



Medtronic PLC MDT (NYSE)

Stock Price (as of 7/1/22)	Target Price	Downside	Recommendation
\$91.38	\$91.33	-0.05%	Sell

Summary

Medtronic is a global healthcare company that specializes in medical technology and the manufacturing of medical equipment. Medtronic is currently the second largest medical device company in the world with \$31.686 billion in revenue for Fiscal Year 2022.

Investment Thesis

I recommend a SELL rating on MDT given the -0.05% downside when comparing its current stock price of \$91.38 to a target price of \$91.33. Medtronic recently missed their earnings projections and they seem primed to do so again in the near future. Furthermore, the company is currently over represented in the Student Investment Management (SIM) fund portfolio and was the bottom performer as of May 31, 2022.

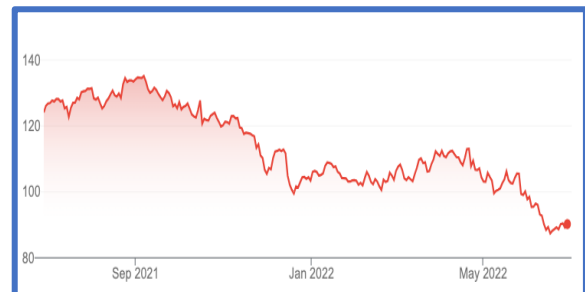
Risks

This SELL recommendation carries an inherent risk of missed profit in the coming months given that Medtronic estimates an approximate 5% revenue growth increase in the next one year. However, I believe that these estimates are overly optimistic and that the company will likely struggle to meet these expectations. Additionally, with the recent SIM performance and the continued threat that COVID and supply chain issues pose to the company, I believe that the recommendation to SELL is the most risk-adverse option at this time.

Market Data	
Company	Medtronic
Ticker	MDT
Sector	Healthcare
Industry	Medical Equipment
Market Cap	\$120.3 B
Shares Out.	1.351 B
Avg Vol	5,925,770
Beta (5Y)	0.75

Financial Data	
Revenue (2022)	\$31.686 B
Rev. Growth (YoY)	5.21%
Earnings (2022)	\$5.062 B
EPS	\$3.75

Performance History	
52 Week High	\$135.89
52 Week Low	\$86.95
Dividend Yield	3.01%



Medtronic 52-week Price Range

Analyst/Fund Information	
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Manager	Royce West
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Company Overview

General Overview

Medtronic was founded in 1949 in Minneapolis by electrical engineer Earl Bakken and his brother-in-law Palmer Hermundslie as a medical equipment repair shop. In 1975 Bakken partnered with University of Minnesota Medical School cardiac surgeon C. Walton Lillehei to produce the first battery-powered external pacemaker. Initially known as Medtronic Inc., the company was renamed Medtronic PLC in 2015 when it acquired Covidien PLC and relocated to Ireland as part of a corporate tax inversion restructuring plan. Today Medtronic operates in over 150 countries and the company continues to be an industry leader in the development of core healthcare technologies, implantable medical devices, surgical instruments, and drug and biologic delivery devices.

In Fiscal Year 2022 (FY22), Medtronic generated \$31.686 billion in revenue which was an increase in 5.21% from the year prior. With a market cap of \$102.3 billion, Medtronic is the largest medical device company in the world by revenue and the second largest medical device company globally by market cap. The company delivers their innovative products through four operating portfolios: Cardiovascular, Medical Surgical, Neuroscience, and Diabetes.

Business Segments

Medtronic operates in more than 150 countries, but in Q4 FY22 over 50% (\$4.1 billion) of its total revenue was derived in the United States alone (Figure 1). The remaining total revenue came from non-U.S. developed markets (\$2.6 billion) and emerging markets (\$1.38 billion). However, the company reports that regional revenue growth increased by 4% in non-U.S. developed regions and by 7% in emerging markets in the 4th quarter of FY22, while the growth in the United States actually showed a slight decline (Figure 2).

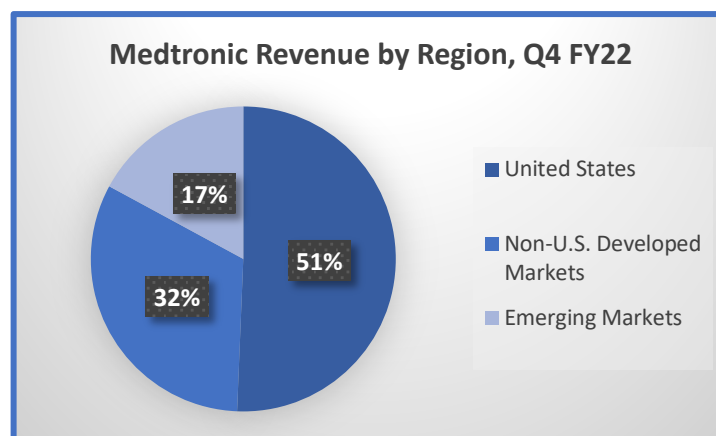


Figure 1

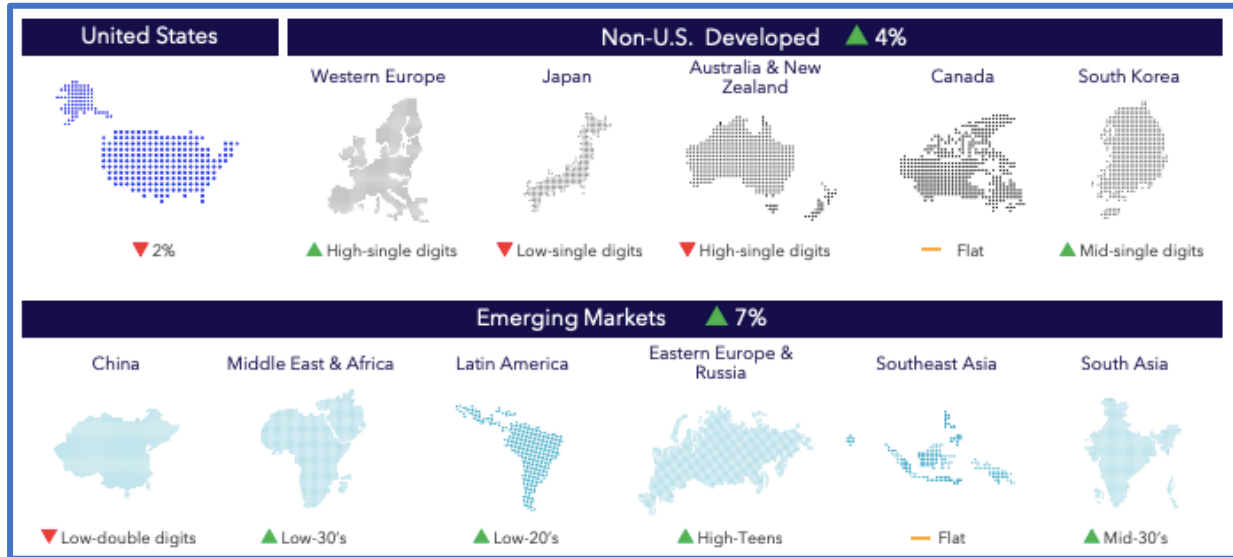


Figure 2

Medtronic is organized into four portfolios:

1. Cardiovascular
2. Medical Surgical
3. Neuroscience
4. Diabetes

In FY22, the Cardiovascular Portfolio boasted a revenue of \$11.423 billion (a 6% increase from FY21) with the largest earnings coming from the Cardiac Rhythm & Heart Failure division. Medtronic’s Medical Surgical Portfolio grew 5% for a total FY22 revenue of \$9.141 billion. Although the Neuroscience Portfolio comprised a smaller total revenue (\$8.784 billion) of total company earnings in FY22, it reported the largest annual increase at 7%. Finally, the Diabetes Portfolio FY22 revenue of \$2.338 billion was down 3% from the previous year, mostly due to the decline in US revenue owing to the absence of new product approvals. Figure 3 shows Medtronic FY22 revenue percentage by portfolio.

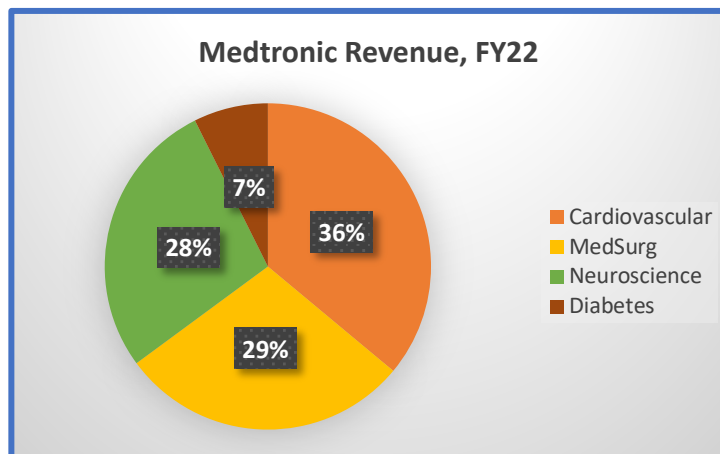


Figure 3



■ Cardiovascular Portfolio:

In FY22, the Cardiovascular Portfolio boasted a revenue of \$11.423 billion (a 6% increase from FY21) with the largest earnings coming from the Cardiac Rhythm & Heart Failure division (Figure 4). Below are the divisions and notable products of Medtronic’s Cardiovascular Portfolio.

- Cardiac Rhythm & Heart Failure Division-
 - Cardiac Rhythm Management
 - Defibrillation Solutions
 - Cardiac Pacing Therapies- Micra™ transcatheter pacing systems
 - Procedure Innovations- TYRX™ absorbable antibacterial envelopes
 - Cardiovascular Diagnostics- LINQ II™ insertable cardiac monitors
 - Cardiac Ablation Solutions- Arctic Front Advance™ cryoballoon catheters
- Structural Heart & Aortic Division
 - Structural Heart- transcatheter aortic valves (TAVR)
 - Aortic
 - Cardiac Surgery
- Coronary & Peripheral Vascular Division
 - Coronary & Renal Denervation (CRDN)
 - Peripheral Vascular Health- VenaSeal™ closure system and Abre™ deep venous stent

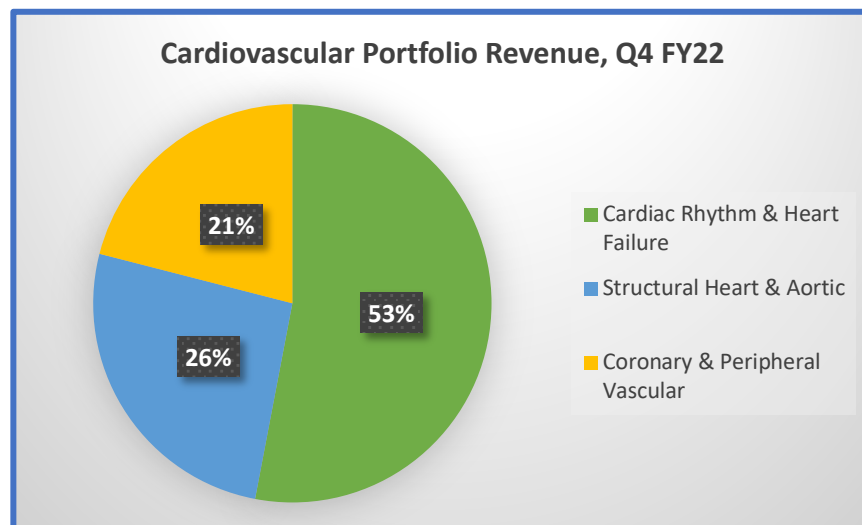


Figure 4



■ Medical Surgical Portfolio:

Medical Surgical FY22 revenue of \$9.141 billion increased 5% from the previous year despite decreased revenue seen in the Respiratory, Gastrointestinal & Renal (RGR) Division. The RGR division reported a 13% decrease in FY22 Q3 revenue and a 5% decrease in Q4 revenue, both of which were attributed to the decreased amount of ventilator sales back down to pre-pandemic levels compared to the high COVID-19 related demand seen in the previous year. Excluding the impact of decreased ventilator sales, Medical Surgical FY22 revenue actually increased 9%.

Below are the divisions and notable products of Medtronic's Medical Surgical Portfolio.

- Surgical Innovations Division
 - Advanced Surgical Instruments
 - Advanced Stapling
- Respiratory, Gastrointestinal & Renal Division
 - Respiratory Interventions
 - Patient Monitoring- Nellcor™ pulse oximetry products
 - Gastrointestinal
 - Renal Care Solutions

■ Neuroscience Portfolio:

The Neuroscience Portfolio earned \$8.784 billion in revenue for FY22, and it reported the largest annual increase (7%) compared to other Medtronic portfolios. Below are the divisions and notable products of Medtronic's Neuroscience Portfolio.

- Cranial & Spinal Technologies Division
- Specialty Therapies Division
 - Neurovascular- hemorrhagic stroke products
 - Pelvic Health
 - ENT- StealthStation™ ENT navigation systems
- Neuromodulation Divisions
 - Brain Modulation- Percept™ PC deep brain stimulation (DBS) system and SenSight™ directional DBS lead system
 - Pain Therapies- Vanta™ and Intellis™ with DTM™ SCS neurostimulators

■ Diabetes Portfolio:

The Diabetes Portfolio FY22 Q4 revenue of \$597 million showed an 8% decline from the previous quarter, but the Diabetes FY22 total revenue of \$2.338 billion was down only 3% from previous. The decline in US revenue (owing to the absence of new product approvals) was partially offset by growth in international sales from durable insulin pumps and continuous glucose monitoring products.



Sustained Competitive Advantages

■ Medtronic has demonstrated a sustained competitive advantage in the market and is known for its innovation and differentiated line of medical products.

■ Innovation:

Since the company’s involvement in developing the world’s first wearable pacemaker in 1957, Medtronic has continued to produce innovative technologies in the field of cardiac rhythm management. Their Cardiovascular Portfolio currently offers cutting edge products in the following areas: implantable cardiac defibrillators, leadless pacemaker systems, pulsed field ablation, transcatheter aortic valves, and drug-eluting stents. Other Medtronic divisions have also created innovative products including the world’s first hybrid closed loop system for Type 1 Diabetes (the MiniMed™ 670G; introduced in 2017) and the 2019 GI Genius™ which uses emerging artificial intelligence and existing pill-cam technology to highlight the presence of precancerous gastrointestinal lesions during endoscopic procedures.

■ Differentiated Product:

According to the Medtronic FY21 Annual Report, the company was granted more than 230 regulatory approvals in the United States, Europe and Asia. Medtronic has filed for almost 22,000 patents since 2015 and currently holds 85,999 patents globally. Current notable products include their Micra™ transcatheter pacing systems, TYRX™ absorbable antibacterial envelopes, LINQ II™ insertable cardiac monitors, Nellcor™ pulse oximetry products, and the Percept™ PC deep brain stimulation (DBS) system.

Market Landscape

■ Medtronic is the largest medical device company in the world by revenue. With a FY21 revenue of \$30.12 billion, it outpaced its next closest competitor Johnson & Johnson by over \$8 billion (Figure 5). When comparing medical device companies by market cap, Medtronic ranks in the number two spot with a market cap of \$102.1 billion (Figure 6).

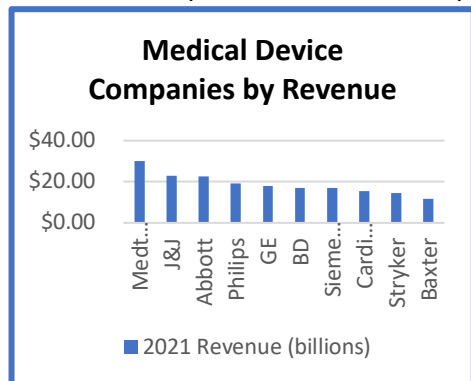


Figure 5

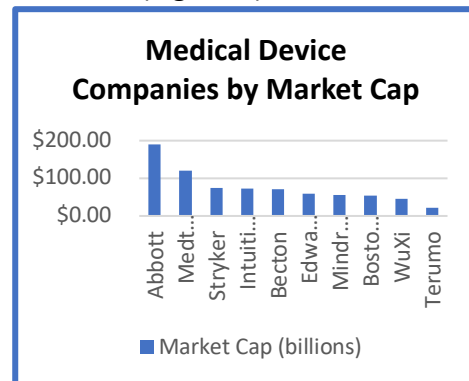


Figure 6





The healthcare sector typically performs well against the S&P 500 index, and has shown a 239.03% 10-year return compared to the S&P 500 10-year return of 177.90% (Figure 7).

	YTD	3 Month	1 Year	3 Year	5 Year	10 Year
Health Care Sector	-9.10%	-7.21%	1.68%	39.33%	62.79%	239.03%
S&P 500	-20.58%	-18.27%	-11.80%	28.68%	56.44%	177.90%

Figure 7 (as of June 30, 2022)

The health care sector’s performance has been affected by the recent dips in the market and has shown losses over the past six months. As such, most industries in the health care sector are currently down but the Health Care Equipment & Supplies industry shows the largest decrease (26.06%) year-to-date while the Pharmaceutical industry is the only one to show continued gains (Figure 8).

Industry ▲	Last % Change 05:30 PM ET 06/30/2022	% CHANGE 06/30/2022			
		YTD	1 - Year	3 - Year	5 - Year
Health Care	-0.33%	-9.10%	+1.68%	+39.33%	+62.79%
Biotechnology	-0.59%	-0.58%	+0.82%	+34.39%	+25.43%
Health Care Equipment & Supplies	-1.06%	-26.06%	-20.56%	+11.93%	+57.11%
Health Care Providers & Services	-0.85%	-1.09%	+17.75%	+78.86%	+104.36%
Health Care Technology	--	--	--	--	--
Life Sciences Tools & Services	+0.63%	-25.62%	-12.96%	+41.59%	+131.11%
Pharmaceuticals	+0.21%	+3.11%	+17.72%	+41.27%	+56.41%
S&P 500 ® Index	-0.88%	-20.58%	-11.80%	+28.68%	+56.44%

Figure 8. Health Care Sector Performance by Industry (as of June 30, 2022)

Despite these recent losses, the health care sector is still currently outperforming the S&P 500 index in thus far in 2022 (Figure 9).

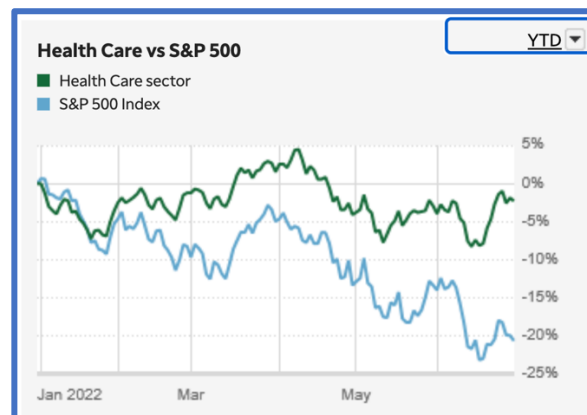


Figure 9. Health Care vs. S&P 500 (YTD, as of June 30, 2022)



Growth Drivers

■ The COVID-19 pandemic and its subsequent resurgences have had an interesting effect on Medtronic's revenue. The crisis of the early pandemic created a surge in the Respiratory, Gastrointestinal & Renal division of Medtronic's Medical Surgical Portfolio as the demand for ventilators rose, but the initial COVID outbreak had a negative impact on the sale of most other Medtronic surgical devices as elective medical procedures were globally postponed as part of the effort to flatten the spread of COVID. Later, the world saw the resurgence of milder COVID strains which had a two-pronged negative effect on Medtronic because the new COVID strains were worrisome enough to further halt elective surgical procedures but were ultimately too mild to necessitate the drive for early-pandemic ventilator demands.

Per Medtronic's FY22 Q4 and year-end report, global supply chain issues and COVID-19 lockdowns in China continue to acutely impact the company's financial results. Despite reassurances of continued strategic planning offered in the year-end report by Medtronic chairman and chief executive officer Geoff Martha, the future outcome remains questionable in the face of factors that are outside of the company's control.

Recent Stock News

■ On May 26, 2022, Medtronic held its FY22 Q4 and year-end earnings call during which it reported missing its fiscal Q4 profit and sales expectations. They also reported \$1.52 EPS for the quarter which missed the consensus EPS forecast (\$1.56) by 2.56%.

In this same earnings call, Medtronic announced an 8% increase in dividends (annual dividend amount of \$2.72 per ordinary share compared to previous of \$2.52). This marks the 45th consecutive year that Medtronic has increased its dividend payment.

On May 26, 2022, Medtronic released their plan to form a new medical device company that focuses on kidney care. This will be in conjunction with renal dialysis company DaVita Inc.

On May 13, 2022, Medtronic announced that it has completed its acquisition of Intersect ENT. This transaction will help Medtronic's ENT portfolio through the addition of Intersect's bioabsorbable steroid-eluting sinus implant product line.

Additional exciting announcements in 2022 included: reports that Medtronic's renal denervation system demonstrates better blood pressure control and shows significantly more time in target ranges than previously expected (May 17 press release); news that Medtronic received FDA approval for its Onyx Frontier™ drug-eluting stent (May 13 press release); and, a statement declaring that the first patient implant had successfully occurred for Medtronic's investigational implantable tibial neuromodulation therapy as part of the TITAN 2 study for in people with overactive bladder (March 24 press release).

Medtronic



Investment Thesis

Fundamental Drivers

■ The demand for health care is increasing and will continue to do so for the foreseeable future. This is partly due to an aging population with proliferating health care requirements but is also a result of the rising prevalence of medical co-morbidities like obesity, cardiovascular disease, diabetes, and renal insufficiency. Cardiovascular disease (CVD) alone accounted for 874,613 deaths in the United States in 2019 and was responsible for more deaths than all forms of cancer and chronic lower respiratory disease combined. Between 2015 and 2018, 126.9 million American adults had some form of CVD. Just in 2017 and 2018 the direct and indirect costs of CVD in the United States were \$378.0 billion.

It is estimated that over 900,000 cardiac procedures are done annually in the US. Additionally, the rapid advances in technology create an ongoing need for new innovation in medical and surgical devices. The use of robotic surgery exhibited an 8.4-fold increase between 2012 and 2018 and the global surgical robot market is expected to expand at a compound annual growth rate (CAGR) of 19.3% between 2022 and 2030. With a large portion of Medtronic's portfolios focusing on cardiac therapies, vascular devices, and surgical innovations, the company is primed to capitalize on the future healthcare market.

Economic Drivers

■ As mentioned above, the aging and increasingly unhealthy population demographics predicted in coming years will serve to drive healthcare demands. This need will remain even in the face of inflation and economic recession. However, since a large portion of Medtronic's product line is used in elective surgeries, future COVID lockdowns and their subsequent effects could negatively impact the company's revenue. Additionally, global supply chain issues have and will likely continue to affect the bottom line for companies like Medtronic.

Financials

■ Medtronic is financially an unstable company. Despite showing previous steady revenue growth, Medtronic demonstrated a 5.38% decrease in revenue between 2019 and 2020. However, 2021 and 2022 exhibited year-over-year revenue increase of 4.16% and 5.21%, respectively. This trend isn't predicted to keep up with a FY23 consensus revenue estimate of \$32.264 billion, which would only be 1.8% in growth compared to FY22 revenue of \$31.686 billion.

Medtronic frequently discusses its commitment toward improving medical technology, yet their Research and Development (R&D) expenses each year have stayed below the \$3 billion mark,

Medtronic



and R&D expense has consistently only accounted for 7-9% of total expenses as a percent of sales. Conversely, Medtronic devotes over \$10 billion annually to Selling, General and Administrative (SG&A) expenses and this SG&A expense to revenue ratio of 32-34% seems like an unnecessarily high overhead cost for a company that has struggled with meeting sales expectations.

The recent market downswing appears to be impacting Medtronic more than its competitors (Figures 10 and 11). Medtronic’s 52-week price performance has decreased by 27.4% compared to industry peer Abbott’s decline of only 6.92%. Medtronic has an impressive total revenue compared to its peers and its low P/E ratio could indicate that the stock is currently underpriced; however, Medtronic exhibits low trailing twelve months (TTM) earnings growth and revenue growth, and their profit margin is one of the smallest in the industry.

	Medtronic	Abbott	Stryker	Intuitive
Ticker	MDT	ABT	SYK	ISRG
Market Cap	\$120.1 B	\$191 B	\$75.4 B	\$72.7 B
Last Trade (June 30, 2022)	\$89.75	\$108.65	\$198.93	\$200.71
52 Week Price Range	\$87 – \$135.89	\$101 - \$142.60	\$193 - \$281.16	\$187 - \$369.69
52 Week Price Performance	-27.4%	-6.92%	-23.43%	-33.99%
P/E (TTM, GAAP)	24.20x	25.19x	37.85x	45.15x
Total Revenue (TTM)	\$31.7 B	\$44.5 B	\$17.4 B	\$5.9 B
Profit Margin	15.97%	17.35%	11.56%	28.15%
Earnings Growth (5 year, GAAP)	5.19%	40.70%	3.69%	17.42%
Revenue Growth (TTM)	5.21%	19.22%	18.44%	29.77%

Figure 10 (as of June 30, 2022)

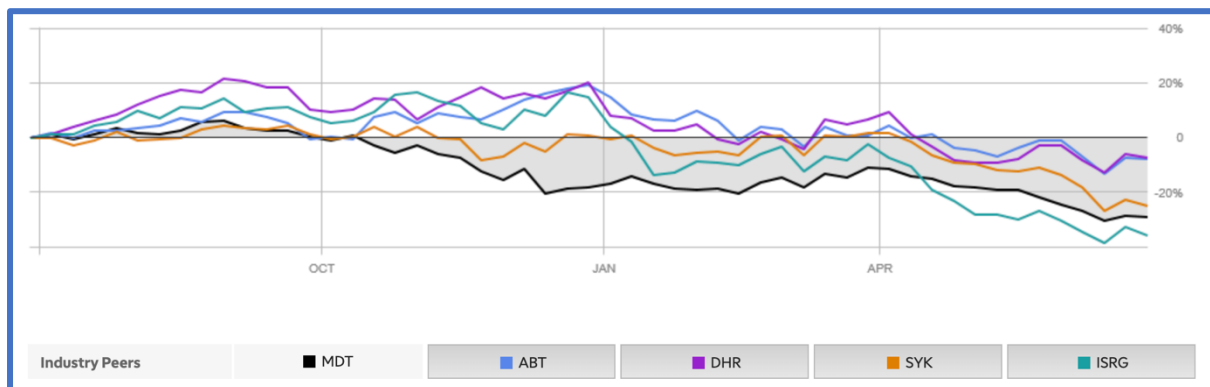


Figure 11. Health Care Equipment & Supply Industry 52-week Performance



Income Statement Analysis and Projections:¹

Medtronic has shown erratic year-over-year changes in sales revenue, most notably the 5.38% decrease from 2019 to 2020. This was likely due to the COVID pandemic which is unfortunately something that continues to impact the company today. Despite annual revenue increases in the 4-5% range from 2020 to 2022, the FY23 consensus sales revenue estimate of \$32.264 billion would indicate a predicted revenue increase of only 1.8% (Figure 12). At its last earnings call in May, Medtronic issued its FY23 revenue growth guidance saying they expect organic revenue growth of 4-5%. However, they disclosed that FY23 revenue could be negatively affected by approximately \$1 billion if recent foreign currency exchange rates hold.

	2017	2018	2019	2020	2021	2022	2023E	2024E	2025E
Sales (in billions)	\$29.71	\$29.95	\$30.56	\$28.91	\$30.12	\$31.69	\$32.26	\$33.92	\$35.77
Change		0.81%	2.04%	-5.4%	4.19%	5.21%	1.8%	5.15%	5.45%

Figure 12. Medtronic Year-over-Year Sales Revenue (estimates as per consensus)

In my Income Statement prediction, I used a year-over-year sales increase of 4.5% from 2022 to 2023 which translated to an estimated FY23 revenue of \$33.11 billion (Figure 13). This estimate is on track with the annual changes in revenue seen in recent years, but I do have concerns that it is too optimistic given the current market and economic drivers. My initial estimate of continued annual growth in the 4-6% range over the next three years (Figure 13) yields a revenue that is around \$1 billion above the consensus estimates (Figure 12) which further demonstrates that experts predict that this type of sustained growth is unlikely.

	2017	2018	2019	2020	2021	2022	2023E	2024E	2025E
Sales (in billions)	\$29.71	\$29.95	\$30.56	\$28.91	\$30.12	\$31.69	\$33.11	\$34.97	\$36.71
Change		0.81%	2.04%	-5.4%	4.19%	5.21%	4.5%	5.6%	5%

Figure 13. Medtronic Year-over-Year Sales Revenue (estimates as per me)

Also of concern in the Income Statement is Medtronic’s FY23 EPS guidance of \$5.53 to \$5.65. In light of the FY22 EPS value of \$3.75, I think their predicted FY23 EPS is likely unattainable. In my calculations (see full Income Statement in Appendix 1), I was only able to arrive at an upper EPS estimate of \$4.38 even when using a slightly inflated year-over-year gross margin to sales ratio, electing not to factor in potential tax rate increases, and keeping all other expenses relatively stable.

¹ Full Income Statement found in Appendix 1



Valuation and Price Target

As I described above, there are concerns about Medtronic’s performance going forward. I used the Discounted Cash Flow (DCF) Model and the relative valuation model to calculate a target stock price. Although the DCF’s immunity to short-term market volatility is appealing, the accuracy of the DCF may be compromised given that Medtronic has not demonstrated steady and consistent growth metrics. The multiples-based valuation method and peer comparisons are more likely to be useful in this type of situation, but these calculations were done in early May as part of the course’s “Assignment 2” so the values listed here do not reflect changes seen after Medtronic’s FY22 Q4 earnings call nor do they account for the recent downswing in the market. For these reasons, I have elected to assign a 90% weight to the DCF-based valuation and a 10% weight to the relative valuation model.

Relative Valuation Model:

The current health care P/S and P/E values (as of May 25, 2022) are above the 10-year sector average (Figure 14) which indicates that stocks within the health care sector are relatively cheap and could be considered a “buy”. The sector performance relative to the S&P 500 during this same time period shows that the current health care P/S and P/E are at a discount compared to the median S&P values (Figure 15).

Absolute Basis	High	Low	Median	Current
P/E	25.56	10.35	18.69	18.87
P/B	6.83	2.197	3.77	4.93
P/S	2.72	0.97	1.66	1.78
P/EBITDA	16.97	6.55	11.69	13.16

Figure 14: Health Care Sector 10-year Valuation (as of May 25, 2022)

Relative to S&P500	High	Low	Median	Current
P/E	1.31	0.54	1.00	0.93
P/B	2.19	1.06	1.34	1.22
P/S	1.68	0.65	1.03	0.73
P/EBITDA	2.05	0.93	1.34	1.09

Figure 15: Health Care Sector Relative to S&P 500 (as of May 25, 2022)

Figure 16 below shows the 10-year stock valuation for Medtronic from 2012-2022. When comparing this to the health care sector 10-year valuation in Figure 14, we see that Medtronic is currently relatively cheap since it is trading at below the sector average for P/E.

Absolute Basis	High	Low	Median	Current
P/E	50.88	9.15	27.09	18.31
P/B	3.36	1.73	2.24	2.62
P/S	5.75	2.05	3.54	4.53
P/EBITDA	28.89	7.31	15.5	17.87

Figure 16. Medtronic 10-year Valuation (2012-2022)



Comparing Medtronic to its peers (Figure 17) shows that Medtronic’s valuations are below the industry average. Using the industry average, I then estimated my target multiple and calculated Medtronic’s target stock price (Figure 18).

Ticker	P/E	P/S	P/B	EV/EBITDA
MDT	18.31	4.53	2.62	17.87
Peers				
ABT	20.47	4.54	5.65	15.87
SYK	25.44	5.06	5.84	27.39
BSX	23.93	4.63	3.35	26.29
JNJ	24.25	4.98	6.32	16.60
Average	22.48	4.75	4.76	20.80

Figure 17. Medtronic and Industry Peers Comparisons (as of May 25, 2022)

Absolute Valuation	Current Stock Price	Current Multiple	Your Target Multiple	Target/Current	Target Price
P/E	104.26	18	20	1.11	115.73
P/B	104.26	3	4.5	1.5	156.39
P/S	104.26	5	5	1	104.26
P/EBITDA	104.26	18	20	1.11	115.73
Equal Weighted Valuation					\$123.03

Figure 18. Medtronic Target Price (as of May 25, 2022)

Despite these indications that Medtronic might be a stock worth buying, I still recommend my overall position to SELL. These values were transcribed as part of our course’s “Assignment 2” which was completed prior to Medtronic’s FY22 earnings report and the more recent dip in the market. For a more current analysis, Figure 19 below shows Medtronic’s target price calculated when using the same target and multiples as before but with the current stock price of \$91.38 (as of July 1, 2022).

Absolute Valuation	Current Stock Price	Current Multiple	Your Target Multiple	Target/Current	Target Price
P/E	91.38	18	20	1.11	101.43
P/B	91.38	3	4.5	1.5	137.07
P/S	91.38	5	5	1	91.38
P/EBITDA	91.38	18	20	1.11	101.43
Equal Weighted Valuation					\$107.83

Figure 19. Medtronic Target Price (as of July 1, 2022)



Discounted Cash Flow Model:²

As of July 1, 2022, Medtronic had a P/E of 24. I used the “Implied P/E Ratio Spreadsheet” (Figure 19) supplied in our course to calculate a discount rate of 9.5% and a terminal growth rate of 4.75%.

		Discount Rate											
		7.00%	7.25%	7.50%	7.75%	8.00%	8.25%	8.50%	8.75%	9.00%	9.25%	9.50%	9.75%
Terminal Growth Rate	-0.75%	12.8	12.4	12.0	11.7	11.3	11.0	10.7	10.4	10.2	9.9	9.7	9.5
	-0.50%	13.3	12.8	12.4	12.1	11.7	11.4	11.1	10.8	10.5	10.2	10.0	9.7
	-0.25%	13.8	13.3	12.9	12.5	12.1	11.7	11.4	11.1	10.8	10.5	10.2	10.0
	0.00%	14.3	13.8	13.3	12.9	12.5	12.1	11.8	11.4	11.1	10.8	10.5	10.3
	0.25%	14.9	14.3	13.8	13.4	12.9	12.5	12.2	11.8	11.5	11.1	10.8	10.6
	0.50%	15.5	14.9	14.4	13.9	13.4	13.0	12.6	12.2	11.8	11.5	11.2	10.9
	0.75%	16.1	15.5	14.9	14.4	13.9	13.4	13.0	12.6	12.2	11.9	11.5	11.2
	1.00%	16.8	16.2	15.5	15.0	14.4	13.9	13.5	13.0	12.6	12.2	11.9	11.5
	1.25%	17.6	16.9	16.2	15.6	15.0	14.5	14.0	13.5	13.1	12.7	12.3	11.9
	1.50%	18.5	17.7	16.9	16.2	15.6	15.0	14.5	14.0	13.5	13.1	12.7	12.3
	1.75%	19.4	18.5	17.7	17.0	16.3	15.7	15.1	14.5	14.0	13.6	13.1	12.7
	2.00%	20.4	19.4	18.5	17.7	17.0	16.3	15.7	15.1	14.6	14.1	13.6	13.2
	2.25%	21.5	20.5	19.5	18.6	17.8	17.0	16.4	15.7	15.1	14.6	14.1	13.6
	2.50%	22.8	21.6	20.5	19.5	18.6	17.8	17.1	16.4	15.8	15.2	14.6	14.1
	2.75%	24.2	22.8	21.6	20.6	19.6	18.7	17.9	17.1	16.4	15.8	15.2	14.7
	3.00%	25.8	24.2	22.9	21.7	20.6	19.6	18.7	17.9	17.2	16.5	15.8	15.3
3.25%	27.5	25.8	24.3	22.9	21.7	20.7	19.7	18.8	18.0	17.2	16.5	15.9	
3.50%	29.6	27.6	25.9	24.4	23.0	21.8	20.7	19.7	18.8	18.0	17.3	16.6	
3.75%	31.9	29.6	27.7	25.9	24.4	23.1	21.8	20.8	19.8	18.9	18.0	17.3	
4.00%	34.7	32.0	29.7	27.7	26.0	24.5	23.1	21.9	20.8	19.8	18.9	18.1	
4.25%	37.9	34.8	32.1	29.8	27.8	26.1	24.5	23.2	21.9	20.9	19.9	19.0	
4.50%	41.8	38.0	34.8	32.2	29.9	27.9	26.1	24.6	23.2	22.0	20.9	19.9	
4.75%	46.6	41.9	38.1	34.9	32.2	29.9	27.9	26.2	24.6	23.3	22.1	21.0	
5.00%	52.5	46.7	42.0	38.2	35.0	32.3	30.0	28.0	26.3	24.7	23.3	22.1	

Figure 19

When applying a discount rate of 9.5% and a terminal growth rate of 4.75% to the DCF model, the stock valuation of \$103.32 shows a 13.1% upside compared to the current stock price of \$91.38 (Figure 20). However, I thought that this might be too optimistic given my concerns about Medtronic’s revenue and free cash flow so I recalculated the stock valuation using different growth rates and discounts rates.

Medtronic (MDT)			
Analyst: Ginny Wright		Terminal Discount Rate =	9.5%
7/1/22		Terminal FCF Growth =	4.75%
(millions)			
Current Price	\$ 91.38		
Implied equity value/share	\$ 103.32		
Upside/(Downside) to DCF	13.1%		

Figure 20

If the discount rate remains 9.5% but the terminal growth rate drops to 3.75% then the new stock valuation of \$91.39 is right in line with the current stock price (Figure 21).

Medtronic (MDT)			
Analyst: Ginny Wright		Terminal Discount Rate =	9.5%
7/1/22		Terminal FCF Growth =	3.75%
(millions)			
Current Price	\$ 91.38		
Implied equity value/share	\$ 91.39		
Upside/(Downside) to DCF	0.0%		

Figure 21

² full DCF Model found in Appendix 2



Furthermore, if we use the original terminal growth rate of 4.75% but change the discount rate to 10.5%, then the new stock valuation of \$85.51 would indicate a 6.4% downside from the current stock price (Figure 22).

Medtronic (MDT)			
Analyst: Ginny Wright		Terminal Discount Rate =	10.5%
7/1/22		Terminal FCF Growth =	4.75%
(millions)			
Current Price	\$ 91.38		
Implied equity value/share	\$ 85.51		
Upside/(Downside) to DCF	-6.4%		

Figure 22

Finally, if we take the extremes of both cases and use a discount rate of 10.5% and a terminal growth rate of 3.75% we arrive at a new stock valuation of \$77.77 which is 14.9% less than the current stock price (Figure 23).

Medtronic (MDT)			
Analyst: Ginny Wright		Terminal Discount Rate =	10.5%
7/1/22		Terminal FCF Growth =	3.75%
(millions)			
Current Price	\$ 91.38		
Implied equity value/share	\$ 77.77		
Upside/(Downside) to DCF	-14.9%		

Figure 23

To achieve a target stock price based on the DCF Model, I took an equal weight average of the four examples above and calculated a target stock price of \$89.50.

Final Target Price:

After assigning 10% weight to the relative valuation price of \$107.83 and 90% weight to the DCF model price of \$89.50, the final target price is \$91.33. This represents a 0.05% downside compared to the current stock price of \$91.38

Risks to Recommendation

My recommendation to SELL Medtronic carries the possibility of missed future earnings for the SIM portfolio. Below are the reasons why my SELL recommendation might be concerned risky:

The health care sector typically outperforms the S&P 500. Figure 8 showed that even though most of the health care sector is down year-to-date, it is still performing better than the S&P 500. It is worrisome though that the Health Care Equipment & Supplies industry (in which Medtronic operates) shows the largest decrease (26.06%) in the sector year-to-date.

The health care sector in general is defensive in nature. However, certain industries like Medical Equipment (in which Medtronic operates) can be cyclical and have shown volatility related to economic factors surrounding the COVID-19 pandemic.



- Medtronic has recovered from revenue losses seen in 2020 as a result of COVID, and one could assume that they will continue to do well as we move further away from the impact of the early pandemic. On the other hand, Medtronic blamed their missed earnings for FY22 Q4 on supply chain issues and lockdowns related to COVID, therefore the continued threat of COVID to the company's profits is really unpredictable.
- Medtronic announced that they expect organic revenue growth of 4-5% for FY23. However, they disclosed that FY23 revenue could be negatively affected by approximately \$1 billion if recent foreign currency exchange rates hold. Furthermore, the company's FY23 consensus sales revenue estimate of \$32.264 billion would indicate a predicted revenue increase of only 1.8% (Figure 12).
- Medtronic has an impressive total revenue compared to its industry peers, and its low P/E ratio could indicate that the stock is currently underpriced. It is concerning though that Medtronic exhibits low trailing twelve months (TTM) earnings growth and revenue growth, and that their profit margin is one of the smallest in the industry (Figures 10 and 11).

Conclusion

I recommend a SELL for Medtronic (MDT). It is currently trading right around its target stock price \$91.33 but I believe it is too risky to hold on to it, at least in the current quantity represented in the SIM portfolio. According to the May 31, 2022, SIM Portfolio Appraisal, Medtronic represented 2.89% of total portfolio assets and was the lowest performer with a decrease of 4.03% (Figure 24).

5/31/22 - Student Investment Management Fund (SIM)				MDT	Trailing 12M	Calendar YTD	Fund YTD	Trailing 12M	1M	3M	6M	12M	YTD	Change
S&P 500				0.19%	-5.10%	-12.79%	-2.57%	-2.30%	16.44%	13.30%	14.40%	8.04%	10.45%	
SIM (Group of Assets)				2.83%	-1.49%	-6.74%	-3.33%	-3.25%	15.04%	12.48%	11.84%	6.09%	6.27%	
SIM (Net of Fees)				2.49%	-1.82%	-6.99%	-3.99%	-3.64%	14.90%	12.32%	11.69%	5.74%	5.92%	
Net Outperformance / Total Underperformance														-2.95%
Asset Allocation														
Asset	S&P 500 Weight	SIM Weight	%											
Securities	100.00%	88.33%	-1.67%											
Cash	0.00%	1.52%	1.52%											
Dividends Receivable	0.00%	0.16%	0.16%											
Sector Allocation														
Sector	S&P 500 Weight	SIM Weight	%											
Information Technology	27.11%	24.59%	-2.52%											
Financials	11.21%	10.96%	-0.25%											
Health Care	14.49%	17.63%	3.14%											
Consumer Discretionary	10.74%	9.21%	-1.53%											
Consumer Staples	6.50%	6.54%	0.04%											
Industrials	7.77%	8.22%	0.45%											
Energy	4.80%	7.85%	3.05%											
Utilities	3.00%	0.95%	-2.05%											
Materials	2.82%	4.84%	2.02%											
Communication Services	6.72%	4.45%	-2.27%											
Real Estate	2.29%	0.77%	-2.07%											
Total	100.00%	88.06%	-11.94%											
Top Holdings														
Ticker	Security	Mkt. Value	% of Assets											
MCK	MCKESSON CORP	\$913,750	5.38%											
FE	FIDELITY NATIONAL INFORMATION	\$503,660	2.99%											
MRFT	MICROSOFT CORP	\$481,210	2.89%											
FDX	FEDEX CORP	\$448,914	2.89%											
INTC	INTEL CORP	\$411,269	2.52%											
AXP	AMERICAN EXPRESS CO	\$410,233	2.52%											
AMN	AMN INC	\$401,278	2.51%											
GOOGL	ALPHABET INC	\$375,419	2.34%											
BMN	BRISTOL MYERS SQUIBB CO	\$350,088	2.17%											
FB	META PLATFORMS INC	\$338,970	2.06%											
	Grand Total	\$4,231,778	44.41%											
Top 5 Performers														
	SM ENERGY CO	35.86%												
	SCHLUMBERGER LTD	17.82%												
	CONOCOPHILLIPS	17.80%												
	FEDEX CORP	13.00%												
	CHEVRON CORP	11.45%												
Bottom 5 Performers														
	SCOTTS MIRACLE-GRO CORP	-3.96%												
	APPLE INC	-5.59%												
	BOSTON PROPERTIES INC	-6.44%												
	CROWN HOLDINGS INC	-6.09%												
	MEDTRONIC PLC	-4.03%												

Figure 24

Medtronic has shown erratic year-over-year changes in revenue and continues to be plagued by issues related to COVID-19. The company missed its most recent FY22 earnings, and I believe their estimates for FY23 are too optimistic which suggests a high likelihood of missed projections in the near future. Considering how well the health care sector has been performing, I recommend that the SIM portfolio exchange Medtronic stock for something else within this sector, possibly in the Pharmaceutical or Health Care Providers & Services industry.





Appendix

Appendix 1: Income Statement

	2020E	2024E	2023E	2022	2021	2020	2019	2018
Medtronic PLC								
Income Statement								
Fiscal Year	2020E	2024E	2023E	2022	2021	2020	2019	2018
Consensus	\$5,767	\$33,919	\$32,264*					
Net Sales (in millions)	\$36,714	\$34,366	\$33,112	\$31,686	\$ 30,117	\$ 26,913	\$30,557	\$26,953
Costs of Products Sold	\$11,024	\$10,490	\$9,834	\$9,145	\$9,483	\$ 8,424	\$ 8,155	\$ 8,067
Gross Profit	\$25,700	\$24,476	\$23,178	\$21,541	\$ 20,634	\$ 18,489	\$21,402	\$20,886
Other Costs and Expenses:								
Research & development expense	3,194	3,042	2,881	2,746	2,493	2,301	2,330	2,258
Selling, general & admin expenses	11,749	11,189	10,596	10,262	10,148	10,109	10,418	10,238
Amortization of intangible assets	2,093	1,993	1,887	1,733	1,783	1,796	1,764	1,823
Restructuring charges, net	-	-	-	60	293	118	198	30
Certain litigation charges	547	540	532	86	118	313	166	61
Gain on sale of business	-	-	-	-	-	-	-	(697)
Other operating expense, net	1,101	1,049	993	862	315	71	258	535
Operating Profit	7418	7063	6689	5753	4,484	4,791	6,268	6,640
Other non-operating income, net	(300)	(300)	(300)	(318)	(336)	(356)	(373)	(181)
Interest expense	734	699	662	553	925	1,062	1,444	1,148
Income before income taxes	6384	6064	5727	4882	3,223	3,373	4,451	5,211
Income tax provision (benefit)	438	456	438	456	265	(751)	547	2,580
Net income	\$6,526	\$6,208	\$5,879	\$5,062	\$ 3,830	\$ 4,806	\$ 4,850	\$ 3,095
Net (income) loss attributable to noncont interests	(28)	(23)	(22)	(22)	(24)	(17)	(19)	9
Net income attributable to Medtronic	\$6,500	\$6,183	\$5,847	\$5,040	\$ 3,806	\$ 4,789	\$ 4,831	\$ 3,104
EPS								
Basic	\$4.89	\$4.64	\$4.38	\$3.75	\$ 2.88	\$ 3.57	\$ 3.44	\$2.29
Diluted	\$4.86	\$4.61	\$4.35	\$3.73	\$ 2.86	\$ 3.54	\$ 3.41	\$2.27
Consensus	\$6.68	\$6.03	\$5.57*					
Shares Outstanding								
Basic	1,334.4	1,337.0	1,338.7	1,342.4	1,344.9	1,340.7	1,346.4	1,356.7
Diluted	1,343.3	1,346.0	1,348.7	1,351.4	1,354.0	1,351.1	1,357.5	1,368.2
% buyback from prior year	-0.20%	-0.20%	-0.20%	-0.19%	0.21%	-0.47%	-0.78%	-1.67%
Sales	9%	5.60%	4.50%*	5.21%	4.16%	-5.38%	2.62%	6.82%
Expenses as % of sales								
Gross margin	70.00%	70.00%	70.00%	67.98%	65.19%	67.41%	70.04%	66.73%
Research & development expense	8.70%	8.70%	8.70%	8.67%	8.28%	8.66%	7.63%	7.53%
Selling, general & admin expenses	32.00%	32.00%	32.00%	32.48%	33.70%	34.96%	34.09%	34.18%
Amortization of intangible assets	5.70%	5.70%	5.70%	5.47%	5.90%	6.07%	5.77%	6.09%
Restructuring charges, net	0.00%	0.00%	0.00%	0.19%	0.97%	0.41%	0.65%	0.10%
Certain litigation charges	0.40%	0.40%	0.40%	0.30%	0.39%	1.08%	0.54%	0.20%
Other operating expense, net	3.00%	3.00%	3.00%	2.72%	1.05%	0.26%	0.84%	1.79%
Interest expense, net	2.00%	2.00%	2.00%	1.75%	3.07%	3.78%	4.73%	3.83%
Operating Margin	20.20%	20.20%	20.20%	18.16%	14.89%	16.57%	20.51%	22.17%
Net income as % sales	15%	15%	15%	15.98%	12.05%	16.62%	15.22%	10.33%
Net (income) loss attributable to noncont interests as % sales	-0.07%	-0.07%	-0.07%	-0.07%	-0.08%	-0.06%	-0.06%	0.03%
Tax Rate	6.53%	6.84%	7.21%	8.26%	6.80%	-18.52%	10.53%	45.46%
O&A								
O&A	2,837	2,797	2,748	2,707	2,702	2,663	2,659	2,644
O&A as % of sales	8%	8%	8.30%	8.54%	8.97%	9.21%	8.70%	8.83%
CapEx								
CapEx	1,417*	1,466*	1,398*	1,368	1,355	1,213	1,134	1,068
CapEx as % of sales	3.86%	4.19%	4.22%	4.32%	4.50%	4.20%	3.71%	3.57%
Receivables								
Receivables	6,000	5,800	5,600	5,551	5,462	4,645	6,222	5,987
% of sales	16.34%	16.59%	16.91%	17.52%	18.14%	16.07%	20.36%	18.99%
Inventory								
Inventory	5,300	5,100	4,900	4,816	4,313	4,229	3,753	3,579
% of sales	14.44%	14.59%	14.80%	14.57%	14.32%	14.63%	12.28%	11.95%
Payables								
Payables	2,800	2,600	2,400	2,276	2,106	1,998	1,953	1,628
% of sales	7.63%	7.44%	7.25%	7.18%	6.99%	6.90%	6.39%	5.44%
Change in WC	(800)	(800)	(817)	(842)	(811)	1,058	(714)	(1,194)



Appendix 2: Discounted Cash Flow Model

	A	B	C	D	E	F	G	H	I	J	K	L	
1	Medtronic (MDT)												
2													
3	Analyst: Ginny Wright				Terminal Discount Rate =		9.5%						
4	6/8/22				Terminal FCF Growth =		4.75%						
5	(millions)												
6	Year	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	
7	Revenue	33,112	34,966	36,714	38,550	40,478	42,502	44,627	46,858	49,201	51,661	54,264	
9	% growth		5.6%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
11	Operating Income	6,689	7,063	7,416	7,787	8,176	8,585	9,015	9,465	9,939	10,436	10,967	
12	Operating Margin	20.2%	20.2%	20.2%	20.2%	20.2%	20.2%	20.2%	20.2%	20.2%	20.2%	20.2%	
14	Interest Expense (Income)	662	699	734	771	810	850	893	937	984	1,033	1,085	
15	Interest % of Sales	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
17	Income Before Taxes	6,326	6,664	6,982	7,016	7,367	7,735	8,122	8,528	8,955	9,402	9,872	
19	Taxes	456	456	456	458	481	505	530	557	585	614	645	
20	Tax Rate	7.2%	6.8%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	
22	Net Income from Cont Ops	5,847	6,163	6,500	6,531	6,857	7,200	7,560	7,938	8,335	8,752	9,190	
24	Less: Net Inc attributable to noncont interests	(23)	(24)	(25)	(27)	(28)	(30)	(31)	(33)	(34)	(36)	(38)	
25	% of Reva	-0.07%	-0.07%	-0.07%	-0.07%	-0.07%	-0.07%	-0.07%	-0.07%	-0.07%	-0.07%	-0.07%	
27	Net Income	5,879	6,268	6,526	6,558	6,886	7,230	7,582	7,971	8,370	8,788	9,228	
28	% Growth		5.7%	5.1%	0.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
30	Add Depreciation/Amort	2,768	2,797	2,937	2,968	3,117	3,188	3,347	3,421	3,592	3,616	3,797	
31	% of Sales	8.3%	8.0%	8.0%	7.7%	7.7%	7.5%	7.5%	7.2%	7.3%	7.0%	7.0%	
32	Plus/(minus) Changes WC	(457)	(600)	(600)	(630)	(662)	(695)	(729)	(766)	(804)	(844)	(886)	
33	% of Sales	-1.4%	-1.7%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%	
34	Subtract Cap Ex	1,398	1,466	1,417	1,488	1,562	1,640	1,785	1,874	1,968	2,066	2,170	
35	Capex % of sales	4.2%	4.2%	3.9%	3.9%	3.9%	3.9%	4.0%	4.0%	4.0%	4.0%	4.0%	
37	Free Cash Flow	6,764	6,939	7,446	7,408	7,779	8,683	8,424	8,752	9,189	9,484	9,968	
38	% Growth		2.6%	7.3%	-0.5%	5.0%	3.9%	4.2%	3.9%	5.0%	3.2%	5.0%	
40	NPV of Cash Flows	59,922	36%										
41	NPV of terminal value	88,705	64%										
42	Projected Equity Value	139,627	100%										
43	Free Cash Flow Yield	5.57%											
45	Current P/E	20.7	19.6	18.6								Terminal P/E	23.8
46	Projected P/E	23.8	22.5	21.4								Terminal P/E	23.8
47	Current EV/EBITDA	15.9	14.4	13.7								Terminal EV/EBITDA	16.3
48	Projected EV/EBITDA	17.0	16.2	15.5								Terminal EV/EBITDA	16.3
50	Shares Outstanding	1,351											
52	Current Price	\$ 89.87											
53	Implied equity value/share	\$ 103.32											
54	Upside/(Downside) to DCF	15.0%											
56	Debt	24,114											
57	Cash	3,714											
58	Cash/share	2.75											



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