



Lisbon School
of Economics
& Management
Universidade de Lisboa

**MASTER OF SCIENCE IN
MANAGEMENT**

**MASTERS FINAL WORK
PROJECT**

EQUITY VALUATION IN THE SOUND INDUSTRY:
THE CASE OF SONOS

RICCARDO BORDIGNON DOURADO DONATI

OCTOBER 2023



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Abstract

This equity research delves into the valuation of Sonos, Inc, employing the CFA Institute-recommended format (Pinto, Henry, Robinson & Stowe, 2010).

The author's passion for the audio industry, particularly companies like Sonos, stems from a fascination with the intersection of technology, innovation, and human experience. The dynamic landscape of the audio sector, where creativity meets technical prowess, captivates the author. Beyond financial implications, the author sees the audio industry as a space where sound shapes emotions, enhances entertainment, and influences lifestyles. This personal interest infuses the equity research with genuine curiosity, offering a deeper exploration of Sonos, Inc., and its position in the auditory landscape.

As part of ISEG's Final Management Work Project, this study, synthesizing publicly available information on Sonos as of May 2023, employs the Discounted Cash Flows (DCF) method for valuation. The research concludes with a Buy recommendation, supported by a target price of \$18 per share by the end of 2023, reflecting a 25% upside potential as of May 25th, 2023, with a moderate associated risk. The bullish stance is driven by anticipated revenue growth and improved cost efficiencies leading to elevated profit margins throughout the forecast period.

JEL Classifications: This valuation is a meticulous exploration of Sonos' financial landscape, providing valuable insights for potential investors and industry enthusiasts. The inclusion of JEL classifications (G10, G32, G34).

Keywords: Equity Research, Valuation, Ratios, Forecast, Data, Mergers & Acquisitions, and Sound Industry underscores the academic rigor and breadth of this research, contributing to the broader financial discourse.

Resumo

Esta pesquisa de equity explora a valoração da Sonos, Inc, empregando o formato recomendado pelo CFA Institute (Pinto, Henry, Robinson & Stowe, 2010).

A paixão do autor pela indústria de áudio, especialmente empresas como a Sonos, origina-se da fascinação pela interseção entre tecnologia, inovação e experiência humana. A dinâmica do setor de áudio, onde a criatividade encontra a perícia técnica, cativa o autor. Além das implicações financeiras, o autor enxerga a indústria de áudio como um espaço onde o som molda emoções, aprimora o entretenimento e influencia estilos de vida. Esse interesse pessoal impregna a pesquisa de equity com uma curiosidade genuína, oferecendo uma exploração mais profunda da Sonos, Inc., e sua posição no cenário auditivo.

Como parte do Projeto Final de Trabalho de Gestão da ISEG, este estudo, sintetizando informações publicamente disponíveis sobre a Sonos até maio de 2023, utiliza o método de Fluxo de Caixa Descontado (DCF) para avaliação. A pesquisa conclui com uma recomendação de Compra, respaldada por um preço-alvo de \$18 por ação até o final de 2023, refletindo um potencial de valorização de 25% até 25 de maio de 2023, com um risco associado moderado. A postura otimista é impulsionada pelo esperado crescimento da receita e eficiências aprimoradas de custos, resultando em margens de lucro elevadas ao longo do período previsto.

Classificações JEL: A inclusão das classificações JEL (G10, G32, G34).

Palavras-chave: Equity Research, Valuation, Ratios, Forecast, Data, Mergers & Acquisitions, and Sound Industry destaca o rigor acadêmico e a amplitude desta pesquisa, contribuindo para o amplo discurso financeiro.

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I am profoundly grateful to my family, whose steadfast support has been the bedrock of my academic journey. To my parents, your unwavering encouragement, boundless understanding, and enduring love have been my guiding lights, propelling me through challenges and triumphs alike. Your sacrifices and belief in my potential have been instrumental in my success.

To my beloved girlfriend, Mariana, your infinite patience, unwavering encouragement, and unwavering belief in my abilities have been a wellspring of inspiration. Your presence has not only made this academic pursuit more meaningful but has also been a source of strength and joy. I am immensely fortunate to have you by my side.

My heartfelt appreciation goes to my teacher, Mariya, whose guidance, expertise, and unwavering dedication have played a pivotal role in shaping my academic path. Your mentorship has been a beacon, providing advisory and tips for me to conduct the study with higher standards. I am genuinely thankful.

To all of you, my constant sources of motivation, I extend my deepest thanks for transforming this academic endeavor into a rich and rewarding experience. Your collective influence has been a driving force, and I am profoundly grateful for the indelible mark each of you has left on my educational odyssey.

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(YE2023 Price Target of \$18 (+25%); recommendation is to Buy with Medium Risk)

1. Research Snapshot

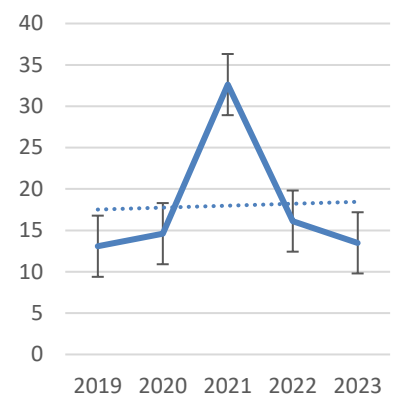
We initiate a **BUY** recommendation for Sonos, Inc with a 2023YE price target of \$17.96 [Table 1] using a DCF model, implying a 25% upside potential from the MAY 25th, 2023, closing price of \$13.49 [Figure 1], with medium risk. In a difficult market environment, Sonos can benefit from its overall strong efficiency ratios and EBITDA (Earnings before Interest, Taxes and Depreciation and Amortization) Margin, proving a great capacity to create profit in an efficient way through its operational activities.

Notably, the forecasted (F) Compound Annual Growth Rate (CAGR) for units sold and unit price from 2022-2033 reflects a robust outlook. Between 2022 and 2023, there is a forecasted CAGR of 13.72%, followed by 11.25% from 2023-2028, and a steady 6.59% from 2028-2033. These growth rates suggest a sustained upward trajectory, signaling a positive market reception and demand for Sonos' products.

Considering costs, the meticulous integration of Costs of Revenue and Operational Costs, with inflation as the main driver, demonstrate a strategic approach. Assigning weights based on historical averages (57% for Costs of Revenue and 43% for Operational Costs), the model ensures a balanced representation of the overall cost structure.

The CAGR for Costs of Revenue and Operating Costs, between 2022-2023, presents as 13.62% and 15.92%, respectively. These figures, while reflective of short-term growth, are carefully managed. Notably, from 2023-2028 and 2028-2033, both costs exhibit identical CAGRs at 10.105% and 6.59%, respectively, implying a disciplined approach to cost control and efficiency in operations.

Figure 1. Share Price Performance (in \$)



Source: Yahoo finance

Table 1. Price Targets (in \$)

Valuation Method	YE2023 Target Price	Upside Potential
DCF	\$17.96	25%
Multiples	\$16.10	12%

Source: Company Data, the Author

2. Business Description

2.1 SONOS' History

Sonos was founded in 2002 by John MacFarlane [Figure 2], Tom Cullen, Trung Mai and Craig Shelburne. The company's goal was to create a multi-room audio system that would stream music throughout the home. The first product was released in 2005, the ZP100 ZonePlayer [Figure 3].

By the year 2005 the company gained popularity with its wireless speaker system, allowing users to stream music from various sources such as online services and local libraries. And in 2006, Sonos introduced ZoneBridge, which improved wireless connectivity within the system. The company also launched Sonos Controller for iOS, an app that allowed users to control their Sonos system from their iPhones.

In the period between 2010 and 2014, Sonos continued to expand its product line and partnered with popular music services like Spotify, Pandora, and Amazon Music, allowing users to stream directly from these platforms.

In 2015 was introduced in the market the Trueplay, which uses the microphone on an iPhone or iPad to optimize the sound of the speakers according to the acoustics of the room. Sonos between 2015 and 2017 added voice control functionality due to partnerships with Amazon Alexa and later Google Assistant.

In August 2018, Sonos went public with an initial public offering (IPO) on the NASDAQ stock exchange [Figure 4]. The IPO raised more than \$200 million for the company. During the year 2018 and 2019, Sonos faced increasing competition from other smart speaker manufacturers such as Amazon, Google, and Apple, which entered the market with their own voice-controlled speakers.

Nowadays, Sonos is a leading provider of multi-room audio products, offering a range of wireless speakers, home theatre speakers, components, and accessories. The company has established itself as a leader in the industry, known for its innovative products, thoughtful design aesthetic, and simplicity of use.

In terms of its financial performance, SONOS has achieved 17 consecutive years of sustained revenue growth, driven by both new and existing customers. As of October 1, 2022, the company had a total of nearly 41.8 million products registered in approximately 14.0 million households globally. This high level of customer engagement is reflected in the fact that 60% of the company's households had registered more than one SONOS product, and its customers listen to an average of 12.8 billion hours of audio content each year.

SONOS operates in a highly competitive market, but the company's strong brand, reputation for innovation, and expanding global footprint make it a potential candidate for further investment. In terms of its corporate structure, SONOS is

Figure 2. Sonos' founder (Jonh MacFarlane)



Source: Company Data, the Author

Figure 3. Sonos' first product



Source: Company Data, the Author

Figure 4. Sonos' IPO in 2018



Source: Company Data, the Author

headquartered in Santa Barbara, California. SONOS distributes its products through third-party physical retailers such as custom installers, selected online retailers, and its own website. The company operates in over 60 countries through its wholly owned subsidiaries: SONOS Europe B.V. in the Netherlands, Beijing SONOS Technology Co. Ltd. in China, SONOS Japan GK in Japan, and SONOS Australia Pty Ltd. in Australia.

Despite this trend towards globalization of the company and expansion into more remote markets, it has increased sales in continents other than the Americas. In recent years, revenues from the Americas have become even more distant from sales in APAC and EMEA [Figure 5]. SONOS is still highly dependent on the domestic market (US).

2.2 Drivers of the Evaluation

Sales Growth (Units Sold)

The drivers influencing unit sales in this analysis transcend mere financial metrics, engaging in a sophisticated methodology that melds historical sales data with economic indicators. Employing the slope formula, the variation in units sold from 2019 to 2022 [Figure 6] is intricately linked with corresponding changes in real GDP, as per IMF data, establishing a dynamic relationship between the company's performance and broader economic shifts. This nuanced approach not only captures historical trends but also propels future revenue projections by incorporating the anticipated growth of real GDP. The analysis underscores a strategic comprehension of how the company's sales respond to economic dynamics, providing a robust framework for revenue forecasting [Figure 7]. With a horizon extended until 2028, this thorough evaluation acts as a valuable tool for strategic planning, offering insights that transcend immediate financial considerations and contribute to a more holistic and forward-looking revenue strategy.

Unit Costs

Moving to the subsequent phase of the analysis, post the computation of unit sales growth, future unit costs and prices are strategically derived. The projection of future unit costs and prices adopts a realistic and sustainable approach. Acknowledging the impracticality of infinite growth, the long-term growth rate for both unit costs and prices is prudently set at 0% post reaching maturity in 2026. This maturity phase is instituted to ensure a stable and sustainable trajectory, avoiding an unrealistic perpetual expansion. The concept of reaching maturity involves a gradual decline, precisely a constant decrease of -1.6% annually, starting from 2026 onwards. Concurrently, the annual nominal growth rate is introduced as a pragmatic metric, generated by multiplying the real growth assumption by the global inflation rate corresponding to each respective year,

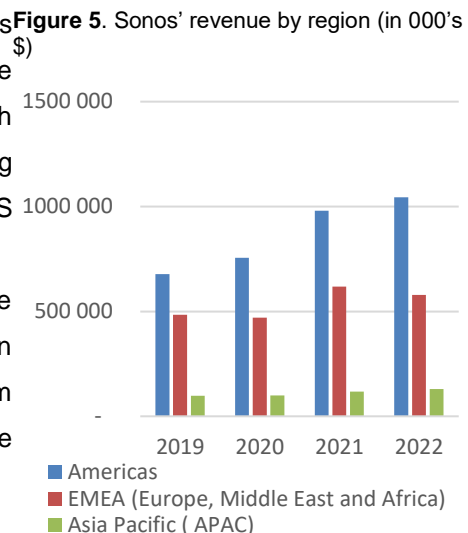


Figure 5. Sonos' revenue by region (in 000's \$)

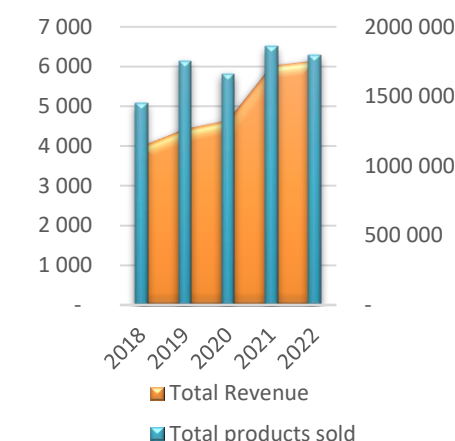


Figure 6. Sonos' Total Revenue (in 000's \$) vs Products Sold

Figure 7. Units sold forecasted by Slope function

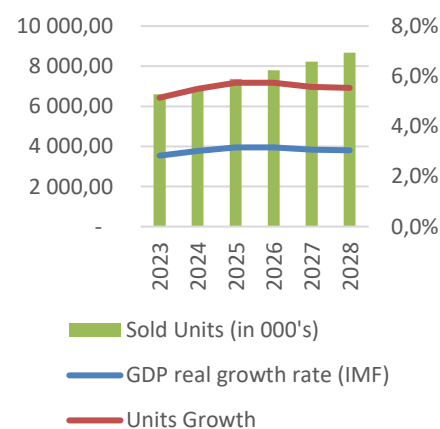


Figure 7. Units sold forecasted by Slope function

according to IMF data. This meticulous consideration of growth dynamics, both real and nominal, provides a comprehensive framework for forecasting future unit costs and prices, aligning the analysis with economic realities and sustainable business practices.

Unit Prices

The mechanism for determining the average annual unit price introduces a higher degree of complexity. The real growth to be considered remains a consistent 3.2% over a four-year period until maturity. This 3.2% is derived by dividing the target growth (1.071 or 7.1%) by the Compound Annual Growth Rate (CAGR) of the expected inflation by the IMF, projecting until real growth reaches maturity in four years. The 7.1% signifies the CAGR of the average unit price target to be achieved in three years (342.76\$). This target is computed by considering the average unit costs (\$332.53) in 2026, symbolizing the maturity of real growth, divided by (1 minus the weight of the difference in the sum of revenues and costs between 2018 and 2022). The calculation ensures that the target for average unit prices aligns with the desired growth trajectory, accounting for both historical financial dynamics and the specific considerations of cost and revenue differentials during the specified period.

The forecast based on the employed drivers indicates a rising profit per unit sold, reflecting an optimization of operational results [Figure 8].

2.3 Business Segments

The organizational structure is set up by three product groups: I. SONOS Speakers, II. SONOS System Products, III. Partner Products and other revenues.

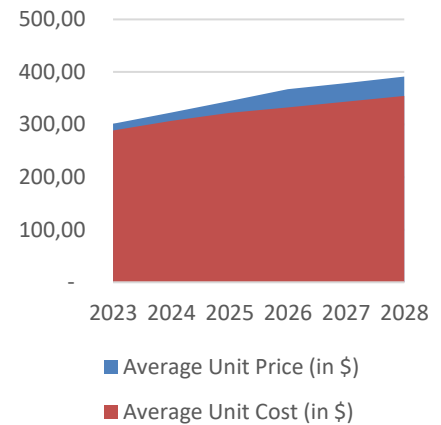
I. SONOS' Speakers

The Speakers' segment is focused on the development and sale of wireless audio products such as speakers, soundbars, and home theater systems. SONOS offers a range of products in different sizes and styles to cater to various needs and preferences, including some products:

1. **Sub Mini** is the latest SONOS' launch is a wireless subwoofer which delivers powerful, balanced bass, clear low-end frequencies, in a compact cylindrical design.
2. **Ray** is a small, smart soundbar for TV and music.
3. **Roam Colors, Roam SL and Roam Arc** are portable smart speakers with Bluetooth and Wi-Fi connection.

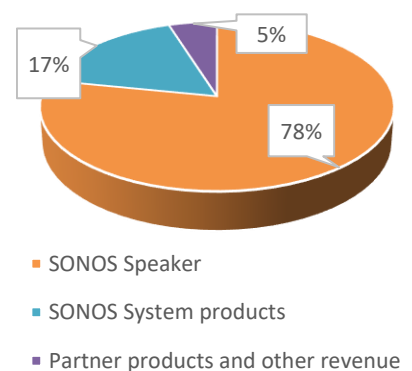
The Speakers' segment is the one that accounts for the largest share of revenues, accounting for 78% in 2022 [Figure 9].

Figure 8. Average unit prices vs costs (forecast) (in \$)



Source: The Author

Figure 9. Sonos' revenue by Business Segment (in %)



Source: Company Data, the Author

II. SONOS System Products

SONOS system products segment is focused on providing customers with the ability to easily integrate their existing audio systems into the SONOS ecosystem. This allows users to enjoy the benefits of a wireless, multi-room audio system without having to replace their entire audio setup. The SONOS system products are designed to be easy to set up and use and can be customized to fit the needs of individual users, including:

1. **SONOS Port:** The SONOS Port is a streaming device that allows you to connect your existing stereo or home theater system to the SONOS ecosystem, giving you access to the SONOS app, music streaming services, and voice control options.
2. **SONOS Amp:** The SONOS Amp is a versatile amplifier that can power traditional wired speakers and connect to a SONOS system to stream music wirelessly.

This segment in fiscal 2022 accounted for 17% of revenues [Figure 9].

III. Partner Products and Other Revenue

Partner products and other revenue categories refer to the various sources of income that are not directly related to the sale of SONOS' core products but are still important to the business and contribute to overall revenue. Such as revenues connected to advertising, partnerships, professional services, For example:

1. **Audi Partnership:** SONOS-tuned experience for the Q4 E-Tron [Figure 10] and further models including A1, Q2 and Q3.
2. **SONOS Radio HD:** An ad-free, high-definition streaming tier of the company's streaming radio service.
3. **IKEA Model units:** Hardware and embedded software integrated into final products manufactured and sold by IKEA. Current IKEA products include SYMFONISK picture frame, bookshelf speaker, and speaker lamp.

This segment in fiscal 2022 accounted for 5% of revenues [Figure 9].

2.4 Sonos' Sustainability

The company is committed to corporate responsibility, value creation, and sustainable development. SONOS has set ambitious goals and initiatives to reduce its environmental footprint and create positive social impacts in the next few years. SONOS has set a goal to achieve carbon neutrality in its operations and supply chain by 2025. The company is focused on reducing its greenhouse gas emissions through energy efficiency measures, renewable energy sourcing, and carbon offsetting. SONOS is also committed to a circular economy model that aims to minimize waste and maximize resource efficiency. This includes designing products for durability, repairability, and recyclability, as well as exploring new

Figure 10. Sonos' Q4 E-Tron Partnership



Source: Company Data, the Author

Figure 11. Sonos' Sustainable Development Goals



Source: Company Data, the Author

business models such as leasing and refurbishing programs. Additionally, SONOS is committed to sourcing materials responsibly and reducing its use of virgin materials. The company has set a goal to use 50% recycled or bio-based plastic in its products by 2030 [Figure 11].

SONOS is dedicated to fostering a diverse and inclusive workplace that reflects the communities it serves. The company has set targets for increasing diversity in its workforce, including women in leadership positions and underrepresented groups in technical roles [Table 2]. SONOS is also committed to supporting the communities in which it operates through philanthropic initiatives, employee volunteering, and partnerships with local organizations. The company has set a goal to contribute 1% of its annual revenue to social impact causes by 2025. Finally, SONOS is working to ensure that its supply chain meets high ethical standards, including labor rights, health and safety, and responsible sourcing. The company has established a Supplier Code of Conduct and is committed to auditing and monitoring its suppliers to ensure compliance.

In addition to its environmental and social impact initiatives, SONOS creates value for its customers by producing high-quality audio systems that are easy to use and offer superior sound quality. The company is constantly innovating and improving its products to meet the changing needs and preferences of its customers. SONOS also creates value for its shareholders by delivering strong financial performance and sustainable growth.

Sonos is committed to being a responsible corporate citizen and creating value for its stakeholders in a sustainable and ethical manner. The company's environmental and social impact initiatives demonstrate its commitment to a more sustainable and responsible future, and its focus on innovation and growth ensures that it remains competitive in the audio systems market.

2.5 Dividend Payments

SONOS Inc. has never paid any cash dividends on its capital stock, and it does not intend to pay any cash dividends for the foreseeable future. The company plans to use any future earnings to fund the development and growth of its business. The fact that Sonos doesn't plan to pay dividends but reinvests the profits made during the year could make it an interesting investment for the investor. Because shares in this type of company are typically expected to grow over time. When it comes time for the investor to sell his shares, he may well see a higher rate of return on his investment than he would have achieved from investing in a dividend-paying stock. Any decision to pay dividends on the common stock will be made at the discretion of the Board, considering various factors, such as the SONOS' financial condition, operating results, current and anticipated cash needs, plans for expansion, and other relevant factors. Additionally, the terms of the company's credit facilities

Table 2. Sonos' Workforce Diversity in 2022

	Asian	Black or African American	Hispanic or Latino	Indigenous	Multiracial	White
U.S. workforce	21.3%	5.1%	7.7%	0.5%	3.5%	62.1%
Director and above roles ²	14.4%	2.5%	4.4%	0%	2.5%	76.3%
All other roles ²	22.5%	5.5%	8.3%	0.6%	3.6%	59.5%
New hires	21.9%	8.5%	7.8%	0.3%	3.5%	58%

Source: Company Data

contain restrictions on its ability to declare and pay cash dividends on its capital stock.

According to Sonos' financial report, Sonos has a common stock repurchase program of up to \$150.0 million authorized by the Board of Directors in November 2021. As of October 1, 2022, the company had fully utilized the amount available under this program. Over the past three fiscal years, the company has completed \$250.0 million in share repurchases, for 11,760,762 shares, at an average price of \$21.26 per share.

2.6 Shareholders Structure

Today the largest shareholder of SONOS Inc is BlackRock Inc owning 20.34 million shares, representing 16.01% of shares outstanding. The other shareholder which owns 11.02% of the shares outstanding is Vanguard Group, possessing 14 million shares. The top 3 biggest shareholder bought all its shares (6.4 million) recently, it is Sancarin SL a Spanish branch that bought 5.01% of SONOS' shares [Table 3], moving Spain to the second place [Table 3].

When it comes to buying shares, besides Sancarin SL there were other entities with significant numbers. The Thrivent Financial for Lutherans bought 1.32 million shares, making it the Top 6 holder of SONOS shares. Millennium Management LLC bought 2.47 million shares, making it 2.73 million shares and 2.14% of the total shares.

The entities that recorded the highest number of sales of Sonos' shares were Alyeska Investment Group LP holding 348.3K shares (0.27% of outstanding shares) and making a sale of 2.134 million shares. Morgan Stanley and HAWK RIDGE CAPITAL MANAGEMENT LP sold 1.1 and 1.53 million shares, respectively. Morgan Stanley is the Top 10 holder of shares and HAWK RIDGE CAPITAL is the Top 11, both holding 2.31% of the outstanding shares.

Table 3. Top Geographic Ownership

Top Geographic Ownership	%
US	88,06%
Spain	4,55%
Netherlands	0,89%
Norway	0,85%
Switzerland	0,74%
Luxembourg	0,58%
Canada	0,57%
Australia	0,54%
Others	3,22%

Source: Bloomberg Data, the Author

Table 4. Top 5 Sonos' shareholders

Holder Name	Shares	%Out	Latest Change
Black Rock, Inc.	20 391 852	16,01%	-
Vanguard Group, Inc.	14 039 124	11,02%	-
Sancarin SL	6 379 985	5,01%	6 379 985
Franklin Resources, Inc.	5 521 154	4,34%	66 246
Colisium Capital Management LLC	5 453 835	4,28%	- 946 671
Others	75 577 429	59,34%	
Shares Outstanding	127 363 379	100%	

Source: Bloomberg data (May 2023), the Author

3. Management and Corporate Governance

Sonos has a strong commitment to corporate governance and maintaining high standards of quality and ethics. The company's Board of Directors is composed of experienced individuals from diverse backgrounds and perspectives, with a focus on maintaining transparency and upholding the principles valued by Sonos' customers and employees.

3.1 Governance Model

The Board of Directors oversees the management team and has established three standing committees to help oversee specific aspects of the company's operations: **I the Audit Committee, II Compensation, People and Diversity & Inclusion Committee, III and the Nominating and Corporate Governance Committee.** The Nominating and Corporate Governance Committee also oversees Sonos' Corporate Sustainability and Impact Program, with the Director of Global Affairs and Sustainability reporting to the committee at least annually and engaging with the full Board.

Sonos places a strong emphasis on listening to stakeholders to evaluate and prioritize environmental, social, and governance (ESG) efforts. This open dialogue helps shape the company's approach to ESG topics, grow its ESG programs, and enhance transparency in its reporting. SONOS' commitment to corporate governance and ESG topics demonstrates its commitment to long-term value creation for its stakeholders. executive directors to discuss any issue in private.

3.2 Key People

Patrick Spence (CEO) [Table 5]: Patrick Spence is the Chief Executive Officer of Sonos and serves as a member of the company's Board of Directors. He joined Sonos in 2012 and has played a significant role in the company's growth and product development.

Eddie Lazarus (CFO and CLO) [Table 5]: serves as the Chief Financial Officer at Sonos, responsible for overseeing various key functions within the company. In this role, he has direct oversight of financial operations, including areas such as financial planning and analysis, accounting, corporate development, real estate, and investor relations. Eddie Lazarus also takes on the additional responsibility of serving as the Chief Legal Officer, a role he has held since 2019. As the Chief Legal Officer, he leads and manages a range of legal matters within the company. This includes overseeing legal functions related to intellectual property, corporate governance, SEC reporting, government affairs and regulatory compliance.

Nicholas Millington (CIO) [Table 5]: serves as the chief innovation officer since 2020, he previously served as Chief Product Officer from February 2017 to June 2020 and as the Vice President and Chief of Staff of product between 2010 and 2017.

Shamayne Braman serves as the Chief of People Officer, leads the company's recruitment, development, engagement, and retention strategies.

Maxime Bouvat-Merlin holds the position of Chief Product Officer at Sonos, where he leads the company's Product organization and Operations teams on a global scale. In this role, he is responsible for overseeing the creation and development of all Sonos products across their expanding range of Hardware, Software, and Services [Table 5].

Rebecca Zavin (SVP) is the senior vice-president of the software. In this role, she leads Sonos' innovation and expands its range of products and services. [Table 5]

3.3 Executive Remuneration Structure

The current remuneration policy details were provided in SONOS' 2021 proxy statement. SONOS' executive compensation program is designed to attract, retain, and motivate talented individuals who are essential to the company's success. The company seeks to align executive pay with the achievement of **key performance indicators (KPIs)** that are critical to the company's long-term success.

The compensation program consists of three main components: base salary, annual incentive awards, and long-term incentive awards. Base salaries are designed to provide competitive compensation relative to peer companies and reflect the individual's role, experience, and performance. Annual incentive awards

Table 5. Leadership Table

Name	Position
Patrick Spence	Chief Executive Officer
Eddie Lazarus	Chief Financial Officer
Eddie Lazarus	Chief Legal Officer
Nicholas Millington	Chief Innovation Officer
Shamayne Braman	Chief People Officer
Maxime Bouvat-Merlin	Chief Product Officer
Rebecca Zavin	SVP, Software

Source: Company Data

are based on the achievement of pre-established KPIs, with the payout ranging from 0% to 200% of the target award amount depending on the level of achievement. Long-term incentive awards are designed to incentivize executives to drive sustained long-term performance and value creation. These awards typically consist of equity-based awards that vest over a multi-year period, subject to continued employment and achievement of performance targets. SONOS' executive compensation program is overseen by the Compensation, People and Diversity & Inclusion Committee of the Board of Directors, which engages an independent compensation consultant to assist in designing and evaluating the program.

3.4 Governance Model Analysis

Sonos' governance model reflects a commitment to diversity by valuing different perspectives, promoting transparency through open communication, and emphasizing goal-orientation using Key Performance Indicators (KPIs).

Sonos focuses on broadening the **diversity** within its Board of Directors to benefit from a wider range of perspectives, experiences, and expertise. By actively seeking individuals from diverse backgrounds, Sonos can foster innovation, challenge conventional thinking, and make more informed decisions. A diverse board can identify blind spots, anticipate emerging trends, and develop products and strategies that cater to the diverse needs of its customer base.

While Sonos already values **transparency**, it can further strengthen stakeholder inclusion beyond shareholders. Incorporating the perspectives of employees, customers, and communities is essential to building stronger relationships and demonstrating a commitment to ethical and socially responsible practices. Sonos can proactively engage with stakeholders, solicit feedback, and integrate their insights into decision-making processes. This approach enhances reputation, fosters trust, and cultivates a positive brand perception, leading to increased customer loyalty, a supportive business environment and attracting capital for growth opportunities.

Sonos integrates **environmental, social, and governance** (ESG) considerations into its governance model. By addressing climate change impacts, supply chain sustainability, and other ESG factors, Sonos can minimize reputational, regulatory, and operational risks. Adopting sustainable practices not only aligns with societal expectations but also contributes to long-term growth and profitability. Sonos can implement environmentally responsible policies, promote resource efficiency, and actively monitor and mitigate potential risks associated with its operations.

Clear communication, accountability, and goal alignment are crucial for a motivated workforce. Sonos should continue to emphasize transparency in its communication

channels and clearly define expectations and responsibilities for employees. Implementing well-defined **KPIs** can enhance accountability and provide a framework for measuring performance. By aligning individual goals with the company's strategic objectives, Sonos can foster employee engagement, encourage collaboration, and drive higher productivity, innovation, and customer satisfaction.

4. Industry Overview and Competitive Positioning

4.1 Economic Outlook

The global economy faces several challenges that are causing a slowdown in growth and higher inflation. These challenges include the Russian invasion of Ukraine, the COVID-19 pandemic, tighter financial conditions, and supply-side disruptions in China.

Global growth is expected to rise from 2.8% in 2023 to 3.01% in 2024 [Figure 12], with about one-third of the world economy facing negative growth. Inflation is forecast to slow from 8.7% in 2022 to 7% in 2023 and is expected to decline to 4.9% in 2024 [Figure 13].

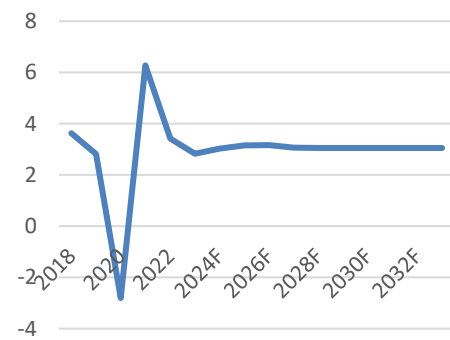
The International Monetary Fund (IMF) projects that advanced economies will experience a significant slowdown in growth from 2.7% in 2022 to 2.4% in 2022 to 1.3% in 2023. The growth on the Emerging Market and Developing Economies is expected to decline to 3.9% in 2022 and remain there in 2023, in contrast to the slowdown forecasted to the advanced economies and in the year of 2024 is expected to rise to 4.2% [Figure 14].

In terms of inflation, the advanced economies are supposed to slow continuously from 7.3% in 2022 to 4.7% in 2023 and 2.6% in 2024. The emerging economies are expected to have the same trend decreasing from 9.8% in 2022 to 6.5% in 2024 [Figure 14].

4.2 Sound Industry

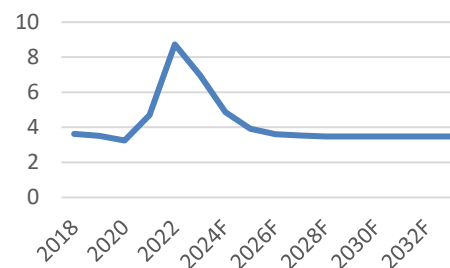
The sound industry encompasses companies involved in the production, distribution, and sale of audio products, including speakers, headphones, microphones, soundbars, and other related equipment. This industry is a subset of the broader electronics industry and is closely tied to the entertainment and music industries.

Figure 12. Real GDP growth rate



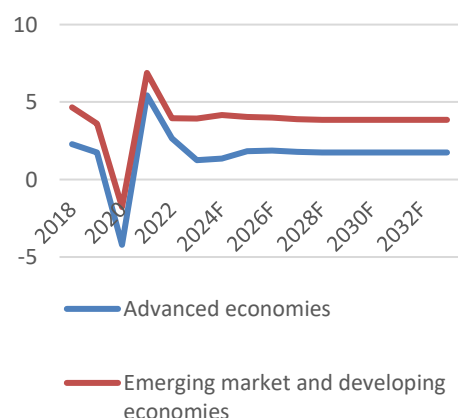
Source: IMF and the Author

Figure 13. Global Inflation



Source: IMF and the Author

Figure 14. GDP Growth



Source: IMF and the Author

The sound industry has been experiencing significant growth in recent years, driven by the increased demand for high-quality audio equipment and the rise of streaming services. With more people listening to music and other forms of audio content daily, the market for sound products has expanded rapidly, creating new opportunities for manufacturers and retailers.

However, the industry has also faced challenges, such as the semiconductor shortage, supply chain disruptions, and changing consumer preferences.

The most recent challenge was the semiconductor shortage during the pandemic. As demand for electronic devices has surged during the pandemic, the supply of semiconductors has struggled to keep up. This has led to a shortage of chips and other components, which has caused delays in production and increased costs for manufacturers.

For example, in May 2021, SONOS reported that the semiconductor shortage was affecting its production and delivery of products. The company said that it was experiencing longer lead times and higher costs for certain components, which were impacting its ability to meet customer demand.

Bluetooth Proliferation and Industry Trends

According to Statista, a defining trend in the audio industry is the ubiquitous integration of Bluetooth technology. In 2022, global annual Bluetooth device shipments reached an impressive 4.9 billion units.

Sonos, cognizant of the rising demand for Bluetooth-enabled devices, has aligned its product offerings with this industry shift.

Global Reach and Projections

As Sonos operates on a global scale, it is well-poised to tap into the escalating demand for Bluetooth-enabled audio solutions across diverse markets. According to Statista, with the projected compound annual growth rate (CAGR) of 9% from 2023 to 2027, the yearly shipments of Bluetooth devices are anticipated to soar to 7.6 billion units by 2027 [Figure 16].

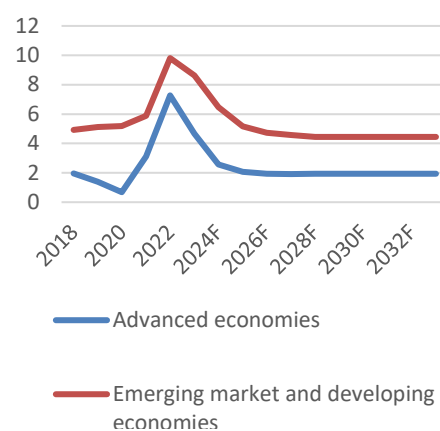
Global Revenue Outlook

According to Statista forecasts, the global revenue in the stereo speaker's segment of the consumer electronics market is set to experience a robust and continuous ascent from 2023 to 2028. The cumulative increase during this period is projected to reach an impressive \$5.5 billion, marking a substantial growth of 21.63 percent. By 2028, the estimated revenue is expected to soar to \$30.97 billion, portraying the segment's sustained strength and economic significance [Figure 17].

Average Price Per Unit (PPU) Dynamics

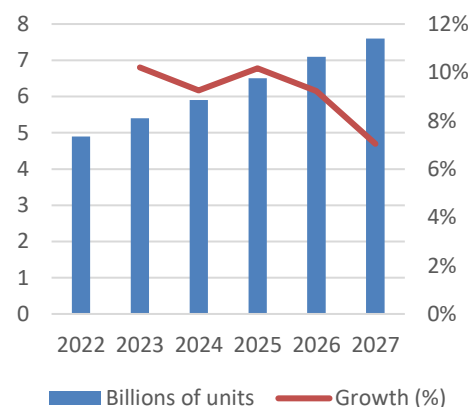
Simultaneously, according to Statista, the global average price per unit (PPU) in the stereo speaker's segment is anticipated to demonstrate a consistent upward trajectory from 2023 to 2028. The cumulative increase over this period is forecasted to be \$0.5 U.S. dollars, reflecting a growth rate of 0.47 percent. By

Figure 15. Inflation Growth



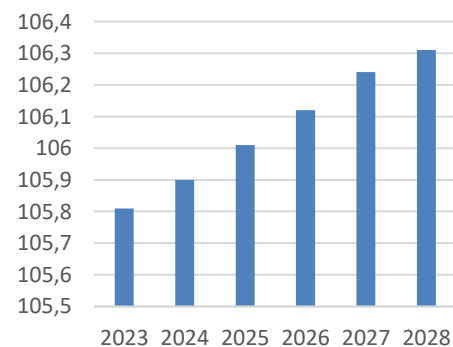
Source: IMF and the Author

Figure 16. Bluetooth device shipments worldwide (in Bns of units)



Source: Statista

Figure 17. Revenue of the stereo speakers (in Billions of \$)



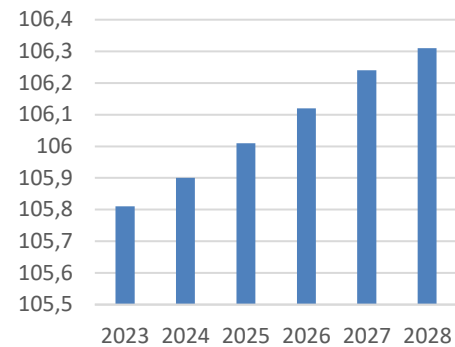
Source: Statista

2028, the PPU is estimated to reach a new peak at \$106.31 U.S. dollars after five consecutive years of increase [Figure 18].

Historical Price Trends

It's noteworthy, according to Statista, that the average price per unit (PPU) of the stereo speaker's segment within the consumer electronics market has displayed a consistent upward trend in recent years. This historical context underscores the segment's ability to command higher prices, possibly driven by technological advancements, premium features, and shifting consumer preferences.

Figure 18. AVG PPU Worldwide Stereo Speakers (in \$)



Source: Statista

4.3 Strategy and Competitive Positioning

Porter's Five Forces Analysis [Figure 19]

Threat of new entrants: Moderate

There is a moderate threat of new entrants in the wireless speaker market. The market is highly competitive, but SONOS has established a strong reputation and loyal customer base. Additionally, the cost of research and development and production of high-quality wireless speakers can be a barrier to entry for new competitors.

Bargaining power of suppliers: Low

SONOS has a strong bargaining position with suppliers due to its large scale of operations and reputation in the market. SONOS also has the advantage of having proprietary components, which reduces its dependence on external suppliers.

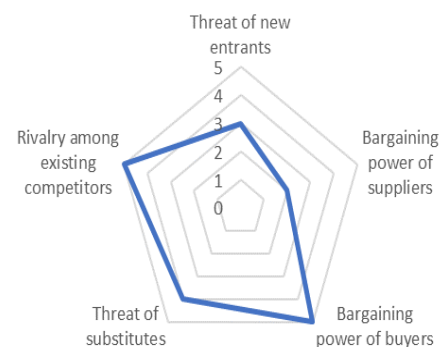
Bargaining power of buyers: High

The bargaining power of buyers in the wireless speaker market is high due to the large number of options available to consumers. SONOS has differentiated itself from other competitors through its high-quality products, customer support, and ecosystem of partners. However, buyers can still choose from a variety of alternatives, which puts pressure on SONOS to maintain its competitive advantages.

Threat of substitutes: Medium-High

The threat of substitutes in the wireless speaker market is high due to the availability of alternative audio solutions, such as traditional wired speakers, headphones, and earbuds. SONOS has differentiated itself from these alternatives through its unique value proposition of high-quality wireless audio and ecosystem of partners. The substitutes remain a significant threat to SONOS.

Figure 19. Porter's 5 forces



Source: The Author

Rivalry among existing competitors: High

The wireless speaker market is highly competitive, with numerous established and emerging players. SONOS faces competition from both established technology companies and startups. The competition puts pressure on SONOS to maintain its position in the market through continued innovation, high-quality products, and customer support. SONOS has established itself as a leading player in the market, which gives it an advantage over some of its smaller competitors.

For a better analysis of Sonos' competitive positioning a SWOT Analysis was conducted [Table 6]:

Table 6. SWOT Analysis

Strengths		Weaknesses	
1. Quality: High-fidelity audio that rivals traditional wired speakers		1. Limited product range compared to some competitors	
2. Design: Sleek and modern aesthetic that appeals to consumers		2. Higher price point compared to some competitors	
3. Customer Support: Personalized recommendations, expert installation services, and extensive technical support		3. Relatively limited brand awareness compared to some competitors	
4. Partnerships: Integration with a wide range of streaming services, voice assistants, and smart home devices through strategic partnerships		4. Dependence on partnerships for some features and capabilities	
Opportunities		Threats	
1. Growth potential in the smart home market as adoption of smart home devices continues to increase		1. Increased competition from established brands such as Amazon and Google, who are also expanding into the smart speaker market	
2. Expansion into international markets, particularly emerging markets		2. Threat of new entrants disrupting the market with innovative products or pricing strategies	
3. Potential to offer more affordable options to appeal to a wider range of consumers		3. Increasing concern about data privacy and security in the context of smart home devices	

Source: The Author

5. Investment Summary

The final recommendation for Sonos Inc stands for buy. This recommendation derives from the price target of 17,96\$/share for 2023YE with a medium-risk assessment and an upside potential of 25% as of May 25th, 2023.

5.1 Methods

To obtain a fair valuation for Sonos, Inc. it was used the Discounted Cash-Flow Analysis (DCF) and the Market Multiples approach.

The final target price of \$17,96/sh was reached using the Discounted Cash-Flow (DCF) method through Free Cash Flow to the Firm (FCFF).

The target price multiple of \$16,1 is the average of EV/Sales (Enterprise Value/Sales), EV/EBITDA, EV/EBIT (Enterprise Value/Earnings before Interest and Taxes) and EV/BOOK. The EV/EBIT target price of \$28.73 is the highest of all the target prices achieved by the different methods, while EV/Sales is the lowest.

5.2 Investment risks

Sonos is subject to a variety of economic, market and operational risks that often cannot be mitigated and can have a significant impact on the price target. The different risks, their nature and their expected impact are explained in the chapter Investment Risks. Also, several sensitivity analyses were performed to quantify the impact changes of different variables of the DCF valuation can have on the price target.

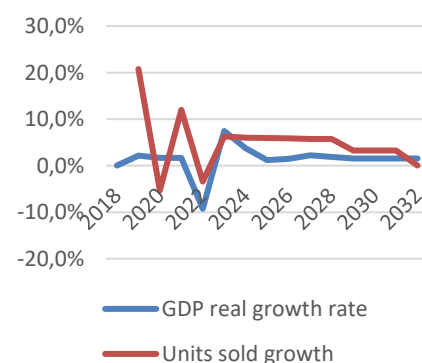
6. Valuation

The decision to employ both Discounted Cash Flow (DCF) valuation and multiples valuation methods in this equity research was strategic, aiming to provide a comprehensive analysis for Sonos Inc. DCF, as an intrinsic valuation method, delves deep into the company's fundamentals, projecting future cash flows and assessing the time value of money. This approach facilitates a detailed risk analysis and allows for sensitivity testing. On the other hand, multiples offer a market perspective, comparing the company to its industry peers and capturing market sentiments and perceptions of risk. The combination of these methods provides a holistic understanding of the intrinsic and market-driven aspects of the company's valuation but also enhances the educational value for students or researchers by exposing them to diverse valuation techniques and analytical approaches.

6.1 Revenues

The forecast for Sonos' revenues was calculated in two separate parts. The first by forecasting the number of items sold and the second by forecasting the change in the unit price of the items [Figure 20]. The estimated number of units sold in future years was estimated using past variations in units sold and the variation in GDP for those same years and the GDP forecast for the year to be estimated. Units sold

Figure 21. Units Sold vs GDP Growth



Source: Company Data, the Author

between 2029-2031 in the model grow at the level of inflation and reach maturity in 2032 (0%) [Figure 21]. The average unit price was calculated using the IMF's forecasted inflation as a driver. The model assumes that the real price change reaches maturity (0%) in 4 years.

Between October 2022 and 2023 is a forecasted CAGR of 13.72%, between 2023-2028 the expected CAGR is 11.25% and the CAGR for the years between 2028-2023 is 6.59%.

6.2 Main Costs

The main costs were calculated together (Costs of revenue + Operational Costs) with the main driver for the forecast being inflation. After the expected future costs were determined, the importance of 57% for costs of revenue and 43% for operational costs (average percentages between 2018 and 2022) was assigned.

Between October 2022 and 2023 the CAGR of costs of revenue is 13.62% [Figure 22] and that of operating costs is 15.92%. Between 2023-2028 and 2028-2033 the values were identical, being 10.105% and 6.59% respectively.

6.3 Capital Expenditure and Depreciation

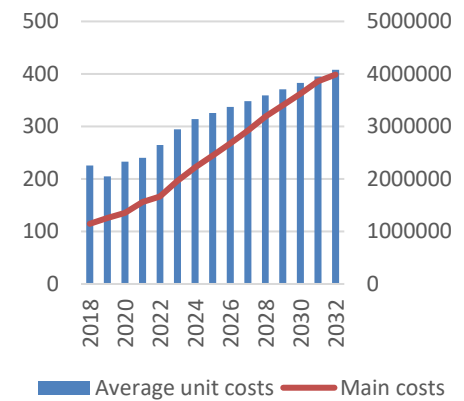
Capital expenditure (CapEx) has been on an upward trend. Growth is expected to continue in the same way, so the weight of Capex in sales (2.6%) between 2018 and 2022 was calculated and the median of these years was assumed as the future weight in sales. Is expected to Capex to grow to 87,5M\$ till 2028 (+ 89% than 2022).

Depreciation was calculated in the same arithmetic way. The median between the years 2018 and 2022 on sales was taken (-2.5%) and this weight was assumed for the forecast years. In 2028F, depreciation is expected to amount to 84M\$ (+121% compared to 2021) [Figure 23].

6.4 Non-Current and Current Assets

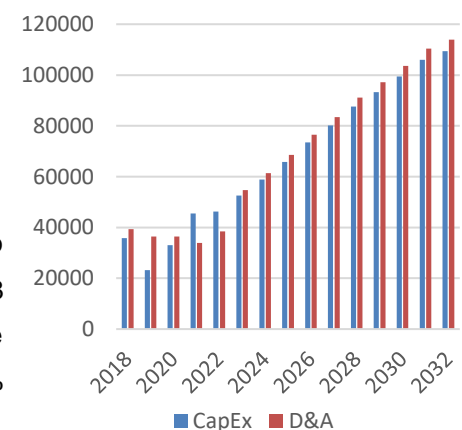
In Non-Current Assets, the tangible fixed assets (PP&E) were calculated by adding to the value to the previous year's balance sheet the difference between the expected capex and depreciation. The intangible assets (91M\$) and goodwill (77M\$) were assumed to remain at their values (2022). So, in 2028E PP&E is expected to be 136.6M\$ (vs 114.5M\$ in 2022) and Goodwill 77.3M\$ (same as 2022) and intangible assets 91M\$ (same as 2022) [Figure 24].

Figure 22. AVG Unit Cost VS Main Costs (in 000's of \$)



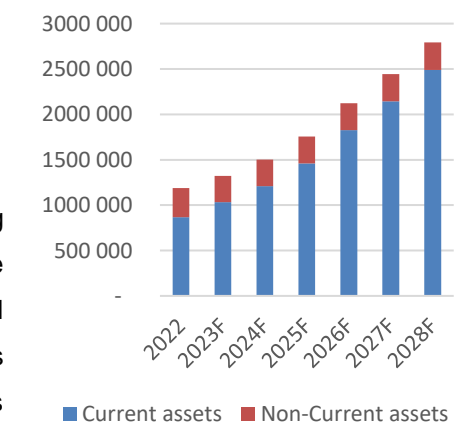
Source: Company Data, the Author

Figure 23. Capital Expenditure and Depreciation (in 000's of \$)



Source: Company Data, the Author

Figure 24. Non-Current and Current Assets (in 000's of \$)



Source: Company Data, the Author

In Current Assets, two different mathematical metrics were assigned to calculate Inventories, other future Current Assets and Accounts Receivable and another to calculate the future Minimum Cash Balance. The first metric used to calculate Inventories, Accounts Receivable and Other Current Assets is the median of the last 5 years in days of sales (62 days in the case of inventories, 21 days and 5 in the case of other current assets). In the minimum cash balance, it was assumed that 30 days of sales was enough to cover the company's operating activities.

6.5 WACC Assumptions

Debt-to-Capital: The journey into WACC commences with an exploration of Sonos' capital structure. The assumption of a 3.60% Debt to Capital ratio provides the foundational understanding of the proportion of debt in relation to the overall capital structure. In the evolving sonata of financial dynamics, the modulation of this ratio influences WACC, signaling strategic shifts in the balance between equity and debt.

Tax rate (Tc): The Tax Rate assumption of 21% [Figure 25] is essential for calculating the after-tax cost of debt. It reflects the portion of earnings that goes to taxes, affecting the effective cost of capital for Sonos.

Market Risk Premium and Risk Management: The Market Risk Premium assumption (6,99%) [Figure 25]. This premium, combined with Sonos' Company Beta of 1.224, reflects the company's sensitivity to market movements and overall risk (values sourced by Bloomberg).

Cost of Debt (Rd: 6.50%) [Figure 25]: The Cost of Debt reflects the interest rate on the company's debt and considers Sonos' policy of managing interest rate risk through interest swaps.

Cost of Equity (Re: 11.7%) [Figure 25]: The Cost of Equity represents the required rate of return demanded by investors for holding Sonos' equity.

Risk-Free Rate (4.714%): It serves as a benchmark for both the cost of debt and equity, anchoring the cost of capital calculations.

WACC: The WACC, set at 11.46% [Figure 25], is the weighted average of the cost of equity and the after-tax cost of debt. The weights are determined by the company's capital structure, providing a comprehensive metric for evaluating the cost of capital.

6.6 Terminal Value Assumptions

The assumption of a 3.20% Inflation Rate serves as a foundational pillar. This assumption acknowledges the broader economic context within which Sonos operates, influencing future cash flows and valuations. The terminal growth-rate

Figure 25. WACC Assumptions

WACC Assumptions	
Description	Value
WACC	11,46%
Tax Rate	21,00%
Market Risk Premium	6,99%
Country Risk Premium	0,00%
Company Beta	1,22
Risk Free	4,71%
Cost of Debt	6,50%
Cost of Equity	11,70%
Debt to Capital	3,60%

Source: The Author

Figure 26. Terminal Value Assumptions

Terminal Value Assumptions	
Description	Value
Inflation Rate	3,20%
WACC	11,46%
Growth Rate	1,93%

Source: The Author

assumption was a 1.93% rate [Figure 26]. This figure balances optimism about Sonos' prospects. The growth rate was calculated by multiplying the Reinvestment rate (Net Investment/NOPLAT) with the ROIC (return on Invested Capital).

6.7 Multiples Valuation

Besides the previous absolute valuation also a relative valuation in the form of Market Multiples was conducted. Multiple Valuation allows to spot how a company behaves compared to its peers. By this method, a target price of \$16.10 and an upside potential of 11.5% was reached. The ratios EV/Sales (evaluating revenues), EV/EBITDA (evaluating operational efficiency), EV/EBIT (evaluating earnings) and EV/BOOK (evaluating asset value) were selected to focus on the performance of the enterprise in comparison to its peer group and disregard different capital structures.

In this method 8 peer [Table 7] were considered across the technology industry to have a more reliable valuation (for example: B&O, Universal ELECTRONICS, Sportradar Group AG, Commvault Systems, etc...).

Table 7: Analysis Sonos' peer group

Multiples				
Company Name	EV/Book	EV/EBITDA	EV/EBIT	EV/SALES
SANM	1,83	7,12	7,12	0,41
CVT	2,15	44,55	44,55	7,10
SMCI	3,49	14,14	14,14	1,03
SRAD	4,63	16,70	16,70	5,52
CVLT	9,66	40,76	40,76	2,89
VICR	4 075,94	43,47	43,47	4,74
BO.CO	1,10	15,97	15,97	0,43
UEIC	0,61	5,82	5,82	0,32

Source: Yahoo finance, company data, the author

Table 8: Multiple Valuation

Multiples	Summary				Company Equity (In Millions)					
	Min	Q1	Median	Q3	Max Multiples	Min	Q1	Median	Q3	Max
EV/Book	0,61	1,64	2,82	5,88	4 075,94 EV/Book	344,155	921,78063	1581,3835	3298,5478	2284618,268
EV/EBITDA	5,82	12,38	16,34	41,44	44,55 EV/EBITDA	627,31	1 334,58	1 760,95	4 466,31	4 801,35
EV/EBIT	5,82	12,38	16,34	41,44	44,55 EV/EBIT	409,64	871,49	1 149,91	2 916,53	3 135,31
EV/SALES	0,32	0,42	1,96	4,94	7,10 EV/SALES	560,75	743,66	3 426,35	8 648,55	12 449,92

Source: Yahoo finance, company data, the author

Figure 27. Multiples Valuation

Company Info 2022	
Description	('000)
Sales	1 752 336
EBITDA	107 786
EBIT	70 385
NOPLAT	54 733
Earnings	67 383
Equity	560 513
Equity Value	1 980
Net Debt	(275)
Minority Interests	-
Price Per share	16,1

Source: The Author

The quartiles and extremes in each multiple provide a range of valuation scenarios enabling an assessment of the company's market position [Table 8]. However, some care must be taken for extreme values, especially in EV/Book, should be scrutinized for potential anomalies or outliers in the data. After identifying the quartiles and median, the valuation process involves multiplying each respective Enterprise Value (EV) multiple—EV/Book by equity, EV/EBITDA by EBITDA, EV/EBIT by EBIT, and EV/Sales by Sales—for Sonos. These operations yield values that represent different facets of the company's valuation. Taking the average of these results provides the Equity Value, amounting to \$1980 million. Subsequently, accounting for Net Debt (in this case, negative), subtracting it from Equity Value, and dividing by the number of shares outstanding yields the price per share [Figure 27].

By this method a target price of 16,1\$ and an upside of 15,4% was reached, with an equity value of 1980M\$.

Figure 28. Industry Landscape Breakdown – Public (Bottom) and Private (Top)



Source: Bowers & Wilkins, Harman, Beats, B&O, Sonos and TCL Elect.

7. Financial Analysis

Peers

Sonos positions itself in a CE luxury market niche. We can consider both low-cost peers and high-end peers [Figure 28]. Although most of these companies (Harman, Beats, Bowers & Wilkins) are private and, in most cases, supported by big conglomerates, we also found reliable public examples for valuation purposes.

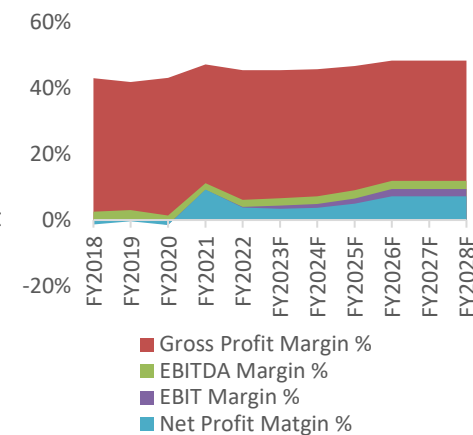
Additionally, it would be inappropriate to evaluate Sonos' current turnaround context with public tech giants as neither the scale of operation nor the financial structure would enable the most accurate analogy. Consequently, Bang & Olufsen (B&O), the Danish audio electronics company, is the most accurate peer despite heritage discrepancies.

The peers chosen for comparison in this project will be Bang & Olufsen (BO.CO), TCL Electronics Holdings Limited (1070.HK) and Universal Electronics Inc. (UEIC).

Profitability Ratios

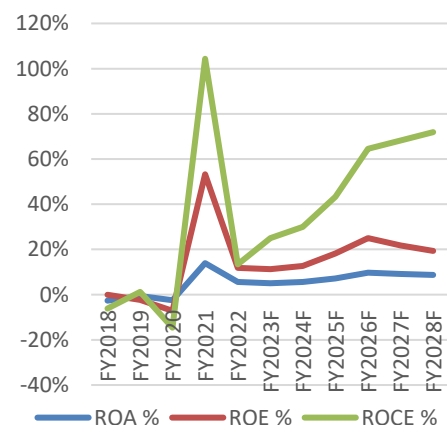
The profitability ratios show positive trends for the forecasted period. The **gross profit margin** has remained stable, ranging from 42% to 47%, and is expected to stay consistent around 45% to 48%. The **EBITDA margin** has fluctuated, starting at 3% in FY (Fiscal year) 2018 and FY2019, dropping to 1% in FY2020, and then

Figure 29. Operating ROA



Source: Company Data, the Author

Figure 30. ROA, ROE, and ROCE



Source: Company Data, the Author

rising to 11% in FY2021. It is projected to range from 6% to 12% in the forecast period. Similarly, the **EBIT margin** showed negative figures in FY2018 and FY2020 but turned positive, reaching 9% in FY2021. The forecast suggests a gradual increase, reaching 9% in FY2027. The **net profit margin** exhibited negative figures in FY2018 and FY2020 but improved to 9% in FY2021. It is expected to range from 3% to 7% in the forecast period [Figure 29]. **Return on assets (ROA)** has significantly improved, going from negative figures to 14% in FY2021, with a projected steady increase to 9% in FY2026 and beyond. **Return on equity (ROE)** started at -2% in FY2019 and -7% in FY2020 but improved to 53% in FY2021. The forecast suggests further growth, reaching 19% in FY2028. **Return on capital employed (ROCE)** exhibited significant fluctuations, ranging from -15% in FY2020 to 104% in FY2021. It is projected to increase steadily, reaching 72% in FY2028 [Figure 30].

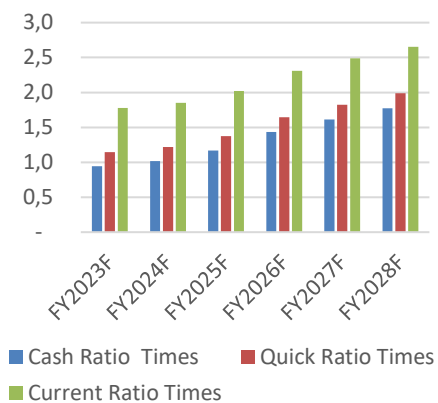
Liquidity Ratios

Sonos' liquidity ratios, comprising the cash ratio, quick ratio, and current ratio, reflect the company's ability to meet short-term financial obligations and manage its liquidity position. The **cash ratio** ranges from 0.7 to 1.8 times, indicating the company's capacity to cover its current liabilities with cash and cash equivalents. The **quick ratio** ranges from 1.0 to 2.0 times, representing Sonos' ability to meet short-term liabilities with its most liquid assets, excluding inventory. The policy of not paying dividends causes Sonos to have high levels of cash and current assets relative to its competitors. If we analyze Sonos' Cash Ratio compared to B&O's, Sonos only shows lower values than B&O's in 2018 [Figure 32]. The **current ratio** ranges from 1.7 to 2.6 times, indicating the company's ability to cover current liabilities with current assets. These ratios suggest a relatively stable liquidity position for Sonos, with slight improvements over time. Higher ratios generally indicate better liquidity and a stronger ability to address financial commitments. All ratios show the growth trend in the forecasted period from 2023 to 2028 [Figure 31].

Efficiency Ratios

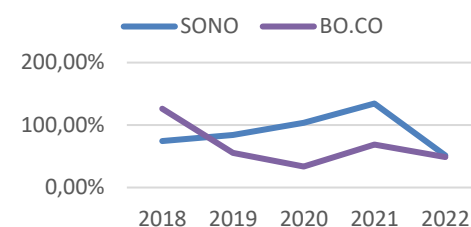
Sonos' efficiency ratios, including **days of sales outstanding (DSO)**, **days inventory outstanding (DIO)**, **days payable outstanding (DPO)**, and **cash conversion cycle (CCC)**, provide insights into the company's operational efficiency over the historical period of 2018 to 2028, as well as the forecast period. DSO ranged from 24 to 30 days historically, and it is expected to remain stable at 21 days in the forecast period, reflecting efficient collection of payments from customers. DIO ranged from 75 to 173 days historically, with a projected DIO of 120 days throughout the forecast period, indicating effective management of

Figure 31. Profitability Ratios



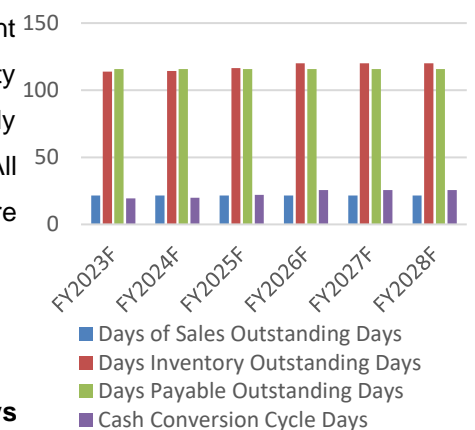
Source: Company Data, the Author

Figure 32. Sonos VS B&O Cash Ratio



Source: Company Data, the Author

Figure 33. Efficiency Ratios



Source: Company Data, the Author

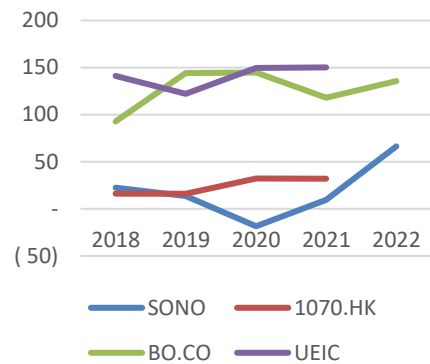
inventory turnover. DPO ranged from 87 to 128 days historically, and a consistent DPO of 116 days is anticipated in the forecast period, highlighting efficient cash flow management and payment practices [Figure 33]. The CCC, which represents the time required to convert investments into cash flows, showed fluctuations from 19 to 66 days historically, while the forecast indicates a steady CCC of 26 days. These efficiency ratios collectively demonstrate Sonos' ability to optimize working capital, manage inventory effectively, and maintain a favourable cash conversion cycle.

Sonos' Cash Conversion Cycle (CCC) compared to its peers displays a higher coefficient of variation at 164.58%. In contrast, TCL Electronics has an average CCC of 24 days with a coefficient of variation of 201.07%, while Bang&Olufsen and Universal Electronics have average CCCs of 127 days (coefficient of variation: 17.30%) and 141 days (coefficient of variation: 8.30%), respectively [Figure 34]. Despite Sonos' generally lower average CCC, the higher coefficient of variation suggests greater volatility in its cash conversion process compared to TCL Electronics, Bang&Olufsen, and Universal Electronics.

Solvency Ratios

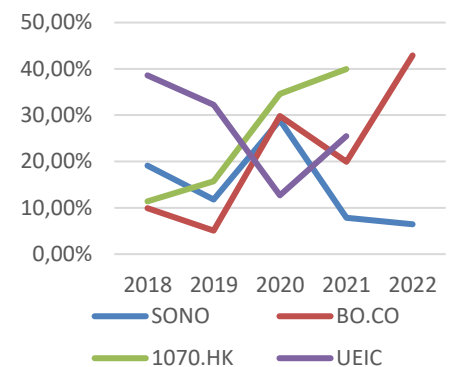
The evolution of Sonos' Debt to Equity (D/E) ratio and Debt Ratio compared to its industry peers reflects a deliberate and strategic financial trajectory. In 2018, Sonos initiated with a higher D/E ratio of 19.08%, swiftly reducing it to 6.45% by 2022, demonstrating a concerted effort to decrease reliance on debt financing [Figure 35]. This prudent approach contrasts with the varied trajectories observed in its peers. Bang & Olufsen (BO.CO) experienced fluctuations in the D/E ratio, spiking to 42.91% in 2022, signalling a potential shift towards a more leveraged capital structure. TCL Electronics (1070.HK) demonstrated a gradual increase in the D/E ratio, reaching 39.95% in 2022, indicating a heightened reliance on debt. Universal Electronics Inc. (UEIC) started with a significantly high D/E ratio in 2018 (38.60%), decreasing to 25.46% in 2022. Concurrently, Sonos maintained a consistently low Debt Ratio, decreasing from 6.77% in 2018 to 3.04% in 2022, showcasing a sustained commitment to minimizing debt relative to total assets [Figure 36]. This strategic financial management positions Sonos as a standout performer in terms of stability and prudence within the competitive landscape. In comparing Sonos to its industry peers, a distinct financial prudence emerges. Sonos maintains a conservative stance in both Debt to Equity and Debt Ratios, with averages of 14.83% and 5.73%, respectively [Table 9]. The low Coefficient of Variation underscores the stability in its financial structure. In contrast, Bang & Olufsen exhibits a slightly higher reliance on debt, evident in its average Debt to Equity ratio of 21.54% and Debt Ratio of 10.28%. TCL Electronics, while

Figure 34. Peers' CCC



Source: Companies Data, the Author

Figure 35. D/E Ratio



Source: Companies Data, the Author

showcasing a balanced approach with a Debt-to-Equity ratio of 25.43% and Debt Ratio of 8.25%, demonstrates a moderate level of financial stability. Universal Electronics Inc., with averages of 27.26% and 13.88% in Debt to Equity and Debt Ratios, respectively, reflects a slightly higher dependence on debt [Table 9]. Sonos' emphasis on financial prudence, as highlighted by its lower debt ratios and stability metrics, positions it as a financially resilient entity relative to its peers, contributing to its attractiveness for investors.

Table 9. Debt-to-equity and Debt Ratio

Debt to Equity		
Ticker	Average	Coefficient of Variation
SONO	15%	63%
BO.CO	22%	71%
1070.HK	25%	55%
UEIC	27%	41%
Debt ratio		
Ticker	Average	Coefficient of Variation
BO.CO	10%	61%
SONO	6%	53%
1070.HK	8%	49%
UEIC	14%	32%

Source: Companies Data, the Author

8. Investment Risks

8.1 Economic and Market Risks

Covid-19 (EM1; medium-low) [Figure 37]

The impact of the COVID-19 pandemic on their business and results is uncertain and challenging to predict and will be influenced by various factors outside of their control such as the efforts to control the spread of the virus, any new outbreaks or variants that may emerge, and the effects of the pandemic on the global economy.

Competition (EM2; medium-high) [Figure 37]

SONOS operates in a highly competitive and rapidly evolving market, where competition is expected to intensify in the future. Their competitors include established players such as Bose, Samsung, Sony, and developers of voice-enabled systems like Amazon, Apple, and Google. To remain competitive, SONOS must continuously innovate and anticipate changing consumer preferences, while also being mindful of price erosion and competition.

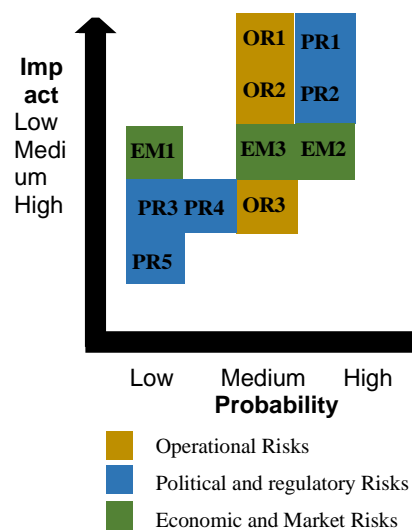
Partners (EM3; medium) [Figure 37]

SONOS' business and operating results could be negatively impacted by competition with SONOS' technology and content partners. If their technology partners cease doing business with them, disable the technology they provide, or charge them for the integration, sales may decline, and their reputation may be harmed. If SONOS' content partners cease to allow their content to be streamed on SONOS' products, demand for SONOS' products could decrease, costs could increase, and the operating results could be harmed.

8.2 Operational Risks

Manufacturers (OR1, medium-high) [Figure 37]

Figure 37: Risk Matrix



Source: The Author

SONOS rely on a limited number of contract manufacturers to produce their products, with the majority being manufactured by Inventec Appliances Corporation. SONOS have historically manufactured their products in China, but in recent years, they have tried to diversify their supply chain through the addition of new contract manufacturers and geographic diversification, starting with Malaysia and extending to Vietnam. SONOS' reliance on a limited number of manufacturers increases the risk of a production disruption, should any of these manufacturers experience an interruption in operations, fail to perform obligations in a timely manner, or terminate agreements. This could harm SONOS' ability to compete effectively, fulfil customer demand, and have a negative impact on their revenue, gross margin, and operating results.

There is no guarantee that their efforts to diversify their manufacturers will be successful. Onboarding a new manufacturer requires a significant amount of time and resources, and if SONOS do not coordinate the timely manufacturing and distribution of their products by these manufacturers or if SONOS do not receive timely and negatively impact their financial performance. Diversifying manufacturers to other countries may also result in increased transportation costs and fuel costs.

Suppliers and Logistics Providers (OR2, medium-high) [Figure 37]

SONOS is dependent on a small number of third-party suppliers and logistics providers for key components and product delivery. These suppliers and providers have the potential to cause shortages, delays, and other challenges to the company's production and delivery. The lead time for many components also presents difficulties in inventory management. The company could face challenges in identifying alternative suppliers or channel partners in the event of disruptions or loss of existing partners.

Cyber Attacks (OR3, medium) [Figure 37]

SONOS collects, stores, and processes its customers' personal information and other sensitive data. If a breach or a disruption of the systems occurs, the brand and reputation of the brand would be highly affected. This could lead to a decrease of the sales and the revenue. Responding to this breach would have costs attached to it.

8.3 Political and Regulatory Risks

Exchange rate (PR1, medium-high) and Imposition of Tariffs and Trade Barriers (PR2, medium) [Figure 37]

In FY22 45% of SONOS' revenues were made outside of the US. This could bring some inherent risks with it. Including fluctuations in currency exchange rates and

the costs of imposing currency exchange controls. These fluctuations can result in instability in the political, social, and economic spheres, especially during times of crisis like the COVID-19 pandemic, Russia's invasion of Ukraine, and the UK's withdrawal from the EU. Additionally, tariffs, trade barriers, and duties can pose obstacles to international trade. Protectionist laws and business practices that favor local businesses can also create difficulties for foreign companies.

Payment Collection (PR3, medium-low) [Figure 37]

Doing business with international customers can come with higher levels of credit risk and payment fraud, as well as longer payment cycles, which can make payment collections more difficult.

Extensive Regulatory Requirements (PR4, medium) [Figure 37]

The burden and risks of complying with numerous foreign laws and regulations, including the Foreign Corrupt Practices Act, must also be considered. The laws and regulations in different countries can change unexpectedly and be unpredictably enforced, posing further challenges.

Intellectual Property Laws (PR5, medium-low) [Figure 37]

Intellectual property rights may not be as protected in some countries, making it more challenging to safeguard one's rights.

8.4 Sensitivity Analysis

To analyze the sensitivity of the share price different WACC and terminal growths were used as shifting variables, as these two are volatile values in the model. Highlighted in green [Table 10], it can be observed the computed share price of 17,96\$.

When the cost of debt assumes a more substantial role in the Weighted Average Cost of Capital (WACC) structure, as illustrated by the provided sensitivity analysis with WACC variations from 1.75% to 2.10%, its impact on the company's valuation and shares becomes pronounced. The WACC, a blend of the cost of equity and cost of debt, is intricately linked to the company's capital structure. As the cost of debt increases, contributing to a higher WACC, the company's capital becomes more expensive. In this scenario, higher WACC values correlate with lower share prices, evident in the descending trend from \$20.36 at 10.46% WACC to \$17.10 at 12% WACC. A higher cost of debt often leads to increased financial leverage, amplifying returns for shareholders in favorable conditions but escalating financial risk. Investors may apply a higher discount rate in valuation models, reducing the present value of the company. Additionally, heightened reliance on debt increases interest expenses, impacting net income and, subsequently, earnings per share

(EPS). These dynamic influences market perceptions of the company's profitability and growth potential, ultimately shaping share prices. In summary, the higher cost of debt within the WACC structure, as exemplified in the sensitivity analysis, introduces financial risk, influencing both the company's valuation and the market perception of its shares.

Table 10. Sensitivity Analysis

		g				
		1,75%	1,90%	1,93%	1,94%	2,10%
WACC	10,46%	19,96	20,13	20,16	20,17	20,36
	10,70%	19,40	19,56	19,58	19,60	19,77
	11%	18,75	18,89	18,91	18,93	19,08
	11,40%	17,94	18,07	18,09	18,10	18,04
	11,46%	17,83	17,95	17,96	17,98	18,12
	11,53%	17,69	17,81	17,84	17,85	17,98
	11,60%	17,56	17,68	17,70	17,71	17,84
	11,66%	17,45	17,57	17,59	17,60	17,73
	12%	16,85	16,96	16,98	16,99	17,10

Source: The Author

Appendices

Appendix 1: Statement of Financial Position

Balance Sheet - Sonos, Inc.									
Description (in '000 USD)	2020	2021	2022	2023	2024	2025	2026	2027	2028
Assets									
Current assets									
Cash and cash equivalents	407 100	640 101	274 855	549 241	662 734	844 549	1 130 948	1 386 653	1 664 424
Short term investments	-	-	-	-	-	-	-	-	-
Accounts receivable, net	54 935	100 779	101 206	116 979	132 084	148 993	167 829	182 918	199 308
Inventory	180 830	185 130	454 288	338 588	382 309	431 250	485 770	529 443	576 883
Other current assets	17 512	31 504	37 042	28 355	32 017	36 115	40 681	44 339	48 312
Total current assets	660 377	957 514	867 391	1 033 164	1 209 144	1 460 907	1 825 229	2 143 352	2 488 927
Non-current assets									
Property plant and equipment	103 126	105 182	114 497	120 956	125 640	127 981	130 617	133 490	136 621
Goodwill	15 545	15 545	77 300	77 300	77 300	77 300	77 300	77 300	77 300
Intangible assets	26 394	24 450	91 064	91 064	91 064	91 064	91 064	91 064	91 064
Long term investments	-	-	-	-	-	-	-	-	-
Tax assets	1 800	10 028	1 508	-	-	-	-	-	-
Other non-current assets	8 809	26 085	36 628	-	-	-	-	-	-
Total non-current assets	155 674	181 290	320 997	289 320	294 004	296 345	298 981	301 854	304 985
Total assets	816 051	1 138 804	1 188 388	1 322 485	1 503 149	1 757 252	2 124 210	2 445 207	2 793 912
Liabilities									
Current Liabilities									
Accounts payable	250 328	214 996	335 758	344 700	387 254	429 048	468 503	510 624	556 378
Short term debt	17 577	10 724	10 532	14 867	16 702	18 504	20 206	22 023	23 996
Tax payables	6 252	16 941	7 081	10 725	12 049	13 350	14 577	15 888	17 312
Deferred revenue	15 304	35 866	27 318	28 654	32 191	35 665	38 945	42 446	46 250
Other current liabilities	103 554	197 603	154 950	181 992	204 460	226 525	247 357	269 595	293 752
Total current liabilities	393 015	476 130	535 639	580 938	652 656	723 092	789 588	860 576	937 687
Non-current Liabilities									
Long term debt	68 611	33 960	25 596	44 786	54 913	77 236	114 578	124 879	136 069
Deferred revenue, non-current	47 085	53 632	56 152	57 520	70 525	99 196	147 154	160 384	174 755
Deferred tax liabilities, non-current	2 434	2 394	9 642	3 482	4 270	6 005	8 909	9 710	10 580
Other liabilities	-	-	-	-	-	-	-	-	-
Other non-current liabilities	7 067	3 646	846	7 812	9 578	13 472	19 985	21 782	23 734
Total non-current liabilities	125 197	93 632	92 236	113 600	139 286	195 909	290 626	316 755	345 137
Total liabilities	518 212	569 762	627 875	694 539	791 942	919 001	1 080 215	1 177 331	1 282 824
Equity									
Preferred stock	-	-	-	-	-	-	-	-	-
Common stock	114	129	130	-	-	-	-	-	-
Retained Earnings	(228 492)	(69 897)	(2 514)	-	-	-	-	-	-
Accumulated other comprehensive income/loss	(1 890)	(1 376)	(3 597)	-	-	-	-	-	-
Other Total stockholders equity	528 107	640 186	566 494	623 877	623 877	623 877	623 877	623 877	623 877
Total stockholders equity	297 839	569 042	560 513	623 877	623 877	623 877	623 877	623 877	623 877
Minority interest and other non-controlling charges	-	-	-	-	-	-	-	-	-
Total stockholders equity	297 839	569 042	560 513	627 946	711 207	838 251	1 043 995	1 267 876	1 511 088

Appendix 2: Income Statement

Profit and loss statement	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total sales	1 326 328	1 716 744	1 752 336	1 992 710	2 250 023	2 538 055	2 858 927	3 115 957	3 395 160
Net operating expenses	- 1 308 498 -	- 1 525 345 -	- 1 644 550 -	- 1 859 958 -	- 2 087 256 -	- 2 309 118 -	- 2 519 304 -	- 2 745 800 -	- 2 991 836 -
EBITDA	17 830	191 399	107 786	132 752	162 768	228 937	339 623	370 156	403 324
Depreciation	- 36 426 -	- 33 882 -	- 38 504 -	- 45 609 -	- 53 558 -	- 62 737 -	- 70 668 -	- 77 021 -	- 83 923 -
EBITA	- 18 596	157 517	69 282	87 143	109 210	166 201	268 955	293 135	319 401
Amortization	-	-	-	-	-	-	-	-	-
EBIT	- 18 596	157 517	69 282	87 143	109 210	166 201	268 955	293 135	319 401
Interest on debt	- 1 487 -	- 592 -	- 552 -	- 1 785 -	- 3 816 -	- 5 386 -	- 8 519 -	- 9 741 -	- 11 538 -
Other financial results	-	-	-	-	-	-	-	-	-
EBT	- 20 083	156 925	68 730	85 358	105 393	160 815	260 436	283 394	307 863
Income tax expense	- 32	- 1 670 -	- 1 347 -	- 17 925 -	- 22 133 -	- 33 771 -	- 54 692 -	- 59 513 -	- 64 651 -
Net Profit	- 20 115	158 595	67 383	67 433	83 261	127 044	205 744	223 881	243 212

Appendix 3: Cash Flow Statement

Cash flow statement	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Core EBIT	-	18 596	157 517	69 282	87 143	109 210	166 201	268 955	293 135	319 401
Tax on EBIT	-	3 905	33 079	14 549	18 300	22 934	34 902	56 480	61 558	67 074
NOPLAT	-	14 691	124 438	54 733	68 843	86 276	131 298	212 474	231 576	252 327
Change in operating invested capital		2 715	1 753 -	361 601	127 500 -	14 789 -	20 842 -	31 990 -	13 443 -	14 612
Unlevered free cash flow	-	11 976	126 192 -	306 869	196 343	71 487	110 457	180 484	218 133	237 714
Tax shield on interests		312	124	116	375	801	1 131	1 789	2 046	2 423
Cash flow from operating invested capital	-	11 663	126 316 -	306 753	196 718	72 288	111 588	182 273	220 179	240 137
Other financial results	-	-	-	-	-	-	-	-	-	-
Tax shield on other financial results interests**	-	-	-	-	-	-	-	-	-	-
Change in financial assets	-	6 252 -	25 504 -	2 023	38 136	-	-	-	-	-
Cash flow from total invested capital	-	17 915	100 812 -	308 776	234 854	72 288	111 588	182 273	220 179	240 137
Interests	-	1 487 -	592 -	552 -	1 785 -	3 816 -	5 386 -	8 519 -	9 741 -	11 538
Change in Interest-bearing debt		46 994 -	31 565 -	1 396	21 364	25 685	56 624	94 717	26 129	28 383
Cash adjustments	-	12 -	6							
Equity cash flow		27 580	68 648 -	310 724	254 433	94 157	162 826	268 471	236 566	256 982
Dividends		-	-	-	-	-	-	-	-	-
Retained equity cash flow		27 580	68 648 -	310 724	254 433	94 157	162 826	268 471	236 566	256 982

Appendix 4: Key Financial Ratios

Ratios	Unit	FY2020	FY2021	FY2022	FY2023F	FY2024F	FY2025F	FY2026F	FY2027F	FY2028F
Profitability										
Gross Profit Margin	%	43%	47%	45%	45%	46%	47%	48%	48%	48%
EBITDA Margin	%	1%	11%	6%	7%	7%	9%	12%	12%	12%
EBIT Margin	%	-1%	9%	4%	4%	5%	7%	9%	9%	9%
Net Profit Matgin	%	-2%	9%	4%	3%	4%	5%	7%	7%	7%
ROA	%	-2%	14%	6%	5%	6%	7%	10%	9%	9%
ROE	%	-7%	53%	12%	11%	13%	18%	25%	22%	19%
ROCE	%	-15%	104%	13%	25%	30%	43%	65%	68%	72%
Efficiency										
Days of Sales Outstanding	Days	15	21	21	21	21	21	21	21	21
Days Inventory Outstanding	Days	87	75	173	114	114	116	120	120	120
Days Payable Outstanding	Days	121	87	128	116	116	116	116	116	116
Cash Conversion Cycle	Days	-19	9	66	19	20	22	26	26	26
Liquidity										
Cash Ratio	Times	1,0	1,3	0,5	0,9	1,0	1,2	1,4	1,6	1,8
Quick Ratio	Times	1,2	1,6	0,7	1,1	1,2	1,4	1,6	1,8	2,0
Current Ratio	Times	1,7	2,0	1,6	1,8	1,9	2,0	2,3	2,5	2,7
Capital Structure										
Total debt to total equity	Times	0,29	0,08	0,06	0,09	0,10	0,11	0,13	0,12	0,11

Appendix 5: Forecasting Assumptions

General Drivers	2020	2021	2022	2023	2024	2025	2026	2027	2028
GDP real growth rate	-2,8%	6,3%	3,4%	2,8%	3,0%	3,2%	3,2%	3,1%	3,0%
GDP nominal growth rate	-4,2%	15,5%	5,9%	9,2%	6,2%	5,5%	5,2%	4,7%	4,7%
Inflation	3,2%	4,7%	7,4%	4,8%	3,8%	3,4%	3,3%	3,2%	3,2%
Short term interest rate swap	n/a	n/a	n/a	0,2%	0,9%	1,2%	1,4%	1,4%	1,5%
Short term interest rate forward curve	-0,4%	-0,6%	0,1%	0,2%	1,5%	1,7%	2,0%	1,7%	2,0%
Statutory tax rate	21,0%	21,0%	21,0%	21,0%	21,0%	21,0%	21,0%	21,0%	21,0%

Growth Analysis	2020	2021	2022	2023	2024	2025	2026	2027	2028
NOPLAT	- 14 691	124 438	54 733	68 843	86 276	131 298	212 474	231 576	252 327
Invested Capital	99 653	164 679	397 979	348 927	363 716	384 557	416 548	429 991	444 603
ROIC	-15%	76%	14%	20%	24%	34%	51%	54%	57%
Net Investment	- 35 418	65 026	233 300	- 49 052	14 789	20 842	31 990	13 443	14 612
RONIC	45%	214%	-30%	-29%	118%	216%	254%	142%	142%
Reinvestment Rate	241%	52%	426%	-71%	17%	16%	15%	6%	6%
FCF	57 153	93 294	- 140 063	196 343	71 487	110 457	180 484	218 133	237 714
Growth Rate	-35,5%	39,5%	58,6%	-14,1%	4,1%	5,4%	7,7%	3,1%	3,3%

Subject descriptor	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Sold Units										
Growth	-	-5%	12%	-3%	5%	5%	6%	6%	6%	
Units Sold	(000's units)	5 806	6 503	6 281	6 604	6 967	7 366	7 789	8 222	8 678
Sales										
Real unit price growth	-	7%	12%	1%	3%	3%	3%	3%	0%	0%
Nominal unit price growth	-	11%	16%	6%	8%	7%	7%	7%	3%	3%
Average unit prices	(000's \$)	228	264	279	302	323	345	367	379	391
Sales	(000's \$) €	1 326 328	1 716 744	1 752 336	1 992 710	2 250 023	2 538 055	2 858 927	3 115 957	3 395 160
Operating expenses										
Real unit opex growth	-	10%	0%	5%	4%	3%	1%	0%	0%	0%
Nominal unit opex growth	-	14%	3%	10%	9%	6%	5%	3%	3%	3%
Average unit costs	€ / t	233	240	265	289	307	322	333	343	354
Operating expenses	(000's \$) €	1 353 561	1 561 780	1 662 804	1 905 567	2 140 813	2 371 855	2 589 972	2 822 822	3 075 759

Subject descriptor		2020	2021	2022	2023	2024	2025	2026	2027	2028
Capex										
Weight on sales	-	0	0	0	0	0	0	0	0	0
Capex	(000's \$) €	33 035	45 531	46 216	52 068	58 242	65 077	73 304	79 895	87 054
Depreciation										
Weight on sales	-	-3%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%
Depreciation	(000's \$) €	36 426	33 882	38 504	45 609	53 558	62 737	70 668	77 021	83 923
Intangible assets										
Opening balance	(000's \$) €	-	26 394	24 450	91 064	91 064	91 064	91 064	91 064	91 064
+	Additions	(000's \$) €	-	-	24 427	-	-	-	-	-
+	Amortization	(000's \$) €	-	-	-	-	-	-	-	-
=	Closing balance	(000's \$) €	26 394	24 450	91 064	91 064	91 064	91 064	91 064	91 064
Current assets										
Days of sales	days	50	39	95	62	62	62	62	62	62
Inventory	(000's \$) €	180 830	185 130	454 288	338 588	382 309	431 250	485 770	529 443	576 883
Minimum cash balance	(000's \$) €	111 252	128 365	136 669	156 622	175 957	194 947	212 874	232 013	252 802
Other Current Assets	days	5	7	8	5	5	5	5	5	5
Other Current Assets	(000's \$) €	17 512	31 504	37 042	28 355	32 017	36 115	40 681	44 339	48 312
Days of opex	days	15	21	21	21	21	21	21	21	21
Accounts receivable	(000's \$) €	54 935	100 779	101 206	116 979	132 084	148 993	167 829	182 918	199 308
Current Assets	(000's \$) €	253 277	317 413	592 536	483 923	546 411	616 358	694 281	756 700	824 503

Subject descriptor		2020	2021	2022	2023	2024	2025	2026	2027	2028
Current liabilities (Days of Opex)	days	106	111	118	111	111	111	111	111	111
Current liabilities	(000's \$) €	393 015	476 130	535 639	580 938	652 656	723 092	789 588	860 576	937 687
Debt										
EBITDA	(000's \$) €	17 830	191 399	107 786	132 752	162 768	228 937	339 623	370 156	403 324
x	Debt to EBITDA ratio	#	7	0	1	1	1	1	1	1
=	Debt	(000's \$) €	125 197	93 632	92 236	113 600	139 286	195 909	290 626	316 755
Interests										
Euribor (3 months)	-	0%	-1%	0%	0%	2%	2%	2%	2%	2%
+	Spread	-	2%	1%	1%	1%	1%	1%	1%	1%
=	Interest rate	-	2%	1%	2%	3%	3%	4%	3%	3%
x	Average debt	(000's \$) €	101 700	109 415	92 934	102 918	126 443	167 597	243 268	303 690
=	Interest	(000's \$) €	1 655	1 460	1 437	1 785	3 816	5 386	8 519	11 538
Financial assets										
Opening balance	(000's \$) €	-	-	-	-	-	-	-	-	-
+	Change	(000's \$) €	- 170,00	6 252,00	25 504,00	-	-	-	-	-
=	Closing balance	(000's \$) €	-	-	-	-	-	-	-	-

Appendix 6: Common size financial statement

Description (in '000 USD)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Assets											
Current assets											
Cash and cash equivalents	38%	44%	50%	56%	23%	42%	44%	48%	53%	57%	60%
Short term investments	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accounts receivable, net	12%	13%	7%	9%	9%	9%	9%	8%	8%	7%	7%
Inventory	33%	29%	22%	16%	38%	26%	25%	25%	23%	22%	21%
Other current assets	2%	2%	2%	3%	3%	2%	2%	2%	2%	2%	2%
Total current assets	85%	89%	81%	84%	73%	78%	80%	83%	86%	88%	89%
Non-current assets											
Property plant and equipment	15%	10%	13%	9%	10%	9%	8%	7%	6%	5%	5%
Goodwill	0%	0%	2%	1%	7%	6%	5%	4%	4%	3%	3%
Intangible assets	0%	0%	3%	2%	8%	7%	6%	5%	4%	4%	3%
Long term investments	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Tax assets	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Other non-current assets	1%	0%	1%	2%	3%	0%	0%	0%	0%	0%	0%
Total non-current assets	15%	11%	19%	16%	27%	22%	20%	17%	14%	12%	11%
Total assets	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Liabilities											
Current Liabilities											
Accounts payable	33%	33%	31%	19%	28%	26%	26%	24%	22%	21%	20%
Short term debt	1%	1%	2%	1%	1%	1%	1%	1%	1%	1%	1%
Tax payables	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Deferred revenue	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Other current liabilities	13%	16%	13%	17%	13%	14%	14%	13%	12%	11%	11%
Total current liabilities	50%	53%	48%	42%	45%	44%	43%	41%	37%	35%	34%
Non-current Liabilities											
Long term debt	6%	3%	8%	3%	2%	3%	4%	4%	5%	5%	5%
Deferred revenue, non-current	7%	6%	6%	5%	5%	4%	5%	6%	7%	7%	6%
Deferred tax liabilities, non-current	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Other liabilities	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other non-current liabilities	2%	1%	1%	0%	0%	1%	1%	1%	1%	1%	1%
Total non-current liabilities	14%	10%	15%	8%	8%	9%	9%	11%	14%	13%	12%
Total liabilities	65%	63%	64%	50%	53%	53%	53%	52%	51%	48%	46%
Equity											
Preferred stock	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Common stock	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Retained Earnings	-35%	-27%	-28%	-6%	0%	0%	0%	0%	0%	0%	0%
Accumulated other comprehensive income/lo	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other Total stockholders equity	70%	64%	65%	56%	48%	0%	0%	0%	0%	0%	0%
Total stockholders equity	35%	37%	36%	50%	47%	47%	42%	36%	29%	26%	22%

Profit and loss statement	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total sales	100%	100%	100%	100%	100%	100%	100%	100%	100%
Net operating expenses	-99%	-89%	-94%	-93%	-93%	-91%	-88%	-88%	-88%
EBITDA	1%	11%	6%	7%	7%	9%	12%	12%	12%
Depreciation	-3%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%
EBITA	-1%	9%	4%	4%	5%	7%	9%	9%	9%
Amortization	0%	0%	0%	0%	0%	0%	0%	0%	0%
EBIT	-1%	9%	4%	4%	5%	7%	9%	9%	9%
Interest on debt	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other financial results	0%	0%	0%	0%	0%	0%	0%	0%	0%
EBT	-2%	9%	4%	4%	5%	6%	9%	9%	9%
Income tax expense	0%	0%	0%	-1%	-1%	-1%	-2%	-2%	-2%
Net Profit	-2%	9%	4%	3%	4%	5%	7%	7%	7%

Appendix 7: Valuation Methods

The main valuation method to calculate the target price of Sonos is the Discounted Cash Flow (DCF) model, but another method was used:

Multiples valuation: is a method employed to assess a company's value by comparing it to similar entities in the market, utilizing various financial metrics. Among these, the enterprise value-to-book value (EV/Book), enterprise value-to-EBITDA (EV/EBITDA), enterprise value-to-EBIT (EV/EBIT), and enterprise value-to-sales (EV/SALES) ratios play crucial roles. EV/Book provides insights into how the market values the company's net assets, while EV/EBITDA, EV/EBIT, and EV/SALES reflect the market's assessment of operational performance. A lower EV/Book may suggest undervaluation concerning the net assets, while lower EV/EBITDA, EV/EBIT, and EV/SALES multiples could indicate favorable valuations in terms of operational earnings and revenue. These multiples, when compared to industry benchmarks, offer a comprehensive view of a company's relative valuation, aiding investors in making informed decisions based on factors such as profitability, operational efficiency, and asset utilization.

DCF: for the DCF model the Free Cash Flow to the Firm (FCFF) approach was chosen to focus on the whole company with equity and debt investors instead of only equity holders as it is the case in the Free Cash Flow to Equity (FCFE) approach. There exist several slightly different calculations for the FCFF, but the one that was used:

$$FCFF = EBIT \times (1 - Tax Rate) + D\&A - CapEx - \Delta NWC$$

To discount the FCFF the Weighted Average Cost of Capital (WACC) under consideration of taxes was used:

$$WACC = (VE \times Re) + (VD \times Rd \times (1 - Tc))$$

E is the market value of equity.

V is the total market value of equity and debt.

Re is the cost of equity.

D is the market value of debt.

Rd is the cost of debt.

Tc is the corporate tax rate.

Appendix 8: Abbreviations

APAC	Asia Pacific
B&O	Bang and Olufsen
Capex	Capital Expenditure
CAGR	Compound Annual Growth Rate
CCC	Cash Conversion Cycle
CFO	Chief Financial Officer
COGS	Cost of Goods Sold
DCF	Discounted Cash Flow
DIO	Days of Inventory Outstanding
DPO	Days of Payables Outstanding
DSO	Days of Sales Outstanding
D&A	Depreciations & Amortizations
EBIT	Earnings before Interest and Taxes
EBITDA	Earnings before Interest, Taxes and D&A
EMEA	Europe, Middle East and Africa
EV	Enterprise Value
F	Forecast
FCFF	Free Cash-Flow to the Firm
FY	Fiscal Year
GDP	Gross Domestic Product
IPO	Initial Public Offering
Rd	Cost of Debt
Re	Cost of Equity
ROA	Return on Assets
ROE	Return on Equity
ROCE	Return on Capital Employed
ROIC	Return on Invested Capital

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Recommendation System

Level of Risk	SELL	REDUCE	HOLD/NEUTRAL	BUY	STRONG BUY
High Risk	0%≤	>0% & ≤10%	>10% & ≤20%	>20% & ≤45%	>45%
Medium Risk	-5%≤	>-5% & ≤5%	>5% & ≤15%	>15% & ≤30%	>30%
Low Risk	-10%≤	>-10% & ≤0%	>0% & ≤10%	>10% & ≤20%	>20%