



Target

Rating	Outperform
Current Price	\$75.15
Price Target	\$90.41
Implied Upside	20.31%
Action Recommended	Initiate Position

Key Statistics

52 Week Price Range	\$61.47 - \$111.35
50-Day Moving Average	\$74.78
Estimated Beta	1.49
Dividend Yield	-
Market Capitalization	33.11B
3-Year Revenue CAGR	16.58%

Trading Statistics

Diluted Shares Outstanding	430.7M
Average Volume (3-Month)	7.71M
Institutional Ownership	98.60%
Inside Ownership	0.29%

Margins and Ratios

Gross Margin (LTM)	47.26%
EBITDA Margin (LTM)	39.29%
EV/EBITDA (LTM)	10.60x
Debt to Enterprise Value	0.11x

Investment Thesis

Market Overreaction to EV Headwinds

Despite Onsemi's most recent earnings revealing impressive 87.8% YoY net income growth, its stock plunged 22% after the company gave weaker-than-expected Q4 2023 guidance tied to the temporary EV market slowdown. These industry-wide headwinds have dampened outlooks for most of Onsemi's peers, including automotive-focused comparable NXP Semiconductor, which has higher EV-reliance than Onsemi and only fell 7% on lowered guidance. Furthermore, Onsemi has underperformed the SOXX semiconductor index by over 40% in the last year. This response is unwarranted given the company's robust positioning among other high-growth end markets that comprise 60% of revenue. For example, 5G and industrial IoT are expected to expand at CAGRs of 27.4% and 12.57% through 2028, respectively. Moreover, despite near-term headwinds, the EV market is still forecasted to see a CAGR of 9.82% through 2028.

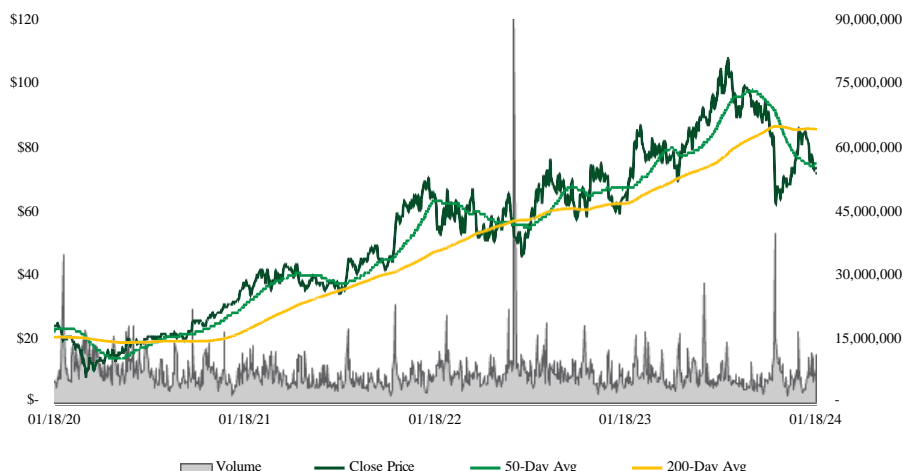
Head Start on Compliance and Sustainability

Semiconductors currently have a carbon footprint twice as large as the aviation industry and are becoming subject to climate-impact disclosure policies from agencies like the SEC, driven by the value that young investors place on ESG. Thus, achieving significant carbon footprint reduction in a timely manner without forfeiting investors will require publicly-traded chipmakers to make substantial upfront investments in R&D and capex; compliance R&D expects to see a CAGR upwards of 5% through 2030. However, Onsemi holds a years-long lead in prioritizing sustainability, highlighted by the company's recognition as the world's most sustainable semiconductor firm for the past two consecutive years. With a plan to achieve carbon-neutrality a full decade before its peers, Onsemi is poised to benefit from positive investor sentiment while avoiding gross margin deterioration incurred by its competitors. Furthermore, the company's operating margins already surpass 28%, exceeding the industry average of 20.9%.

One-Stop SiC Semiconductor Capabilities

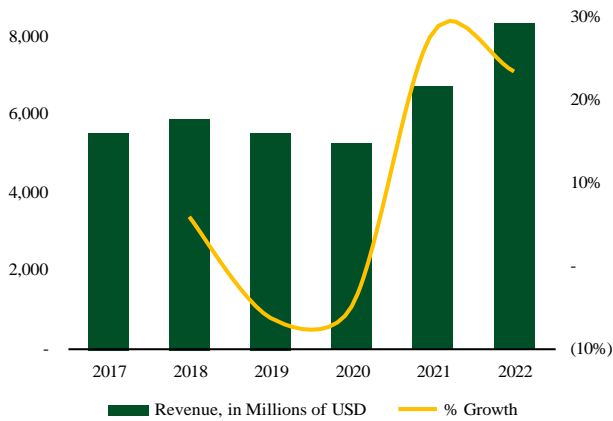
Onsemi is currently the 14th-largest player in the global semiconductor industry, commanding a 2% market share and acting as a single-source provider for automotive, industrial, and telecom industries. Onsemi is strategically positioned in the Silicon Carbide (SiC) market, which is expected to grow at a 33% CAGR through 2027 due to demand for high-efficiency solutions in rapidly expanding industries such as EV, solar energy, and 5G. Onsemi has made substantial investments to capture a 30-45% market share in SiC by 2027 and has already secured over \$16 billion in long-term supply agreements and prepayments for its SiC solutions. Despite these strong capabilities, Onsemi's EV/EBITDA multiple of only 9.80x, compared to the semiconductor industry's 17.93x, indicating a potential mispricing of approximately 82.9%.

Five-Year Stock Chart



Business Overview

Figure 1: Onsemi Historical Revenue



Source: \$ON SEC Filings

Onsemi, formerly ON Semiconductor, is an American semiconductor supplier originally founded as a spinoff of Motorola's Semiconductor Components Group in 1999. The company is based in Scottsdale, Arizona, and operates a global network of manufacturing facilities and design centers across North America, Europe, and Asia. With a comprehensive product portfolio centered on enhancing efficiency through intelligent power and sensing solutions, the company serves a vast range of industries, such as automotive, telecom, industrial, and healthcare. Onsemi has a robust presence in the semiconductor market and currently possesses 2% of the global semiconductor market share. Moreover, the company has been a member of the Fortune 500 since 2021. The company's global manufacturing and logistics network, combined with its 80,000 diverse product offerings, has positioned it as a superior single-source provider for both distributors and direct customers.

Revenue Segments

Power Solutions Group – 56% of Revenue

The Power Solutions Group (PSG) products serve various application functions, including power switching and conversion, signal amplification, and voltage regulation. These offerings address demand for increased power efficiency, density, functionality, and data transmission speed. Advancements in existing voltage electrical infrastructure, electric vehicles (EVs), and artificial intelligence have significantly expanded use of such high-power semiconductor solutions. Furthermore, Onsemi is currently the number-one power semiconductor supplier for the solar inverter market, which is forecasted to expand at a CAGR of 8.1% through 2032. The recent surge in demand for semiconductors with wider bandgaps also amplifies PSG's application scope. Simply put, wider bandgap devices are made with materials like silicon carbide (SiC), and can operate at higher temperatures, voltages, and frequencies with improved efficiency compared to traditional semiconductors. In the last 3 years, PSG has experienced a CAGR of 17.32%.

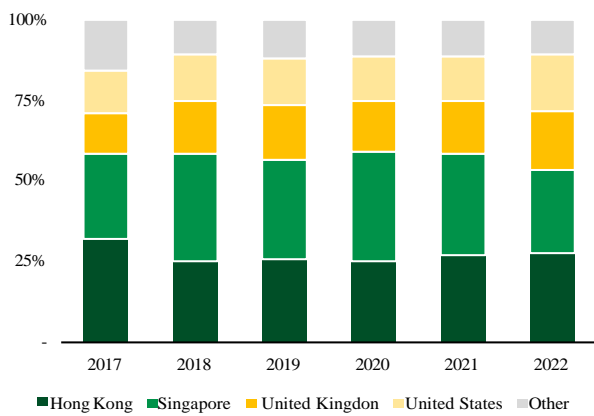
Advanced Solutions Group – 29% of Revenue

The Advanced Solutions Group (ASG) designs and develops products that cater to the standards set by regulatory agencies around the world, particularly those regarding environmental impact, safety risks (such as overheating), and security. One way that ASG achieves this is by engineering its products to deliver maximum efficiency in both operational and low-power standby modes, yielding benefits like lower energy consumption. ASG is unique in this regard, as many semiconductor manufacturers have historically avoided significant investments in compliance. This is partially attributable to the high speed and competition that characterizes the industry, which pressures firms to minimize costs and rapidly produce cutting-edge products. Thus, engineers tend to focus on operational efficiency and neglect standby efficiency. Given this demonstrated expertise in compliance, ASG works closely with government customers to design, produce, and implement infrastructure tailored to the stringent needs and standards of government applications. Extensive security networks are one prominent example of this. ASG has expanded at a CAGR of 14.15% over the last 3 years.

Intelligent Sensing Group – 15% of Revenue

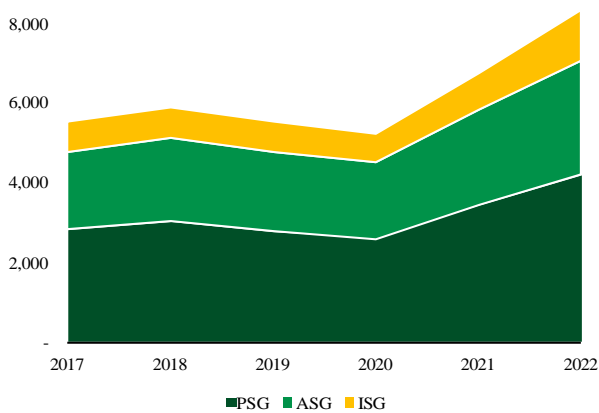
The Intelligent Sensing Group (ISG) focuses on delivering exceptional pixel performance, sensor functionality, and advanced camera system capabilities to meet the growing demand for high-quality visual imagery. These products are

Figure 2: Historical Revenue Breakdown by Region



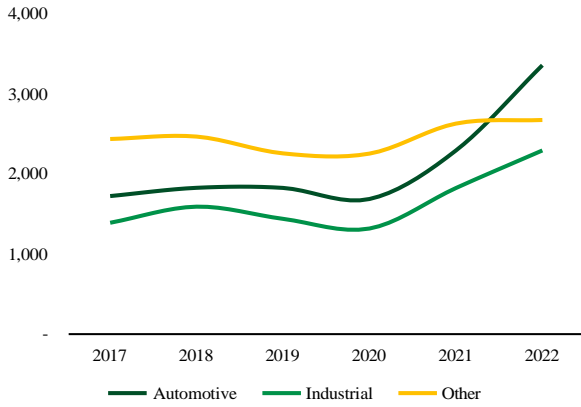
Source: \$ON SEC Filings

Figure 3: Historical Revenue Breakdown by Operating Segment



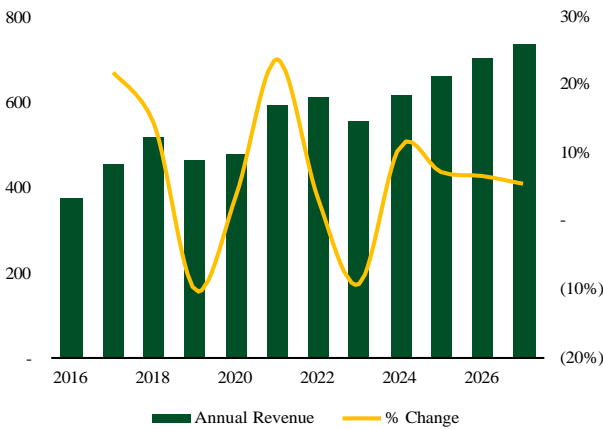
Source: \$ON SEC Filings

Figure 4: Historical Revenue Breakdown by End Market



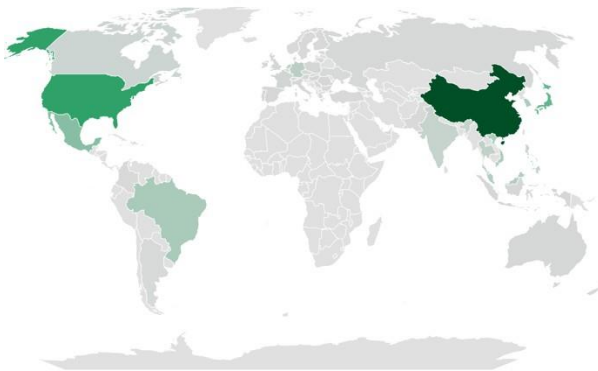
Source: \$ON SEC Filings

Figure 5: Global Semiconductor Market, in Billions of USD



Source: Statista

Figure 6: Semiconductor Revenue Geographical Breakdown, 2024



Source: Statista

particularly crucial for industries where clear visual data is essential for safety and efficiency, such as automotives, factory automation, and medical imaging. ISG also has applications in consumer electronics, such as virtual reality headsets. In the last 3 years, ISG has grown at a 20.02% CAGR.

End Markets

Automotive – 40% of Revenue

Onsemi’s semiconductor solutions play pivotal roles in countless automotive applications, such as EV batteries, driver assistance systems, engine control, and lighting. As of 2022, the company boasted a 60% market share in automotive image sensors, which are expected to experience a CAGR of 9.7% into 2028.

Industrial – 28% of Revenue

Onsemi’s industrial end markets use its products for applications like EV charging infrastructure, security systems, industrial automation, healthcare, and smart cities and homes. Most of these applications are implemented via Internet-of-Things (IoT) technology, which is when networks of physical devices are connected to the internet, allowing them to collect and share data with each other in real-time. IoT encompasses everything from surveillance cameras that trigger alarm systems when motion is detected, to glucose monitors that stick to a diabetic’s arm and display health analytics on a mobile app. It is worth noting that Onsemi does not specifically make IoT chips or devices. Rather, the company creates products that augment IoT systems by optimizing aspects like data processing capabilities and internet connection quality.

Other – 32% of Revenue

Onsemi’s “other” end market category consists of the consumer, telecom, and computing industries. Some common applications of Onsemi’s products in these markets include consumer electronics and entertainment systems, 5G base stations, and cloud computing/data center servers.

Semiconductor Industry

Global semiconductor revenues experienced a year-over-year decline of nearly 10% in 2023, falling from around \$610 to \$553 billion. However, the market is expected to rebound and reach \$613 billion in 2024, growing at a CAGR of 7.2% until it reaches \$736 billion in 2027.

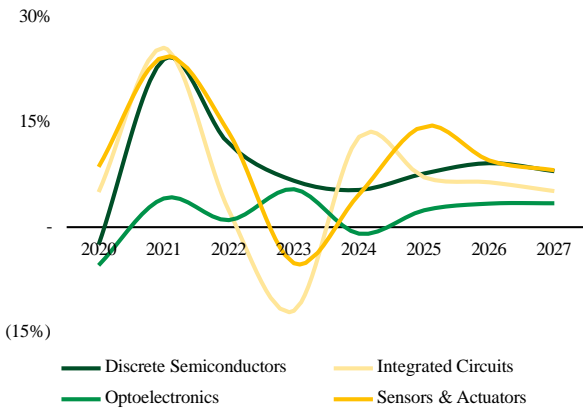
Semiconductor Materials vs Semiconductor Chips

While the term “semiconductor” refers to materials and chips interchangeably, it is important to clarify the difference and understand the relationship between the two. Semiconductor materials have electrical conductivity between that of a conductor (like metal) and insulator (like rubber). The conductivity of these materials can be altered by introducing impurities or applying an electric field. Semiconductor chips, which are electronic components built with semiconductor materials, harness this ability to precisely control electronic signals. Thus, semiconductor chips are the backbone of digitization, as they enable devices to store and process data and react to stimuli in real-time.

Market Segmentation

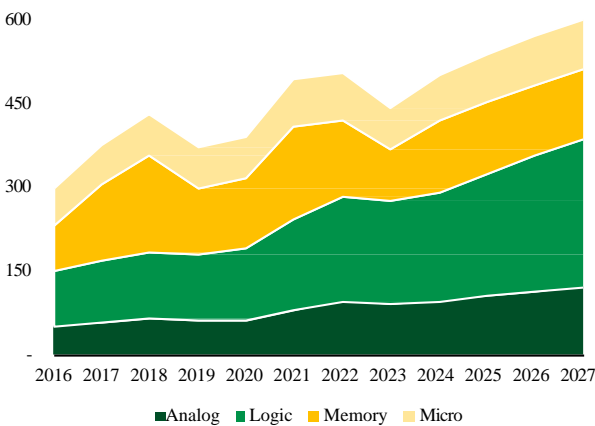
Discrete Semiconductors

Figure 7: Semiconductor Revenue Change by Segment



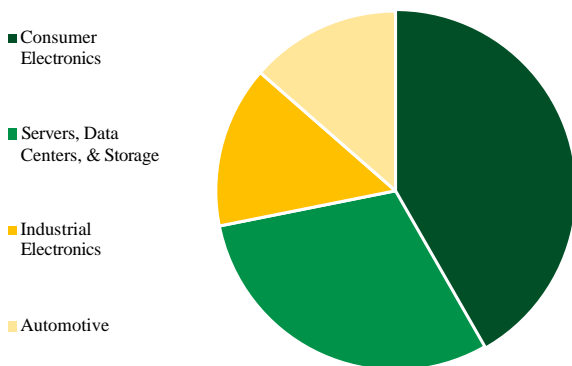
Source: Statista

Figure 8: Integrated Circuit Revenue by Product, in Billions of USD



Source: Statista

Figure 9: Semiconductor Application Forecast, 2030



Source: Statista

Discrete semiconductors are standalone electronic components, such as diodes and transistors, that control and manipulate electricity. While these components can perform specific functions on their own, they are typically combined to create integrated circuits. They currently make up 7% of the industry and are expected to experience a CAGR of 8.31% from 2024 through 2027.

Integrated Circuits

Integrated circuits—also known as chips—are complete circuits comprised of numerous electronic components. ICs currently dominate the semiconductor market, accounting for 82% of revenue, and are forecasted to see a CAGR of 6.22% through 2027. There are four main types of ICs:

- **Analog chips** are designed to process constant, real-world phenomena, such as temperature or sound. They are expected to expand at a CAGR of 8.55% through 2027.
- **Logic chips** can be thought of as the brain of an electronic device. They perform tasks like computation, data processing, and decision-making, which enables users to interact with electronic devices in real-time. Logic chips are projected to have a CAGR of 10.22% through 2027.
- **Memory chips** support electronic data storage and retrieval mechanisms like RAM and Flash memory. The memory chip market is expected to contract slightly, with an expected CAGR of -0.31% through 2027.
- **Microchips** often integrate properties from analog, logic, and memory chips to create comprehensive solutions for various applications. Microprocessors in computing devices are one common example. The CAGR for microchips is estimated to be 2.97% through 2027.

Optoelectronics

Optoelectronics devices utilize semiconductor materials to precisely control how electronic signals interact with light, facilitating the creation of components like light-emitting diodes (LEDs). These devices comprise 8% of industry revenue and are projected to show a CAGR of 3.08% through 2027.

Sensors & Actuators

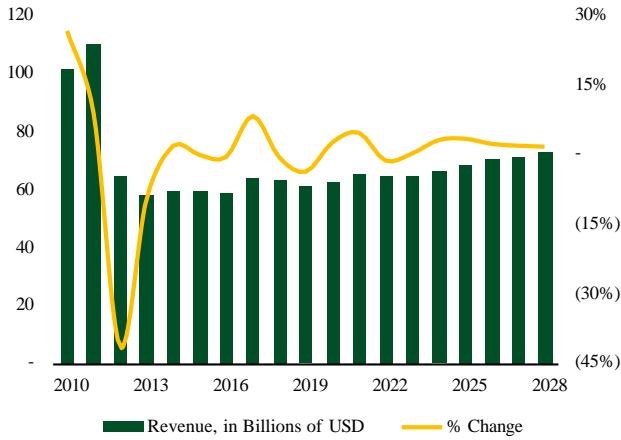
Sensors and actuators rely on semiconductor materials to detect and respond, respectively, to physical stimuli or signals. They account for 3% of the semiconductor market and have a forecasted CAGR through 2027 of 10.79%.

Shifting Risk Profile

The semiconductor industry is notoriously volatile due to its exposure to a myriad of risks. Semiconductors undergo lengthy production cycles often lasting several years, hindering responsiveness to rapidly shifting trends. This lag can result in supply and demand imbalances that are exacerbated by the cyclical nature of the industry’s primary end markets—consequently, semiconductor demand also becomes closely tied to discretionary spending. Semiconductors also require a variety of raw materials, introducing additional uncertainties with respect to global supply chains and their vulnerability to geopolitical tension. Currently, this international risk is heightened due to 80% of global semiconductor manufacturing being concentrated in Asia.

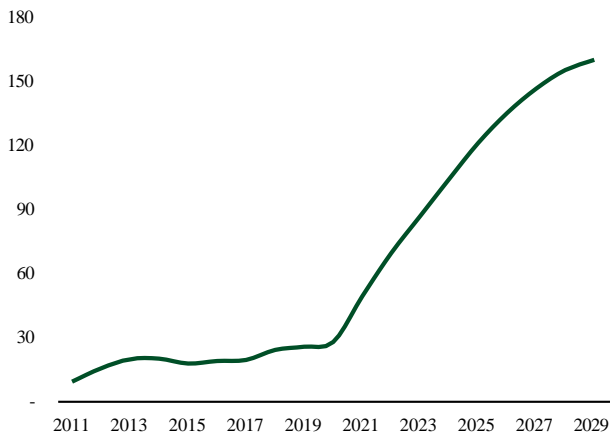
However, many of these risks could be eliminated by surging digitization and initiatives to reduce Asia’s market share. With digitization being a direct driver

Figure 10: American Semiconductor Manufacturing Market



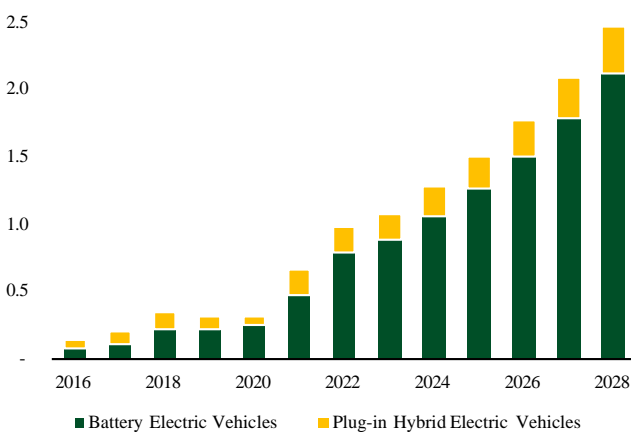
Source: IBIS World

Figure 11: American EV Manufacturing Market, in Billions of USD



Source: IBIS World

Figure 12: American EV Sales, in Millions of Vehicles



Source: Statista

for semiconductor demand, chips are poised for substantial growth amidst the forthcoming wave of IoT adoption, especially in critical sectors like healthcare. Thus, the semiconductor industry will gain exposure to more defensive end markets, which will foster increasingly stable growth going forward. Furthermore, Europe and the United States have recently allocated over \$100 billion to fortify their respective domestic chip production capabilities.

Macroeconomic Factors

FABS and CHIPS Acts – Reclaiming Domestic Chip Production Capabilities

The Facilitating American-Built Semiconductors (FABS) Act provides tax-based incentives for the construction and modernization of semiconductor fabrication plants in the US. Through a 25% tax credit, private firms are encouraged to invest in semiconductor manufacturing facilities and related equipment, fostering domestic growth in chip design and processing. The FABS Act aligns with broader legislative efforts, such as the Creating Helpful Incentives to Produce Semiconductors (CHIPS) Act, aimed at enhancing US economic competitiveness and ensuring a robust semiconductor manufacturing base, particularly in the face of global competition and geopolitical challenges. Diversifying production outside of Asia will strengthen supply chains in the long run and minimize the likelihood of bottlenecks like those seen in 2021.

Legislation Stimulating American EV Market

In 2021, President Biden set a goal to have 50% of new car sales be zero-emissions by 2030. This sentiment, in conjunction with the aforementioned push to strengthen domestic production, has spurred various initiatives incentivizing consumers to purchase American-made EVs. The American EV manufacturing and charging markets experienced CAGRs of 32.1% and 13.4% in the five years to 2024, respectively, and are forecasted to see respective CAGRs of 8.9% and 14.6% over the next five years. EVs and charging stations rely on semiconductor components for critical functions, which directly benefits American chipmakers with strong EV product portfolios.

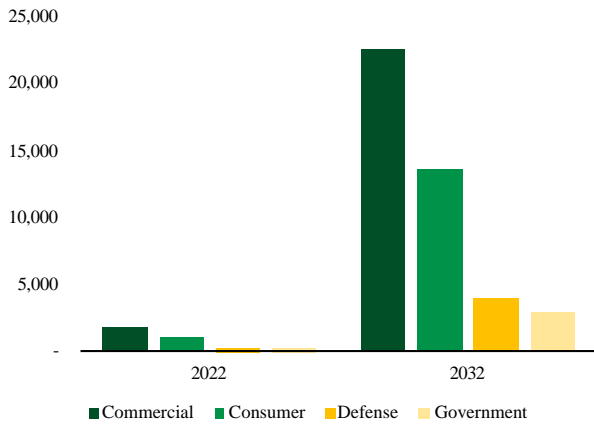
- **The Inflation Reduction Act** incentivizes EV purchases by providing up to \$7,500 in tax credits per eligible purchase of an EV that was assembled in North America. As of 2024, vehicles cannot include any foreign battery components to qualify for the credits.
- **The Infrastructure Investment and Jobs Act** funds the implementation of new charging stations across the US, which addresses consumer concerns over accessibility. The number of charging stations has doubled since 2021.
- **The EVs for American Low-Carbon Living** program (EVs4ALL) focuses on reducing the sharp depreciation of EVs in used car markets by developing batteries that charge faster and are more temperature-resistant.

Moreover, regardless of the outcome of the 2024 presidential election, the Biden administration has already laid a robust foundation for sustained growth by stimulating American manufacturing capabilities with consumer incentives, alleviating a significant factor contributing to EV skepticism, and ensuring long-term durability of these vehicles.

5G Driving IoT Implementation at the Enterprise Level

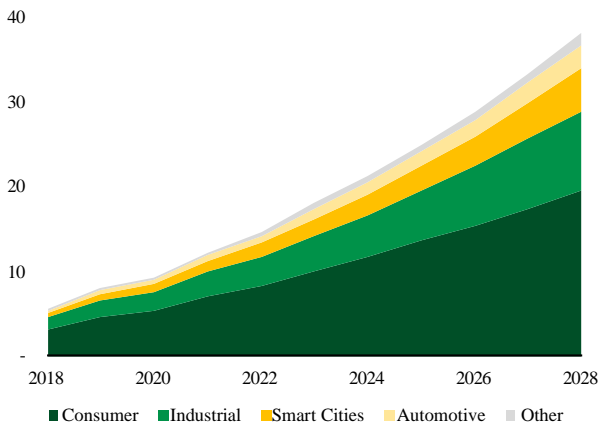
While IoT has countless use cases for enhancing enterprise efficiency, businesses have hesitated to fully embrace it due to the risks associated with network outages and high latency. These issues typically go unnoticed by individual IoT users, but

Figure 13: 10-Year 5G Market Growth, in Millions of USD



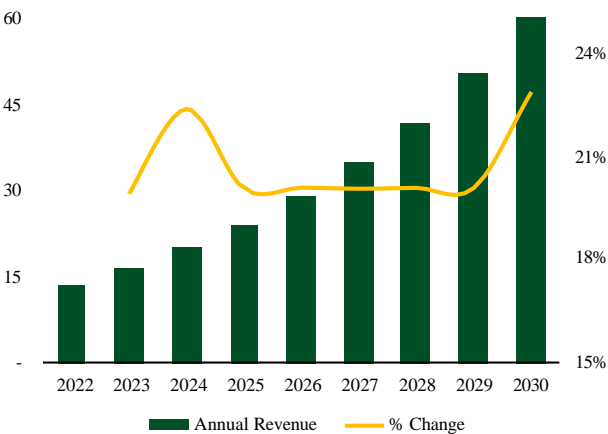
Source: Statista

Figure 14: IoT Usage Worldwide, in Billions of Connections



Source: Statista

Figure 15: Global Green Tech Market, in Billions of USD



Source: Statista

a minor lapse in connectivity in one area of an enterprise sized IoT ecosystem can trigger a domino effect, disrupting adjacent operations and compromising overall firm performance. The rollout of 5G—designed for lower latency, stronger reliability, and increased network capacity—emerges as an optimal solution and is instilling confidence in the widespread adoption of IoT into key operational segments. Despite the mass migration of IoT devices to 5G networks currently facing delays due to limited infrastructure and lack of 5G support on most IoT devices, 69% of enterprises have already announced plans to embrace 5G-IoT when it becomes feasible. Moreover, the global 5G system integration market was worth around \$11.7 billion in 2023 and is anticipated to see a CAGR of 27.4% until it reaches \$64.2 billion in 2030. The IoT market is poised to ride this wave and exceed \$1.38 trillion in 2024, up 17.80% from 2023, and sustain a 12.57% CAGR through 2028. Thus, with the intrinsic value of IoT systems being directly tied to network quality, chipmakers focused on 5G optimization and infrastructure have a significant competitive advantage in this environment.

Raw Materials Shortages

The industry is grappling with imminent raw material shortages, including gallium and germanium potentially running short by 2024. This poses significant headwinds to chipmakers and production of lithium-ion batteries, which are critical across many applications including EVs. Global trade tensions, lingering disruptions from the pandemic, and geopolitical factors like the war in Ukraine are still causing vulnerability in the semiconductor supply chain while the US races to enhance its own manufacturing capabilities. To navigate these headwinds, the industry will likely rely on innovative solutions, including e-waste recycling, seeking out raw material sources outside of China, and the adoption of digital supply networks (DSNs) driven by technologies like AI, although concerns about a generative AI chip shortage adds another layer of complexity. Thus, chipmakers are being urged to stockpile critical materials and embrace sustainable initiatives to ensure a stable and resilient supply chain in the face of future uncertainty.

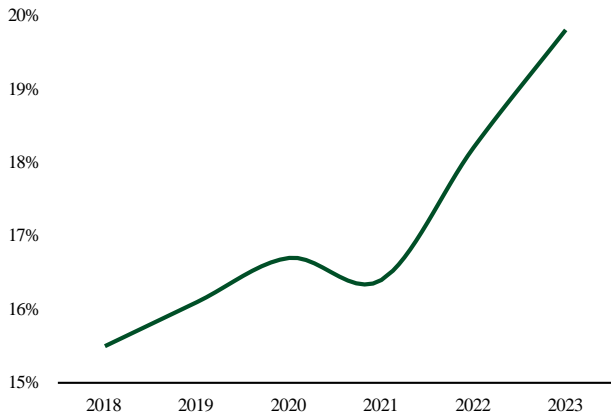
Global Movement Towards Carbon Neutrality

Research consistently indicates that today's investors strongly value sustainability. For instance, Morgan Stanley found that 95% of millennials express interest in sustainable investing, with 86% believing that ESG-focused firms are strong long-term investments and are likely to increase profitability. A Statista survey of institutional investors exposed to ESG revealed that 49% implemented ESG strategies to align assets with organizational values, and 33% aimed to influence corporate behavior. As such, firms face increasing scrutiny on ESG practices and transparency, exemplified by the SEC's implementation of climate-impact disclosure policies, effective April 2024.

This growing pressure from investors, particularly towards carbon neutrality, is a significant headwind for publicly traded chipmakers. In 2021, the semiconductor industry emitted nearly 500 megatons of Co2e—more than double the global aviation sector's emissions for the same year. Approximately 80% of these emissions originated from electricity consumption by supply chains and chipmaking machinery. However, semiconductor production is so meticulous that manufacturers must purchase highly specialized machinery that is often only capable of producing one product. This inhibits chipmakers from being able to quickly implement changes, and the need for all machinery to be configured so intricately and uniquely limits flexibility within the supply chain. Thus, achieving a significant carbon footprint reduction in a timely manner without forfeiting investors will likely entail major investments in R&D and capex.

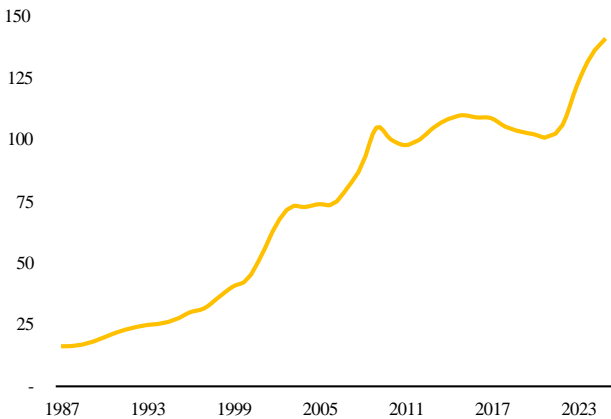
Competition

Figure 16: Market Share of the Four Largest Semiconductor Players



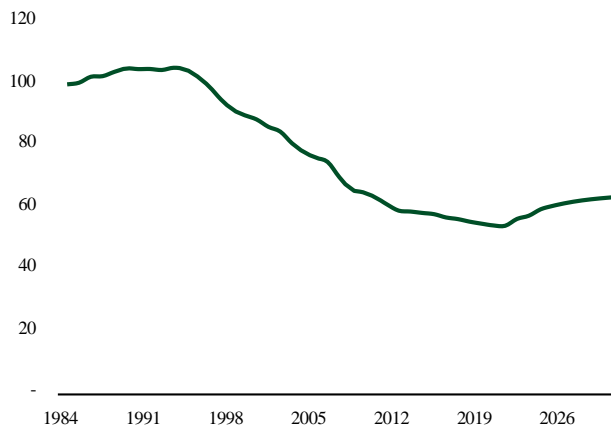
Source: IBIS World

Figure 17: Capital Intensity Index of Semiconductor Manufacturing



Source: FRED Economic Data, Boston Consulting Group

Figure 18: Semiconductor Component Price Index



Source: IBIS World

The semiconductor industry has incredibly high barriers to entry that are increasing due to a combination of high manufacturing complexity, capital intensity, and intellectual property protection. Technological complexity arises from the precision and sophistication required in semiconductor manufacturing, with tolerances measured down to single atoms. The use of unique tools and software specific to the industry contributes to high start-up costs, making it challenging for new entrants to secure the immense capital required. For example, merely building a chip fabrication plant now costs upwards of \$15-20 billion. Furthermore, a plant completed in 2026 is forecasted to have a 10-year total cost of ownership of \$35-43 billion, which is upwards of 33% higher than current costs. Intellectual property protection is another significant barrier, as existing chip designers fiercely guard their patents, requiring potential entrants to navigate complex legal landscapes and avoid infringement. Additionally, the industry's increasing reliance on cutting-edge technologies, like artificial intelligence, further elevates the barriers, demanding continuous innovation and substantial resources. Capital investments are also very risky in this industry—manufacturers must buy highly specialized machinery that is often only capable of producing a single product, thus requiring new machinery every time wafer or die sizes change. While success amidst this competitive landscape is strongly dependent on a manufacturer's ability to swiftly adapt to evolving trends and regulations, it is equally critical that firms have a well-defined strategy that emphasizes core competencies and strategic focus. As a result, well-established players in the industry are well-poised to maintain dominance.

Strategic Positioning

Onsemi's current strategic positioning is largely defined by its early investments in sustainability and production enhancement coming to fruition. As macroeconomic factors like increasing ESG scrutiny come to light, Onsemi has distinguished itself through its ability to ride end-market tailwinds while avoiding many of the substantial operational disruptions facing its competitors.

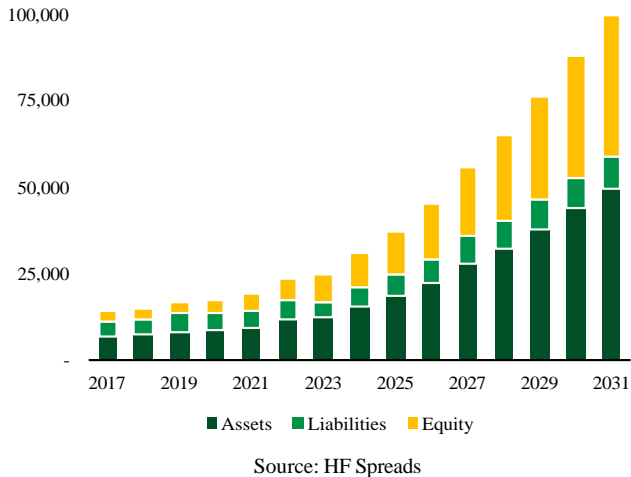
Vertically Integrated Silicon Carbide Capabilities

The SiC market is projected to experience a 33% CAGR through 2027. Onsemi aims to double this growth rate, expressing ambitions for a 70% CAGR in its SiC business and targeting a market share of 30-45% by 2027. The company is confident in its ability to achieve such remarkable growth because it has spent over 15 years honing in on its ability to mass-produce SiC modules. Thus, Onsemi is one of the only few SiC manufacturers with a fully vertically-integrated supply chain. This autonomy spans the entire SiC production process— from ingot growth to device fabrication— which allows the company to scale production according to customer demand and alleviates a significant portion of supply chain risk. In May of 2023, the company announced a \$2 billion investment to further strengthen these robust SiC capabilities.

Well-Established Packaging Solutions

Onsemi has also strategically positioned itself through a decades-long head start on product miniaturization and sustainable packaging techniques. Onsemi's power-efficient packages, referring to the encasing of semiconductor chips, incorporate features like advanced thermal management and low power loss to optimize energy usage. This simultaneously enhances sustainability while meeting the increasing demand for small chips to support emerging applications like medical implants and IoT. As semiconductor features shrink, R&D costs rise exponentially— the transition from a 10nm to 7nm feature incurs an estimated \$100 million cost, and further reduction to 5nm increases the expense to \$550 million. Thus, R&D in chip miniaturization is projected to experience an overall

Figure 19: Balance Sheet Projections, in Millions of USD



4.3% CAGR into 2032. However, Onsemi's well-established methods make the company less susceptible to these escalating costs.

Commitment to Mitigating Carbon Footprint

In 2022 alone, Onsemi earned 8 sustainability accolades. Notably, 2022 marked Onsemi's fifth consecutive year on both the Dow Jones Sustainability Index and Barron's list of the 100 most sustainable companies in the US. Onsemi was also named the most sustainable semiconductor company in the world by World Finance for the second consecutive year. This recognition is supported by the company's comprehensive plans to achieve a net-zero carbon footprint by 2040. In fiscal 2022 alone, the company reduced its greenhouse gas emissions, landfill waste, and water consumption by 21%, 23%, and 19% YoY, respectively. The company has also expressed goals to cut its energy consumption 18% by 2027. For comparison, in 2021 Taiwan Semiconductor also announced plans to attain a net-zero footprint by 2040. However, in 2023, it pushed this target to 2050. Other prominent industry players including Qualcomm and AMD have also targeted 2050 for carbon neutrality, with Intel being the only semiconductor player that currently matches Onsemi's goal of 2040.

Business Growth Strategies

Onsemi's business model has always strived to be resilient in the face of macroeconomic and industry cyclicality. The company's historic strategies have supported this goal by acquiring firms that exposed the company to high-margin products in sustainable, high-growth industries (such as EVs and solar energy). For example, the company's 2016 acquisition of Fairchild Semiconductor introduced Onsemi to pivotal product categories, including power management devices, discrete semiconductors, and analog components. This acquisition also laid the groundwork for Onsemi to expand its vast portfolio of niche solutions by introducing key end-market applications, such as industrial automation.

The leadership transformation that followed the retirement of CEO Keith Jackson in 2021 is building upon the success of Onsemi's acquisitions, with a focus on refining market presence going forward. Moreover, the new management team had doubled down on broadening Onsemi's capabilities in a smaller group of end-markets. This strategy aims to position the company as a preferred single-source provider for a select group of high-growth industries (such as SiC and 5G) to capture maximum market share. For instance, Onsemi divested several under-utilized wafer manufacturing facilities in Maine, Idaho, Belgium, and Japan in 2022. The firm simultaneously expanded its SiC fabrication plant in South Korea. These decisions support Onsemi's flexibility by reducing gross margin volatility.

Management and Employee Relations

Hassane El-Khoury – President, CEO, Director

Hassane El-Khoury assumed the role of Director and was appointed President and CEO of Onsemi in December 2020. Prior to joining Onsemi, El-Khoury served as the President, CEO, and board member of Cypress Semiconductor until its acquisition by Infineon in April 2020. With thirteen years of experience at Cypress, he held diverse roles in business unit management, product development, applications engineering, and business development. El-Khoury began his career as a senior design engineer at Continental Automotive Systems after attaining a Bachelor of Science in Electrical Engineering from Lawrence Technological University, and a Master's of Engineering Management from Oakland University. Recognized in 2018 as one of Silicon Valley's 40 under 40, he also sits on the board of directors at Leia Inc, which produces 3D displays and software solutions.

Figure 20: Selling Price of Semiconductor Products, Per Unit

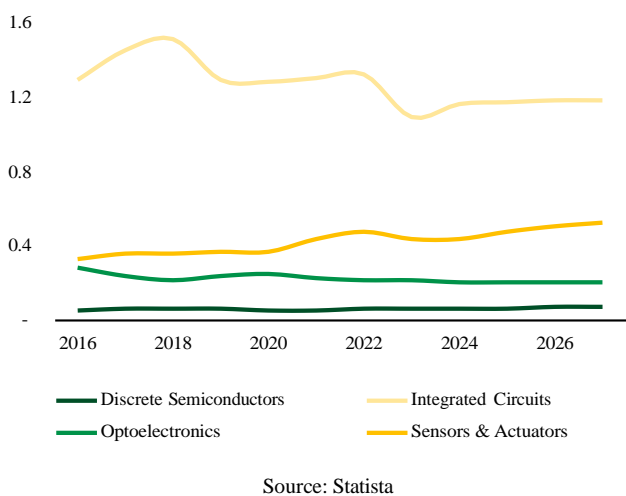


Figure 21: Volume of Semiconductor Products, in Billions of Units

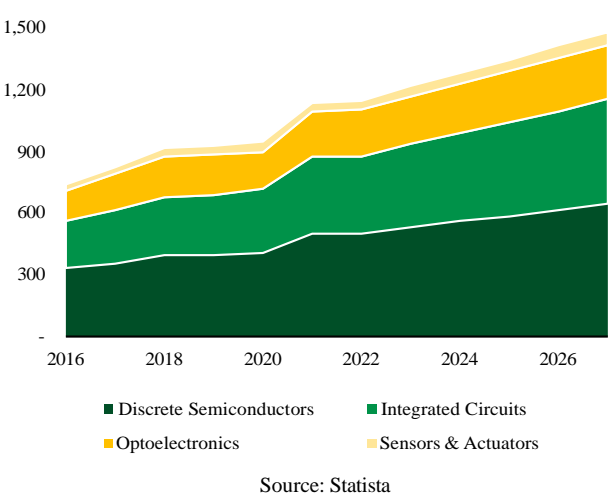
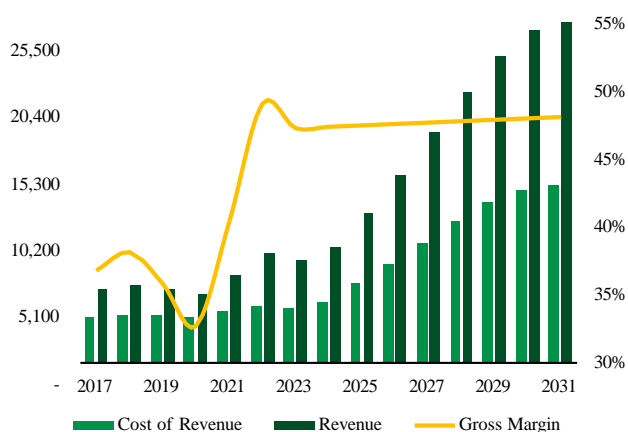


Figure 22: Onsemi Historical and Projected Margins



Source: SEC Filings and HF Spreads

Thad Trent – Executive Vice President, CFO

Thad Trent assumed the role of Executive Vice President and Chief Financial Officer at Onsemi in February 2021, and has concurrently served as Treasurer since that date. With a wealth of leadership experience, Mr. Trent previously served as the CFO at Cypress Semiconductor. During his tenure at Cypress, he played a pivotal role in driving remarkable growth, contributing towards revenue expansion between \$723 million and \$2.5 billion. Additionally, the firm's enterprise value increased fivefold during his five years of leadership. He also played a pivotal role in guiding Cypress through its acquisition by Infineon in 2020. He earned his Bachelor of Science in Business Administration and Finance from San Diego State University.

Dr. Wei-Chung Wang – Executive VP of Global Manufacturing and Operations

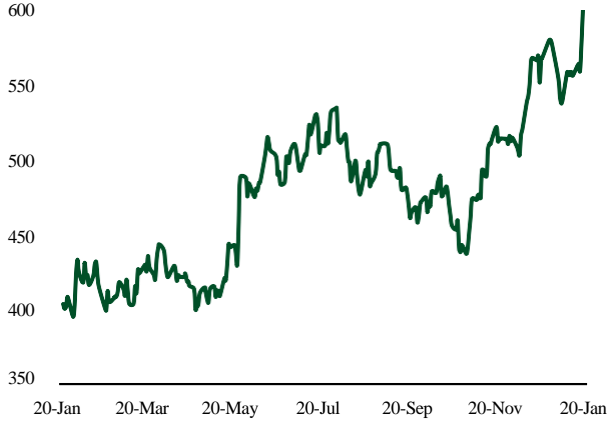
Dr. Wei-Chung Wang, with over 20 years of experience in the semiconductor industry, has served as Onsemi's Executive Vice President of Global Manufacturing and Operations since January 2021. Previously, he was the Executive Vice President of Worldwide Manufacturing and Operations at Cypress Semiconductor, overseeing aspects of the fabrication process such as testing, foundry, and supply chain. During his tenure at Cypress, Dr. Wang led achievements in accelerated process efficiency, which drove improvements in the company's cost, quality, and manufacturing flexibility. In his previous role as Senior Vice President of Operations at Fairchild Semiconductor, he also successfully streamlined manufacturing, enhanced flexibility of its manufacturing network, and facilitated packaging development of SiC, HV, and BCD technologies. Dr. Wang's extensive industry experience also includes executive and management roles at top industry players, including Taiwan SMC and Intel. He holds a Bachelor's Degree in Electrical Engineering from National Cheng-Kung University in Taiwan and earned both a Master's and Ph.D. in Electrical Engineering from Purdue University.

Management Guidance

Total revenue for 2023 fiscal Q4 is anticipated to range from \$1.95-2.05 billion, with gross margins between 45.4 and 47.4%. Operating expenses are projected to fall between \$314-329 million, with around \$4 million in interest expense. Diluted EPS are expected to come in between \$1.10 and \$1.24.

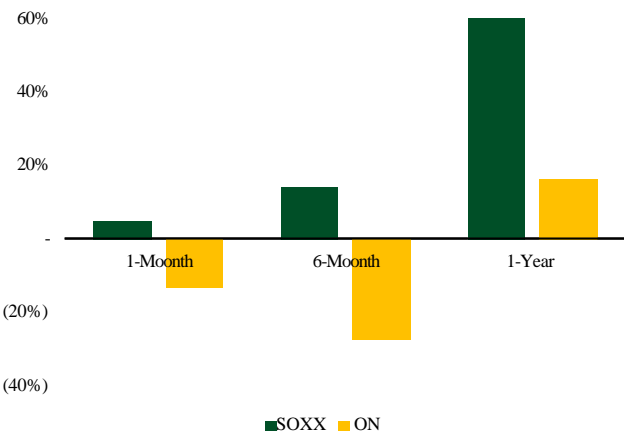
Looking ahead to 2027, management aims to grow revenue at a 10-12% CAGR. Its gross margin target is 53%, driven by the product mix shift achieved from the \$2 billion investment in ramping up SiC production at accretive margins announced in May of 2023. Onsemi aims to grow operating income faster than revenue, hoping for operating margins of 40% in 2027. Management anticipates strong R&D investments for long-term growth but plans to reduce all other operating expenses through the adoption of new technologies for things like data analytics. Onsemi has also projected capital expenditures out to 11% of 2027 revenue, but notes that capex will be driven by the company's market success. Guidance further clarified that capital expenditures through 2027 will only consist of high-ROIC investments in existing facilities, infrastructure, and/or projects. Lastly, the firm anticipates 2027 free cash flows between \$3.5-4.0 billion.

Figure 25: SOXX Semiconductor Index 1-Year Performance



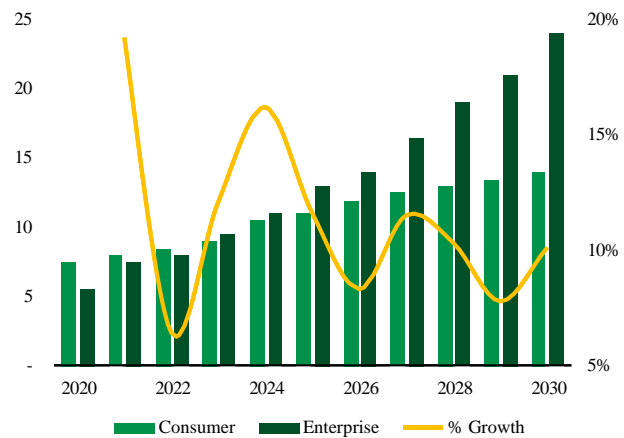
Source: Yahoo! Finance

Figure 26: SOXX vs ON Performance Comparison



Source: Yahoo! Finance

Figure 27: IoT Adoption, in Billions of Connections



Source: Statista

Recent News

Onsemi Unveils Silicon Carbide Chips for Ultra-Fast EV Chargers

January 4, 2024 – Onsemi released a suite of nine silicon-carbide (SiC) chips, called the EliteSiC Power Integrated Modules (PIMs). The PIMs are designed to facilitate rapid bidirectional charging in ultra-fast EV chargers and energy storage systems. These SiC-based solutions aim to significantly reduce system cost, enhance efficiency, and simplify cooling mechanisms. Developers can use these modules to deploy a reliable, efficient, and scalable network of DC fast chargers, capable of charging EV batteries up to 80% in just 15 minutes. These EliteSiC PIMs could potentially reduce size by up to 40% and weight by up to 52% compared to traditional silicon-based solutions, addressing the growing demand for faster and more convenient EV charging infrastructure.

Onsemi Introduces Lowest-Power Image Sensors for Smart Home and Office

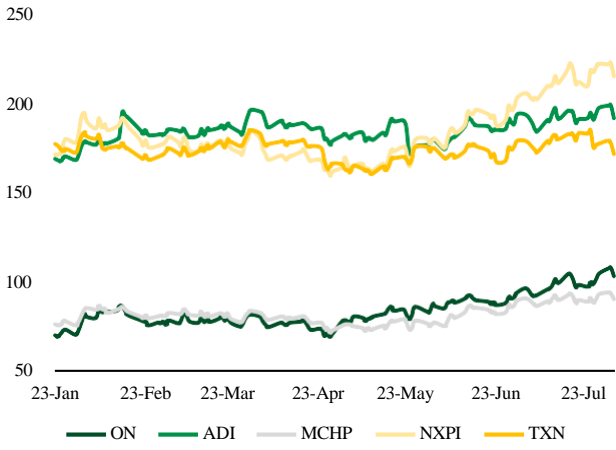
October 10, 2023 – Onsemi has introduced the Hyperlux LP image sensor family, which is designed to enhance image quality and battery life for IoT-based camera applications. These products are targeted at industrial and commercial use cases, such as smart doorbells, security cameras, AR/VR/XR headsets, machine vision, and video conferencing. The introduction of these sensors addresses the growing adoption of cameras for security purposes, emphasizing improved image clarity and precise object detection in adverse weather and lighting conditions. Furthermore, the stacked-architecture design is also suitable for size-sensitive devices, which is crucial for applications where cameras are placed in hard-to-access locations and thus require low power consumption for prolonged operation.

Catalysts

Upside

- The overall SiC market is expected to grow at a 33% CAGR through 2027, driven by demand for high-efficiency solutions in rapidly expanding industries such as EV, solar energy, and 5G. This is a powerful catalyst for Onsemi, as the company has made substantial investments to position its SiC offerings to capture a 30-45% market share by 2027. Furthermore, the company has already secured over \$16 billion in long-term supply agreements and prepayments for its SiC solutions.
- Increasing prevalence of sustainability disclosure regulations from agencies like the SEC, driven by upwards of 85% of young investors expressing

Figure 28: 1-Year Stock Price of Comparables



Source: Yahoo! Finance

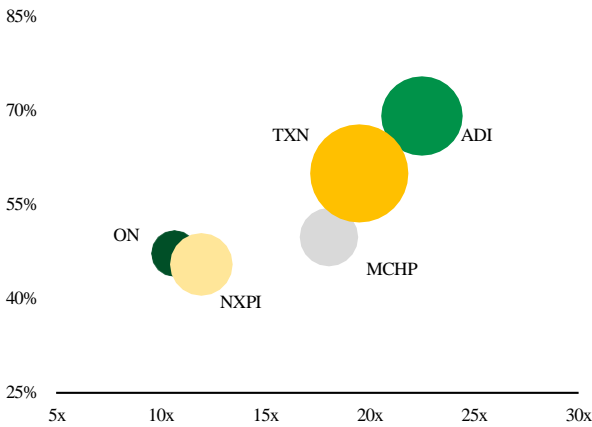
interest in ESG-focused investing, is putting pressure on publicly-traded semiconductor firms to make significant upfront investments in sustainability. Having been named World Finance’s most sustainable semiconductor company in the world two years in a row, and given the company’s plan to achieve carbon-neutrality ten years before the majority of its peers, Onsemi will benefit from positive investor sentiment while its competitors may simultaneously weaken operating margins with R&D.

Downside

- Onsemi’s significant presence in China, which accounted for 27% of 2022 revenue, exposes the company to risks regarding trade policies, intellectual property protection, and geopolitical tensions. While Onsemi has been largely unaffected by regulations like the Biden administration’s bans of AI chip exports to China, such policies may pose a threat to future revenues.
- The company has not publicly stated whether it has stockpiled raw materials that will sustain production demand through impending 2024 shortages. If Onsemi does run short on its raw materials, this has the potential to reduce revenues in the near future, particularly for its EV and EV-charging offerings.

Comparable Analysis

Figure 29: EV/EBITDA vs. Gross Margins

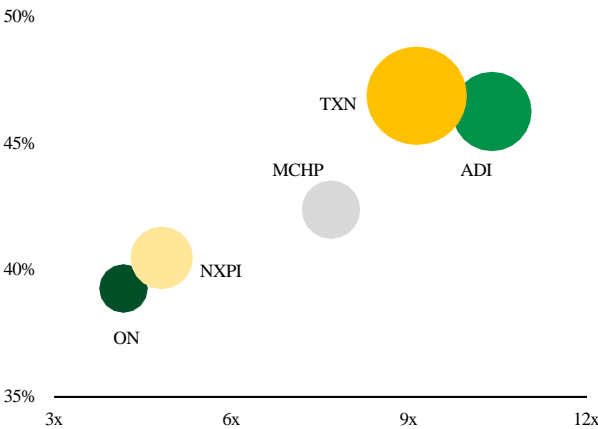


Source: Capital IQ and HF Spreads

Public Comparables

Onsemi's significant presence as a top-15 semiconductor firm with a 2% global market share, combined with its low market capitalization and EV/EBITDA, posed challenges in finding suitable publicly-traded comparables. Thus, given the increasingly competitive nature of the semiconductor industry, we prioritized the inclusion of companies with similar market share and product focus as Onsemi. While all four selected firms had higher market capitalizations and EV/EBITDAs than Onsemi, despite two of them holding lower market shares, our bullish outlook on Onsemi’s growth potential justifies the inclusion of such companies. This sentiment is further supported by the financial efficiency demonstrated by the company’s high market share and low multiple.

Figure 30: EV/Revenue vs. EBITDA Margins



Source: Capital IQ and HF Spreads

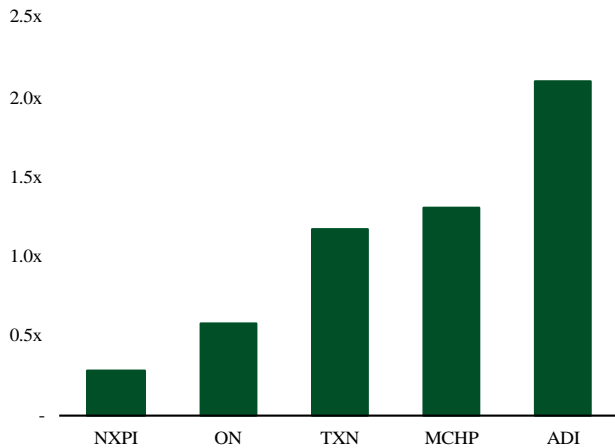
Our relative valuation analysis hinged on the EV/EBITDA multiple because it effectively removes the financial impact of capital-intensive operations and depreciation, enabling comparison of firms with varying leverage. The model ultimately produced an undervaluation of 37.31%, which we opted to weight at 20% of the final valuation. While we believe that the oligopolistic nature of the semiconductor industry could warrant strong consideration of the relative valuation, we avoided a higher weighting due to the lack of firms that are qualitatively and quantitatively reflective of Onsemi.

NXP Semiconductors NV (NASDAQ: NXPI) – 70%

NXP Semiconductors N.V. is a Dutch semiconductor designer and manufacturer with headquarters in Eindhoven, Netherlands. NXP Semiconductors has a strong presence in the automotive and communication infrastructure industries, exposing it to many of the same end-market applications as Onsemi. NXP also has a 3% global market share, which is comparable Onsemi’s 2%. Furthermore, the company has an EV/EBITDA of 11.31x just above ON’s multiple of 9.61x and a market cap of \$54 billion to ON’s \$32 billion. Thus, we assigned NXP a 70% weighting in the relative valuation.

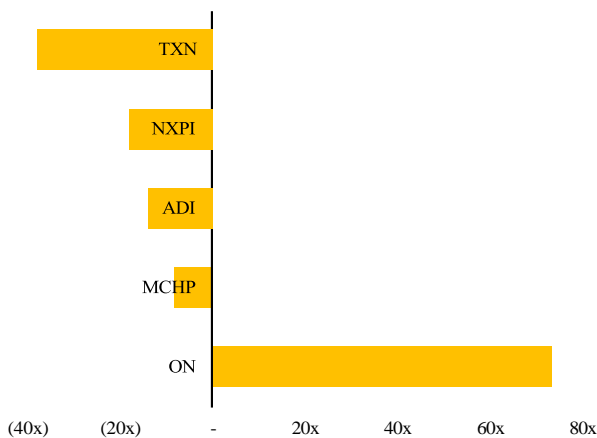
Microchip Technology Inc (NASDAQ: MCHP) – 10%

Figure 31: Leverage Ratios



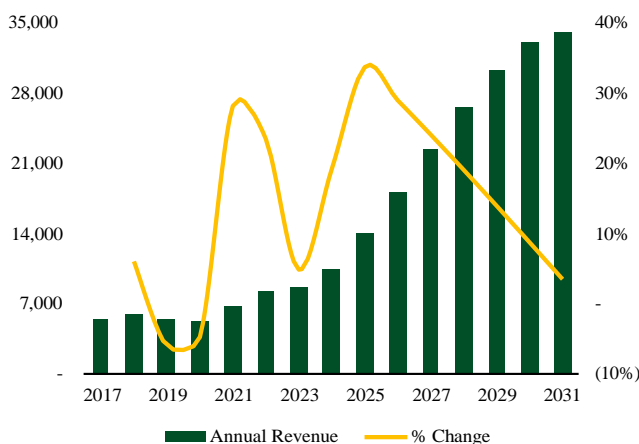
Source: Capital IQ and HF Spreads

Figure 32: Coverage Ratios



Source: Capital IQ and HF Spreads

Figure 33: Total Revenue Projections, in Millions of USD



Source: SEC Filings and HF Spreads

Microchip Technology, headquartered in Chandler, Arizona, is a prominent provider and manufacturer of microcontrollers, mixed-signal, analog, and Flash-IP integrated circuits. Given the shared focus on microcontrollers, Onsemi and Microchip’s portfolios complement each other effectively. Microchip Technology currently has a global market share below Onsemi’s 2%, but has a market capitalization and EV/EBITDA of \$46 billion and 17.16x, respectively. These metrics justify its 10% weighting in the relative valuation analysis.

Analog Devices Inc (NASDAQ: ADI) – 10%

Analog Devices is an American multinational semiconductor company specializing in data conversion, signal processing, and power management technology. The company is headquartered in Wilmington, Massachusetts and shares Onsemi’s focus on analog and mixed-signal solutions for diverse industries. Despite a lower global market share of less than 2%, Analog Devices has a market cap 3 times larger and an EV/EBITDA multiple over twice that of Onsemi’s, justifying its inclusion with a 10% weighting.

Texas Instruments Inc (NASDAQ: TXN) – 10%

Texas Instruments is an American information technology company headquartered in Dallas, Texas that designs and manufactures semiconductors and various integrated circuits. These offerings, focused on analog and embedded processing, are among Onsemi’s largest competitors. However, with its market share and EV/EBITDA both being twice as large as Onsemi’s, and a market cap of \$150 billion, which is five times larger, we only weighted TXN at 10%.

Precedent Transactions

We also assessed Onsemi through the lens of a precedent transactions analysis that included 21 semiconductor M&A transactions dating back to 2013. We utilized the EV/EBITDA multiple once again for this analysis. The median EV/EBITDA derived from our model was 19.50x, with a calculated median enterprise value of just over \$2.4 billion. First and third quartiles were 14.98x and 23.73x, respectively. This model implied a substantial undervaluation of 65.18% or a \$124.14 price target.

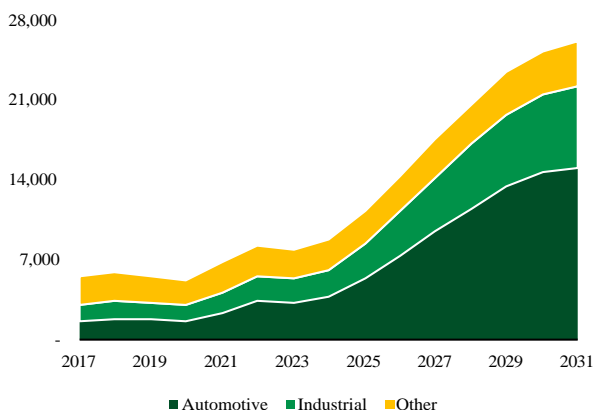
Discounted Cash Flow Analysis (WACC & APV)

We conducted discounted cash flow analyses using both the WACC and APV valuation methods, yielding undervaluations of 27.43% and 18.83%, respectively.

Revenue Model

We chose to project Onsemi’s revenue based on growth in its end markets, as opposed to its reportable segments, as we believed we had a more comprehensive understanding of the trajectory of these markets given macroeconomic factors and industry trends. This approach enabled us to make the most evidence-based projections possible. We also employed intermediate growth rates that reflect an anticipated peak growth for each end-market in 2025. This decision was informed by a comparative analysis of semiconductor industry revenue projections, which consistently indicate a peak in growth around that year. We projected growth rates of 3% for each end market in the terminal year 2031; while TGRs for mature industries typically range from 2-4%, and those undergoing rapid development (like semiconductors) might justify a range of 4-6%, we opted to project conservatively.

Figure 34: End Segment Revenue Projections, in Millions of USD



Source: SEC Filings and HF Spreads

Revenue segments and geographical disaggregation of revenue were subsequently projected based on historical percentages of total revenue. The Power Solutions Group has consistently accounted for almost exactly 50% of revenue since 2017, so we held it relatively constant. However, we have projected the Advanced Solutions Group to slightly outpace the Intelligent Sensing Group and account for 35.38% of revenue in the terminal year. With regards to the company’s international breakdown, we trended international revenue down from 80% of revenue in 2023 to 64% in the terminal year to represent the long-term results of US investments in its domestic manufacturing capabilities.

Automotive

We calculated 2023 Automotive revenue by averaging losses from 2019 and 2020. While this represents a steep decrease from 46.79% growth in 2022 to a 3.86% decline in 2023, this estimate accounts for the headwinds currently facing the EV market, including shortages of raw materials used to make lithium-ion batteries. While EVs are not the only application of this end market, we took a conservative approach and assumed growth resembling less than half that of the projected American EV manufacturing CAGR of 8.9%. Peak Automotive revenue growth of 41.53% in 2025 was derived by averaging 2022 and 2021 growth.

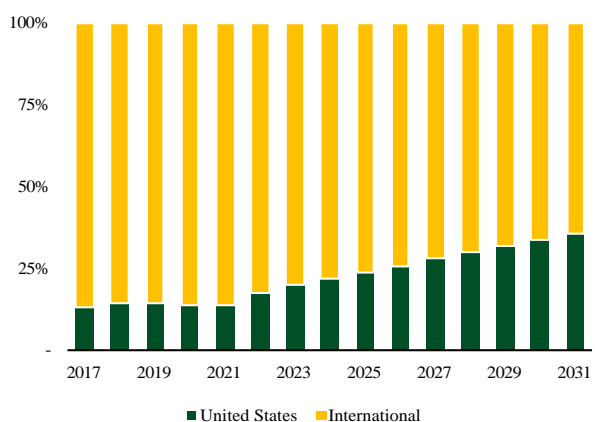
Industrial

For Industrial revenue, we also averaged 2019 and 2020 losses to arrive at a revenue decline of 9.02% in 2023. This end market encompasses EV charging infrastructure and IoT optimization solutions—markets that are forecasted to see growth of 14.6% and 17.80%, respectively, in 2024. However, given ongoing uncertainty in silicon carbide and industry supply chains, we assumed a major revenue hit for the sake of not inflating an undervaluation. Again, we averaged 2022 and 2021 growth rates to arrive at a peak growth of 32.17% in 2025.

Other

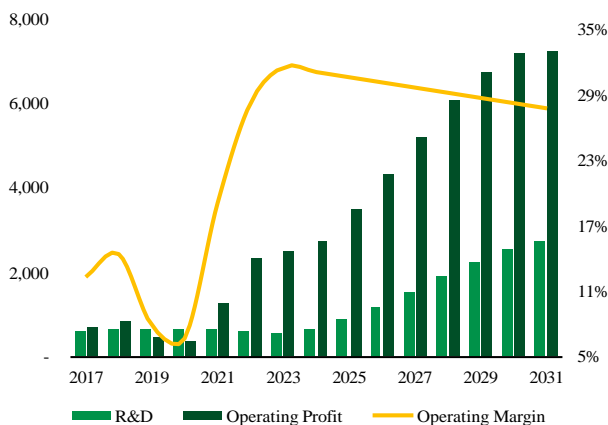
Other revenues have applications in 5G base stations, which is likely to be the largest driver for growth in the segment for the foreseeable future. Despite the 5G system integration market being forecasted to see a CAGR of 27.4% through 2030, we are cautiously accounting for near-term industry headwinds and projected 2023 and 2025 growth using the identical method as we did for Automotive and Industrial revenues. Thus, other revenues are forecasted to fall 4.24% in 2023, and peak at 9.00% in 2025.

Figure 35: Geographic Revenue Projections, in Millions of USD



Source: SEC Filings and HF Spreads

Figure 36: R&D and Operating Profit Projections, in Millions of USD



Source: SEC Filings and HF Spreads

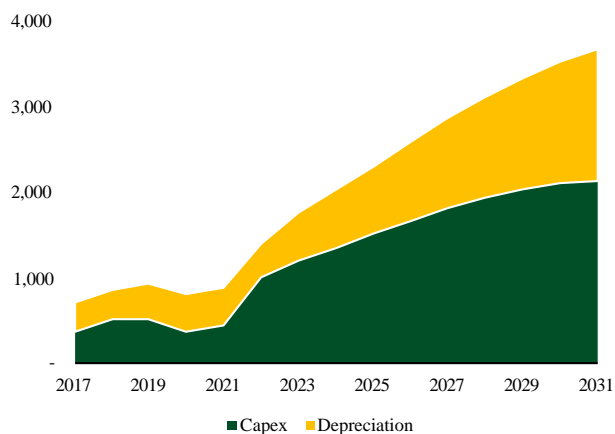
DCF Line Items

Cost of Revenue

Onsemi has made remarkable progress on management’s goal of driving gross margin expansion. Gross margins increased from 32.65% in 2020 to 40.27% in 2021 and further to 48.97% in 2022. In other words, cost of revenues decreased from approximately 67% in 2020 to 51% in 2022. During Onsemi’s latest earnings report, management expressed the intention to sustain gross margins within the range of 45-47% amidst near-term headwinds, and ultimately raise them to 53% by 2027. Our projections have gross margins deflating by about 1.8% in 2023 and then trending up to 52% in the terminal year. We opted to forecast these margins slightly bearishly compared to guidance for the sake of not overstimulating an undervaluation, but are confident in Onsemi’s ability to outperform our projections based on its demonstrated commitment to maintaining high margins, further supported by industry-wide initiatives to strengthen supply chains.

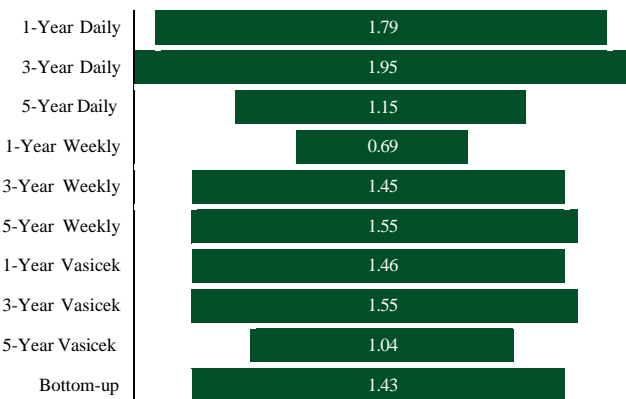
Research and Development

Figure 37: Capital Expenditure Productions, in Millions of USD



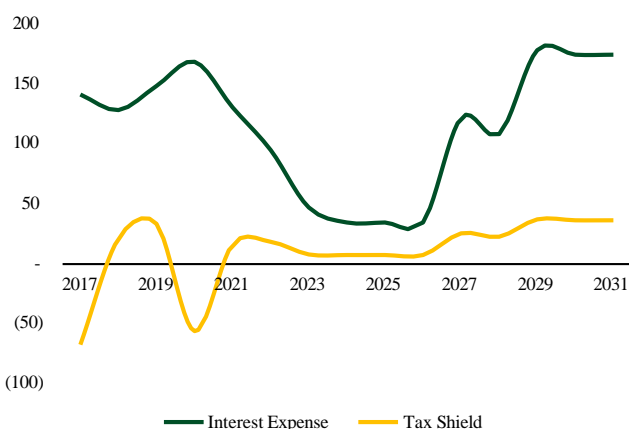
Source: SEC Filings and HF Spreads

Figure 38: Betas



Source: HF Spreads

Figure 39: Interest and Tax Shield Projections, in Millions of USD



Source: SEC Filings and HF Spreads

In 2023, we anticipate Onsemi's R&D expenses to be 6.93% of revenue, as a result of summing actual Q1-Q3 results and forecasting Q4 based on 2022 quarterly averages. For the terminal year, we have trended this expense upward to 10.43% of revenue. This adjustment is grounded in the average R&D expenditure recorded from 2017 through 2022, during which the company has invested significantly in expanding its capabilities in areas like silicon carbide. We felt this was appropriate given the constantly evolving nature of the industry and the increasing cost of R&D.

Capital Expenditures

Onsemi's capital expenditures primarily consist of manufacturing equipment. The company's capex was high in 2022, reaching 39.81% of beginning PP&E as opposed to 13.5%-22.5% over the previous five years. This was mainly attributable to the expansion of the company's silicon carbide product portfolio and corresponding facility expansion. That said, the company's capital expenditures have been gradually increasing, so we projected 2023 capex through a hard-plug of 35% of beginning PP&E in 2023. We trended this down to 23.17% in the terminal year to account for the company's ongoing efforts to enhance its capabilities and market position.

Depreciation

We projected depreciation to represent 16.57% of beginning PP&E in 2023 by averaging 2021 and 2022. We held this more-or-less constant, with depreciation in the terminal year representing 16.59% of beginning PP&E. This adjustment reflects ongoing efforts by Onsemi to enhance operational efficiency and rationalize the product portfolio, which may contribute to high depreciation sustained over time.

DCF Assumptions

Beta

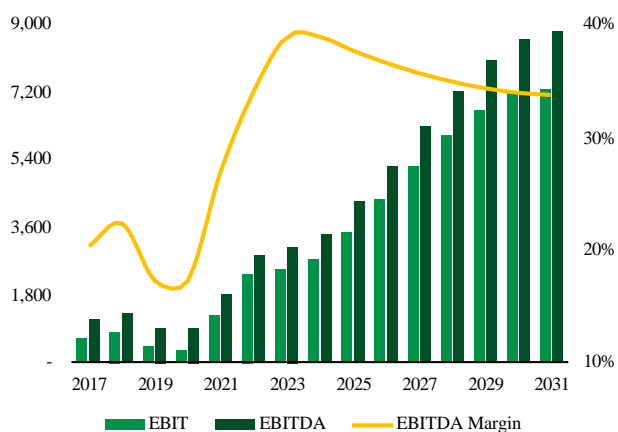
We chose to average the bottom-up and 5-year daily regressed betas to value Onsemi, arriving at levered and unlevered betas of 1.49 and 1.57, respectively. The bottom-up beta considers overall industry volatility, which we believe is critical to consider given the industry's widespread supply chain and geopolitical risks, which have historically been the primary reason for volatility. We also considered the 5-year daily regressed beta to account for historic fluctuations in Onsemi's individual stock. The semiconductor industry is known for years-long production cycles, so we only considered the 5-year beta because we believe this is the most suitable for capturing the industry's true pace.

Debt

Onsemi is not a highly leveraged company, with a leverage ratio of only 0.51x, as opposed to the median 1.25x seen across its comparables. Currently, the company only has three small loans on its balance sheet with maturities from 2027-2029. The outstanding portions of the loans total just over \$3 billion. Though management has not publicly expressed plans to take out debt in the future, the company is committed to maintaining its competitive edge at the forefront of innovation. Thus, we are assuming that the company will require additional capital and projected them to take out loans of \$1.5 billion in 2027 and 2029, due in 2032 and 2035, respectively.

Adjusted Present Value

Figure 40: EBITDA Projections, in Millions of USD



Source: SEC Filings and HF Spreads

We performed an APV analysis in addition to our DCF WACC to circumvent some the limitations of WACC’s assumption of a constant capital structure. We utilized an unlevered cost of equity of 11.79% to discount our cash flows and tax shield, arriving at a target price of \$89.30, implying an upside potential of 18.83%. We opted to weight the APV at 60% of our final valuation due to the model’s ability to account for potential changes in leverage, which is pertinent in the semiconductor industry as it undergoes significant transformations in manufacturing processes that may entail both substantial capital investments and cost-saving measure in coming years.

Leveraged Buyout (LBO)

We also conducted a leveraged buyout analysis of Onsemi, which simulates a private equity buyout of the company and provides additional insight on potential value of the company. This analysis produced an implied undervaluation of 85.77%. Despite the high likelihood of significant consolidation across the industry, we chose not to weight the LBO in the final valuation given Onsemi’s existing market cap of nearly \$32 billion.

Purchase Assumptions

We assumed a 25% takeout premium and determined a purchase price of \$39.96 billion, equivalent to 13.03x 2023 EBITDA. The decision to structure the debt with a first and second lien was influenced by the cyclical and capital-intensive nature of the semiconductor industry. We assumed interest rates of 3.71% and 5.71% over SOFR and capacities of 5.0x and 4.0x, respectively, for these liens. We believe that Onsemi’s low leverage and historically modest borrowing costs justify the assumption of a credit spread premium in-line with typical private equity transactions. The resulting debt and equity positions represented 69.01% and 30.99% of the purchase price, respectively.

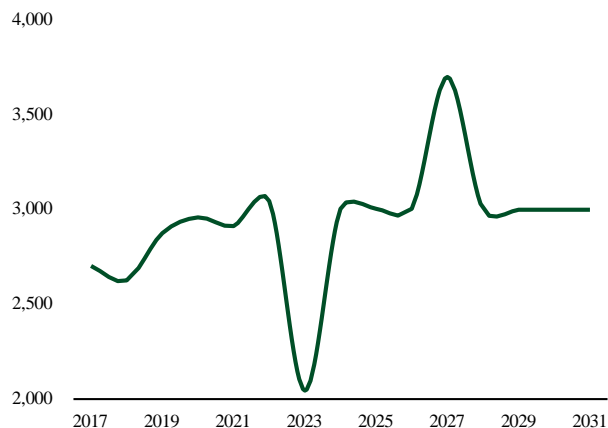
Exit Assumptions

With a projected holding period of 3 calendar years, concluding in the exit year 2027, we established our exit multiple using the first quartile from our precedent transactions model, discounted by 20% for the sake of a conservative estimate. This chosen exit multiple stands at 11.98x our anticipated 2027 EBITDA. Despite Onsemi’s current EV/EBITDA only being 8.68x, we believe this multiple is still conservative because it is grounded in the robust growth prospects of both Onsemi and the semiconductor industry. This rationale is reinforced by the lowered risk outlook that we expect for the industry, especially compared to the elevated risk associated with the transactions in our precedent transactions model. This exit scenario, coupled with the anticipated outstanding debt of \$25.4 billion at the exit, results in exit enterprise values and equity values of \$75.0 billion and \$49.6 billion, respectively. The decision to set a required IRR of 25% is driven by the heightened risk profile of a semiconductor company, which will persist for the next few years.

LBO APV

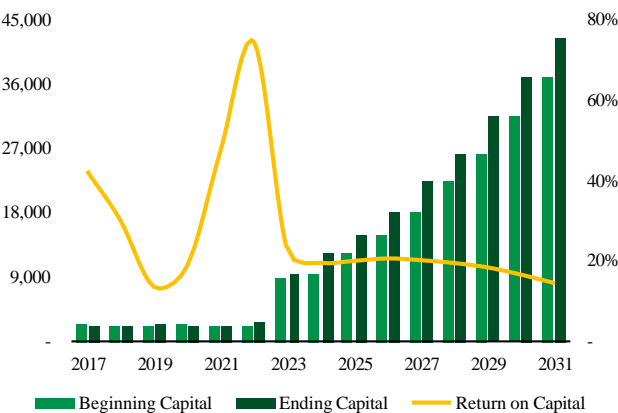
We further analyzed the LBO transaction with a supplemental APV, which accounts for the tax shields generated by interest expense and utilizes the selling price as the firm’s terminal value. This valuation captures the intricate dynamics introduced by the debt structure and provides insights into the net effect on the overall intrinsic value of the transaction. We arrived at a price target of \$82.79, with a 10.17% undervaluation, from this model.

Figure 41: Long-Term Debt Projections, in Millions of USD



Source: SEC Filings and HF Spreads

Figure 42: Return on Capital Projections



Source: SEC Filings and HF Spreads

Considerations

Current Reinvestment Rate	16.32%
Terminal Reinvestment Rate	8.72%
Implied ROC in Perpetuity	36.26%
Terminal Value as a % of Total	64.79%
Implied Multiple in Terminal Year	7.53x
Terminal COGS Margin	48.00%
FCF Growth Rate in Terminal Year	6.27%
Change in Net Working Capital	Positive
Growth in ROIC	High Growth
Growth in Reinvestment Rate	High Growth

Economic Value Added Model (EVA)

An economic value added model assesses a firm's true economic performance by measuring its ability to generate stakeholder returns after accounting for its cost of capital. An EVA's return on capital projections are crucial, as they provide insights into a firm's ability to efficiently deploy capital, navigate industry challenges, and sustain long-term viability amidst a dynamic landscape. Thus, this model is a strong approach to valuing semiconductor firms like Onsemi, as they are highly capital intensive and subject to forthcoming shifts in risk and volatility. This rationale supported our decision to weight the EVA at 20% of the final valuation. After linking this model to our operating model projections, we arrived at a \$80.97 price target, implying a 7.74% undervaluation. It is worth noting that, historically, Onsemi has delivered strong positive returns on capital, with the last five years seeing its lowest and highest ROCs of 13.51% and 74.89% in 2019 and 2022, respectively.

Recommendation

Onsemi is well-positioned to benefit from strong tailwinds in markets such as IoT and 5G, in addition to macroeconomic factors supporting stabilization in supply chain manufacturing. The company also possesses a major advantage over its competitors with regards to its well-established sustainability practices and is likely to maintain strong operating margins while its competitors see sharp declines as they scramble to restructure their production processes. With the company's shares also underperforming the broader semiconductor market by nearly 40% in the past year, the market is overlooking the company's advantages. Furthermore, my quantitative analyses of the firm imply a final price target of \$90.41, or a 20.31% upside potential.

Valuation Summary	Target Price	Weight
Discounted Cash Flow (WACC)	95.76	-
Discounted Cash Flow (APV)	89.30	60.00%
Trading Comparables	103.19	20.00%
Economic Value Added	80.97	20.00%
Precedent Transactions	124.14	-
Leveraged Buyout	139.61	-
LBO APV	82.79	-
Implied Share Price	90.41	
Current Share Price	75.15	
Undervalued	20.31%	

Appendix 1 – Relative Valuation

Relative Valuation													
\$ in Millions													
Ticker	Company Name	Valuation		Revenue	NTM Metric			Net Income	Revenue	EV/		Price/ Earnings	
		Enterprise Value	Equity Value		EBIT	EBITDA	EBIT			EBITDA			
ON	ON Semiconductor Corp	34,268	32,367	8,232	2,541	3,234	2,008	4.16x	13.48x	10.60x	16.12x		
ADI	Analog Devices Inc	104,056	98,613	10,008	2,143	4,627	1,920	10.40x	48.56x	22.49x	51.37x		
MCHP	Microchip Technology Inc	55,578	49,094	7,248	2,942	3,076	1,509	7.67x	18.89x	18.07x	32.53x		
NXPI	NXP Semiconductors NV	64,583	57,143	13,396	4,723	5,426	2,901	4.82x	13.67x	11.90x	19.70x		
TXN	Texas Instruments Inc	156,732	154,458	17,186	6,541	8,050	5,724	9.12x	23.96x	19.47x	26.98x		
Mean		95,237	89,827	11,960	4,087	5,295	3,013	8.00x	26.27x	17.98x	32.65x		
Median		84,320	77,878	11,702	3,832	5,026	2,410	8.39x	21.43x	18.77x	29.76x		

Weight
10.00%
10.00%
70.00%
10.00%

Statistics Comparison												
\$ in Millions												
Ticker	Company Name	Leverage			Margins			Growth				
		Leverage Ratio	Coverage Ratio	Debt to EV Ratio	Gross Margin	EBIT Margin	EBITDA Margin	Revenue NTM	Revenue NTM +1	EBITDA NTM	EBITDA NTM +1	
ON	ON Semiconductor Corp	0.58x	73.32x	0.05x	47.26%	30.87%	39.29%	(1.28%)	65.21%	1.72%	54.86%	
ADI	Analog Devices Inc	1.18x	(8.09x)	0.05x	69.31%	21.41%	46.24%	(18.67%)	12.52%	(26.37%)	18.21%	
MCHP	Microchip Technology Inc	2.11x	(14.04x)	0.12x	49.99%	40.59%	42.44%	(18.97%)	10.04%	(32.70%)	13.95%	
NXPI	NXP Semiconductors NV	1.31x	(18.04x)	0.11x	45.68%	35.26%	40.50%	1.75%	8.57%	0.77%	12.60%	
TXN	Texas Instruments Inc	0.28x	(37.96x)	0.01x	60.10%	38.06%	46.84%	(5.11%)	13.57%	(11.30%)	29.19%	
Mean		1.22x	(19.53x)	0.07x	56.27%	33.83%	44.00%	(10.25%)	11.17%	(17.40%)	18.49%	
Median		1.25x	(16.04x)	0.08x	55.04%	36.66%	44.34%	(11.89%)	11.28%	(18.83%)	16.08%	

Financials												
\$ in Millions												
Ticker	Company Name	Revenue	Gross Profit	EBIT	NTM Metric			Interest Expense	Revenue LTM	Growth		
					EBITDA	Net Income	Revenue NTM +1			EBITDA LTM	EBITDA NTM +1	
ON	ON Semiconductor Corp	8,232	3,890	2,541	3,234	2,008	35	8,339	13,600	3,180	5,009	
ADI	Analog Devices Inc	10,008	6,937	2,143	4,627	1,920	(265)	12,306	11,261	6,284	5,470	
MCHP	Microchip Technology Inc	7,248	3,623	2,942	3,076	1,509	(210)	8,945	7,976	4,570	3,505	
NXPI	NXP Semiconductors NV	13,396	6,120	4,723	5,426	2,901	(262)	13,166	14,544	5,384	6,109	
TXN	Texas Instruments Inc	17,186	10,329	6,541	8,050	5,724	(172)	18,112	19,517	9,076	10,400	
Mean		11,960	6,752	4,087	5,295	3,013	(227)	13,132	13,325	6,329	6,371	
Median		11,702	6,528	3,832	5,026	2,410	(236)	12,736	12,903	5,834	5,790	

Multiple	Implied Price	Weight
EV/Revenue	112.01	-
EV/EBIT	105.96	-
EV/EBITDA	103.19	100.00%
Price/Earnings	115.92	-
Implied Share Price	103.19	
Current Share Price	75.15	
Undervaluation	37.31%	

Appendix 2 – Precedent Transactions Model

Precedent Transactions - Semiconductors

\$ in Millions

Date	Target	Acquirer	Enterprise Value	EV / LTM Revenue	EV / LTM EBITDA
11/14/23	X-FAB Silicon Foundries SE	-	1,355	1.30x	4.40x
02/08/21	Sanken Electric Co.	Suntera (Cayman) Limited	1,899	1.20x	16.40x
04/17/20	ams-ORAM AG	-	3,558	2.00x	6.20x
02/20/20	Adesto Technologies Corpoation	Dialog Semiconductor Plc	-	4.00x	-
06/03/19	Cypress Semiconductor Corporation	Infineon Technologies AG	10,352	4.10x	20.40x
09/10/18	Integreated Device Technology, Inc.	Renesas Electronics Corporation	7,582	8.30x	33.70x
04/20/18	Renesas Electronics Corporation	Cathay Life Insurance Co.	33,383	2.20x	9.50x
08/08/17	Beijing Jingyuntong Technology Co.	-	2,136	7.30x	18.40x
06/12/17	CNXT Holdings, Inc.	Synaptics Incorporated	358	2.90x	21.70x
07/26/16	Linear Technology Corporation	Analog Devices, Inc.	14,764	9.40x	19.40x
12/11/15	Atmel Corporation	Microchip Technology Incorporated	3,519	2.80x	25.60x
06/15/15	Sanan Optoelectronines Co.	China Integrated Circuit Industry Investment Fund Co.	9,306	11.50x	22.00x
03/12/15	Integrated Silicon Solution, Inc	Summitview Capital	816	2.10x	24.30x
12/01/14	Hua Hong Semiconductor Limited	Sino-Alliance International Limited	2,122	2.90x	10.70x
12/01/14	Spansion Inc.	Cypress Semiconductor Corporation	2,421	1.70x	19.60x
08/22/14	Peregrine Semiconductor Corporation	Murata Electronics North America, Inc.	445	2.10x	-
06/23/14	PLX Technology Inc.	Avago Technologies Wireless	314	2.80x	29.50x
06/09/14	Hitrite Microwave Corporation	Analog Devices, Inc.	2,471	7.20x	16.90x
02/10/14	Supertex Inc.	Microchip Technology Incorporated	397	3.60x	24.40x
12/16/13	LSI Corporation	Avago Technologies Wireless	6,608	2.50x	17.90x

Company Information

\$ in Millions

Debt	4,924
Cash and Cash Equivalents	3,042
Non-Controlling Interest	20
Preferred Stock	-
Diluted Basic Shares	431
Market Capitalization	32,367
Enterprise Value	34,268
Operating Results	
LTM Revenue	8,326
LTM EBITDA	2,839

Precedent Transaction Analysis

\$ in Millions

	Enterprise Value	EV/LTM Revenue	EV / LTM EBITDA	Weight
Average	5,463	4.10x	18.94x	-
Minimum	314	1.20x	4.40x	-
1st Quartile	816	2.10x	14.98x	-
Median	2,421	2.85x	19.50x	100%
3rd Quartile	7,095	4.88x	23.73x	-
Maximum	33,383	11.50x	33.70x	-
Weighted Average	2,421	2.85x	19.50x	

Multiple	Implied Price	Weight
EV / LTM Revenue	50.68	-
EV / LTM EBITDA	124.14	100.00%
Price Target	124.14	
Current Price	75.15	
Undervalued	65.18%	

Appendix 3 – Revenue Model

End Market Breakdown \$ in Millions	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Automotive	1,718	1,822	1,821	1,682	2,292	3,364	3,234	3,843	5,439	7,349	9,457	11,562	13,394	14,656	15,096
% Growth	-	6.05%	(0.07%)	(7.65%)	36.27%	46.79%	(3.86%)	18.83%	41.53%	35.11%	28.69%	22.27%	15.84%	9.42%	3.00%
% of Total Revenue	31.00%	31.00%	33.00%	32.00%	34.00%	40.40%	41.06%	43.73%	47.85%	51.23%	53.90%	55.88%	57.20%	57.88%	57.88%
Industrial	1,386	1,587	1,435	1,314	1,820	2,290	2,083	2,324	3,072	3,911	4,789	5,631	6,348	6,847	7,052
% Growth	-	14.53%	(9.61%)	(8.43%)	38.52%	25.83%	(9.02%)	11.58%	32.17%	27.31%	22.45%	17.59%	12.72%	7.86%	3.00%
% of Total Revenue	25.00%	27.00%	26.00%	25.00%	27.00%	27.50%	26.45%	26.45%	27.03%	27.27%	27.29%	27.21%	27.11%	27.04%	27.04%
Other	2,439	2,469	2,262	2,260	2,629	2,673	2,559	2,620	2,856	3,085	3,301	3,499	3,674	3,821	3,935
% Growth	-	1.23%	(8.37%)	(0.12%)	16.32%	1.68%	(4.24%)	2.38%	9.00%	8.00%	7.00%	6.00%	5.00%	4.00%	3.00%
% of Total Revenue	44.00%	42.00%	41.00%	43.00%	39.00%	32.10%	32.49%	29.82%	25.13%	21.50%	18.81%	16.91%	15.69%	15.09%	15.09%
Total Revenue	5,543.1	5,878.3	5,517.9	5,255.0	6,739.8	8,326.2	7,876.4	8,787.6	11,367.2	14,344.4	17,546.4	20,692.2	23,415.6	25,323.6	26,083.3
% Growth	-	6.05%	(6.13%)	(4.76%)	28.25%	23.54%	(5.40%)	11.57%	29.36%	26.19%	22.32%	17.93%	13.16%	8.15%	3.00%

Segment Breakdown \$ in Millions	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Power Solutions Group (PSG)	2,819.3	3,038.2	2,788.3	2,606.1	3,439.1	4,208.2	3,938.2	4,401.5	5,703.7	7,210.2	8,835.2	10,437.5	11,831.9	12,818.4	13,226.0
% Growth	-	7.76%	(8.23%)	(6.53%)	31.96%	22.36%	(6.42%)	11.77%	29.58%	26.41%	22.54%	18.14%	13.36%	8.34%	3.18%
% of Total Revenue	50.86%	51.69%	50.53%	49.59%	51.03%	50.54%	50.00%	50.09%	50.18%	50.26%	50.35%	50.44%	50.53%	50.62%	50.71%
Advanced Solutions Group (ASG)	1,950.9	2,071.2	1,972.3	1,910.4	2,399.9	2,841.3	2,678.0	3,002.9	3,904.0	4,951.1	6,086.6	7,213.4	8,203.1	8,915.1	9,227.4
% Growth	-	6.17%	(4.78%)	(3.14%)	25.62%	18.39%	(5.75%)	12.13%	30.01%	26.82%	22.93%	18.51%	13.72%	8.68%	3.50%
% of Total Revenue	35.20%	35.23%	35.74%	36.35%	35.61%	34.12%	34.00%	34.17%	34.34%	34.52%	34.69%	34.86%	35.03%	35.20%	35.38%
Intelligent Sensing Group (ISG)	772.9	768.9	757.3	738.5	900.8	1,276.7	1,260.2	1,383.1	1,759.6	2,183.0	2,624.7	3,041.3	3,380.6	3,590.2	3,629.9
% Growth	-	(0.52%)	(1.51%)	(2.48%)	21.98%	41.73%	(1.29%)	9.75%	27.22%	24.07%	20.23%	15.88%	11.16%	6.20%	1.11%
% of Total Revenue	13.94%	13.08%	13.72%	14.05%	13.37%	15.33%	16.00%	15.74%	15.48%	15.22%	14.96%	14.70%	14.44%	14.18%	13.92%
Total Revenue	5,543.1	5,878.3	5,517.9	5,255.0	6,739.8	8,326.2	7,876.4	8,787.6	11,367.2	14,344.4	17,546.4	20,692.2	23,415.6	25,323.6	26,083.3
% Growth	-	6.05%	(6.13%)	(4.76%)	28.25%	23.54%	(5.40%)	11.57%	29.36%	26.19%	22.32%	17.93%	13.16%	8.15%	3.00%

Geographic Breakdown \$ in Millions	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
United States	748.8	862.7	810.3	728.6	931.6	1,464.7	1,575.3	1,933.3	2,728.1	3,729.5	4,913.0	6,207.7	7,493.0	8,610.0	9,390.0
% Growth	-	15.21%	(6.07%)	(10.08%)	27.86%	57.22%	7.55%	22.72%	41.12%	36.71%	31.73%	26.35%	20.71%	14.91%	9.06%
% of Total Revenue	13.51%	14.68%	14.68%	13.86%	13.82%	17.59%	20.00%	22.00%	24.00%	26.00%	28.00%	30.00%	32.00%	34.00%	36.00%
International	4,794.3	5,015.6	4,707.6	4,526.4	5,808.2	6,861.5	6,301.1	6,854.3	8,639.1	10,614.8	12,633.4	14,484.6	15,922.6	16,713.6	16,693.3
% Growth	-	4.62%	(6.14%)	(3.85%)	28.32%	18.13%	8.22%	7.44%	6.66%	5.88%	5.11%	4.33%	3.55%	2.78%	2.00%
% of Total Revenue	86.49%	85.32%	85.32%	86.14%	86.18%	82.41%	80.00%	78.00%	76.00%	74.00%	72.00%	70.00%	68.00%	66.00%	64.00%
Singapore	1,466.9	1,955.0	1,713.1	1,799.5	2,097.8	2,133.9	2,297.9	2,499.6	3,150.5	3,871.0	4,607.2	5,282.3	5,806.7	6,095.2	6,087.8
% Growth	-	33.27%	(12.37%)	5.04%	16.58%	1.72%	8.85%	7.99%	7.14%	6.28%	5.42%	4.57%	3.71%	2.86%	2.00%
% of International Revenue	30.60%	38.98%	36.39%	39.76%	36.12%	31.10%	36.47%	36.47%	36.47%	36.47%	36.47%	36.47%	36.47%	36.47%	36.47%
Hong Kong	1,785.0	1,489.1	1,417.3	1,311.6	1,828.6	2,315.8	1,940.8	2,111.2	2,661.0	3,269.5	3,891.3	4,461.4	4,904.4	5,148.0	5,141.8
% Growth	-	(16.58%)	(4.82%)	(7.46%)	39.42%	26.64%	7.44%	6.76%	6.08%	5.40%	4.72%	4.04%	3.36%	2.68%	2.00%
% of International Revenue	37.23%	29.69%	30.11%	28.98%	31.48%	33.75%	30.80%	30.80%	30.80%	30.80%	30.80%	30.80%	30.80%	30.80%	30.80%
United Kingdom	668.8	946.5	921.6	805.9	1,123.6	1,492.3	1,226.8	1,334.5	1,682.0	2,066.6	2,459.6	2,820.0	3,100.0	3,254.0	3,250.1
% Growth	-	41.52%	(2.63%)	(12.55%)	39.42%	32.81%	19.71%	17.50%	15.29%	13.07%	10.86%	8.64%	6.43%	4.21%	2.00%
% of International Revenue	13.95%	18.87%	19.58%	17.80%	19.35%	21.75%	19.47%	19.47%	19.47%	19.47%	19.47%	19.47%	19.47%	19.47%	19.47%
Other	873.6	625.0	655.6	609.4	758.2	919.5	835.6	909.0	1,145.6	1,407.6	1,675.3	1,920.8	2,111.5	2,216.4	2,213.7
% Growth	-	(28.46%)	4.90%	(7.05%)	24.42%	21.27%	3.02%	2.89%	2.76%	2.64%	2.51%	2.38%	2.25%	2.13%	2.00%
% of International Revenue	18.22%	12.46%	13.93%	13.46%	13.05%	13.40%	13.26%	13.26%	13.26%	13.26%	13.26%	13.26%	13.26%	13.26%	13.26%
Total Revenue	5,543.1	5,878.3	5,517.9	5,255.0	6,739.8	8,326.2	7,876.4	8,787.6	11,367.2	14,344.4	17,546.4	20,692.2	23,415.6	25,323.6	26,083.3
% Growth	-	6.05%	(6.13%)	(4.76%)	28.25%	23.54%	(5.40%)	11.57%	29.36%	26.19%	22.32%	17.93%	13.16%	8.15%	3.00%

Appendix 4 – Operating Model, Income Statement

Income Statement \$ in Millions	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Total Revenue	5,543	5,878	5,518	5,255	6,740	8,326	7,876	8,788	11,367	14,344	17,546	20,692	23,416	25,324	26,083
% Growth	-	6.05%	(6.13%)	(4.76%)	28.25%	23.54%	(5.40%)	11.57%	29.36%	26.19%	22.32%	17.93%	13.16%	8.15%	3.00%
Cost of Revenue	3,508	3,640	3,544	3,539	4,026	4,249	4,160	4,633	5,981	7,533	9,196	10,824	12,224	13,194	13,563
% Revenue	63.28%	61.92%	64.23%	67.35%	59.73%	51.03%	52.82%	52.72%	52.62%	52.51%	52.41%	52.31%	52.21%	52.10%	52.00%
Gross Profit	2,036	2,239	1,974	1,716	2,714	4,077	3,716	4,155	5,386	6,812	8,350	9,868	11,191	12,129	12,520
Gross Margin	36.72%	38.08%	35.77%	32.65%	40.27%	48.97%	47.18%	47.28%	47.38%	47.49%	47.59%	47.69%	47.79%	47.90%	48.00%
Research and Development	595	651	641	643	655	600	546	647	887	1,182	1,523	1,886	2,237	2,530	2,720
% Revenue	10.73%	11.07%	11.61%	12.23%	9.72%	7.21%	6.93%	7.37%	7.80%	8.24%	8.68%	9.12%	9.55%	9.99%	10.43%
Selling and Marketing	317	325	301	279	294	288	268	310	415	541	683	830	967	1,077	1,140
% Revenue	5.71%	5.52%	5.45%	5.30%	4.36%	3.46%	3.41%	3.53%	3.65%	3.77%	3.89%	4.01%	4.13%	4.25%	4.37%
General and Administrative	285	293	284	259	305	343	341	383	498	632	777	921	1,048	1,139	1,180
% Revenue	5.14%	4.99%	5.15%	4.92%	4.52%	4.12%	4.34%	4.36%	4.38%	4.41%	4.43%	4.45%	4.48%	4.50%	4.52%
Amortization of Acquisition-Related Intangibles	124	112	115	120	99	81									
% Revenue	2.23%	1.90%	2.09%	2.29%	1.47%	0.98%									
Restructuring, Impairments, and Other	21	4	198	65	71	18	66	74	96	121	148	174	197	212	219
% Revenue	0.38%	0.07%	3.59%	1.24%	1.06%	0.21%	0.84%	0.84%	0.84%	0.84%	0.84%	0.84%	0.84%	0.84%	0.84%
Goodwill and Impairment of Intangibles	13	7	2	1	3	387									
% Revenue	0.24%	0.12%	0.03%	0.02%	0.04%	4.65%									
Operating Profit (EBIT)	682	847	433	349	1,288	2,360	2,494	2,740	3,490	4,336	5,220	6,057	6,742	7,171	7,261
Operating Margin	12.30%	14.41%	7.84%	6.64%	19.10%	28.34%	31.66%	31.18%	30.70%	30.23%	29.75%	29.27%	28.79%	28.32%	27.84%
Net Interest Expense	138	122	138	164	129	79	47	35	35	35	122	108	178	174	174
% Revenue	2.49%	2.08%	2.50%	3.11%	1.91%	0.95%	0.60%	0.39%	0.30%	0.24%	0.69%	0.52%	0.76%	0.69%	0.67%
Debt Refinancing and Prepayment	47	5	6	-	29	7									
% Revenue	0.85%	0.08%	0.11%	-	0.43%	0.09%									
Gain on Divestitures	(13)	(5)	-	-	(10)	(67)	(12)	(17)	(27)	(40)	(56)	(74)	(93)	(111)	(125)
% Revenue	(0.23%)	(0.09%)	-	-	(0.15%)	(0.80%)	(0.16%)	(0.20%)	(0.24%)	(0.28%)	(0.32%)	(0.36%)	(0.40%)	(0.44%)	(0.48%)
Other Loss (Income), Net	(39)	(30)	12	9	(18)	(22)	(9)	(11)	(17)	(24)	(33)	(43)	(53)	(62)	(69)
% Revenue	(0.70%)	(0.50%)	0.21%	0.16%	(0.27%)	(0.26%)	(0.11%)	(0.13%)	(0.15%)	(0.17%)	(0.19%)	(0.21%)	(0.23%)	(0.24%)	(0.26%)
Income Before Income Taxes (EBT)	548	755	277	177	1,158	2,362	2,468	2,734	3,500	4,365	5,187	6,065	6,710	7,169	7,280
EBT Margin	9.88%	12.84%	5.01%	3.36%	17.18%	28.37%	31.33%	31.12%	30.79%	30.43%	29.56%	29.31%	28.66%	28.31%	27.91%
Income Taxes (Benefits)	(266)	125	63	(60)	147	458	406	574	735	917	1,089	1,274	1,409	1,506	1,529
Effective Tax Rate	(48.49%)	16.57%	22.67%	(33.86%)	12.66%	19.41%	16.44%	21.00%	21.00%	21.00%	21.00%	21.00%	21.00%	21.00%	21.00%
Net Income	813	630	214	236	1,011	1,904	2,062	2,160	2,765	3,448	4,097	4,792	5,301	5,664	5,751
Net Margin	14.67%	10.72%	3.88%	4.50%	15.00%	22.87%	26.18%	24.58%	24.32%	24.04%	23.35%	23.16%	22.64%	22.36%	22.05%

Appendix 5 – Operating Model, Balance Sheet

Balance Sheet \$ in Millions	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Current Assets	2,933	3,168	3,020	3,184	3,782	5,729	5,605	8,083	10,495	13,622	18,119	21,905	26,888	32,146	37,382
Cash and Equivalents	949	1,070	894	1,081	1,353	2,919	2,930	5,119	6,677	8,837	12,307	15,118	19,241	23,934	28,983
Receivables, Net	702	686	705	676	809	842	869	969	1,258	1,587	1,941	2,283	2,590	2,801	2,886
Days Outstanding	46.19	42.60	46.63	47.08	43.83	36.92	40.38	40.38	40.38	40.38	40.38	40.38	40.38	40.38	40.38
Inventories	1,090	1,225	1,232	1,251	1,380	1,617	1,500	1,653	2,118	2,639	3,188	3,701	4,146	4,425	4,498
Days Outstanding	113.38	122.87	126.92	129.41	125.08	138.89	131.98	130.62	129.25	127.89	126.52	125.15	123.79	122.42	121.05
Other Current Assets	193	187	188	176	240	351	306	341	442	558	683	803	911	985	1,015
Days Outstanding	12.71	11.61	12.46	12.26	13.00	15.40	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20
Noncurrent Assets	4,262	4,420	5,406	5,484	5,844	6,249	6,885	7,578	8,317	9,089	9,875	10,656	11,406	12,100	12,713
Goodwill	917	933	1,659	1,663	1,938	1,578	1,578	1,578	1,578	1,578	1,578	1,578	1,578	1,578	1,578
Deferred Tax Assets	339	266	308	429	366	377	377	377	377	377	377	377	377	377	377
Right-of-Use Financing Lease	-	-	-	-	22	46	46	46	46	46	46	46	46	46	46
Net PP&E Ending	2,279	2,550	2,592	2,512	2,524	3,451	4,087	4,779	5,518	6,290	7,077	7,857	8,608	9,302	9,915
Net Intangibles Ending	628	566	591	469	496	360	360	360	360	360	360	360	360	360	360
Other Noncurrent Assets	99	105	256	410	498	439	439	439	439	439	439	439	439	439	439
Total Assets	7,195	7,588	8,426	8,668	9,626	11,979	12,490	15,660	18,812	22,710	27,994	32,561	38,294	44,246	50,095
% Current	40.77%	41.75%	35.84%	36.73%	39.29%	47.83%	44.88%	51.61%	55.79%	59.98%	64.72%	67.27%	70.22%	72.65%	74.62%
Current Liabilities	1,409	1,469	1,818	1,675	1,543	2,061	1,647	1,834	2,374	2,990	3,650	4,284	4,852	5,237	5,384
Accounts Payable	548	672	544	573	635	852	743	828	1,072	1,350	1,648	1,934	2,190	2,364	2,430
Days Outstanding	57.03	67.36	55.98	59.25	57.59	73.20	65.39	65.39	65.39	65.39	65.39	65.39	65.39	65.39	65.39
Current Portion of Financing Leases	-	-	-	-	13	14	13	15	19	24	30	35	40	43	44
Days Outstanding	-	-	-	-	1.15	1.22	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Current Portion of Long-Term Debt	248	139	736	532	161	148									
Days Outstanding	25.82	13.89	75.79	54.97	14.57	12.70									
Accrued Expenses and Other	613	659	539	570	735	1,047	890	991	1,283	1,616	1,973	2,316	2,622	2,830	2,910
Days Outstanding	63.77	66.10	55.49	58.95	66.63	89.97	78.30	78.30	78.30	78.30	78.30	78.30	78.30	78.30	78.30
Noncurrent Liabilities	2,985	2,924	3,283	3,435	3,478	3,710	2,711	3,669	3,669	3,669	4,364	3,664	3,664	3,664	3,664
Long-Term Debt	2,704	2,628	2,877	2,960	2,914	3,046	2,047	3,005	3,005	3,005	3,700	3,000	3,000	3,000	3,000
Deferred Tax Liabilities	55	55	60	57	43	34	34	34	34	34	34	34	34	34	34
Long-Term Financing Lease Liabilities	-	-	-	-	10	23	23	23	23	23	23	23	23	23	23
Other Noncurrent Liabilities	226	242	346	418	511	607	607	607	607	607	607	607	607	607	607
Total Liabilities	4,394	4,394	5,101	5,110	5,022	5,772	4,358	5,503	6,043	6,659	8,015	7,949	8,517	8,902	9,048
% Current	32.06%	33.44%	35.65%	32.77%	30.74%	35.72%	37.79%	33.32%	39.28%	44.90%	45.54%	53.90%	56.97%	58.83%	59.50%
Common Stock	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Additional Paid-In Capital	3,594	3,702	3,810	4,133	4,633	4,671	4,778	4,897	5,051	5,244	5,481	5,759	6,074	6,413	6,762
Accumulated Other Comprehensive Income	(41)	(38)	(54)	(58)	(41)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
Retained Earnings	352	980	1,191	1,426	2,435	4,364	6,424	8,581	11,339	14,778	18,862	23,635	28,913	34,548	40,268
Noncontrolling Interest	22	23	22	20	19	19	19	19	19	19	19	19	19	19	19
Treasury Stock	1,131	1,478	1,651	1,968	2,448	2,830	3,071	3,322	3,623	3,973	4,365	4,784	5,210	5,618	5,985
Total Stockholders Equity	2,801	3,194	3,324	3,558	4,604	6,207	8,132	10,157	12,768	16,051	19,980	24,612	29,778	35,345	41,047
Balance Check	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Operating Working Capital	823	767	1,043	961	1,046	897	1,028	1,130	1,444	1,794	2,161	2,502	2,795	2,975	3,015
Change in OWC	-	(56)	276	(83)	86	(150)	131	102	314	351	367	341	293	180	40

Appendix 6 – Operating Model, Balance Sheet (PP&E and Intangibles Breakdown)

PP&E and Intangibles Breakdown															
<i>\$ in Millions</i>	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Net PP&E Beginning	2,869	2,279	2,550	2,592	2,512	2,524	3,451	4,087	4,779	5,518	6,290	7,077	7,857	8,608	9,302
Capital Expenditures	388	515	535	384	445	1,005	1,208	1,370	1,531	1,687	1,830	1,954	2,053	2,122	2,156
<i>% Beginning PP&E</i>	13.51%	22.59%	20.97%	14.80%	17.70%	39.81%	35.00%	33.52%	32.04%	30.57%	29.09%	27.61%	26.13%	24.65%	23.17%
<i>% Revenue</i>	6.99%	8.76%	9.69%	7.30%	6.60%	12.07%	15.33%	15.59%	13.47%	11.76%	10.43%	9.44%	8.77%	8.38%	8.26%
Depreciation	325	359	410	444	437	398	572	677	792	915	1,043	1,173	1,303	1,428	1,543
<i>% Beginning PP&E</i>	11.33%	15.76%	16.07%	17.14%	17.37%	15.77%	16.57%	16.57%	16.58%	16.58%	16.58%	16.58%	16.58%	16.58%	16.59%
<i>% Revenue</i>	5.87%	6.11%	7.42%	8.45%	6.48%	4.78%	7.26%	7.71%	6.97%	6.38%	5.94%	5.67%	5.56%	5.64%	5.92%
Net PP&E Ending	2,279	2,550	2,592	2,512	2,524	3,451	4,087	4,779	5,518	6,290	7,077	7,857	8,608	9,302	9,915
<i>% Revenue</i>	41.12%	43.37%	46.97%	47.81%	37.45%	41.44%	51.88%	54.39%	48.55%	43.85%	40.33%	37.97%	36.76%	36.73%	38.01%
Net Intangibles Beginning	762	628	566	591	469	496	360	360	360	360	360	360	360	360	360
Amortization	124	112	115	120	99	81									
<i>% Beginning Intangibles</i>	16.24%	17.78%	20.34%	20.37%	21.11%	16.38%									
<i>% Revenue</i>	2.23%	1.90%	2.09%	2.29%	1.47%	0.98%									
Net Intangibles Ending	628	566	591	469	496	360	360	360	360	360	360	360	360	360	360
<i>% Revenue</i>	11.33%	9.64%	10.70%	8.92%	7.35%	4.32%	4.57%	4.09%	3.16%	2.51%	2.05%	1.74%	1.54%	1.42%	1.38%

Appendix 7 – Operating Model, Statement of Cash Flows

Statement of Cash Flows \$ in Millions	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Net Income	813	630	214	236	1,011	1,904	2,062	2,160	2,765	3,448	4,097	4,792	5,301	5,664	5,751
Adjustments to Reconcile Net Income															
Depreciation and Amortization	482	509	593	625	597	552	572	677	792	915	1,043	1,173	1,303	1,428	1,543
Sale or Disposal of Fixed Assets	4	2	2	-	-	(33)									
Divestitures	(13)	(5)	-	-	(10)	(67)									
Debt Refinancing and Prepayment	47	5	6	-	29	7									
Amortization of Debt Discount and Issuance	16	13	13	12	11	11									
Stock-Based Compensation	70	78	79	68	101	101	107	119	154	194	236	278	315	340	349
% Revenue	1.26%	1.33%	1.44%	1.29%	1.50%	1.21%	1.36%	1.35%	1.35%	1.35%	1.35%	1.35%	1.34%	1.34%	1.34%
Noncash Interest on Convertible Notes	31	36	38	38	25	-									
Impairment of Noncash Assets	8	2	3	19	11	19									
Impairment of Goodwill and Intangibles	13	7	2	-	-	387									
Change in Deferred Tax Balances	(348)	69	11	(123)	62	3									
Other Adjustments	(2)	(3)	(0)	7	4	0									
Changes in Assets and Liabilities															
Receivables	(58)	(3)	5	31	(136)	(48)	(27)	(101)	(288)	(329)	(354)	(342)	(308)	(211)	(84)
Inventories	(60)	(130)	35	(26)	(123)	(235)	116	(153)	(465)	(521)	(548)	(513)	(445)	(280)	(73)
Other Changes in Assets	(86)	(37)	(35)	(60)	(23)	(111)	46	(35)	(101)	(116)	(125)	(120)	(108)	(74)	(30)
Accounts Payable	52	45	(80)	34	71	38	(109)	84	244	278	298	286	256	174	66
Accrued Expenses and Other Curr. Liabilities	211	57	(202)	(19)	124	97	(157)	101	292	333	357	343	307	208	79
Other Changes in Liabilities	(86)	(1)	10	41	29	8	(149)	2	4	5	5	5	5	3	1
Net Cash from Operating Activities	1,094	1,274	695	884	1,782	2,633	2,462	2,855	3,397	4,206	5,010	5,902	6,626	7,251	7,603
Purchases of PP&E	(388)	(515)	(535)	(384)	(445)	(1,005)	(1,208)	(1,370)	(1,531)	(1,687)	(1,830)	(1,954)	(2,053)	(2,122)	(2,156)
Sales of PP&E	14	37	2	6	14	59									
Deposits for Purchases of PP&E	(8)	4	5	2	(47)	(31)									
Purchase of Businesses	(1)	(71)	(888)	(5)	(399)	(2)									
Divestitures, Net of Cash Transfer and Escrow	20	8	5	-	7	263									
Purchases of Available-for-Sale Securities	-	-	-	-	(49)	(18)									
Sales of Available-for-Sale Securities	-	-	-	-	4	29									
Settlement of Previous Acquisitions	-	-	-	26	-	-									
Manufacturing Facility License and Deposit	-	-	(100)	(100)	-	-									
Other Investing Activities	(3)	(12)	-	-	-	-									
Net Cash from Investing Activities	(365)	(549)	(1,511)	(454)	(915)	(705)	(1,208)	(1,370)	(1,531)	(1,687)	(1,830)	(1,954)	(2,053)	(2,122)	(2,156)
Issuance of Common Stock Under ESPP	24	25	26	24	24	23									
Tax Withholding for RSUs	(28)	(32)	(34)	(20)	(39)	(78)									
Repurchase of Common Stock	(25)	(315)	(139)	(65)	-	(260)	(241)	(251)	(301)	(350)	(392)	(419)	(426)	(408)	(366)
% Revenue	0.45%	5.36%	2.52%	1.24%	-	(3.12%)	3.06%	2.85%	2.65%	2.44%	2.23%	2.03%	1.82%	1.61%	1.40%
Debt Agreement Issuance and Borrowing	1,106	15	1,405	1,858	787	500									
Reimbursement of Debt Issuance Costs	-	-	(24)	-	3	-									
Debt Issuance Payments	(1,831)	(298)	(594)	(2)	(4)	-									
Repayment of Debt Agreement Borrowings	-	-	-	(2,024)	(1,271)	(530)	(999)	958	-	-	695	(700)	-	-	-
Finance Lease Obligation Payments	(9)	(4)	(1)	-	-	(12)									
Purchases of Bond Hedges	(145)	-	-	-	(160)	-									
Warrant Issuances	85	-	-	-	94	-									
Payments for Prior Acquisitions	-	-	(5)	(9)	(3)	(9)									
Noncontrolling Shareholder Dividends	(2)	(2)	(2)	(5)	-	(4)	(2)	(4)	(6)	(10)	(14)	(19)	(23)	(28)	(32)
Payout Ratio	0.23%	0.35%	1.08%	2.12%	-	0.23%	0.11%	0.17%	0.22%	0.28%	0.33%	0.39%	0.44%	0.50%	0.55%
Other Financing Activities	14	6	(9)	-	-	-									
Net Cash from Financing Activities	(811)	(605)	623	(244)	(569)	(370)	(1,243)	704	(307)	(360)	290	(1,138)	(449)	(436)	(398)
Foreign Currency Adjustments	2	0	0	1	(1)	(2)									
Total Change in Cash	(79)	121	(193)	187	296	1,555	11	2,189	1,558	2,160	3,470	2,811	4,123	4,693	5,049

Appendix 8 – Discounted Cash Flow Analysis

Discounted Cash Flow Analysis															
\$ in Millions	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Total Revenue	5,543	5,878	5,518	5,255	6,740	8,326	7,876	8,788	11,367	14,344	17,546	20,692	23,416	25,324	26,083
% Growth	-	6.05%	(6.13%)	(4.76%)	28.25%	23.54%	(5.40%)	11.57%	29.36%	26.19%	22.32%	17.93%	13.16%	8.15%	3.00%
Cost of Revenue	3,508	3,640	3,544	3,539	4,026	4,249	4,160	4,633	5,981	7,533	9,196	10,824	12,224	13,194	13,563
% Revenue	63.28%	61.92%	64.23%	67.35%	59.73%	51.03%	52.82%	52.72%	52.62%	52.51%	52.41%	52.31%	52.21%	52.10%	52.00%
Gross Profit	2,036	2,239	1,974	1,716	2,714	4,077	3,716	4,155	5,386	6,812	8,350	9,868	11,191	12,129	12,520
Gross Margin	36.72%	38.08%	35.77%	32.65%	40.27%	48.97%	47.18%	47.28%	47.38%	47.49%	47.59%	47.69%	47.79%	47.90%	48.00%
Research and Development	595	651	641	643	655	600	546	647	887	1,182	1,523	1,886	2,237	2,530	2,720
% Revenue	10.73%	11.07%	11.61%	12.23%	9.72%	7.21%	6.93%	7.37%	7.80%	8.24%	8.68%	9.12%	9.55%	9.99%	10.43%
Selling and Marketing	317	325	301	279	294	288	268	310	415	541	683	830	967	1,077	1,140
% Revenue	5.71%	5.52%	5.45%	5.30%	4.36%	3.46%	3.41%	3.53%	3.65%	3.77%	3.89%	4.01%	4.13%	4.25%	4.37%
General and Administrative	285	293	284	259	305	343	341	383	498	632	777	921	1,048	1,139	1,180
% Revenue	5.14%	4.99%	5.15%	4.92%	4.52%	4.12%	4.34%	4.36%	4.38%	4.41%	4.43%	4.45%	4.48%	4.50%	4.52%
Amortization of Acquisition-Related Intangibles	124	112	115	120	99	81	-	-	-	-	-	-	-	-	-
% Revenue	2.23%	1.90%	2.09%	2.29%	1.47%	0.98%	-	-	-	-	-	-	-	-	-
Restructuring, Impairments, and Other	21	4	198	65	71	18	66	74	96	121	148	174	197	212	219
% Revenue	0.38%	0.07%	3.59%	1.24%	1.06%	0.21%	0.84%	0.84%	0.84%	0.84%	0.84%	0.84%	0.84%	0.84%	0.84%
Goodwill and Impairment of Intangibles	13	7	2	1	3	387	-	-	-	-	-	-	-	-	-
% Revenue	0.24%	0.12%	0.03%	0.02%	0.04%	4.65%	-	-	-	-	-	-	-	-	-
Operating Profit (EBIT)	682	847	433	349	1,288	2,360	2,494	2,740	3,490	4,336	5,220	6,057	6,742	7,171	7,261
Operating Margin	12.30%	14.41%	7.84%	6.64%	19.10%	28.34%	31.66%	31.18%	30.70%	30.23%	29.75%	29.27%	28.79%	28.32%	27.84%
Net Interest Expense	138	122	138	164	129	79	47	35	35	35	122	108	178	174	174
% Revenue	2.49%	2.08%	2.50%	3.11%	1.91%	0.95%	0.60%	0.39%	0.30%	0.24%	0.69%	0.52%	0.76%	0.69%	0.67%
Debt Refinancing and Prepayment	(13)	(5)	-	-	(10)	(67)	(12)	(17)	(27)	(40)	(56)	(74)	(93)	(111)	(125)
% Revenue	(0.23%)	(0.09%)	-	-	(0.15%)	(0.80%)	(0.16%)	(0.20%)	(0.24%)	(0.28%)	(0.32%)	(0.36%)	(0.40%)	(0.44%)	(0.48%)
Gain on Divestitures	(39)	(30)	12	9	(18)	(22)	(9)	(11)	(17)	(24)	(33)	(43)	(53)	(62)	(69)
% Revenue	(0.70%)	(0.50%)	0.21%	0.16%	(0.27%)	(0.26%)	(0.11%)	(0.13%)	(0.15%)	(0.17%)	(0.19%)	(0.21%)	(0.23%)	(0.24%)	(0.26%)
Other Loss (Income), Net	(39)	(30)	12	9	(18)	(22)	(9)	(11)	(17)	(24)	(33)	(43)	(53)	(62)	(69)
% Revenue	(0.70%)	(0.50%)	0.21%	0.16%	(0.27%)	(0.26%)	(0.11%)	(0.13%)	(0.15%)	(0.17%)	(0.19%)	(0.21%)	(0.23%)	(0.24%)	(0.26%)
Income Before Income Taxes (EBT)	548	755	277	177	1,158	2,362	2,468	2,734	3,500	4,365	5,187	6,065	6,710	7,169	7,280
EBT Margin	9.88%	12.84%	5.01%	3.36%	17.18%	28.37%	31.33%	31.12%	30.79%	30.43%	29.56%	29.31%	28.66%	28.31%	27.91%
Income Taxes (Benefits)	(266)	125	63	(60)	147	458	406	574	735	917	1,089	1,274	1,409	1,506	1,529
Effective Tax Rate	(48.49%)	16.57%	22.67%	(33.86%)	12.66%	19.41%	16.44%	21.00%	21.00%	21.00%	21.00%	21.00%	21.00%	21.00%	21.00%
Net Income	813	630	214	236	1,011	1,904	2,062	2,160	2,765	3,448	4,097	4,792	5,301	5,664	5,751
Net Margin	14.67%	10.72%	3.88%	4.50%	15.00%	22.87%	26.18%	24.58%	24.32%	24.04%	23.35%	23.16%	22.64%	22.05%	
Add Back: Depreciation and Amortization	449	471	525	564	536	479	572	677	792	915	1,043	1,173	1,303	1,428	1,543
Add Back: Net Interest*(1-Tax Rate)	205	102	107	219	113	64	39	27	27	27	96	86	141	138	138
Operating Cash Flow	1,467	1,203	1,659	1,406	1,659	2,447	2,673	2,865	3,584	4,391	5,237	6,051	6,745	7,229	7,432
% Revenue	26.47%	20.46%	15.32%	19.40%	24.62%	29.39%	33.94%	32.60%	31.53%	30.61%	29.84%	29.24%	28.80%	28.55%	28.49%
Total Current Operating Assets	1,984	2,098	2,126	2,103	2,429	2,810	2,675	2,964	3,818	4,784	5,811	6,787	7,647	8,212	8,399
% Revenue	35.79%	35.69%	38.53%	40.03%	36.04%	33.75%	33.96%	33.73%	33.59%	33.35%	33.12%	32.80%	32.66%	32.43%	32.20%
Total Current Operating Liabilities	1,161	1,331	1,082	1,143	1,383	1,914	1,647	1,834	2,374	2,990	3,650	4,284	4,852	5,237	5,384
% Revenue	20.94%	22.64%	19.62%	21.75%	20.52%	22.98%	20.91%	20.87%	20.88%	20.84%	20.80%	20.71%	20.72%	20.68%	20.64%
Net Operating Working Capital	823	767	1,043	961	1,046	897	1,028	1,130	1,444	1,794	2,161	2,502	2,795	2,975	3,015
% Revenue	14.85%	13.05%	18.91%	18.28%	15.52%	10.77%	13.05%	12.86%	12.70%	12.51%	12.32%	12.09%	11.94%	11.75%	11.56%
Change in OWC	-	(56)	276	(83)	86	(150)	131	102	314	351	367	341	293	180	40
Capital Expenditures	388	515	535	384	445	1,005	1,208	1,370	1,531	1,687	1,830	1,954	2,053	2,122	2,156
% Revenue	6.99%	8.76%	9.69%	7.30%	6.60%	12.07%	15.33%	15.59%	13.47%	11.76%	10.43%	9.44%	8.77%	8.38%	8.26%
Unlevered Free Cash Flow	-	744	35	719	1,129	1,592	1,334	1,393	1,739	2,353	3,040	3,756	4,399	4,927	5,236
Discounted Free Cash Flow	-	-	-	-	-	-	-	1,222	1,374	1,675	1,949	2,168	2,287	2,308	2,209
Discount Period	-	-	-	-	-	-	-	1.25	2.25	3.25	4.25	5.25	6.25	7.25	8.25
EBITDA	1,131	1,318	958	913	1,823	2,839	3,066	3,418	4,282	5,251	6,263	7,230	8,045	8,598	8,804
EBITDA Growth	NA	16.59%	(27.36%)	(4.63%)	99.66%	55.74%	7.97%	11.48%	25.31%	22.61%	19.28%	15.43%	11.27%	6.87%	2.39%
EBITDA Margin	20.40%	22.42%	17.35%	17.38%	27.05%	34.10%	38.92%	38.89%	37.67%	36.60%	35.69%	34.94%	34.36%	33.95%	33.75%
NOPAT	1,012	707	335	467	1,125	1,902	2,084	2,165	2,757	3,425	4,124	4,785	5,326	5,665	5,736
% Growth	-	(30.16%)	(52.66%)	39.50%	140.92%	69.13%	9.55%	3.89%	27.37%	24.23%	20.39%	16.03%	11.31%	6.35%	1.26%
ROIC	42.03%	14.71%	6.10%	7.28%	17.34%	26.54%	23.26%	22.45%	22.02%	22.80%	22.67%	21.09%	20.10%	17.96%	15.51%
% Growth	-	(64.99%)	(58.57%)	19.43%	138.20%	53.05%	(12.36%)	(3.49%)	(1.91%)	3.55%	(0.56%)	(6.98%)	(4.68%)	(10.65%)	(13.65%)
Reinvestment Rate	-	(5.23%)	89.54%	(54.03%)	(0.39%)	16.32%	35.97%	35.65%	36.93%	31.29%	26.28%	21.51%	17.41%	13.02%	8.72%
% Growth	-	-	(1813.06%)	(160.34%)	(99.28%)	(4270.21%)	120.36%	(0.87%)	3.58%	(15.26%)	(16.02%)	(18.14%)	(19.05%)	(25.21%)	(33.06%)

Appendix 9 – Adjusted Present Value Model

Adjusted Present Value Model															
<i>\$ in Millions</i>	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Interest Expense	141	128	148	168	130	95	47	35	35	35	122	108	178	174	174
<i>Tax Rate</i>	<i>(48.49%)</i>	<i>16.57%</i>	<i>22.67%</i>	<i>(33.86%)</i>	<i>12.66%</i>	<i>19.41%</i>	<i>16.44%</i>	<i>21.00%</i>	<i>21.00%</i>	<i>21.00%</i>	<i>21.00%</i>	<i>21.00%</i>	<i>21.00%</i>	<i>21.00%</i>	<i>21.00%</i>
Tax Shield	(68)	21	34	(57)	17	18	8	7	7	7	26	23	37	37	37
<i>Tax Shield Growth</i>	<i>-</i>	<i>(131.02%)</i>	<i>58.26%</i>	<i>(269.63%)</i>	<i>(128.96%)</i>	<i>11.54%</i>	<i>(57.89%)</i>	<i>(6.14%)</i>	<i>-</i>	<i>-</i>	<i>251.44%</i>	<i>(11.15%)</i>	<i>64.51%</i>	<i>(2.11%)</i>	<i>-</i>
Unlevered FCF	-	744	35	719	1,129	1,592	1,334	1,393	1,739	2,353	3,040	3,756	4,399	4,927	5,236
PV of FCF								1,222	1,374	1,675	1,949	2,168	2,287	2,308	2,209
PV of Tax Shield								6	6	5	16	13	19	17	15
<i>Discount Period</i>	-	-	-	-	-	-	-	<i>1.25</i>	<i>2.25</i>	<i>3.25</i>	<i>4.25</i>	<i>5.25</i>	<i>6.25</i>	<i>7.25</i>	<i>8.25</i>

Appendix 10 – Leveraged Buyout Model

Cash Flow Summary					
\$ in Millions	2023E	2024E	2025E	2026E	2027E
Total Revenue	7,876	8,788	11,367	14,344	17,546
% Growth	(5.40%)	11.57%	29.36%	26.19%	22.32%
EBITDA	3,066	3,418	4,282	5,251	6,263
EBITDA Margin	38.92%	38.89%	37.67%	36.60%	35.69%
% Growth	7.97%	11.48%	25.31%	22.61%	19.28%
Depreciation and Amortization	572	677	792	915	1,043
% Revenue	7.26%	7.71%	6.97%	6.38%	5.94%
EBIT	2,494	2,740	3,490	4,336	5,220
EBIT Margin	31.66%	31.18%	30.70%	30.23%	29.75%
Net Interest Expense	2,599	2,614	2,518	2,427	2,321
% Revenue	0.60%	0.39%	0.30%	0.24%	0.69%
Earnings Before Taxes	(106)	126	972	1,909	2,899
EBT Margin	31.33%	31.12%	30.79%	30.43%	29.56%
Taxes	(17)	27	204	401	609
Tax Rate	16.44%	21.00%	21.00%	21.00%	21.00%
Add Back: D&A	572	677	792	915	1,043
Capital Expenditures	1,208	1,370	1,531	1,687	1,830
Change in Working Capital	131	102	314	351	367
Acquisitions	-	-	-	-	-
CADR	(855)	(642)	123	1,187	2,354

Returns Analysis						
\$ in Millions	2023E	2024E	2025E	2026E	2027E	
EBITDA	3,066	3,418	4,282	5,251	6,263	
Implied TEV	36,726	40,942	51,304	62,903	75,028	
Net Debt	(2,047)	(3,005)	(3,005)	(3,005)	(3,700)	
2024 Exit	(12,382)	34,679	-	-	-	
2025 Exit	(12,382)	-	37,937	-	-	
2026 Exit	(12,382)	-	-	48,299	-	
2027 Exit	(12,382)	-	-	-	59,898	
2028 Exit	(12,382)	-	-	-	-	71,328
IRR	180.07%	75.04%	57.41%	48.30%	41.94%	

Debt Schedule					
\$ in Millions	2023E	2024E	2025E	2026E	2027E
SOFER Floor	0.00%	0.00%	0.00%	0.00%	0.00%
SOFER Rate	4.83%	4.62%	4.11%	3.83%	3.77%
Revolver					
Opening Balance	-	-	-	-	-
Drawings	-	-	-	-	-
Repayments	-	-	-	-	-
Closing Balance	-	-	-	-	-
Average Balance	-	-	-	-	-
Interest Rate	0.00%	0.00%	0.00%	0.00%	0.00%
Interest Expense	-	-	-	-	-
Amount Undrawn	-	-	-	-	-
Undrawn Fee (%)	0.38%	0.38%	0.38%	0.38%	0.38%
Undrawn Fee (\$)	-	-	-	-	-
Cash Flow Available to Sweep	(855)	(642)	123	1,187	2,354
First Lien					
Opening Balance	15,325	16,180	16,822	16,699	15,511
Amortization (%)	0.00%	0.00%	0.00%	0.00%	0.00%
Amortization (\$)	-	-	-	-	-
Cash Flow Sweep	855	642	(123)	(1,187)	(2,354)
Closing Balance	16,180	16,822	16,699	15,511	13,157
Average Balance	15,753	16,501	16,760	16,105	14,334
Interest Rate	8.54%	8.33%	7.82%	7.54%	7.48%
Interest Expense	1,308	1,348	1,315	1,259	1,160
Cash Flow Available to Sweep	-	-	-	-	-
Second Lien					
Opening Balance	12,250	12,250	12,250	12,250	12,250
Amortization (%)	-	-	-	-	-
Amortization (\$)	-	-	-	-	-
Cash Flow Sweep	-	-	-	-	-
Closing Balance	12,250	12,250	12,250	12,250	12,250
Average Balance	12,250	12,250	12,250	12,250	12,250
Interest Rate	10.54%	10.33%	9.82%	9.54%	9.48%
Interest Expense	1,291	1,266	1,203	1,168	1,161
Cash Flow Available to Sweep	-	-	-	-	-

Purchase Assumptions	
Equity Price Per Share	75.15
Take-Out Premium	25%
Shares Outstanding	431
Other Claims on Value	34
Market Cap	40,459
Retire Existing Debt	2,541
Excess Cash	(3,042)
Purchase Price	39,957
Advisory Fees	0.50%
Implied Entry Multiple	13.03x

Debt Assumptions		Interest Rate	
2023 EBITDA	3,066		
Revolver	0.0x	S +	0.00%
First Lien	5.0x	S +	3.71%
Second Lien	4.0x	S +	5.71%

Amortization	
First Lien	0.0%
Second Lien	0.0%

Exit Assumptions	
2027 EBITDA	6,263
EV/EBITDA	11.98x
Implied TEV	75,028
Net Debt Outstanding	(25,407)
Exit Equity Value	49,621

Sources of Funds	
Revolver	-
First Lien	15,325
Second Lien	12,250
Sponsor Equity	12,382
Total Sources	39,957

Uses of Funds	
Equity Purchase Price	40,459
Retire Existing Net Debt	(501)
Advisory Fees	(20)
Total Uses	39,957

Pro Forma Capitalization				
\$ in Millions				x 2023 EBITDA
Source	Available	Funded	% Cap	EBITDA
Revolver	-	-	-	0.0x
First Lien	15,325	15,325	38.35%	5.0x
Second Lien	12,250	12,250	30.66%	4.0x
Total Debt	27,575	27,575	69.01%	9.0x
Sponsor Equity	12,382	12,382	30.99%	4.0x
Total Capitalization	39,957	39,957	100.00%	13.03x

Appendix 11 – LBO Supplemental APV

APV - LBO Model					
<i>\$ in Millions</i>	2023E	2024E	2025E	2026E	2027E
Total Revenue	7,876	8,788	11,367	14,344	17,546
<i>% Growth</i>	(5.40%)	11.57%	29.36%	26.19%	22.32%
EBITDA	3,066	3,418	4,282	5,251	6,263
<i>EBITDA Margin</i>	38.92%	38.89%	37.67%	36.60%	35.69%
<i>% Growth</i>	7.97%	11.48%	25.31%	22.61%	19.28%
Depreciation and Amortization	572	677	792	915	1,043
<i>% Revenue</i>	7.26%	7.71%	6.97%	6.38%	5.94%
EBIT	2,494	2,740	3,490	4,336	5,220
<i>EBIT Margin</i>	31.66%	31.18%	30.70%	30.23%	29.75%
Net Interest Expense	2,599	2,614	2,518	2,427	2,321
<i>% Revenue</i>	0.60%	0.39%	0.30%	0.24%	0.69%
Earnings Before Taxes	(106)	126	972	1,909	2,899
<i>EBT Margin</i>	31.33%	31.12%	30.79%	30.43%	29.56%
Taxes	(17)	27	204	401	609
<i>Tax Rate</i>	16.44%	21.00%	21.00%	21.00%	21.00%
Operating Income	2,084	2,165	2,757	3,425	4,124
<i>Operating Margin</i>	26.46%	24.63%	24.26%	23.88%	23.50%
Add Back: D&A	572	677	792	915	1,043
Capital Expenditures	1,208	1,370	1,531	1,687	1,830
Change in Working Capital	131	102	314	351	367
Acquisitions	-	-	-	-	-
Tax Shield	427	549	529	510	487
Free Cash Flow	1,405	1,270	936	795	680
<i>Discount Period</i>	-	1.25	2.25	3.25	4.25
PV of Tax Shield	427	479	415	359	308
PV of Free Cash Flow	1,405	1,110	734	559	429

		Exit EBITDA Multiple				
		8.0x	10.0x	12.0x	14.0x	16.0x
1.0	(33.35%)	(6.68%)	19.99%	46.66%	73.33%	
1.1	(34.44%)	(8.24%)	17.95%	44.15%	70.34%	
1.2	(35.50%)	(9.77%)	15.96%	41.69%	67.42%	
1.3	(36.54%)	(11.26%)	14.01%	39.29%	64.56%	
1.4	(37.56%)	(12.73%)	12.10%	36.93%	61.76%	

Appendix 12 – Economic Value Added Model

Economic Value Added															
<i>\$ in Millions</i>	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
NOPAT	1,012	707	335	467	1,125	1,902	2,084	2,165	2,757	3,425	4,124	4,785	5,326	5,665	5,736
% Growth	-	(30.16%)	(52.66%)	39.50%	140.92%	69.13%	9.55%	3.89%	27.37%	24.23%	20.39%	16.03%	11.31%	6.35%	1.26%
Charge	530	605	707	715	790	988	1,064	1,381	1,657	2,006	2,502	2,922	3,478	4,079	4,695
% Growth	-	14.27%	16.81%	1.14%	10.51%	25.01%	7.65%	29.86%	19.97%	21.07%	24.75%	16.78%	19.03%	17.27%	15.11%
EVA	482	101	(373)	(248)	334	914	1,020	784	1,100	1,419	1,621	1,863	1,848	1,586	1,041
PV of EVA	-	-	-	-	-	-	-	688	870	1,010	1,039	1,075	961	743	439
<i>Discount Period</i>	-	-	-	-	-	-	-	1.25	2.25	3.25	4.25	5.25	6.25	7.25	8.25
Invested Capital															
<i>\$ in Millions</i>	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Beginning Capital	2,408	4,804	5,489	6,412	6,485	7,166	8,958	9,644	12,523	15,024	18,189	22,690	26,496	31,538	36,983
Total Stockholders Equity	2,801	3,194	3,324	3,558	4,604	6,207	8,132	10,157	12,768	16,051	19,980	24,612	29,778	35,345	41,047
% Growth	-	14.03%	4.07%	7.04%	29.41%	34.81%	31.02%	24.90%	25.71%	25.71%	24.48%	23.19%	20.99%	18.69%	16.13%
% of Beginning Capital	116.31%	66.49%	60.56%	55.49%	71.00%	86.61%	90.78%	105.33%	101.96%	106.84%	109.85%	108.47%	112.38%	112.07%	110.99%
Long-Term Debt	2,704	2,628	2,877	2,960	2,914	3,046	2,047	3,005	3,005	3,005	3,700	3,000	3,000	3,000	3,000
% Growth	-	(2.81%)	9.47%	2.89%	(1.55%)	4.52%	(32.81%)	46.83%	-	-	23.13%	(18.92%)	-	-	-
% of Beginning Capital	112.27%	54.70%	52.40%	46.16%	44.93%	42.50%	22.84%	31.16%	24.00%	20.00%	20.34%	13.22%	11.32%	9.51%	8.11%
Current Portion of Long-Term Debt	248	139	736	532	161	148	-	-	-	-	-	-	-	-	-
% Growth	-	(44.18%)	431.41%	(27.77%)	(69.77%)	(8.03%)	(100.00%)	-	-	-	-	-	-	-	-
% of Beginning Capital	10.30%	2.88%	13.41%	8.29%	2.48%	2.06%	-	-	-	-	-	-	-	-	-
Current Portion of Financing Leases	-	-	-	-	13	14	13	15	19	24	30	35	40	43	44
% Growth	-	-	-	-	-	11.81%	(5.08%)	11.35%	29.46%	25.94%	22.08%	17.38%	13.25%	7.94%	2.80%
% of Beginning Capital	-	-	-	-	0.20%	0.20%	0.15%	0.16%	0.16%	0.16%	0.16%	0.15%	0.15%	0.14%	0.12%
Long-Term Financing Lease Liabilities	-	-	-	-	10	23	23	23	23	23	23	23	23	23	23
% Growth	-	-	-	-	-	125.49%	-	-	-	-	-	-	-	-	-
% of Beginning Capital	-	-	-	-	0.16%	0.32%	0.26%	0.24%	0.18%	0.15%	0.13%	0.10%	0.09%	0.07%	0.06%
Cash and Cash Equivalents	949	471	525	564	536	479	572	677	792	915	1,043	1,173	1,303	1,428	1,543
% Growth	-	(50.38%)	11.44%	7.53%	(5.12%)	(10.49%)	19.31%	18.44%	16.96%	15.48%	14.00%	12.52%	11.04%	9.56%	8.08%
% of Beginning Capital	39.42%	9.81%	9.56%	8.80%	8.26%	6.69%	6.38%	7.02%	6.33%	6.09%	5.73%	5.17%	4.92%	4.53%	4.17%
Ending Capital	4,804	5,489	6,412	6,485	7,166	8,958	9,644	12,523	15,024	18,189	22,690	26,496	31,538	36,983	42,571
Return on Capital	28.07%	13.73%	5.62%	7.24%	16.48%	23.59%	22.40%	19.53%	20.02%	20.63%	20.18%	19.46%	18.36%	16.53%	14.42%
% Growth	-	(51.07%)	(59.06%)	28.73%	127.60%	43.19%	(5.04%)	(12.82%)	2.50%	3.03%	(2.19%)	(3.56%)	(5.66%)	(9.92%)	(12.78%)

Appendix 13 – Debt Model

Debt Model \$ in Millions	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
1-Year Risk Free Rate	4.73%	3.75%	3.43%	3.32%	3.32%	3.54%	3.54%	3.46%	3.46%
10-Year Risk Free Rate	3.55%	3.59%	3.67%	3.76%	3.84%	3.91%	3.98%	4.05%	4.13%
1-Year SOFR	4.83%	4.62%	4.11%	3.83%	3.77%	3.80%	3.82%	3.84%	3.88%
Net Income	1,904	2,062	2,160	2,765	3,448	4,097	4,792	5,301	5,664
Add Back: Depreciation and Amortization	479	572	677	792	915	1,043	1,173	1,303	1,428
Add Back: Net Interest	64	39	27	27	27	96	86	141	138
Operating Cash Flow	2,447	2,673	2,865	3,584	4,391	5,237	6,051	6,745	7,229
Change in Net Working Capital	(150)	131	102	314	351	367	341	293	180
Less: Capital Expenditures	1,005	1,208	1,370	1,531	1,687	1,830	1,954	2,053	2,122
Unlevered Free Cash Flow	1,592	1,334	1,393	1,739	2,353	3,040	3,756	4,399	4,927
Mandatory Payments	-	-	-	-	(805)	(700)	(1,500)	-	-
Issuances	-	-	-	-	1,500	-	1,500	-	-
Cash Interest	(47)	(35)	(35)	(35)	(118)	(104)	(169)	(166)	(166)
Free Cash Flow after Debt Obligations	1,544	1,300	1,358	1,704	2,931	2,236	3,586	4,233	4,761
Loss on Extinguishment of Debt	(67)	(12)	(17)	(27)	(40)	(56)	(74)	(93)	(111)
Interest Coverage Ratio	133.93x	145.98x	181.78x	232.74x	66.13x	673.42x	(951.36x)	(846.85x)	156.42x
Total Debt/EBITDA	0.72x	0.98x	0.88x	0.70x	0.70x	0.48x	0.41x	0.37x	0.35x
EBITDA	2,839.3	3,065.6	3,417.5	4,282.5	5,250.7	6,262.8	7,230.3	8,045.1	8,598.0
Revolver	-	-	-	-	-	-	-	-	-
Total Debt	2,047	3,005	3,005	3,005	3,700	3,000	3,000	3,000	3,000
Total Cash Interest	47	35	35	35	122	108	178	174	174
Revolver									
Beginning Balance	375	-	-	-	-	-	-	-	-
Paydown/Draw	(375)	-	-	-	-	-	-	-	-
Ending Balance	-	-	-	-	-	-	-	-	-
<i>Periodic Rate</i>	<i>6.67%</i>	<i>6.67%</i>	<i>6.67%</i>	<i>6.67%</i>	<i>6.67%</i>	<i>6.67%</i>	<i>6.67%</i>	<i>6.67%</i>	<i>6.67%</i>
Cash Interest	12.51	-	-	-	-	-	-	-	-
Senior Note A									
Beginning Balance	805	805	805	805	805	-	-	-	-
Mandatory Amortization	-	-	-	-	(805)	-	-	-	-
Ending Balance	805	805	805	805	-	-	-	-	-
<i>Periodic Rate</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Cash Interest	-	-	-	-	-	-	-	-	-
Senior Note B									
Beginning Balance	700	700	700	700	700	700	-	-	-
Mandatory Amortization	-	-	-	-	-	(700)	-	-	-
Ending Balance	700	700	700	700	700	-	-	-	-
<i>Periodic Rate</i>	<i>3.88%</i>	<i>3.88%</i>	<i>3.88%</i>	<i>3.88%</i>	<i>3.88%</i>	<i>3.88%</i>	<i>-</i>	<i>-</i>	<i>-</i>
Cash Interest	27.16	27.16	27.16	27.16	27.16	13.58	-	-	-
Senior Note C									
Beginning Balance	1,500	1,500	1,500	1,500	1,500	1,500	1,500	-	-
Mandatory Amortization	-	-	-	-	-	-	(1,500)	-	-
Ending Balance	1,500	1,500	1,500	1,500	1,500	1,500	-	-	-
<i>Periodic Rate</i>	<i>0.50%</i>	<i>0.50%</i>	<i>0.50%</i>	<i>0.50%</i>	<i>0.50%</i>	<i>0.50%</i>	<i>0.50%</i>	<i>-</i>	<i>-</i>
Cash Interest	7.50	7.50	7.50	7.50	7.50	7.50	3.75	-	-
Issuance I									
Beginning Balance	-	-	-	-	1,500	1,500	1,500	1,500	1,500
Mandatory Amortization	-	-	-	-	-	-	-	-	-
Ending Balance	-	-	-	-	1,500	1,500	1,500	1,500	1,500
<i>Periodic Rate</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>5.81%</i>	<i>5.81%</i>	<i>5.81%</i>	<i>5.81%</i>	<i>5.81%</i>
Cash Interest	-	-	-	-	87.15	87.15	87.15	87.15	87.15
Issuance II									
Beginning Balance	-	-	-	-	-	-	1,500	1,500	1,500
Mandatory Amortization	-	-	-	-	-	-	-	-	-
Ending Balance	-	-	-	-	-	-	1,500	1,500	1,500
<i>Periodic Rate</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>5.81%</i>	<i>5.81%</i>	<i>5.81%</i>
Cash Interest	-	-	-	-	-	-	87.15	87.15	87.15
Adjustments	(958)								

Summary of Loans \$ in Millions			
Loan Type	Maturity Date	Beginning Balance	Interest Rate
Revolver	06/22/28	375	6.67%
Senior Notes			
Senior Note A	03/01/27	805	0.00%
Senior Note B	03/01/28	700	3.88%
Senior Note C	03/01/29	1,500	0.50%
Issuances			
Issuance I	03/01/32	1,500	5.81%
Issuance II	03/01/35	1,500	5.81%

Appendix 15 – Sensitivity Analysis

		Implied Price				
		Terminal Growth Rate				
		2.00%	2.50%	3.00%	3.50%	4.00%
Adjusted Beta	1.30	98.63	103.15	108.29	114.16	120.94
	1.40	92.25	96.18	100.60	105.63	111.39
	1.50	86.51	89.95	93.79	98.13	103.05
	1.60	81.34	84.36	87.72	91.48	95.73
	1.70	76.66	79.32	82.27	85.56	89.24

		Undervalued				
		Terminal Growth Rate				
		2.00%	2.50%	3.00%	3.50%	4.00%
Adjusted Beta	1.30	31.25%	37.27%	44.09%	51.91%	60.94%
	1.40	22.75%	27.98%	33.87%	40.56%	48.22%
	1.50	15.12%	19.69%	24.81%	30.58%	37.13%
	1.60	8.24%	12.26%	16.73%	21.74%	27.38%
	1.70	2.01%	5.55%	9.48%	13.85%	18.75%

		Implied Price				
		Terminal Growth Rate				
		2.00%	2.50%	3.00%	3.50%	4.00%
WACC	9.00%	99.85	103.90	108.44	113.55	119.37
	10.00%	93.28	97.04	101.24	105.99	111.39
	11.00%	87.21	90.69	94.60	99.00	104.01
	12.00%	81.59	84.83	88.45	92.54	97.19
	13.00%	76.39	79.40	82.77	86.57	90.89

		Undervalued				
		Terminal Growth Rate				
		2.00%	2.50%	3.00%	3.50%	4.00%
WACC	9.00%	32.87%	38.26%	44.29%	51.10%	58.85%
	10.00%	24.13%	29.12%	34.72%	41.04%	48.22%
	11.00%	16.04%	20.68%	25.88%	31.74%	38.40%
	12.00%	8.57%	12.88%	17.70%	23.14%	29.33%
	13.00%	1.65%	5.65%	10.13%	15.19%	20.94%

		Implied Price				
		Terminal Growth Rate				
		2.00%	2.50%	3.00%	3.50%	4.00%
Terminal COGS Margin	78.00%	87.04	90.52	94.41	98.81	103.80
	79.00%	87.04	90.52	94.41	98.81	103.80
	80.00%	87.04	90.52	94.41	98.81	103.80
	81.00%	87.04	90.52	94.41	98.81	103.80
	82.00%	87.04	90.52	94.41	98.81	103.80

		Undervalued				
		Terminal Growth Rate				
		2.00%	2.50%	3.00%	3.50%	4.00%
Terminal COGS Margin	78.00%	15.82%	20.45%	25.63%	31.48%	38.13%
	79.00%	15.82%	20.45%	25.63%	31.48%	38.13%
	80.00%	15.82%	20.45%	25.63%	31.48%	38.13%
	81.00%	15.82%	20.45%	25.63%	31.48%	38.13%
	82.00%	15.82%	20.45%	25.63%	31.48%	38.13%

		Implied Price				
		Terminal Growth Rate				
		2.00%	2.50%	3.00%	3.50%	4.00%
Tax Rate	19.00%	86.96	90.43	94.32	98.71	103.70
	20.00%	87.00	90.48	94.37	98.76	103.75
	21.00%	87.04	90.52	94.41	98.81	103.80
	22.00%	87.08	90.56	94.46	98.86	103.86
	23.00%	87.11	90.60	94.50	98.91	103.91

		Undervalued				
		Terminal Growth Rate				
		2.00%	2.50%	3.00%	3.50%	4.00%
Tax Rate	19.00%	15.72%	20.34%	25.51%	31.35%	37.99%
	20.00%	15.77%	20.39%	25.57%	31.42%	38.06%
	21.00%	15.82%	20.45%	25.63%	31.48%	38.13%
	22.00%	15.87%	20.50%	25.69%	31.55%	38.20%
	23.00%	15.92%	20.56%	25.75%	31.61%	38.27%

Appendix 16 – Valuation Assumptions

Discounted Free Cash Flow Assumptions			
Tax Rate	21.00%	Terminal Growth Rate	3.16%
Risk Free Rate	4.10%	Terminal Value	66,261
Beta	1.49	PV of Terminal Value	27,952
Market Risk Premium	4.90%	Sum of PV Free Cash Flows	15,193
% Equity	94.51%	Firm Value	43,145
% Debt	5.49%	Total Debt	4,924
Cost of Debt	5.81%	Other Claims on Value	18
CAPM	11.40%	Cash & Cash Equivalents	3,042
WACC	11.03%	Market Capitalization	41,245
Terminal Risk Free Rate	4.40%	Fully Diluted Shares	431
Terminal CAPM	11.70%	Implied Price	95.76
Terminal WACC	11.31%	Current Price	75.15
		Undervalued	27.43%

DCF Valuation (APV)			
Tax Rate	21.00%	PV of Unlevered FCF	16,506
Risk Free Rate	4.10%	PV of Terminal Unlevered FCF	23,579
Unlevered Beta	1.57	PV of Tax Shield	110
Market Risk Premium	4.90%	PV of Terminal Tax Shield	165
Unlevered Cost of Equity	11.79%	Firm Value	40,359
Terminal Risk Free Rate	4.40%	Non-Equity Claims on Value	4,942
Terminal Unlevered Cost of Equity	12.09%	Excess Cash	3,042
Terminal Growth Rate	3.16%	Market Capitalization	38,460
Terminal Value of Unlevered FCF	60,470.8	Fully Diluted Shares	431
Terminal Value of Tax Shield	422.7	Implied Share Price	89.30
		Current Share Price	75.15
		Undervalued	18.83%

Valuation Summary	Target Price	Weight
Discounted Cash Flow (WACC)	95.76	-
Discounted Cash Flow (APV)	89.30	60.00%
Trading Comparables	103.19	20.00%
Economic Value Added	80.97	20.00%
Precedent Transactions	124.14	-
Leveraged Buyout	139.61	-
LBO APV	82.79	-
Implied Share Price	90.41	
Current Share Price	75.15	
Undervalued	20.31%	

Economic Value Added			
Beginning Capital Invested	8,958	Terminal EVA	16,141
Ending Capital in Terminal Year	42,571	PV of Terminal EVA	6,809
Terminal ROIC	14.42%	Firm Value	36,772
Terminal Growth Rate	3.16%	Total Debt	4,924
Terminal NOPAT	5,917	Other Claims on Value	18
Terminal Ending Capital Invested	41,034	Cash & Cash Equivalents	3,042
Terminal WACC	11.31%	Market Capitalization	34,872
Terminal Year Financial Charge	4,642	Fully Diluted Shares	431
PV of Change in Capital Invested	14,179	Implied Share Price	80.97
Sum of PV EVA	6,825	Current Share Price	75.15
		Undervalued	7.74%

Leveraged Buyout Valuation			
Exit Year	2027	Required Entry EV (Firm Value)	62,028
Exit Year EBITDA	6,263	Total Debt	4,924
Exit EBITDA Multiple	11.98x	Excess Cash	3,042
Exit EV	75,028	Other Claims on Value	18
Net Debt at Exit	(25,407)	Market Capitalization	60,129
Exit Equity Value	49,621	Fully Diluted Shares	431
Required Return	25.00%	Implied Price	139.61
Required Entry Equity Value	19,222	Current Price	75.15
Entry Debt to Capitalization	69.01%	Undervalued	85.77%

LBO APV			
Levered Beta	1.49	Exit Equity Value	49,621
Risk Free Rate	4.1%	PV of Terminal Value	31,332
Market Risk Premium	4.9%	PV of Sum of Tax Shields	1,988
Debt Beta	1.57	PV of Sum of FCF	4,237
% Equity	94.51%	Firm Value	37,557
% Debt	5.49%	Total Debt	4,924
Unlevered Beta	1.49	Excess Cash	3,042
Unlevered Cost of equity	11.42%	Other Claims on Value	18
Exit Year EBITDA	6,262.8	Market Capitalization	35,658
Exit EBITDA Multiple	11.98x	Fully Diluted Shares	431
Exit EV	75,028	Implied Price	82.79
Net Debt at Exit	25,407	Current Price	75.15
		Undervalued	10.17%

Justification	TGR	Excess Returns
Monopoly - Max. TGR	4.40%	18.22%
Intangible reinvestments, significant barriers to entry, significant competitive advantage	4.09%	14.67%
	3.78%	11.11%
	3.47%	7.56%
Average Excess Returns	3.16%	4.00%
Tangible reinvestment, low barriers to entry, low market share	3.07%	3.00%
	2.99%	2.00%
	2.90%	1.00%
Perfect Competition - Min. TGR	2.81%	-

Considerations	
Current Reinvestment Rate	16.32%
Terminal Reinvestment Rate	8.72%
Implied ROC in Perpetuity	36.26%
Terminal Value as a % of Total	64.79%
Implied Multiple in Terminal Year	7.53x
Terminal COGS Margin	48.00%
FCF Growth Rate in Terminal Year	6.27%
Change in Net Working Capital	Positive
Growth in ROIC	High Growth
Growth in Reinvestment Rate	High Growth

	Levered	Unlevered	Weight
1-Year Daily Regressed	1.79	1.88	-
3-Year Daily Regressed	1.95	2.04	-
5-Year Daily Regressed	1.15	1.21	-
1-Year Weekly Regressed	0.69	0.73	-
3-Year Weekly Regressed	1.45	1.53	-
5-Year Weekly Regressed	1.55	1.63	50.00%
1-Year Vasicek	1.46	1.53	-
3-Year Vasicek	1.55	1.63	-
5-Year Vasicek	1.04	1.10	-
Bottom-up	1.43	1.51	50.00%
Weighted Beta	1.49	1.57	

Appendix 17 – Sources

Boston Consulting Group
CapitalIQ
Bloomberg Terminal
Earnings call transcripts
Ernst and Young
FRED Economic Data
IBIS World
iShares
Investor Relations page
Morgan Stanley
Press releases
SEC Filings
Semiconductor Industry Association
Statista
Yahoo! Finance
Yale research reports

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