846)	(12,392)	(12,392)	(12,392)	(12,392)	(12,392)	(12,392)
Total equity		952,928	386,387	617,269	914,014	1,271,537	1,694,802	2,186,953
<i>Balance check</i>		<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

Appendix E4 – Cash Flow Statement Projections

CASH FLOW STATEMENT								
<i>Fiscal year</i>				2023P	2024P	2025P	2026P	2027P
<i>Fiscal year end date</i>				<i>12/31/23</i>	<i>12/31/24</i>	<i>12/31/25</i>	<i>12/31/26</i>	<i>12/31/27</i>
Net income				294,263	354,390	409,844	469,805	532,610
Depreciation and amortization				29,294	36,610	43,850	51,995	60,904
Stock based compensation				27,179	32,914	38,240	44,020	50,101
Decreases / (Increases) in working capital assets				(82,331)	(81,889)	(76,026)	(82,525)	(86,824)
Increases / (Decreases) in working capital liabilities				196,996	196,222	182,698	198,332	208,810
Other non current assets				(248,969)	(248,550)	(231,954)	(252,175)	(265,903)
Other non current liabilities				43,802	43,567	40,448	43,905	46,193
Cash from operating activities				260,234	333,264	407,100	473,357	545,891
Capital expenditures				(46,811)	(56,690)	(65,862)	(75,818)	(86,292)
Cash from investing activities				(46,811)	(56,690)	(65,862)	(75,818)	(86,292)
Long term debt				0	0	0	0	0
Revolver				(30,000)	0	0	0	0
Share repurchases				(90,560)	(90,560)	(90,560)	(90,560)	(90,560)
Common dividends				0	0	0	0	0
Cash from financing activities				(120,560)	(90,560)	(90,560)	(90,560)	(90,560)
Net change in cash during period				92,863	186,014	250,678	306,979	369,039

Appendix E5 – Property, Plant & Equipment Schedule

PROPERTY, PLANT & EQUIPMENT								
Fiscal year	2020A	2021A	2022A	2023P	2024P	2025P	2026P	2027P
Fiscal year end date	12/31/20	12/31/21	12/31/22	12/31/23	12/31/24	12/31/25	12/31/26	12/31/27
				Forecast				
Beginning of period				109,849	131,607	156,823	184,801	215,492
Plus: Capital expenditures	31,340	28,271	36,879	46,811	56,690	65,862	75,818	86,292
Less: Depreciation	(11,700)	(16,000)	(19,000)	(25,053)	(31,474)	(37,884)	(45,127)	(53,087)
End of period		93,153	109,849	131,607	156,823	184,801	215,492	248,698
D&A related to PP&E as a % of capex	37.3%	56.6%	51.5%	53.5%	55.5%	57.5%	59.5%	61.5%

Appendix E6 – Depreciation and Amortization Schedule

IMPUTING TOTAL DEPRECIATION & AMORTIZATION								
D&A not related to PP&E	7,828	5,119	3,341	4,241	5,136	5,967	6,869	7,818
as % of revenue	0.8%	0.4%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Depreciation & Amortization - Total	19,528	21,119	22,341	29,294	36,610	43,850	51,995	60,904

Appendix E7 – Other Non-Current Assets Schedule

OTHER NON-CURRENT ASSETS								
Beginning of period				908,684	1,153,412	1,396,827	1,622,814	1,868,120
Less: D&A not related to PP&E				(4,241)	(5,136)	(5,967)	(6,869)	(7,818)
Plus: Additions				248,969	248,550	231,954	252,175	265,903
End of period			908,684	1,153,412	1,396,827	1,622,814	1,868,120	2,126,206

Appendix E8 – Retained Earnings Schedule

RETAINED EARNINGS								
Beginning of period		115,229	234,984	(359,827)	(156,124)	107,706	426,990	806,235
Plus: Net income	145,384	181,848	245,368	294,263	354,390	409,844	469,805	532,610
Less: Dividends		0	0	0	0	0	0	0
Less: Repurchases	(98,264)	(62,093)	(840,179)	(90,560)	(90,560)	(90,560)	(90,560)	(90,560)
End of period	115,229	234,984	(359,827)	(156,124)	107,706	426,990	806,235	1,248,285

Appendix E9 – Commercial Paper/Revolver Schedule

REVOLVER (MODEL PLUG)								
Cost of sales (enter as -)	2020P	2021P	2022P	2023P	2024P	2025P	2026P	2027P
Gross Profit	12/31/20	12/31/21	12/31/22	12/31/23	12/31/24	12/31/25	12/31/26	12/31/27
Revolver needs analysis								
Cash at beginning of period (BOP)				28,265	121,128	307,142	557,819	864,799
Less: Minimum cash balance				(50,000)	(50,000)	(50,000)	(50,000)	(50,000)
Plus: Current period cash flows except revolver				122,863	186,014	250,678	306,979	369,039
Equals: Cash available (needed) to pay down (draw from) revolver				101,128	257,142	507,819	814,799	1,183,838
Commercial paper / Revolver								
Beginning of period				50,000	20,000	20,000	20,000	20,000
Draw / (paydown)				(50,000)	(20,000)	(20,000)	(20,000)	(20,000)
Additional discretionary draw / (paydown)				20,000	20,000	20,000	20,000	20,000
End of period	0	0	50,000	20,000	20,000	20,000	20,000	20,000
Debt balance:				OK	OK	OK	OK	OK

Appendix E10 – Interest Expense Schedule

INTEREST EXPENSE								
<i>Cost of sales (enter as -)</i>	2020P	2021P	2022P	2023P	2024P	2025P	2026P	2027P
Gross Profit	12/31/20	12/31/21	12/31/22	12/31/23	12/31/24	12/31/25	12/31/26	12/31/27
Total interest expense	104	123	2,935	1,060	1,060	1,060	1,060	1,060
Commercial Paper / Revolver								
Weighted average interest rate	5.30%	5.30%	5.30%	5.30%	5.30%	5.30%	5.30%	5.30%
End of period balance (from B/S)			50,000	20,000	20,000	20,000	20,000	20,000
Interest expense				1,060	1,060	1,060	1,060	1,060

Appendix E11 – Total Debt Schedule

TOTAL DEBT								
<i>Fiscal year</i>	2020A	2021A	2022A	2023P	2024P	2025P	2026P	2027P
<i>Fiscal year end date</i>	12/31/20	12/31/21	12/31/22	12/31/23	12/31/24	12/31/25	12/31/26	12/31/27
Short Term Debt	0	0	50,000	20,000	20,000	20,000	20,000	20,000
Long Term Debt	0	0	0	0	0	0	0	0
Short Term Lease Liabilities	15,890	16,280	19,270	24,460	29,622	34,414	39,616	45,089
Long Term Lease Liabilities	115,140	130,970	138,870	176,271	213,471	248,007	285,496	324,938
Total Debt	131,030	147,250	208,140	220,731	263,092	302,421	345,113	390,028

Appendix E12 – Earning Per Share Projections

EARNINGS PER SHARE								
<i>Fiscal year</i>	2020A	2021A	2022A	2023P	2024P	2025P	2026P	2027P
<i>Fiscal year end date</i>	12/31/20	12/31/21	12/31/22	12/31/23	12/31/24	12/31/25	12/31/26	12/31/27
Net income	145,384	181,848	245,368	294,263	354,390	409,844	469,805	532,610
Basic shares	35,635	35,862	32,388	32,245	32,137	32,053	31,987	31,936
Basic EPS	\$4.08	\$5.07	\$7.58	\$9.13	\$11.03	\$12.79	\$14.69	\$16.68
Diluted Shares	37,708	37,697	33,671	33,528	33,420	33,336	33,270	33,219
Diluted EPS	\$3.86	\$4.82	\$7.29	\$8.78	\$10.60	\$12.29	\$14.12	\$16.03
\$ amount of shares repurchased				90,560	90,560	90,560	90,560	90,560
\$ amount of new shares issued				27,179	32,914	38,240	44,020	50,101
Average share price				\$221.82	\$267.14	\$308.95	\$354.15	\$401.49
Share price increase					20%	16%	15%	13%
Basic Shares - BOP	Reference from latest share count >			32,388	32,245	32,137	32,053	31,987
Net change in basic shares				(286)	(216)	(169)	(131)	(101)
Basic shares - EOP				32,102	32,029	31,968	31,921	31,886
Basic shares - average				32,245	32,137	32,053	31,987	31,936
Net income	145,384	181,848	245,368	294,263	354,390	409,844	469,805	532,610
yoy % growth in net income		25.1%	34.9%	19.9%	20.4%	15.6%	14.6%	13.4%

Appendix E13 – Net Income Sensitivity and Revenue Scenario Analysis

SENSITIVITY ANALYSIS							
First forecast year net income sensitivity							
	Revenue growth rate						
	\$294,263	17.6%	19.6%	21.6%	23.6%	25.6%	
	25.6%	216,689	220,290	223,809	227,277	230,744	
	Gross 27.6%	244,847	248,927	253,007	257,087	261,167	
	Profit 29.6%	273,005	277,564	282,123	286,682	291,240	
	Margin: 31.6%	301,163	306,201	311,239	316,276	321,314	
	33.6%	329,321	334,838	340,354	345,871	351,387	
	35.6%	357,480	363,475	369,470	375,466	381,461	
SCENARIO ANALYSIS							
Active case:	Base Case	Variance from	2023P	2024P	2025P	2026P	2027P
		base case	12/31/23	12/31/24	12/31/25	12/31/26	12/31/27
Revenue growth			26.9%	21.1%	16.2%	15.1%	13.8%
Gross profit margin			29.6%	29.6%	29.6%	29.6%	29.6%
SG&A % of sales			9.0%	9.0%	9.0%	9.0%	9.0%
Revenue growth							
Best case		0.5%	27.4%	21.6%	16.7%	15.6%	14.3%
Base case		NM	26.9%	21.1%	16.2%	15.1%	13.8%
Weak case		(0.5%)	26.4%	20.6%	15.7%	14.6%	13.3%
Gross profit margin							
Best case		1.0%	30.6%	30.6%	30.6%	30.6%	30.6%
Base case		NM	29.6%	29.6%	29.6%	29.6%	29.6%
Weak case		(1.0%)	28.6%	28.6%	28.6%	28.6%	28.6%
SG&A % of sales							
Best case		(1.0%)	8.0%	8.0%	8.0%	8.0%	8.0%
Base case		NM	9.0%	9.0%	9.0%	9.0%	9.0%
Weak case		1.0%	10.0%	10.0%	10.0%	10.0%	10.0%

Appendix F1 – Discounted Cash Flow Valuation

Discounted Cash Flow Valuation							
\$ in thousands except per share							
Most recent fiscal year end		12/31/2022		Discount rate (WACC)		9.46%	Link from WACC
End of first fiscal year		12/31/2023		Share price (Public Co)		\$221.82	Source: CIQ
Most recent quarter end date		3/31/2023		Share price date		6/21/2023	
Valuation date		6/21/2023		Midyear adjustment?		0	
Portion of First Year Cash Flows		52.8%					
				Case active:		Base Case	
Unlevered Free Cash Flows							
	LTM	Actual	Forecasts				
Fiscal year ended	6/21/2023	12/31/22	12/31/23	12/31/24	12/31/25	12/31/26	12/31/27
Revenue	1,645,678	1,459,996	1,853,205	2,244,302	2,607,399	3,001,537	3,416,206
% growth		(11.3%)	26.9%	21.1%	16.2%	15.1%	13.8%
EBITDA	339,324	301,038	382,114	462,755	537,622	618,890	704,391
% margin		20.6%	20.6%	20.6%	20.6%	20.6%	20.6%
EBIT	313,699	278,697	352,820	426,145	493,772	566,895	643,487
% margin		19.1%	19.0%	19.0%	18.9%	18.9%	18.8%
Tax on EBIT		36,940	63,508	76,706	88,879	102,041	115,828
Tax rate		13.3%	18.0%	18.0%	18.0%	18.0%	18.0%
NOPAT (aka EBIAT)		241,757	289,312	349,439	404,893	464,854	527,659
Depreciation & amortization		22,341	29,294	36,610	43,850	51,995	60,904
Changes in net working capital			114,665	114,333	106,672	115,807	121,986
Capital expenditures			(46,811)	(56,690)	(65,862)	(75,818)	(86,292)
as % of revenue			2.5%	2.5%	2.5%	2.5%	2.5%
Unlevered free cash flows (UFCF)			386,460	443,692	489,553	556,838	624,257
Net working capital (WC Assets - WC liabilities)		(447,773)	(562,438)	(676,771)	(783,443)	(899,250)	(1,021,236)
as % of revenue			(30.3%)	(30.2%)	(30.0%)	(30.0%)	(29.9%)
Present value of UFCF on Jun 21, 2023 valuation date							
		Val date	Yr 1 - Stub	Year 2	Year 3	Year 4	Year 5
Date for discounting cash flows		6/21/2023	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027
Unlevered free cash flows (UFCF) stub adjusted	52.8%		368,422	386,327	389,417	404,654	414,438
Present value of of unlevered free cash flows			194,445	386,327	389,417	404,654	414,438

Terminal value - growth in perpetuity approach			Terminal value - EBITDA multiple approach		
Long term growth rate	3.0%		Terminal year EBITDA		704,391
2027 FCF x (1+g)	642,985		EBITDA multiple		14.0x
Terminal value in 2027	9,951,780		Terminal value in 2027		9,861,473
Present value of terminal value	6,606,880		Present value of terminal value		6,546,926
Present value of stage 1 cash flows	1,789,280		Present value of stage 1 cash flows		1,789,280
Total enterprise value (TEV)	8,396,161		Enterprise value (stage 1 + 2)		8,336,207
<i>Terminal value as % of TEV</i>	<i>78.7%</i>		<i>Terminal value as % of TEV</i>		<i>78.5%</i>
<i>Stage 1 cash flows as % of TEV</i>	<i>21.3%</i>		<i>Cash flows as % of TEV</i>		<i>21.5%</i>
<i>Implied TV exit EBITDA multiple</i>	<i>14.1x</i>		<i>Implied terminal growth rate</i>		<i>5.0%</i>
Net debt			Shares outstanding		
Source doc	Q1 2023 10Q				
Source date	3/31/2023				
<u>Gross debt and equivalents</u>				<u>Source doc</u>	<u>Date</u>
Debt	276,928		Basic shares	Q1 2023 10Q	1/17/2020
Convertible debt	0		Restricted stock / RSUs	Q1 2023 10Q	12/28/2019
Preferred stock	0		Options / warrants		
Noncontrolling (minority) interests	0		Convertible debt		
<u>Nonoperating assets</u>			Convertible preferred stock		
Cash	46,922		Net diluted shares outstanding		33,906.455
Equity investments	0				
Net debt	230,006				
Valuation					
	<u>Perpetuity</u>	<u>EBITDA</u>			
Enterprise value	8,396,161	8,336,207			
Net debt	230,006	230,006			
Equity value	8,166,155	8,106,201			
Shares outstanding	33,906	33,906			
Equity value per share	\$240.84	\$239.08			
	<u>Year 1</u>				
	<u>Perpetuity</u>	<u>EBITDA</u>			
EV / Revenue	4.5x	4.5x			
EV / EBITDA	22.0	21.8			
EV / EBIT	23.8	23.6			
	<u>Last twelve months (LTM)</u>				
	<u>Perpetuity</u>	<u>EBITDA</u>			
EV / Revenue	5.1x	5.1x			
EV / EBITDA	24.7	24.6			
EV / EBIT	26.8	26.6			

Appendix F2 – WACC Computation

WACC Buildup							
\$ and shares in millions, except per share data							
Cost of capital assumptions							
			Source				
Cost of debt	1.42%		Calculate using the Annual Interest Paid/Total Debt, debt which is 208 including				
Tax rate	18.00%		From terminal year of UFCF forecast				
Cost of debt (after tax)	1.16%		Cost of debt x (1 - tax rate)				
Risk free rate	3.79%		WSJ: 10 Year US Treasury Yield				
Beta	1.077		Bloomberg 2 year weekly adjusted beta				
Market risk premium	5.50%		Market risk premium from D&P May 1, 2019				
Cost of equity	9.7%		RfR + Beta x MRP				
Capital weights (capital structure)							
		Current	Target (override)	% of total			
Equity	7,521,129.8		80%	97.0%			
Debt	230,006.0		20%	3.0%			
Cost of capital (WACC)							
			9.46%				
WACC sensitivity to MRP and Beta							
		Beta					
	9.5%	0.977	1.077	1.177			
	4.50%	8.0%	8.4%	8.9%			
Market	5.00%	8.5%	8.9%	9.4%			
Risk	5.50%	8.9%	9.5%	10.0%			
Premium	6.00%	9.4%	10.0%	10.6%			
	6.50%	9.9%	10.5%	11.1%			
Select Beta for model	Industry						
Observed	1.490	Bloomberg 2 year weekly adjusted beta					
Industry beta	1.077	From schedule below					
						1000	
Industry beta							
	Observed β	Share price	Dil. shares	Market cap	Net Debt	Tax rate	Delev. β
Laboratory Corp. of America Holdings (NYSE:LH)	0.890	236.18	89	20,926	5,945	17.9%	0.722
IQVIA Holdings Inc. (NYSE:IQV)	1.270	213.82	189	40,326	11,990	19.8%	1.025
Syneos Health, Inc. (NasdaqGS:SYNH)	1.530	41.85	103	4,324	2,772	20.3%	1.013
Charles River Laboratories International, Inc. (NYSE:CRL)	1.270	206.30	51	10,558	2,967	22.1%	1.042
Medpace Holdings	1.490	221.82	34	7,521	230	18.0%	1.454
Industry average delevered beta	1.051						
Medpace Holdings beta	1.077						

Appendix F3 – Sensitivity Analysis

Equity value per share							LTM EBITDA multiple						
Long term growth rate (g):							Long term growth rate (g):						
		2.0%	2.5%	3.0%	3.5%	4.0%			2.0%	2.5%	3.0%	3.5%	4.0%
WACC:	11.5%	164.82	172.22	180.50	189.82	200.39	WACC:	11.5%	15.2x	15.9x	16.6x	17.4x	18.4x
	10.5%	186.10	195.72	206.63	219.10	233.51		10.5%	17.1x	18.0x	18.9x	20.0x	21.3x
	9.5%	213.12	226.00	240.88	258.26	278.82		9.5%	19.5x	20.7x	22.0x	23.5x	25.3x
	8.5%	248.56	266.51	287.74	313.26	344.50		8.5%	22.7x	24.3x	26.1x	28.4x	31.2x
	7.5%	297.04	323.41	355.68	396.11	448.22		7.5%	27.0x	29.3x	32.2x	35.8x	40.4x
Equity value per share							LTM EBITDA multiple						
Exit EBITDA Multiple							Exit EBITDA Multiple						
		12.0x	13.0x	14.0x	15.0x	16.0x			12.0x	13.0x	14.0x	15.0x	16.0x
WACC:	11.5%	195.88	208.58	221.29	234.00	246.70	WACC:	11.5%	18.0x	19.1x	20.2x	21.4x	22.5x
	10.5%	203.50	216.74	229.97	243.21	256.44		10.5%	18.7x	19.8x	21.0x	22.2x	23.4x
	9.5%	211.50	225.29	239.08	252.88	266.67		9.5%	19.4x	20.6x	21.8x	23.0x	24.3x
	8.5%	219.90	234.28	248.66	263.03	277.41		8.5%	20.1x	21.4x	22.7x	23.9x	25.2x
	7.5%	228.72	243.72	258.71	273.71	288.70		7.5%	20.9x	22.2x	23.6x	24.9x	26.2x