A Work Project, presented as part of the requirements for the Award of a Master's degree in Finance from the Nova School of Business and Economics.

Merger & Acquisition Idea Field Lab - The Acquisition of GlobalFoundries by Advanced Micro Devices

João Francisco Mendes Pereira

Work project carried out under the supervision of:

Fernando Anjos

17/12/2024

Group Part

Abstract

This thesis examines the strategic implications of mergers and acquisitions (M&A) in the semiconductor sector, with a focus on the integration of Advanced Micro Devices (AMD), a fabless semiconductor company, and GlobalFoundries, a foundry. Set against the backdrop of intense global competition, rapid innovation, and crucial global conflicts, the potential economic benefits of a vertical integration is evaluated. It is also discussed whether the integration enhances AMD's supply chain resilience, operational flexibility, and innovation capacity while aligning GlobalFoundries with evolving industry demands. The analysis encompasses pre- and post-merger valuations, deal structure, synergy evaluation, and strategic implications.

Keywords

AMD, GlobalFoundries, Semiconductor Industry, Synergies, Financial Valuation, Value Creation, M&A, Corporate Strategy

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

Index

Group Part

Introduction

In today’s globalized economy, intense competition and rapid innovation across all sectors are reshaping markets, driven by evolving consumer preferences, increasing demands, and shifting market dynamics. Simultaneously, global conflicts among major economic players are disrupting global trade and supply chains, adding complexity for businesses operating in interconnected markets.

To address these challenges, mergers and acquisitions (M&A) and business partnerships serve as a useful strategy for companies to adapt and thrive. By integrating operations, companies can streamline processes, reduce costs, and consolidate resources to pursue broader strategic goals. M&A enables the creation of synergies through complementary strengths, enhanced capabilities, and accelerated innovation. These deals not only improve the competitive positioning of the entities involved but also serve as a calculated response to market volatility and disturbances, ensuring resilience in a quickly evolving economic landscape.

The semiconductor sector lies at the heart of these dynamics, serving as a cornerstone of modern progress and a vital enabler of industries such as consumer electronics, automotive, communications, IoT, and artificial intelligence. Amid intense competition and constant technological advancement, the sector faces additional pressures from geopolitical conflicts, particularly involving key players such as the United States, China, and Taiwan. These tensions have far-reaching implications for the sector's performance and its role in supporting the broader global economy.

In this context, M&A has proven to be an effective tool for semiconductor companies in overcoming challenges posed by worldwide volatile events. Building on this foundation, this thesis delves into the semiconductor sector, a timely and critical case for examining the broader implications of mergers and acquisitions, by exploring the potential impacts of integrating a foundry into a fabless company. The proposed merger between GlobalFoundries and AMD is analyzed as a case study, driven by strategic efforts to tackle key challenges in the industry. GlobalFoundries opted against investing in cutting-edge semiconductor technologies following a 2018 corporate decision, while TSMC became the number one player in the high-end market. Meanwhile, AMD, as a fabless company, benefits from the cost savings associated with outsourcing manufacturing to foundries but faces significant dependency on suppliers, particularly those located in sensitive regions like Taiwan. This reliance limits AMD's flexibility in its production process, leaving it vulnerable to potential global shortages.

This thesis provides a detailed analysis of both companies, encompassing pre-merger and post-merger valuations, a discussion of potential deal impediments, the proposed deal structure, a post-merger strategic plan, and an in-depth examination of the anticipated synergies. The study aims to determine the potential benefits of the transaction, including whether AMD could achieve greater control over its supply chain, enhanced production flexibility, and insulation from external risks through integration with GlobalFoundries. Additionally, it explores whether investing in GlobalFoundries to keep it in line with the evolving needs of the industry could strengthen the combined entity’s competitive position and future growth trajectory.

Group Part

Literature Review

According to Copeland and Weston (2004), the broad concept of mergers and acquisitions (M&A) encompasses strategic expansion, corporate restructuring, corporate control, and changes in ownership. Within the domain of strategic expansion, mergers and acquisitions are classified as business combinations, while joint ventures and strategic alliances fall under strategic cooperation initiatives. Weston, Weaver (2001) define mergers and acquisitions as a "transaction that forms one economic unit from two or more previous ones". The participants in a joint venture continue as separate firms, but create a new corporation, partnership, or other business form […] limited in scope and duration."

While some authors distinguish between "merger" and "acquisition," they are often used interchangeably. According to the Organization for Economic Cooperation and Development (2004), "an acquisition is a business transaction between unrelated parties […] The acquiring company purchases the assets and liabilities of the target company. […] A merger is the combination of two or more companies to share resources to achieve common objectives. A merger implies that, because of the operation, only one entity will survive."

Depamphilis (2018) defines a merger as "a combination of two or more firms, often comparable in size, in which all but one ceases to exist legally" and an acquisition as occurring "when a company takes a controlling interest in another firm, a legal subsidiary of another firm, or selected assets of another firm, such as a manufacturing facility. They may involve the purchase of another firm's assets or stock, with the acquired firm continuing to exist as a legally owned subsidiary."

M&As can be classified as horizontal, involving firms in the same industry; vertical, depending on positions along the supply chain; or conglomerate when firms are in different industries (Depamphilis, 2018).

Group Part

Regarding the motives for merger, synergy effect is one of the main sources in which acquisition adds value, which can be defined according to Depamphilis (2018) as “the value realized from the incremental cash flows generated by combining two businesses.” Synergies can be operational, which includes “economies of scale, economies of scope, and the acquisition of complementary technical assets and skills, which can be important determinants of shareholder wealth creation”, improved through managerial skills; and can be financial when there is a “reduction in the acquirer’s cost of capital due to a merger or acquisition. (…)” and it occurs “if the merged firms have cash flows that are relatively uncorrelated, realize cost savings from lower securities’ issuance and transactions costs, or experience a better matching of investment opportunities with internally generated funds.”

Beyond the synergy effect, the same author presents other factors that drive M&A deals, such as diversification, strategic realignment, winner’s curse tendency, undervalued assets, agency problems, tax considerations and market power.

Firstly, regarding diversification, it can be achieved by “buying firms beyond a company’s current lines of business,” while strategic realignment happens when “firms use M&As to make rapid adjustments to changes in their external environment such as regulatory changes and technological innovation”. In addition, Hubris and the “Winner’s Curse” happens when “CEOs with successful acquisition track records may pay more than the target is worth due to overconfidence”. The undervalued assets are also a great justification for M&As as “firms can choose to invest in new plant and equipment or obtain the assets by buying a company with a market value less than what it would cost to replace the assets,” which happens when the market-to-book or Q-ratio (the ratio between the market value of the acquirer’s stock to the replacement cost of its assets) is less than 1. Furthermore, when agency problems arise, where management's actions are driven by self-interest, compensation motives, or ego, conflicting with shareholder interests, the likelihood of engaging in mergers and acquisitions (M&As) increases. In addition, tax considerations could also be a justification as “acquirers of firms with accumulated losses and tax credits may use them to offset future profits generated by the combined firms,” as well as the desire of the acquiring company to improve its market power or to capture arbitrage opportunities when the shareholders misvalue the share price.

Besides the theoretical concepts associated with M&A, it is important to analyze the evolution of transactions as well as their performance. According to the S&P Global Report, the latest data from Q3 2024 highlights a positive trend in the M&A sector, driven by stabilized inflation, improved credit and financing conditions due to central bank rate cuts, and stronger equity market returns.

Deal counts in Q3 2024 totaled 9,141 transactions, 6% higher than Q3 2023 (8,613) and close to the six-quarter average of 9,114. In 2023, 37,285 deals were recorded, while the first three quarters of 2024 registered 27,162 deals, representing 73% of last year’s total and a 4% decrease compared to the same period in 2023 (28,197).

In terms of transaction values, Q3 2024 reached $602.7 billion, a 9% increase from Q2 2024 ($553.2 billion) and 22% higher than Q3 2023 ($493.5 billion). The total transaction value for 2023 was $2,101 billion, while the first three quarters of 2024 recorded $1,727.1 billion, accounting for 82% of 2023’s total and 17% higher than the same period last year ($1,473.5 billion).

Based on that, the total transaction value in 2024 is expected to exceed the amount registered last year, marking a recovery from the downward trend since 2021. In 2021, M&A activity peaked at $4,542 billion, driven by factors such as lower interest rates facilitating deal financing, company misevaluations amid economic uncertainty, and the pressing need for strategic realignment during the pandemic. This peak contradicted the decline observed since 2018. Following 2021, transaction values fell below pre-pandemic levels but are now rebounding toward pre-pandemic highs.

Geographically, all regions experienced increased transaction values in Q3 2024, except Africa, which saw a 10% decrease to $2.3 billion from $2.6 billion in Q3 2023. The United States and Canada grew to $350.4 billion (+27%), Europe reached $172.2 billion (+15%), and Asia-Pacific rose to $104 billion (+11%). Latin America and the Caribbean saw a 111% increase to $11 billion, while the Middle East grew 25% to $7.8 billion.

Regarding total transaction value, Information Technology led with $84.4 billion (+34% YoY), followed by Industrials at $74.7 billion (+84% YoY). Communication Services had the largest growth (+229% YoY), reaching $65.1 billion. In addition, Financials Services achieved $74.6 billion (+8% YoY), and Healthcare registered $47.9 billion (-3% YoY).

Among the top three transactions in Q3 2024, the third largest was Blackstone's $16.1 billion acquisition of AirTrunk in the Information Technology sector. The top two deals were in Consumer Staples ($35.8 billion) and Communication Services ($19.9 billion).

Group Part

Sector overview

The semiconductor industry is a vital part of the global economy, with growing importance as we move toward a more and more digital world, providing the foundational components for every modern electronic device, such as computers, smartphones, automotive systems and industrial equipment. This sector's key products are microprocessors (CPUs), graphics processing units (GPUs), memory chips, analog chips and application-specific integrated circuits (ASICs), where the major players include Intel, AMD, Nvidia, AMD, TSMC, Samsung and Qualcomm, each with its focus, from design to fabrication.

The semiconductor sector consists of distinct types of companies, each with benefits and challenges. First, there are fabless companies, such as AMD, Qualcomm and NVIDIA, which focus solely on designing chips. Next, there are foundries, like TSMC and GlobalFoundries, which handle the manufacturing of chips designed by fabless companies. Then, we have Integrated Device Manufacturers (IDMs), such as Intel and Samsung, which both design and produce their own chips. Finally, the sector includes equipment and materials suppliers, which provide the specialized machinery and materials needed for chip production.

Fabless semiconductor companies outsource the manufacturing to specialized foundries, such as TSMC, allowing them to focus on technological innovation in chip architecture and software development, while maintaining flexibility, as they can work with multiple manufacturers according to their strategic needs. Both AMD and Nvidia, for example, resort to TSMC for the fabrication of their most advanced products, while outsourcing to GlobalFoundries and Samsung, respectively, the production of chips using older nodes. On the other hand, these companies are heavily dependent on the manufacturers, being exposed to supply chain risks, such as production delays and constraints, caused by, for example, tensions between Taiwan, China and the USA.

Limited control over the manufacturing process is also a factor to consider, as they are subject to the foundries' production timelines and capacity.

Integrated Device Manufacturers (IDMs) maintain complete control over the entire semiconductor production process, from chip design to fabrication. This approach offers greater supervision over timelines, quality assurance and overall supply chain management, optimized for their specific needs. This integration allows for IDMs to quickly respond to market changes, being less exposed to the risks associated with outsourcing, such as geopolitical tensions and production holdups. This model requires very high capital investments for building, maintaining and continuous advancements of fabrication facilities, as the demand for technologically advanced products is always increasing. While IDMs enjoy greater control, they may face challenges in keeping up with fast paced innovation, part of this industry.

Building on the broader overview of the semiconductor industry, the semiconductor foundry sector is crucial in supporting the global technology ecosystem, as technological demands increase. These collaborations, which extend beyond manufacturing to include packaging and testing, for example, are integral to meeting the growing demand for semiconductors across industries like consumer electronics, automotive, telecommunications, and defense, making foundries an indispensable part of the semiconductor supply chain. Therefore, it is essential to analyze the evolution of the foundry market and its performance.

Geographically, the revenue share of Taiwan's semiconductor foundries, according to Statista, has risen from 63% in 2020 to 70% in 2024. In contrast, Korea's share of global revenues has declined from 18% to 11% during the same period. China has seen an increase from 6% to 8%, while the share of other countries has decreased from 13% to 11%. Over time, Taiwan has shown a steady upward trend, with a dominating position worldwide, whereas Korea's share has consistently declined, with China and other countries experiencing fluctuations.

Further suggested by Statista, the data on global revenue share indicates that the major players in the market are TSMC, Samsung, SMIC, UMC and GlobalFoundries, which together account for 89.2% of total revenue in the first quarter of 2024. TSMC's share has increased from 48.1% in 2019 to 61.7% in 2024, while Samsung's share has dropped from 19.1% to 11%. GlobalFoundries' share decreased from 8.4% to 5.1%, while UMC's share went from 7.2% to 5.7% and SMIC’s went from 4.5% to 5.7%. in 2023, the total market revenue reached $117.443 billion, reflecting a 14.1% decline from 2022, driven by customer inventory adjustments, weaker demand following the pandemic-driven revenue peak in 2022, and the impact of ongoing geopolitical uncertainties. However, the first quarter of 2024 shows a growth of 9.9% compared to the same period the previous year.

According to *Counterpoint*, a researcher in technology industry, in the fourth quarter of 2023, the foundry industry share by technology node was as follows: 3nm accounted for 9%, driven by the ramp-up of the iPhone 15; 4/5nm captured 26%, fueled by high demand for AI applications; and 6/7nm held 13%, supported by strong restocking demand for low-to-mid-end smartphones. Both the 12/14/16nm and 22/28nm nodes each represented 9% of the market, while all other mature chips collectively made up 34% of production.

Lastly, recent international tensions and chip shortages have highlighted vulnerabilities in the semiconductor supply chain, driving governments—particularly in the U.S. and EU—to implement initiatives aimed at boosting domestic foundry capacity, developing skilled workforces, and supporting R&D. Those programs include the U.S. CHIPS and Science Act of 2022, which allocates $52 billion for semiconductor manufacturing, research, and innovation and its complementary projects, such as New York’s Green CHIPS program, further emphasizing sustainability, providing additional incentives for eco-friendly semiconductor manufacturing. In the European Union, the European Chips Act, approved in 2023, commits approximately $43 billion with a goal to double its global semiconductor foundry market share to 20% by 2030. Additionally, the semiconductor sector is closely tied to government interests due to its strategic importance for national security, as semiconductors are essential for defense systems, leading to increased focus on secure production by entities such as the U.S. Department of Defense's Trusted Access Program Office.

AMD Overview

Inserted in the technology sector, AMD has operated globally in the semiconductor industry, since it was founded in 1969. Initially focusing on microprocessors (CPU) and memory chips, it became a significant competitor to Intel during the 1990s and early 2000s, facing the numerous challenges present in a highly competitive, always evolving technology sector. In 2006 the company entered the graphics processing unit (GPU) market through the acquisition of ATI Technologies for $5.4B. This gave AMD a foothold in the gaming and graphics market.

Over the years, AMD's position has fluctuated significantly, going through a crisis in the late 2000s and early 2010s. Poor financial decisions, such as the overpriced acquisition of ATI in 2006, inadequate development decisions for their processors and external pressures like the global financial crisis put AMD in a strenuous position. Struggling with debt and a declining market share, AMD was forced to sell off several IPs and spin off its chip manufacturing division in 2009, which later became GlobalFoundries. The partnerships with Sony to develop the engineering for the PlayStation 4 and with Microsoft for the Xbox One, which both released in 2013, were crucial factors in avoiding potential bankruptcy, as they provided significant revenue streams. AMD managed an impressive turnaround due to a change in strategic leadership with the appointment of Lisa Su as CEO in 2014. Focusing on a new technological roadmap, success started to manifest around 2017, with the launch of its Zen architecture and Ryzen processors. Lisa Su managed for the company to regain competitiveness in the CPU market, reestablishing its status as a major player in the semiconductor industry, with market capitalization increasing from 2B$ in 2014 to 233B$ as of October 2024.

Over time, the company has expanded its product offerings to address markets such as artificial intelligence (AI), cloud computing, data centers and high-performance computing, bolstered through key acquisitions. In 2022, AMD completed the acquisition of Xilinx for $49B, the largest in the company's history, strengthening the adaptive computing portfolio of the company, used for applications such as AI and machine learning. Pensando was also purchased in 2022, expanding the company's capabilities in data center computing. Most recently, both Silo AI and ZT Systems were obtained in 2024 to accelerate development and deployment of AI Models on AMD hardware and expand data center AI systems capabilities, respectively.

The revenues are split into four segments: Data Center (around 30%), Client (around 20%), Gaming (over 25%) and Embedded (nearly 25%). The Data Center segment targets cloud computing, enterprise servers and AI workloads, processes that require high performance, energy efficiency, scalability and adaptability, due to the large amount of data that is treated. AMD's presence in this market has grown over the years, taking more and more market share from Intel every year. The Client segment addresses the PC market for consumers and businesses, including desktop, notebook and commercial CPUs. AMD Ryzen processors are built on Zen architecture, that has contributed to the rising market share in the desktop and laptop spaces. The Gaming segment includes discrete GPUs and semi-custom SoCs for gaming consoles, as AMD powers the major gaming consoles, Sony's PlayStation and Microsoft's Xbox, and caters to the PC gaming market with the Radeon GPUs. Finally, the Embedded segment focuses on specialized markets such as automotive, aerospace, telecommunications and industrial applications. The recent acquisition of Xilinx in 2022 bolstered the company's capabilities in this sector, enabling it to offer custom solutions for high-performance systems.

The US is AMD's largest market, accounting for 35% of the revenues, followed by Japan and China with 20% and 15%, respectively, with the rest spread across Asia and Europe. AMD experienced a huge growth in revenues from 2020 to 2021 and yet another increase of 44% in 2022, coming from $9,8M to $23,6M. This was due to the higher demand in computer components propelled by the COVID-19 pandemic, coupled with an increase of market share mainly in the CPU market and the acquisition of Xilinx. In 2023, AMD had a decrease of 4% in revenues, due to a decrease of 9% in the gaming and 25% in the client segments, while embedded recorded an increase of 17% and data center 7%.

The governance structure must be discussed, particularly regarding diversity and inclusion policies, as well as leadership board representation and the identification of key shareholders. AMD's largest institutional shareholders are Vanguard Group and BlackRock, Inc., owning 8.5% and 7.5% of the company's outstanding shares, respectively. These investment firms manage assets on behalf of clients and, although they do not participate in AMD's daily operations, they influence corporate governance through their significant shareholdings.

In terms of its workforce, AMD employs 25,700 people, 76% of whom are male, and 24% female, while geographically 49% of employees are based in the Americas, 45% in Asia-Pacific/China/Japan, and 6% in Europe/Africa. The workforce is predominantly made up of millennials (54%) and Generation X (31%).

AMD's Board of Directors consists of 9 members, with 6 males and 3 females. Among them, Elizabeth Vanderslice and Jon A. Olson were previously part of Xilinx. The Leadership Team has 23 members, with 18 males and 5 females, including 3 individuals from Xilinx. Additionally, 6 members of the Leadership Team constitute the Executive Team: Lisa Su (CEO), Darren Grasby (Vice President, Strategic Partnerships, EMEA), Phil Guido (Vice President, CCO), Jean Hu (Vice President, CFO), Forrest Norrod (Vice President, General Manager, Data Center Solutions), and Mark Papermaster (Vice President, CTO).

The company operates 4 committees, with each composed of Board members, some serving on multiple committees. The Audit and Finance Committee includes 3 male members, the Compensation and Leadership Resources Committee has 1 female and 3 males, the Innovation and

Technology Committee includes 1 female and 2 males, and the Nominating & Corporate Governance Committee has 2 males and 2 females.

Financial Analysis of AMD

Delving into AMD's financials of the past 5 years, it has generally performed strongly throughout. Capital Structure ratios highlight the company's conservative approach, relying minimally on debt. The debt-to-equity and debt-to-assets ratios have declined from 2019 to 2020, varying minimally ever since, averaging at 4.69% and 3.37%, respectively, while the solvency ratio (Equity/Liabilities) increased dramatically, from 88.32% in 2019 to 466.04% in 2023. These trends demonstrate AMD's focus on maintaining a strong balance sheet with low leverage, to ensure strong financial stability.

Looking at Profitability ratios, the Gross Margin has fluctuated from 42.61% at the lowest end in 2019, to 48.25% at the highest end in 2021. With an increase in R&D, marketing, general and administrative expenses, as well as depreciation and amortization in 2022 and 2023, the EBIDTA margin has come from 24.67% in 2021 to 16.99% in 2023, while the EBIT margin declined from 22.20% in 2021 to 1.77% in 2023. Due to tax benefits for the company, the Net margin is slightly higher, going from 19.24% in 2021 to 3.77% in 2023. As expected, since the EBIT and Net Income have declined, as mentioned above, the Return on Equity and Return on Assets ratios have declined in 2023, arriving at values of 1.53% and 1.26% respectively.

Analyzing the company's cash flow management, the Cash Conversion Cycle increased from the lowest value of 87 days in 2021 to 161 days in 2023, suggesting longer inventory turnover and inefficiencies in receivables collection. This can be proved by the higher Average Holding Period and Average Collection Period in 2023 when compared to previous years, while the Average Payable Period increased in 2022, but decreased again in 2023. Despite a more inefficient cash flow management, AMD maintained very strong liquidity metrics throughout this period, registering the strongest values in 2020, followed very closely by 2023. The Current Ratio consistently exceeded 2.0 from 2020 onward, reaching 2.51 in 2023, while the Quick Ratio also remained robust, attaining a value of 1.86 in 2023. These reflect the company's strong short-term liquidity, with sufficient liquid assets to cover liabilities. The Cash Ratio has maintained stability above 0.5, while the Net Working Capital increased significantly from 2019 to 2023, highlighting AMD's strong liquidity position and effective working capital management.

Overall, AMD's performance reflects the focus on maintaining financial stability and sustained growth, by balancing growth initiatives with prudent financial management.

AMD Valuation

For valuation purposes we have reformulated the company's financial statements, forecasting eleven years into the future, until 2035. AMD is expected to experience a high level of growth for the next couple of years, as the demand for Artificial Intelligence technologies will drive the semiconductor sector forward. To ensure an accurate and comprehensive forecast, we combined industry market projections with our company-specific expectations.

Although AI will impact every single operational segment of the company, the Data Center is expected to be impacted the most, as AMD's CEO, Lisa Su, stated in the Q3 2024 earning calls that this market should experience an annual growth of more than 60% until 2028. We assumed a more modest, but still very high level of annual growth of around 50% until 2028, with a decline in growth and stabilization for the following periods, resulting in a CAGR of 21.19%. As for the Client and Gaming segments, we projected cyclical revenues, as consumers and businesses usually upgrade computers every 2-5 years, depending on how big each technological leap is. Lisa Su stated that the increase in demand for AI personal computers will boom computer sales for 2025, which we incorporated in our forecasts for the Client sector, followed by revenue spikes every 4 years, leading to a CAGR of 9.03%. We projected increased revenues for the Gaming sector in 2025, due to the upcoming release of AMD GPUs and CPUs combined with the launch of the PlayStation 5 Pro console on November 7th 2024, powered by AMD. The next big surge was projected for 2028, when the new generation of PlayStation and Xbox consoles are expected to be released, continuing to utilize AMD hardware, according to recent reports. This partnership between AMD and both Sony and Microsoft has historically boosted the company's revenues and market presence (CAGR of 7.61%). The Embedded segment is expected to achieve a CAGR of around 7%, according to industry analysis reports, therefore our projections reflect a CAGR of around 7.85%, as the company is expected to take advantage of the synergies from the Xilinx acquisition.

The cost of sales was calculated as a percentage of the revenues, based on a five-year historical average (around 54%). As for the R&D expenses, we projected around 20% of the revenues until 2029, with a slight decrease for the next years given an expected stabilization after a high growth period. This substantial amount reflects the large investment needed in this rapidly evolving industry. Other relevant Income Statement items, such as SG&A expenses, were also forecasted as a percentage of revenues, utilizing historical trends to capture the company's operating patterns and cost structure effectively. When it comes to the Net Working Capital, we expect the values to keep in line with recent trends as, as previously mentioned, the Average Collection Period, Average Holding Period and Average Payable Period have varied over the past 5 years. We assumed an average of these values for the first couple of years, while slightly reducing the Average Holding Period, as we expect more efficient inventory management and better turnover. With this, we calculated Accounts Payables, Accounts Receivables and Inventories. For Accrued Liabilities and Other Current Liabilities, we applied an average of the percentage of revenues, while assuming Operating Cash to be 2% of Cash and Cash Equivalents.

For the calculation of the WACC, we began by calculating the cost of equity. We conducted a linear regression of AMD's returns against the MSCI's returns, giving us the beta of equity. Then, this beta was unlevered to remove the effects of AMD's current capital structure, and relevered it to reflect the target capital structure. However, this adjustment had a minimal impact, as we ended up approximately mirroring the current capital structure of the company. The CAPM method was used to determine the cost of equity, using the 10-year U.S. Treasury bond as a proxy for the risk-free rate and a market risk premium of 5% (Koller, Goedhart, and Wessels 2020). The cost of debt was calculated through both the company's credit rating and the probability of default, obtained using the Bloomberg terminal, while the tax rate used was also obtained through Bloomberg. As for determining the optimal capital structure, the company has historically maintained a negative net financial debt (average 5 years of Net debt / EV of -1.2%), offering financial stability and flexibility for investing in R&D and other strategic initiatives. Keeping with AMD's strategy, we maintained a target Net Debt / Enterprise value of -1.5%, obtaining a WACC of 12.76%.

For the valuation, we utilized a terminal growth rate of 5.5%, reflecting our outlook for the future of AMD in a world where Technology and Artificial Intelligence are expected to take a central role in humanity's future. Long term projected World inflation is expected to be around 3.4%, with the USA's being at 2.1%, and the World GDP is projected to be around 4.76%, while North America's is at 4.1%. All these values were obtained from Statista.

A DCF valuation was conducted. Combining our present value of future free cash flows and the present value of terminal value, both discounted with the WACC, resulted in a Core Levered EV of 239,445, which in turn returned an Equity Value of 242,752. Dividing with the number of shares outstanding, a share price of $150.40, 4.4% higher than the actual share price of $144.07 at 31-10-2024.

A Comparables Valuation was also conducted, with the companies chosen to be the most similar to AMD being Nvidia, Intel, Qualcomm, Texas Instruments, STMicroelectronics and Marvell Technology. When analyzing each multiple we excluded the companies we considered had outlier values that would disrupt the analysis. Varied results were achieved with each multiple used, given the different structure of each company. The EV/Revenues multiple yielded a share price of $128.81 when using all companies, and $172.30 when excluding outliers, while the EV/EBITDA provided a share price of $66.40 given how most companies have lower ratios than AMD. The Price-to-Earnings multiple also provided unreliable results because of how lower the EPS of AMD has been in recent years, because of large operating expenses from recent acquisitions. The Price-to-Book multiple yielded a share price of $157.98 when using similar companies.

Group Part

Motives for merger

Currently, AMD does not produce chips in-house, meaning that it is highly dependent on external foundries, such as TSMC in Taiwan and GlobalFoundries in the US for the actual production of semiconductors. This dependency creates vulnerabilities to global crises and geopolitical tensions, that may severely impact the company's supply chain and operations. AMD also must compete for foundry capacity with other major TSMC customers, including Apple and Nvidia, which could lead to supply constraints. Looking into the recent past, AMD has found itself hampered several times due to TSMC's production constraints, during the Global Chip Shortage of 2020-2023. In this period, the semiconductor sector was heavily impacted by the COVID-19 pandemic, when the shortage of materials and product lines disruptions constrained AMD's and Nvidia's ability to meet high demand across product lines, thereby hindering growth potential. Even if owning a foundry wouldn't have fully protected the companies against supply shortages, it would have provided flexibility and priority in production.

It is also worth noting that AMD's main competitor in the CPU space, Intel, contemplated acquiring GlobalFoundries in 2021. Intel has traditionally relied on internal manufacturing and explored this acquisition as part of their strategy of expanding foundry services, in order to meet global demand. Even though this acquisition did not materialize, for undisclosed reasons, it highlights the strategic value of GF. In September 2024, Intel announced their plan to restructure their foundry business into an independent subsidiary. This move aims to optimize the capital structure of each business unit, facilitating access to external sources of funding, aligning with Intel's efforts to revitalize the company and regain a leading position in the industry.

Despite the strategic initiatives of some companies in the semiconductor industry that demonstrate potential pathways to success, geopolitical tensions have emerged as a dominant challenge, impacting both the global economy and industry stability. These tensions threaten supply chains, trade relations, and resource availability, making it imperative for companies to adopt collaborative strategies, such as mergers, to ensure resilience and sustained growth. Firstly, political tensions between China and Taiwan have significantly affected the industry. Since the end of the Chinese Civil War in 1949, relations between China, the victorious party, and Taiwan, the defeated one, have been marked by persistent tensions over the question of sovereignty. Taiwan, formally the Republic of China (ROC), has functioned autonomously from mainland China, officially known as People's Republic of China (PRC), establishing a self-governed democratic state in contrast to China's communist government. In recent years, these tensions have escalated significantly, particularly following the election of former Taiwanese President Tsai Ing-wen as under his leadership Taiwan adopted a more robust approach to self-governance and resisted policies promoting closer strait-ties. According to U.S. Air Force General Kevin Schneider, incursions by China's People's Liberation Army Air Force (PLAAF) into Taiwan's air defense identification zone (ADIZ) have soared, with Chinese aircraft violating the ADIZ over 1,085 times in recent months, marking a threefold increase from the previous year, as a warning for a possible invasion. Therefore, Taiwan Semiconductor Manufacturing Company (TSMC), the main foundry in the semiconductor industry, mainly in the cutting-edge technology domain, is facing a huge challenge, as it sits at the center of a strategic intersection between technology, geopolitics, and national security. In response to the mentioned recent events signaling the possibility of war, U.S. has imposed export controls on TSMC to restrict China's access to advanced technology that could bolster its military capabilities, prohibiting the sale of its most sophisticated semiconductor products, such as 7nm and 5nm nodes, to Chinese companies like Huawei. In addition, Admiral Phil Davidson, former head of the U.S. Indo-Pacific Command, has suggested that 2027 could be a plausible window for a Chinese invasion of Taiwan.

On the other hand, Taiwanese government has taken steps to ensure TSMC’s next generation 2nm technology remains within Taiwan’s borders, aiming to solidify the country's role as a global semiconductor hub, but possibly hindering TSMC’s ability to form international partnerships or access financial incentives from other countries.

Further complicating the landscape, U.S. President Donald Trump, during his tenure, proposed imposing higher tariffs on imports, including semiconductors. Given his recent re-election, this policy could be implemented in the near future, potentially impacting the semiconductor industry by increasing costs for U.S. companies reliant on imports, as US is only responsible for 10% of the world’s manufacturing capacity, as of 2022, according to SIA. This position aligns with the objectives of the CHIPS Act, a U.S. legislative measure designed to bolster domestic semiconductor production, offering substantial grants and financial support to encourage the establishment of semiconductor manufacturing within the U.S., aiming to reduce dependence on Taiwan and mitigate risks associated with potential geopolitical disruptions.

In summary, TSMC’s sales and performance are vulnerable to the political tensions between China and Taiwan, export restrictions imposed by Taiwan, and the possibility of higher tariffs from the U.S. At the same time, the U.S. is heavily reliant on semiconductor imports, particularly from Taiwan, where TSMC plays a pivotal role, being responsible for 60% of global semiconductor production and 90% of the most advanced chips. Consequently, the U.S. could face severe shortages if TSMC’s supply capacity is disrupted by geopolitical tensions or if its products are subject to higher tariffs upon entering the U.S., leading to significant economic impacts. This interdependence underscores the rationale for a potential merger between AMD and a U.S.-based company (GlobalFoundries), which could boost domestic manufacturing capacity and secure the U.S. semiconductor supply chain, supporting economic development and reducing reliance on foreign sources.

Deal Terms and Structure

Our proposed acquisition structure envisions GlobalFoundries becoming a subsidiary of AMD. This way, GF would remain an independent operational entity, maintaining its brand and client base, preserving AMD's focus and minimizing any disruptions to core operations. This strategy avoids the heavy burden of full direct integration, offering key financial flexibility. Post-acquisition, GF would benefit from the backing of the parent company's financial strength, facilitating access to debt financing with more favorable terms and conditions. In the long term, as will be discussed in our post-merger strategy plan, GF will serve as a vital member of AMD's vertical supply chain, allowing for the reduction of the dependency on external foundries. This structure was chosen over alternative partnerships, such as Joint Ventures, as these other options would limit operational oversight, could potentially lead to diverging objectives in the future and possibly even reduce GF's ability to secure better debt terms and conditions. An acquisition provides greater certainty and alignment with our proposed strategy, securing stability and strength for AMD's competitive position, as our proposed merger involves a makeover of GF's operational capabilities.

A 40% premium over GlobalFoundries' market value was applied for the calculation of the purchase price, assuming GF's share price of $36.50, as of October 31, 2024. This translates to a payment of $51.10 per GF share, leading to a total equity purchase price of $28,411.6 million. Based on AMD's stock price of $144.07 as of October 31, 2024, this translates to an exchange ratio of 0.35469. For the calculation of the premium, we considered information from several reports and studies regarding M&A deals, and the semiconductor industry. According to a publication by the Wall Street Journal in collaboration with Deloitte, which analyzed over 1,200 acquisitions spanning a 24-year period, 30.1% is the average premium paid in the analyzed M&A deals. A 2016

McKinsey study analyzing deal makings in the semiconductor sector reports an average of 40% premium, where the value created typically surpassed the price premium. The 40% deal premium is justified by these industry benchmarks, as well as the strategic value GF is expected to bring to AMD. We aimed to keep this figure in line with realistic expectations to keep the possibility of this deal actually going through as reasonable as possible.

Three different scenarios were outlined, each with a different impact on AMD's capital structure and financial flexibility. For the debt financing across these scenarios, a senior secured loan with a 10-year term is assumed, ensuring that the debt would be fully repaid by the final year of our forecast, preventing it from impacting the projected capital structure beyond the forecast period. We made sure in all scenarios AMD had the capacity to pay off its debt without severely affecting its operations, by looking at the expected free cash flows generated, with the worst-case scenario having a debt service coverage ratio (FCF/Debt Service) of at least 2.5x. The interest rate of 6.32% was calculated combining a 2% spread, reflecting market-based credit risk, with the current 10-year US Treasury of 4.32%. An issuance fee of 1.5% was assumed for the debt financing, transaction costs of 1% of the purchase price and restructuring costs of 0.5% of the purchase price. When determining the amount of cash used in each payment plan, we always set a minimum cash balance for AMD of $1 billion, making sure each scenario is manageable for the company. As of Q3 2024, AMD's balance sheet cash position is at $3.897 billion.

In the first scenario, a heavy amount of equity, $19.9 billion (leading to the issuance of 138.04 million new shares), is used to finance the transaction, accounting for around 70% of the total deal, alongside $7 billion in debt and $1.948 billion in cash reserves. This strategy minimizes debt load and financing interest obligations, preserving financial flexibility, at the cost of dilution of ownership for current shareholders, who may prefer using less equity given how AMD's stock price should be undervalued, according to our DCF valuation. For the second scenario, we established a balanced payment plan, using 50% stock, corresponding to issuing 98.6 million new shares to GF shareholders. The other 50% is paid using $13 billion in debt and $1.720 billion in cash. This scenario may be the most appealing, as it balances equity dilution with the debt burden, giving an optimal safe solution. The third scenario is comprised of financing only 30% in stock, $8.5 billion, which leads to the issuance of 59.16 million new shares. A substantial $18 billion in debt would be utilized, along with $2.477 billion in cash. This option offers the highest potential returns for AMD shareholders by minimizing dilution, allowing existing shareholders to retain a larger share of future earnings. However, this also introduces higher leverage risk, as the debt burden could place considerable pressure on AMD’s financial health if cash flows or market conditions become unfavorable.

Group Part

Deal Impediments

The semiconductor industry regularly encounters significant regulatory scrutiny, so this proposed merger is bound to be faced with challenges related to antitrust concerns, geopolitical sensitivities, environmental regulations and trade policies.

The U.S. Federal Trade Commission, as well as the European Commission, closely monitor M&A deals in order to prevent monopolies and to ensure fair competition, highlighting the importance of the 3 main antitrust laws – Sherman Act, Clayton Act and FCT Act – under which AMD and GlobalFoundries will be evaluated. The Sherman Act targets agreements that restrain unreasonable trade and prohibits monopolistic practices, while The Clayton Act addresses some gaps that the previous doesn´t cover, such as mergers that may substantially lessen competition, exclusive dealing contracts, and interlocking directorates, where individuals also serve on boards of competing companies. The FTC Act prohibits unfair methods of competition and deceptive practices, noting that any violations of the Sherman Act are also considered violations of the FTC Act, punishable by the Department of Justice, along with non-compliance with the other mentioned laws.

Therefore, the acquisition of GlobalFoundries by AMD would be subject to review for the potential impact on market competition due to vertical integration, as some of AMD's competitors who are also clients of GF could face limited access to manufacturing capacity or find themselves in a disadvantaged position. This merger could also be affected because this industry is at the center of worldwide geopolitical tensions, since GF's customer base is spread across the globe and their facilities are also located across multiple countries. For this reason, conflicts may arise related to, for example, AMD, an American company, controlling a foundry company that supplies chips around the world. Concerns over Environmental policies may also take place, as this is a topic that has been gardening increasing attention, and any negative environmental performance may lead to public backlash and regulatory hurdles.

Despite the regulatory scrutiny, we believe this merger provides an intriguing discussion point, by realistically addressing the challenges present in the current landscape of this industry.

Post-Merger Strategic Plan

With GlobalFoundries (GF) now acquired by AMD and operating as its subsidiary, GF's strategic plans will undergo significant changes, as the *parent company* aims to reduce its dependence on key major players in the one-digit-nanometer foundry market and minimize risks from potential supply chain disruptions due to political issues. Therefore, AMD intends to position GlobalFoundries (GF) as a leading participant in the one-digit-nanometer chip market, making it the primary supplier of chips across various sizes, with a focus on developing cutting-edge technologies.

To pursue these plans, the construction of a fab dedicated to one-digit-nanometer chips was considered. This fab will be composed of two units, each capable of operating independently, with one unit expected to begin operations in early 2026 and the other in early 2029.

Given the limited information available regarding the costs incurred by companies in building new facilities or expanding existing ones, several data sources were assessed: i) information from TSMC regarding the construction of its new facility in Arizona, which is already producing 5nm chips, with an average investment of $12 million for a production capacity of 20,000 wafers per month; ii) 2020 McKinsey Report, which projected the cost of semiconductor fab module construction at $5.4 billion for 5nm technology and $2.9 billion for 7nm, including a 12-24 month construction period for the shell and an additional 36-42 months to reach full capacity; iii) the planned construction of JASM's second fab in Japan, a subsidiary of TSMC, which is slated to operate by 2027 with a total investment of $20 billion to add 5nm and 7nm production, targeting a total production of 100,000 mm wafers per month; iv) the extreme case of the construction of TSMC's Fab 18 which had a total cost of 17 billion to produce 1.3 million 300mm wafers of 5nm production annually, and took three years to complete, from 2018 to 2021.

Therefore, considering that GlobalFoundries (GF) intends to expand one of its existing fabs and has some experience in the construction process, we have estimated a cost of $10 billion for an average production facility, which is a conservative figure when compared to the building of new fabs, as seen in the Arizona plant. For reference, we have not considered the 3nm expansion in our estimates, as it requires a significantly higher investment, as indicated by the TSMC disclosure of construction costs for a 3nm fab, projected to range between $27 billion and $29 billion. This higher cost is further compounded by the fact that GF will not be able to benefit from the cost reductions typically associated with more mature technologies, as 3nm is still in the early stages of market establishment.

To fund the fab construction, projected to cost $10 billion, GlobalFoundries (GF) plans to secure $5.5 billion through debt (via a loan), $2.5 billion from grants, $1 billion from cash reserves, and $1 billion from marketable securities. GF's current cash position includes $2.3 billion in cash and cash equivalents and $1.2 billion in marketable securities. The expectation of a $2.5 billion grant is justified, as GF has already received $1.5 billion from the U.S. CHIPS and Science Act and $550 million from New York State's Green CHIPS Program to support a 10-year project which application process was finalized in November 2024. These funds will be used to expand an existing fab in New York to advance the automotive sector, construct a new state-of-the-art fab at the same site, and modernize a facility in Vermont. The CHIPS Act focuses on enhancing U.S. semiconductor manufacturing, securing supply chains, and bolstering national security, with $52 billion allocated for federal semiconductor incentives. New York's Green CHIPS Program, offering up to $10 billion, aims to promote environmentally sustainable semiconductor manufacturing. The mentioned programs offer substantial financial assistance to support domestic semiconductor manufacturing, which will likely influence the funding available to companies like GlobalFoundries (GF). The projected grant for the construction of a new fab, tied to GF's acquisition by AMD, is based on GF's plans to expand production of advanced technologies critical to U.S. semiconductor supply. This expansion is particularly important amid ongoing geopolitical tensions between China and Taiwan, along with Taiwan's export restrictions on TSMC chips. Additionally, GF's commitment to environmental compliance strengthens its eligibility for funding from both programs.

Additionally, for the post-merger forecast, adjustments were made to the original valuation prepared without the merger scenario, which includes changes to the levels of PP&E, depreciations and interest expenses. The net book value of the fabrication plant was calculated across the forecast period, with depreciation beginning in 2026 to 50% of the total investment, due to the completion of the first construction phase. An additional depreciation line will commence in 2029, reflecting the remaining investment balance, as the second phase of construction reaches completion.

The Deloitte report "Tooling up the CHIPS Act: How to fast-track your new fab equipment ramp" indicates that approximately 45% of total investment is allocated to building facilities, while 55% goes toward equipment purchases. Based on this allocation, building investments were depreciated annually at a rate of 2.56%, considering an useful life of 39 years, as defined by IRS, although GF disclosed an increase of buildings' useful life from 26 years to 50 years in the last annual report; and equipment investments at 14.29%, considering an useful life of 7 years, a conservative perspective based on the period currently used by the company, from 2 to 10 years.

The interest expenses incurred with the fab project implementation were computed by structuring a credit amortization plan 11Y to maturity, with grace period of 4Y relative to construction time, using the 10-year US Treasury with a spread of 1.75%, aligned with the lowest spreads in GF's current loans, reflecting the anticipated increase in negotiation power driven by AMD's influence. A capital amortization of 5% was defined in the first 2 years, 10% in the third, and 15% until maturity, with a bullet of 20% that should be refinanced. The bullet will affect the company's debt structure in future, as by 2025, its net debt-to-enterprise value ratio will be -0.5%, maintaining its negative trend, due to a conservative perspective to guarantee the deal's value creation. We have inferred the company's capacity to pay the debt by the FCF. As FCF are negative until 2027, becoming slightly positive in 2028, one year before the new fab starts to fully operate, the interest expenses were capitalized to the principal amount, starting to be repaid in 2029, time at which the company starts to pay interest, guaranteeing a ratio FCF/Debt service around 3x to 6x, which is sufficient to face fab debt service. It's important to note that other debt payments related to existing loans are guaranteed as they were forecasted based on the current Debt/EV ratio, which gives a cautious outlook, as the EV increases in the post-merger scenario.

AMD Synergies

This vertical integration between AMD and GF is expected to bring synergy opportunities in enhanced operational efficiencies, cost savings and supply chain resilience. By utilizing GF for specific production needs, mainly after the investment in a new advanced foundry, AMD can directly control production volumes, prioritize product lines and, most importantly, reduce the dependency on external third-party foundries.

With GF operating as a subsidiary, cost synergies are achieved for AMD through better negotiation terms that reduce operational costs, thus improving the company's margins. This will in turn improve competitiveness by allowing the allocation of capital toward research and development, as well as competitive pricing in the market. Supply chain stability is also a valuable point for AMD, as the exposure to global supply chain disruptions, which have impacted the industry in recent years, is reduced. Ensuring manufacturing security in unstable economic conditions puts AMD in strategic advantage against main fabless competitor, Nvidia, as well as strengthening the company's reputation as a reliable supplier in the space, important factors in this industry. The alignment between the product design and the fabrication process also creates the opportunity for AMD to refine innovation cycles, more easily delivering products that meet consumer and industry needs. As GF's new foundry becomes fully operational by 2029, we are expecting AMD to realize the full potential of these synergies, not only solidifying the company's position in the semiconductor industry, but also creating value for shareholders that simply would not be unlocked without a merger of this magnitude.

For the actual quantitative cost synergy estimation, we conducted an analysis of the gross margins of Integrated Device Manufacturer companies, specifically Intel, Texas Instruments, Micron Technology and STMicroelectronics, over the past five years. We looked at the companies' operating segments to understand how they correspond to AMD's segment. We projected the margins each AMD segment is expected to achieve, through the margins of the corresponding segments of the IDM companies. Over the same period, AMD's gross margins show an average value of 45.29%, with 42.61% in 2019 being the lowest value and 48.25% in 2021 being the highest. These margins are lower than those of IDM's companies[1], where Intel averages 67.35%, Texas Instruments 70.82%, Micron Technology 55.93% and STMicroelectronics 52.49%. By analyzing these companies' average gross margins of the past 5 years, an estimate of 56% for AMD's gross margins was assumed, after the synergies have taken effect. This approach assumes that in these conditions, AMD's operations should achieve efficiency levels comparable to these established IDM companies. This translates to margins of 60.56% in the Data Center segment, 66.85% in the Client, 53.66% in Gaming and 66.62% in the Embedded segment, resulting in total cost synergies of 23%.

The AMD segments anticipated to benefit the most from cost savings are the Data Center and Embedded segments, since these are markets where GF already has an operational presence and can more easily adapt to AMD's needs. Data Center is expected to benefit mostly in the long term, once GF's new foundry is operational, as it is AMD's fastest growing segment. At this point, as the supply chain stabilizes, significantly lower manufacturing expenses are expected compared to external foundries, due to competition for limited foundry capacity. For the Embedded segment, cost savings are expected sooner, as GF current facilities are able to support the high-volume manufacturing needs of automotive and industrial IoT industries that predominantly comprise this segment. The stable specifications products of this segment make it a natural fit for cost efficiencies, which is why we forecast this to be the segment that benefits the most from cost

[1] Values obtained from Orbis

synergies. As for the Client and Gaming segments, cost synergies are also expected, although to a lesser extent, since these are more reliant on more advanced node manufacturing for most products, and it would take a long time for GF to be able to completely fulfill the parent company's needs. There is also the possibility AMD is bound to benefit from revenue synergies, given the increase in efficiency may enable the production of better products and/or new products that fill certain untapped markets, thus boosting sales. To incorporate the effects of this revenue synergy, we looked at the example of Apple, who started producing its Mac computer chips in house in 2020, while previously relying on Intel. With this change, the company was able to deliver computers with tailor-made chips, significantly enhancing performance and capabilities, which in turn boosted the sales. Analyzing historical data from 2010, we grouped Mac sales into 5-year averages, capturing consumer's upgrade cycles, and retrieved a growth of 15.91% from the 2010-2014 period to the 2015-2019 one. The release of the new M chips coincided with the Covid-19 pandemic, an important factor as this event led to a significant growth in computer sales. Examining worldwide PC market shipments (retrieved from Statista), there was a growth of 17.72% from 2019 to 2020, and 10.56% from 2020 to 2021, with a decline in later years, while Mac sales grown from 2020 to 2022, only declining in 2023. Looking at 5-year averages, Mac sales grown 30.42% from the 2015-2019 period to the 2020-2024, while worldwide PC sales grown 9.58% in the same period. Because of this, we can assume that Apple's Mac higher sales growth may be explained due to the new M chips used in Mac computers. From the 30.42% growth we assumed that 15.91% would be the normal expected growth, as it was the value experienced in the previous cycle, around 10% may have been due to abnormal market conditions from the pandemic, leaving a 5% growth we assumed was due to the new computers. Revenue synergies are very difficult to calculate, since they depend on numerous assumptions about the future. Because of this, we decided to be cautious, and only assumed revenue synergies for AMD of 3% in the long term, ensuring we don’t overestimate the value created by this deal.

Value Creation Analysis

To evaluate the value creation derived from this deal, we performed an Adjusted Present Value valuation of each company, now incorporating the effects of the expected synergies, as well as the effect of varying debt levels throughout the valuation period.

We looked at three possible scenarios regarding value creation: the Base case, with the value of synergies discussed previously; the Optimistic case where we increased the value of synergies by 25%; and the Conservative case where we decreased the value of synergies by 50%. On the Base case AMD's enterprise value increased by around 32.02%, going from $239,445 million to $316,119 million, reflecting how much we believe the company may benefit in the long term from the realization of the synergies. The Optimistic case achieves a value creation of 40.26%, and the Conservative a value of 15.86%. GF's enterprise value declined from $18,917 billion to $17,715 billion (-6.36%) in the baseline scenario, primarily due to the higher impact of CAPEX (construction of fab) outweighing the synergies of the merger. However, under the optimistic scenario, the enterprise value increases by 3.29%, reflecting a more favorable outlook, where the more Conservative decreases by 24,5%. When analyzing the value of the combined entity, the Base scenario displays an increase in value of 29.21%, the Optimistic 37.55% and the Conservative 12.90%.

In summary, this analysis demonstrates the value creation potential for the combined entity in either scenario, as the collaboration between the two companies unlock opportunities that would not be achievable independently.

Conclusion

We believe this potential acquisition between AMD and GlobalFoundries presents a compelling case for an M&A deal in the semiconductor industry. The vertical integration of AMD's design expertise with GF's manufacturing capabilities could create an opportunity for great sustainable growth, as synergies are realized.

This Field Lab's analysis highlights the potential benefits related to enhanced supply chain resilience, improved production efficiency and reduced external dependency. Our financial analysis and forecasts prove that integrating GF as a subsidiary to AMD is both viable and advantageous, particularly in the coming years when the demand for cutting-edge semiconductors is likely to explode, and synergies are expected to take effect. Our analysis concludes that the combined entity is stronger than the sum of its parts, with AMD being expected to benefit the most during this period, since GlobalFoundries must go through a heavy investment phase during the first half of the forecast period, impacting on its value creation capabilities.

Not without its risks, a merger of this type is presumed to face regulatory hurdles and raise geopolitical concerns, given the nature of the industry. Alongside this, risks associated with the heavy investment required for upgrading GF's capabilities are also present, since any major disruptions may impact the value creation capabilities of this deal.

In conclusion, this study emphasizes the interesting possibilities of deal making in the semiconductor industry, seeking to evaluate the feasibility and potential benefits. We believe this proposal represents an intriguing and realistic point of discussion for both academics and industry stakeholders, as the strategic role of M&A may shape the trajectory of this industry. This is especially relevant as we reach a point where innovation is becoming more and more challenging, and collaboration is crucial to drive progress and overcome complex obstacles.

References

Bajarin, Tim. 2019. "Looking Back, Looking Forward: AMD's Challenging Last Decade and Its Promising Future." *Forbes*. https://www.forbes.com/sites/timbajarin/2019/12/16/looking-back-looking-forward-amds-challenging-last-decade-and-its-promising-future/.

PC Gamer. n.d. "Here's Your Reminder How Close AMD Came to Financial Collapse and Just How Much We Owe to the PlayStation 4 and Xbox One." https://www.pcgamer.com/hardware/processors/heres-your-reminder-how-close-amd-came-to-financial-collapse-and-just-how-much-we-owe-to-the-playstation-4-and-xbox-one/.

TechSpot. 2023. "AMD Engineer Tells Tale When PlayStation 4 Saved the Company." https://www.techspot.com/news/103695-amd-engineer-tells-tale-when-playstation-4-saved.html.

AMD. 2024. "AMD Reports Fourth Quarter and Full Year 2023 Financial Results." https://ir.amd.com/news-events/press-releases/detail/1180/amd-reports-fourth-quarter-and-full-year-2023-financial.

Deloitte. 2024. "Semiconductor Industry Outlook." https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/semiconductor-industry-outlook.html.

AnySilicon. 2024. "Semiconductor Foundry Revenue: 2023-2024." https://anysilicon.com/semiconductor-foundry-revenue-2023-2024/.

Mordor Intelligence. 2024. "Semiconductor Foundry Market Report." https://www.mordorintelligence.com/industry-reports/semiconductor-foundry-market.

Counterpoint Research. 2024. "Infographic: Q4 2023 Semiconductor Foundry Smartphone AP Share." https://www.counterpointresearch.com/insights/infographic-q4-2023-semiconductors-foundry-smartphone-ap-share/.

Deloitte. 2024. "What Makes M&A So Challenging." *The Wall Street Journal*. https://deloitte.wsj.com/cio/what-makes-m-a-so-challenging-01654188458.

McKinsey. 2024. "Winning through M&A: Deal-Making in the Semiconductor Sector." https://www.mckinsey.com/~/media/mckinsey/industries/semiconductors/our%20insights/winning%20through%20m%20and%20a%20deal%20making%20in%20the%20semiconductor%20sector/winning%20through%20m%20and%20a%20final.pdf.

CFR. 2024. "China-Taiwan Relations and U.S. Policy." https://www.cfr.org/backgrounder/china-taiwan-relations-tension-us-policy-biden#chapter-title-0-4.

Semiconductor Industry Association. 2024. "CHIPS Act Overview." https://www.semiconductors.org/chips/.

Economist. 2023. "Taiwan's Dominance of the Chip Industry." https://www.economist.com/special-report/2023/03/06/taiwans-dominance-of-the-chip-industry-makes-it-more-important.

S&P Global. 2024. "Global M&A by the Numbers: Q3 2024." https://www.spglobal.com/market-intelligence/en/news-insights/research/global-m-a-by-the-numbers-q3-2024.

A&O Shearman. 2024. "Government Scrutiny of Semiconductor Transactions: Recent Cases." https://www.aoshearman.com/en/insights/global-trends-in-government-scrutiny-of-semiconductor-transactions-an-overview-of-recent-cases.

Federal Trade Commission (FTC). 2024. "Guide to Antitrust Laws." https://www.ftc.gov/advice-guidance/competition-guidance/guide-antitrust-laws/antitrust-laws.

Boston Consulting Group. 2024. "M&A 2024 General Dashboard." https://public.tableau.com/app/profile/the.boston.consulting.group/viz/MA2024GeneralDashboardFINAL/OverallMA.

Eurogamer. 2024. "Intel Loses Contract for PlayStation 6 Chips." https://www.eurogamer.pt/intel-perde-contrato-de-chips-para-a-playstation-6.

Fortune Business Insights. 2024. "Embedded Systems Market Report." https://www.fortunebusinessinsights.com/embedded-systems-market-108767.

Semiconductor Engineering. 2024. "Chip Shortages Grow for Mature Nodes." https://semiengineering.com/chip-shortages-grow-for-mature-nodes/.

Futurum Group. 2024. "Intel Exploring a Potential Deal to Buy GlobalFoundries." https://futurumgroup.com/insights/intel-exploring-a-potential-deal-to-buy-globalfoundries/.

CNBC. 2024. "Intel Turns Foundry Business into Subsidiary, Weighs Outside Funding." https://www.cnbc.com/2024/09/16/intel-turns-foundry-business-into-subsidiary-weighs-outside-funding.html.

EY. 2024. "Trends in Estimating Mergers & Acquisitions Integration Costs." https://www.ey.com/en_us/insights/strategy-transactions/four-current-trends-estimating-mergers-acquisitions-integration-costs.

Deloitte. 2024. "Tooling up the CHIPS Act: How to fast-track your new fab equipment ramp." https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/fabrication-equipment-ramp.html.

Digitimes. 2024. “Semiconductor Trends and Updates.”
https://www.digitimes.com/news/a20240711PR200.html&chid=9.

Tom's Hardware. 2023. "Both Trump and Biden Expected to Attend TSMC’s Arizona Fab Grand Opening Ceremony: Fab 21 Opens in December."
https://www.tomshardware.com/tech-industry/both-trump-and-biden-expected-to-attend-tsmcs-arizona-fab-grand-opening-ceremony-fab-21-opens-in-december.

TSMC. 2023. "TSMC Commences Volume Production of N4 Process Technology at New Arizona Fab."
https://pr.tsmc.com/english/news/2033.

SemiAnalysis. 2022. "TSMC’s 3nm Conundrum: Does It Even?"
https://semianalysis.com/2022/12/21/tsmcs-3nm-conundrum-does-it-even/.

McKinsey & Company. 2023. "Semiconductor Design and Manufacturing: Achieving Leading-Edge Capabilities."
https://www.mckinsey.com/industries/industrials-and-electronics/our-insights/semiconductor-design-and-manufacturing-achieving-leading-edge-capabilities.

AnandTech. 2023. "TSMC to Build Second Fab in Japan: 6nm and 7nm Coming to Japan."
https://www.anandtech.com/show/21256/tsmc-to-build-second-fab-in-japan-6nm-and-7nm-coming-to-japan.

TSMC. 2022. "TSMC to Build First 1nm Semiconductor Fab in Taiwan."
https://pr.tsmc.com/english/news/1951.

Koller, Tim, Marc Goedhart, and David Wessels. Valuation: Measuring and Managing the Value of Companies. 7th ed. Hoboken, NJ: John Wiley & Sons, 2020.

McKinsey & Company. *McKinsey on Semiconductors: Creating Value, Pursuing Innovation, and Optimizing Operations*. March 2024.

Deloitte AG and University of St. Gallen. Unlocking the Full Potential of M&A: What It Takes to Be a Value Creation Champion. Switzerland: Deloitte, 2022.

Copeland, Thomas E., and J. Fred Weston. Financial Theory and Corporate Policy. 4th ed. Boston: Addison-Wesley, 2004.

Weston, J. Fred, and Samuel C. Weaver. Mergers and Acquisitions. New York: McGraw-Hill, 2001.

DePamphilis, Donald M. Mergers, Acquisitions, and Other Restructuring Activities: An Integrated Approach to Process, Tools, Cases, and Solutions. 9th ed. San Diego: Academic Press, 2018.

Group Part

Appendices

AMD Financial Analysis

Capital Structure Ratios	2019	2020	2021	2022	2023
Debt Ratio	**8.06%**	**3.68%**	**2.52%**	**3.65%**	**3.64%**
Debt	486	330	313	2,467	2,468
Total Assets	6,028	8,962	12,419	67,580	67,885
Debt-to-Equity	**17.19%**	**5.65%**	**4.18%**	**4.51%**	**4.42%**
Debt	486	330	313	2,467	2,468
Equity	2,827	5,837	7,497	54,750	55,892
Debt-to-EBITDA	**56.98%**	**19.63%**	**7.72%**	**45.37%**	**64.04%**
Debt	486	330	313	2,467	2,468
EBITDA	853	1,681	4,055	5,438	3,854
Solvency Ratio	**88.32%**	**186.78%**	**152.32%**	**426.73%**	**466.04%**
Equity	2,827	5,837	7,497	54,750	55,892
Liabilities	3,201	3,125	4,922	12,830	11,993
Financial Autonomy	**46.90%**	**65.13%**	**60.37%**	**81.02%**	**82.33%**
Equity	2,827	5,837	7,497	54,750	55,892
Assets	6,028	8,962	12,419	67,580	67,885

Profitability Ratios	2019	2020	2021	2022	2023
Gross Margin	**42.61%**	**44.53%**	**48.25%**	**44.93%**	**46.12%**
Gross Profit	2,868	4,347	7,929	10,603	10,460
Revenue	6,731	9,763	16,434	23,601	22,680
EBITDA Margin	**12.67%**	**17.22%**	**24.67%**	**23.04%**	**16.99%**
EBITDA	853	1,681	4,055	5,438	3,854
Revenue	6,731	9,763	16,434	23,601	22,680
EBIT Margin	**9.37%**	**14.02%**	**22.20%**	**5.36%**	**1.77%**
EBIT	631	1,369	3,648	1,264	401
Revenue	6,731	9,763	16,434	23,601	22,680
Net Margin	**5.07%**	**25.50%**	**19.24%**	**5.59%**	**3.77%**
Net Income	341	2,490	3,162	1,320	854
Revenue	6,731	9,763	16,434	23,601	22,680

Group Part

Return and Efficiency Ratios

	2019	2020	2021	2022	2023
ROE	**12.06%**	**42.66%**	**42.18%**	**2.41%**	**1.53%**
Net Income	341	2,490	3,162	1,320	854
Equity	2,827	5,837	7,497	54,750	55,892
ROA	**5.66%**	**27.78%**	**25.46%**	**1.95%**	**1.26%**
Net Income	341	2,490	3,162	1,320	854
Total Assets	6,028	8,962	12,419	67,580	67,885
ROIC	**30.02%**	**32.22%**	**75.19%**	**2.36%**	**0.73%**
Operational Result	631	1,369	3,648	1,264	401
Total Invested Capital	2,102	4,249	4,852	53,498	54,891

Cash Flow Management

ACTIVITY RATIOS	2019	2020	2021	2022	2023
Average Holding Period	**93**	**94**	**84**	**119**	**141**
Inventories	982	1,399	1,955	3,771	4,351
COGS	3,863	5,416	8,505	11,550	11,278
Average Payable Period	**93**	**32**	**57**	**79**	**67**
Payables	988	468	1,321	2,493	2,055
COGS	3863	5416	8505	11550	11278
Average Collection Period	**101**	**77**	**60**	**64**	**87**
Receivables	1,859	2,066	2,706	4,126	5,376
Revenues	6,731	9,763	16,434	23,601	22,680
Cash Conversion Cycle	**100**	**140**	**87**	**104**	**161**

LIQUIDITY RATIOS	2019	2020	2021	2022	2023
Current Ratio	**1.95**	**2.54**	**2.02**	**2.36**	**2.51**
Current Assets	4,597	6,143	8,583	15,019	16,768
Current Liabilities	2,359	2,417	4,240	6,369	6,689
Quick Ratio	**1.53**	**1.96**	**1.56**	**1.77**	**1.86**
Current Assets - Inventories	3,615	4,744	6,628	11,248	12,417
Current Liabilities	2,359	2,417	4,240	6,369	6,689
Cash Ratio	**0.62**	**0.66**	**0.60**	**0.76**	**0.59**
Cash and Equivalents	1,466	1,595	2,535	4,835	3,933
Current Liabilities	2,359	2,417	4,240	6,369	6,689
Net Working Capital	**2,238**	**3,726**	**4,343**	**8,650**	**10,079**
Current Assets	4,597	6,143	8,583	15,019	16,768
Current Liabilities	2,359	2,417	4,240	6,369	6,689

Group Part

Pre-Merger Valuations

AMD Forecast

Income Statement

(FYE, USD in millions)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Revenues																	
Data Center		1,685	3,694	6,043	6,496	11,917	17,876	26,814	40,221	58,320	67,069	72,434	77,504	81,380	89,518	93,993	98,693
Data Center % of growth			*119.23%*	*63.59%*	*7.50%*	*90.00%*	*50.00%*	*50.00%*	*50.00%*	*45.00%*	*15.00%*	*8.00%*	*7.00%*	*5.00%*	*10.00%*	*5.00%*	*5.00%*
Client		5,189	6,887	6,201	4,651	6,479	9,071	9,978	9,479	9,953	12,442	13,064	12,410	11,169	14,520	15,972	16,771
Client % of growth			*32.72%*	*-9.96%*	*-25.00%*	*35.00%*	*40.00%*	*10.00%*	*-5.00%*	*5.00%*	*25.00%*	*5.00%*	*-5.00%*	*-10.00%*	*30.00%*	*10.00%*	*5.00%*
Gaming		2,746	5,607	6,805	6,212	2,845	3,556	3,378	3,209	4,333	5,416	5,145	5,402	6,483	6,158	5,543	6,374
Gaming % of growth			*104.19%*	*21.37%*	*-8.71%*	*-10.00%*	*25.00%*	*-5.00%*	*-5.00%*	*35.00%*	*25.00%*	*-5.00%*	*5.00%*	*20.00%*	*-5.00%*	*-10.00%*	*15.00%*
Embedded		143	246	4,552	5,321	3,512	4,039	4,523	4,976	5,473	6,021	6,322	6,638	6,970	7,318	7,684	8,068
Embedded % of growth			*72.03%*	*1750.41%*	*16.89%*	*-30.00%*	*15.00%*	*12.00%*	*10.00%*	*10.00%*	*10.00%*	*5.00%*	*5.00%*	*5.00%*	*5.00%*	*5.00%*	*5.00%*
Total	**6,731**	**9,763**	**16,434**	**23,601**	**22,680**	**24,754**	**34,542**	**44,694**	**57,885**	**78,080**	**90,947**	**96,964**	**101,955**	**106,001**	**117,514**	**123,192**	**129,906**
Total % of growth	-	*45.05%*	*68.33%*	*43.61%*	*-3.90%*	*9.14%*	*39.54%*	*29.39%*	*29.52%*	*34.89%*	*16.48%*	*6.62%*	*5.15%*	*3.97%*	*10.86%*	*4.83%*	*5.45%*

Group Part

Cost of Sales																	
Total Cost of Sales	**3,863**	**5,416**	**8,505**	**12,998**	**12,220**	**13,544**	**18,653**	**23,911**	**30,969**	**41,773**	**48,656**	**51,876**	**54,546**	**56,711**	**62,870**	**65,908**	**69,500**
in % of revenues	*57.39%*	*55.47%*	*51.75%*	*55.07%*	*53.88%*	*54.71%*	*54.00%*	*53.50%*	*53.50%*	*53.50%*	*53.50%*	*53.50%*	*53.50%*	*53.50%*	*53.50%*	*53.50%*	*53.50%*
Gross Profit	2,868	4,347	7,929	10,603	10,460	11,210	15,889	20,783	26,917	36,307	42,290	45,088	47,409	49,291	54,644	57,284	60,406
Gross Margin	*42.61%*	*44.53%*	*48.25%*	*44.93%*	*46.12%*	*45.29%*	*46.00%*	*46.50%*	*46.50%*	*46.50%*	*46.50%*	*46.50%*	*46.50%*	*46.50%*	*46.50%*	*46.50%*	*46.50%*
Operating Expenses																	
Research and development	1,547	1,983	2,845	5,005	5,872	5,332	7,441	9,627	11,577	15,616	18,189	16,484	17,332	18,020	19,977	18,479	19,486
in % of revenues	*22.98%*	*20.31%*	*17.31%*	*21.21%*	*25.89%*	*21.54%*	*21.54%*	*21.54%*	*20.00%*	*20.00%*	*20.00%*	*17.00%*	*17.00%*	*17.00%*	*17.00%*	*15.00%*	*15.00%*
Marketing, general and administrative	750	995	1,448	2,336	2,352	2,496	3,396	4,283	4,052	5,466	5,457	5,818	6,117	6,360	7,051	7,392	7,794
in % of revenues	*11.14%*	*10.19%*	*8.81%*	*9.90%*	*10.37%*	*10.08%*	*9.83%*	*9.58%*	*7.00%*	*7.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*
Amortization of acquisition-related intangibles	-	-	-	2,100	1,869	1,652	1,463	1,296	1,148	1,017	901	798	707	626	554	491	435
in % of acquisition-related intangibles				*8.71%*	*8.75%*	*8.73%*	*8.73%*	*8.73%*	*8.73%*	*8.73%*	*8.73%*	*8.73%*	*8.73%*	*8.73%*	*8.73%*	*8.73%*	*8.73%*
Other	(60)	-	(12)	(102)	(34)	50	69	89	116	156	182	194	204	212	235	246	260
in % of revenues	*-0.89%*	*0.00%*	*-0.07%*	*-0.43%*	*-0.15%*	*0.20%*	*0.20%*	*0.20%*	*0.20%*	*0.20%*	*0.20%*	*0.20%*	*0.20%*	*0.20%*	*0.20%*	*0.20%*	*0.20%*
Total Operating Expenses	**2,237**	**2,978**	**4,281**	**9,339**	**10,059**	**9,529**	**12,369**	**15,295**	**16,893**	**22,254**	**24,729**	**23,293**	**24,360**	**25,218**	**27,818**	**26,608**	**27,975**
Total Expenses	**6,100**	**8,394**	**12,786**	**22,337**	**22,279**	**23,073**	**31,022**	**39,207**	**47,861**	**64,027**	**73,385**	**75,169**	**78,906**	**81,929**	**90,688**	**92,516**	**97,475**
in % of revenues	*90.63%*	*85.98%*	*77.80%*	*94.64%*	*98.23%*	*93.21%*	*89.81%*	*87.72%*	*82.68%*	*82.00%*	*80.69%*	*77.52%*	*77.39%*	*77.29%*	*77.17%*	*75.10%*	*75.03%*
EBITDA	**853**	**1,681**	**4,055**	**5,438**	**3,854**	**4,601**	**7,595**	**10,759**	**16,852**	**23,263**	**28,289**	**33,233**	**35,075**	**36,576**	**40,688**	**45,208**	**47,755**
Depreciation & Amortization	222	312	407	4,174	3,453	2,920	4,074	5,272	6,828	9,210	10,728	11,438	12,026	12,504	13,862	14,531	15,323
in % of revenues	*3.30%*	*3.20%*	*2.48%*	*17.69%*	*15.22%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*
EBIT - Operating Income (loss)	**631**	**1,369**	**3,648**	**1,264**	**401**	**1,681**	**3,520**	**5,487**	**10,024**	**14,053**	**17,562**	**21,795**	**23,049**	**24,072**	**26,827**	**30,677**	**32,431**
Operating Margin	*9.37%*	*14.02%*	*22.20%*	*5.36%*	*1.77%*	*6.79%*	*10.19%*	*12.28%*	*17.32%*	*18.00%*	*19.31%*	*22.48%*	*22.61%*	*22.71%*	*22.83%*	*24.90%*	*24.97%*
Interest Expense	(94)	(47)	(34)	(88)	(106)	(115)	(127)	(140)	(151)	(162)	(173)	(182)	(192)	(202)	(212)	(222)	(231)
Interest Rate	*19.34%*	*11.52%*	*10.58%*	*6.33%*	*4.30%*	*4.56%*	*4.56%*	*4.56%*	*4.56%*	*4.56%*	*4.56%*	*4.56%*	*4.56%*	*4.56%*	*4.56%*	*4.56%*	*4.56%*
Other income (expense)	(165)	(47)	55	8	197	(84)	(117)	(152)	(196)	(265)	(308)	(329)	(346)	(359)	(399)	(418)	(441)
in % of revenues	*-2.45%*	*-0.48%*	*0.33%*	*0.03%*	*0.87%*	*-0.34%*	*-0.34%*	*-0.34%*	*-0.34%*	*-0.34%*	*-0.34%*	*-0.34%*	*-0.34%*	*-0.34%*	*-0.34%*	*-0.34%*	*-0.34%*
Income (loss) before income taxes and equity inco	**372**	**1,275**	**3,669**	**1,184**	**492**	**1,482**	**3,276**	**5,196**	**9,676**	**13,625**	**17,080**	**21,284**	**22,512**	**23,511**	**26,216**	**30,037**	**31,760**
Income Tax (benefit)	31	(1,210)	513	(122)	(346)	207	459	727	1,355	1,908	2,391	2,980	3,152	3,292	3,670	4,205	4,446
Tax Rate	*8.33%*	-	*13.98%*	-	-	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*
Equity Income in Investee	-	5	6	14	16	17.46	24.37	31.53	40.84	55.08	64.16	68.41	71.93	74.78	82.90	86.91	91.64
in % of revenues	*0.00%*	*0.05%*	*0.04%*	*0.06%*	*0.07%*	*0.07%*	*0.07%*	*0.07%*	*0.07%*	*0.07%*	*0.07%*	*0.07%*	*0.07%*	*0.07%*	*0.07%*	*0.07%*	*0.07%*

Free Cash Flow

(FYE, USD in millions)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
EBIT	**631**	**1,369**	**3,648**	**1,264**	**401**	**1,681**	**3,520**	**5,487**	**10,024**	**14,053**	**17,562**	**21,795**	**23,049**	**24,072**	**26,827**	**30,677**	**32,431**
Tax Rate	*8.33%*	-	*13.98%*	-	-	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*	*14.00%*
Taxes	31	(1,210)	513	(122)	(346)	235	493	768	1,403	1,967	2,459	3,051	3,227	3,370	3,756	4,295	4,540
NOPLAT	**600**	**2,579**	**3,135**	**1,386**	**747**	**1,445**	**3,027**	**4,719**	**8,621**	**12,085**	**15,103**	**18,744**	**19,822**	**20,702**	**23,071**	**26,382**	**27,891**
D&A	222	312	407	4,174	3,453	2,920	4,074	5,272	6,828	9,210	10,728	11,438	12,026	12,504	13,862	14,531	15,323
in % of revenues	*3.30%*	*3.20%*	*2.48%*	*17.69%*	*15.22%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*	*11.80%*
Change in NWC	-	492	(175)	1,316	2,143	(1,447)	1,223	847	1,543	1,790	1,411	660	547	444	1,262	623	736
Cash-flow from operating activities	**822**	**2,399**	**3,717**	**4,244**	**2,057**	**5,813**	**5,879**	**9,144**	**13,906**	**19,505**	**24,420**	**29,522**	**31,301**	**32,762**	**35,670**	**40,291**	**42,478**
Expenditures for property and equipment (Capex)	(217)	(294)	(301)	(450)	(546)	(613)	(855)	(1107)	(1433)	(1933)	(2252)	(2401)	(2525)	(2625)	(2910)	(3050)	(3217)
in % of revenues	3.22%	3.01%	1.83%	1.91%	2.41%	*2.48%*	*2.48%*	*2.48%*	*2.48%*	*2.48%*	*2.48%*	*2.48%*	*2.48%*	*2.48%*	*2.48%*	*2.48%*	*2.48%*
Cash-flow from investment activities	**(217)**	**(294)**	**(301)**	**(450)**	**(546)**	**(613)**	**(855)**	**(1107)**	**(1433)**	**(1933)**	**(2252)**	**(2401)**	**(2525)**	**(2625)**	**(2910)**	**(3050)**	**(3217)**
Free Cash-flows	**605**	**2,105**	**3,416**	**3,794**	**1,511**	**5,200**	**5,024**	**8,037**	**12,472**	**17,572**	**22,168**	**27,121**	**28,777**	**30,137**	**32,760**	**37,240**	**39,262**

Group Part

AMD Valuation

Assumptions	
Valuation Date	31-10-24
TV Growth Rate	5.50%
Risk Free Rate	4.31%
Market Risk Premium	5.00%
Probability of Default	0.53%
LGD	60.00%
Be (historical)	1.67
Bd	-0.03
Bu	1.69
Be (relevered)	1.66
Ru	12.75%
Rd	4.18%
Re	12.62%
Tax Rate	14.00%
Net Debt / Enterprise Value	-1.50%
Equity Value / Enterprise Value	102%
Net Debt / Equity	-1%
WACC	**12.76%**

(FYE, USD in millions)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Terminal Cash Flow
Free Cash Flows	1,511	5,200	5,024	8,037	12,472	17,572	22,168	27,121	28,777	30,137	32,760	37,240	39,262	41,421
Discount Rate (WACC)	12.76%	12.76%	12.76%	12.76%	12.76%	12.76%	12.76%	12.76%	12.76%	12.76%	12.76%	12.76%	12.76%	
Discounted Core Unlevered Free	-	4,611	3,951	5,606	7,715	9,640	10,786	11,702	11,012	10,228	9,860	9,940	9,294	
Core Levered Enterprise Value	**220,415**	**243,335**	**269,356**	**295,682**	**320,933**	**344,305**	**366,063**	**385,644**	**406,067**	**427,735**	**449,545**	**469,656**	**490,313**	
Total Enterprise Value	**220,415**	**243,335**	**269,356**	**295,682**	**320,933**	**344,305**	**366,063**	**385,644**	**406,067**	**427,735**	**449,545**	**469,656**	**490,313**	

DCF Valuation	
PV of Forecasted Cash Flows	104,347
PV of Terminal Value	135,098
Core Levered Enterprise Value	**239,445**
Net Financial Debt	-3,306
Equity Value	**242,752**
# Shares Outstanding	1614
Share Price	**150.40**

Group Part

Deal Terms Scenarios:

	Active Scenario	Equity 1	Balance 2	Debt 3
Purchase price & consideration				
Offer premium to market	40.0%	40.0%	40.0%	40.0%
Cash consideration (%)	50.0%	30.0%	50.0%	70.0%
Acquisition financing				
Senior Secured Loan	$13,000.00	$7,000.0	$13,000.0	$18,000.0
Senior Secured Loan B	$0.00	–	–	–
Common stock issuance	$0.00	–	–	–

Balanced Case:

Purchase Price		
GF stock price	$	36.50
Offer premium to market		40%
Offer price per share	$	51.10
(/) AMD stock price	$	144.07
Exchange ratio		0.35469
GF fully diluted shares outstanding (FDSO)		556.00
(x) Offer price per TargetCo share		$51.10
Equity purchase price		**$28,411.6**
(+) Net Financial Debt		–
Enterprise value		**$28,411.6**

Purchase Price Allocation	
Purchase price	$28,411.6
(+) FV of noncontrolling interests	–
(–) Book value	(11,582.0)
Excess purchase price to allocate	16,829.6
Write off existing goodwill	–
Write off purch. accounting-related intangibles	–
Fair value adjustments	–
(–) Book value adjustments	–
Excess purchase price after allocation	16,829.6
(+) Bargain purchase gain	–
Goodwill created	**$16,829.6**

Restructuring Charge at Close	
Total restructuring charge (pre-tax)	$142.1
(x) Restructuring charge realized at close	25.0%
Restructuring charge at close (pre-tax)	$35.5

Pro Forma FDSO at Close	
BuyerCo standalone FDSO	1,625.00
(+) BuyerCo shares issued as consideration to seller	98.60
(+) BuyerCo shares issued to third parties	–
(+) TargetCo options rolled over (Treasury Method)	–
(+) BuyerCo warrants issued (Treasury Method)	–
Pro forma FDSO	1,723.60

Sources & Uses	
Sources	
Cash	$1,720.4
AMD common stock	14,205.8
Third party financing	13,000.0
Total sources	**$28,926.2**
Uses	
Cash consideration	$14,205.8
Stock consideration	14,205.8
Equity purchase price	28,411.6
Financing fees	195.0
Transaction costs expensed at close	284.1
Restructuring charge at close	35.5
Total uses	**$28,926.2**

Cash Schedule	
Cash available	
AMD existing cash	$3,897.0
(+) Financing	13,000.0
(–) Minimum pro forma cash balance	1,000.0
Total cash available	**$17,897.0**
Cash needed	
Cash consideration	$14,205.8
Restructuring charge at close	35.5
Financing fees	195.0
Advisory fees	284.1
Total cash used	**$14,720.4**

Group Part

Equity Case:

Purchase Price		
GF stock price	$	36.50
Offer premium to market		40%
Offer price per share	$	51.10
(/) AMD stock price	$	144.07
Exchange ratio		0.35469
GF fully diluted shares outstanding (FDSO)		556.00
(x) Offer price per TargetCo share		$51.10
Equity purchase price		**$28,411.6**
(+) Net Financial Debt		–
Enterprise value		**$28,411.6**

Purchase Price Allocation	
Purchase price	$28,411.6
(+) FV of noncontrolling interests	–
(–) Book value	(11,582.0)
Excess purchase price to allocate	16,829.6
Write off existing goodwill	–
Write off purch. accounting-related intangibles	–
Fair value adjustments	–
(–) Book value adjustments	–
Excess purchase price after allocation	16,829.6
(+) Bargain purchase gain	–
Goodwill created	**$16,829.6**

Restructuring Charge at Close	
Total restructuring charge (pre-tax)	$142.1
(x) Restructuring charge realized at close	*25.0%*
Restructuring charge at close (pre-tax)	$35.5

Pro Forma FDSO at Close	
BuyerCo standalone FDSO	1,625.00
(+) BuyerCo shares issued as consideration to seller	138.04
(+) BuyerCo shares issued to third parties	–
(+) TargetCo options rolled over (Treasury Method)	–
(+) BuyerCo warrants issued (Treasury Method)	–
Pro forma FDSO	1,763.04

Sources & Uses	
Sources	
Cash	$1,948.1
AMD common stock	19,888.1
Third party financing	7,000.0
Total sources	**$28,836.2**
Uses	
Cash consideration	$8,523.5
Stock consideration	19,888.1
Equity purchase price	28,411.6
Financing fees	105.0
Transaction costs expensed at close	284.1
Restructuring charge at close	35.5
Total uses	**$28,836.2**

Cash Schedule	
Cash available	
AMD existing cash	$3,897.0
(+) Financing	7,000.0
(–) Minimum pro forma cash balance	1,000.0
Total cash available	**$11,897.0**
Cash needed	
Cash consideration	$8,523.5
Restructuring charge at close	35.5
Financing fees	105.0
Advisory fees	284.1
Total cash used	**$8,948.1**

Group Part

Debt Case:

Purchase Price		
GF stock price	$	36.50
Offer premium to market		40%
Offer price per share	$	51.10
(/) AMD stock price	$	144.07
Exchange ratio		0.35469
GF fully diluted shares outstanding (FDSO)		556.00
(x) Offer price per TargetCo share		$51.10
Equity purchase price		**$28,411.6**
(+) Net Financial Debt		–
Enterprise value		**$28,411.6**

Purchase Price Allocation	
Purchase price	$28,411.6
(+) FV of noncontrolling interests	–
(–) Book value	(11,582.0)
Excess purchase price to allocate	16,829.6
Write off existing goodwill	–
Write off purch. accounting-related intangibles	–
Fair value adjustments	–
(–) Book value adjustments	–
Excess purchase price after allocation	16,829.6
(+) Bargain purchase gain	–
Goodwill created	**$16,829.6**

Restructuring Charge at Close	
Total restructuring charge (pre-tax)	$142.1
(x) Restructuring charge realized at close	*25.0%*
Restructuring charge at close (pre-tax)	$35.5

Pro Forma FDSO at Close	
BuyerCo standalone FDSO	1,625.00
(+) BuyerCo shares issued as consideration to seller	59.16
(+) BuyerCo shares issued to third parties	–
(+) TargetCo options rolled over (Treasury Method)	–
(+) BuyerCo warrants issued (Treasury Method)	–
Pro forma FDSO	1,684.16

Sources & Uses	
Sources	
Cash	$2,477.8
AMD common stock	8,523.5
Third party financing	18,000.0
Total sources	**$29,001.2**
Uses	
Cash consideration	$19,888.1
Stock consideration	8,523.5
Equity purchase price	28,411.6
Financing fees	270.0
Transaction costs expensed at close	284.1
Restructuring charge at close	35.5
Total uses	**$29,001.2**

Cash Schedule	
Cash available	
AMD existing cash	$3,897.0
(+) Financing	18,000.0
(–) Minimum pro forma cash balance	1,000.0
Total cash available	**$22,897.0**
Cash needed	
Cash consideration	$19,888.1
Restructuring charge at close	35.5
Financing fees	270.0
Advisory fees	284.1
Total cash used	**$20,477.8**

Group Part

Synergies

AMD:

Revenue Synergies		1 - Conservative	2 - Base	3 - Optimistic
Data Center				
Synergies in Year 1 & 2	–	0%	0%	0%
Synergies in Year 3-5	2.5%	1%	2%	3%
Synergies in Years 6+	3.8%	2%	3%	4%
Client				
Synergies in Year 1 & 2	–	0%	0%	0%
Synergies in Year 3-5	2.5%	1%	2%	3%
Synergies in Years 6+	3.8%	2%	3%	4%
Gaming				
Synergies in Year 1 & 2	–	0%	0%	0%
Synergies in Year 3-5	2.5%	1%	2%	3%
Synergies in Years 6+	3.8%	2%	3%	4%
Embedded				
Synergies in Year 1 & 2	–	0%	0%	0%
Synergies in Year 3-5	2.5%	1%	2%	3%
Synergies in Years 6+	3.8%	2%	3%	4%

Total Cost saving Synergies		1 - Conservative	2 - Base	3 - Optimistic
Data Center				
Synergies in Year 1 & 2	–	0.00%	0.00%	0%
Synergies in Year 3-5	12.5%	5.00%	10.00%	13%
Synergies in Years 6+	25.0%	10.00%	20.00%	25%
Client				
Synergies in Year 1 & 2	–	0.00%	0.00%	0%
Synergies in Year 3-5	6.3%	2.50%	5.00%	6%
Synergies in Years 6+	25.0%	10.00%	20.00%	25%
Gaming				
Synergies in Year 1 & 2	–	0.00%	0.00%	0%
Synergies in Year 3-5	6.3%	2.50%	5.00%	6%
Synergies in Years 6+	18.8%	7.50%	15.00%	19%
Embedded				
Synergies in Year 1 & 2	3.1%	1.25%	2.50%	3%
Synergies in Year 3-5	18.8%	7.50%	15.00%	19%
Synergies in Years 6+	28.1%	11.25%	22.50%	28%
All Other				
Synergies in Year 1 & 2	–	0.00%	0.00%	0%
Synergies in Year 3-5	12.5%	5.00%	10.00%	13%
Synergies in Years 6+	15.6%	6.25%	12.50%	16%

Group Part

Post-Mergers Valuations

AMD Base Case

Assumptions	
Valuation Date	31-10-24
TV Growth Rate	5.50%
Ru	12.75%
Rd	4.18%
Re	12.62%
Tax Rate	14.00%
Net Debt / Enterprise Value	-1.50%
Equity Value / Enterprise Value	101.50%
WACC	12.76%

(FYE, USD in millions)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Terminal Cash Flow
Core Unlervered Free Cash Flows	1,511	5,208	5,004	10,215	15,331	21,445	31,337	36,798	38,938	40,697	44,499	49,581	52,278	55,153
Discount rate (Ru)	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	
PV of Core Unlervered Free Cash Flow	-	4619	3936	7127	9487	11770	15254	15887	14910	13821	13404	13246	12387	
Core Unlevered Enterprise Value	**316,119**	**351,213**	**390,986**	**430,618**	**470,187**	**508,687**	**542,202**	**574,530**	**608,839**	**645,763**	**683,593**	**721,164**	**760,828**	
Interest Tax Shield		16	131	127	123	119	109	99	89	79	69	59	49	52
Discount rate (Rtxa = Ru)	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	
Value Interest Tax Shield	724	801	771	742	714	685	663	649	642	645	657	682	719	
Core Levered Enterprise Value	**316,844**	**352,014**	**391,757**	**431,361**	**470,901**	**509,372**	**542,866**	**575,179**	**609,481**	**646,408**	**684,250**	**721,845**	**761,547**	
Total Levered Enterprise Value	**316,844**	**352,014**	**391,757**	**431,361**	**470,901**	**509,372**	**542,866**	**575,179**	**609,481**	**646,408**	**684,250**	**721,845**	**761,547**	

APV Valuation	
PV of Forecasted Cash Flows	135,846
PV of Terminal Value	180,273
Unlevered Core Enteprise Value	**316,119**
PV of Interest Tax Shields	724
Non Core Assets	
Net Financial Debt	-1,001
Equity Value	**317,845**
# Shares Outstanding	1724
Share Price	**184.41**

Group Part

AMD Conservative Case

Assumptions	
Valuation Date	31-10-24
TV Growth Rate	5.50%
Ru	12.75%
Rd	4.18%
Re	12.62%
Tax Rate	14.00%
Net Debt / Enterprise Value	-1.50%
Equity Value / Enterprise Value	101.50%
WACC	12.76%

(FYE, USD in millions)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Terminal Cash Flow
Core Unlervered Free Cash Flows	1,511	5,189	4,983	9,100	13,889	19,491	26,689	31,895	33,790	35,347	38,552	43,329	45,683	48,196
Discount rate (Ru)	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	
PV of Core Unlervered Free Cash Flow	-	4602	3920	6349	8594	10697	12992	13770	12938	12004	11612	11575	10824	
Core Unlevered Enterprise Value	**277,413**	**307,592**	**341,824**	**376,303**	**410,389**	**443,218**	**473,035**	**501,448**	**531,588**	**564,013**	**597,368**	**630,198**	**664,859**	
Interest Tax Shield		16	131	127	123	119	109	99	89	79	69	59	49	52
Discount rate (Rtxa = Ru)	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	
Value Interest Tax Shield	724	801	771	742	714	685	663	649	642	645	657	682	719	
Core Levered Enterprise Value	**278,138**	**308,393**	**342,595**	**377,045**	**411,103**	**443,904**	**473,698**	**502,096**	**532,230**	**564,658**	**598,025**	**630,880**	**665,578**	
Total Levered Enterprise Value	**278,138**	**308,393**	**342,595**	**377,045**	**411,103**	**443,904**	**473,698**	**502,096**	**532,230**	**564,658**	**598,025**	**630,880**	**665,578**	

APV Valuation	
PV of Forecasted Cash Flows	119,879
PV of Terminal Value	157,534
Unlevered Core Enteprise Value	**277,413**
PV of Interest Tax Shields	724
Non Core Assets	
Net Financial Debt	-1,001
Equity Value	**279,139**
# Shares Outstanding	1724
Share Price	**161.95**

Group Part

AMD Optimistic Case

Assumptions	
Valuation Date	31-10-24
TV Growth Rate	5.50%
Ru	12.75%
Rd	4.18%
Re	12.62%
Tax Rate	14.00%
Net Debt / Enterprise Value	-1.50%
Equity Value / Enterprise Value	101.50%
WACC	12.76%

(FYE, USD in millions)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Terminal Cash Flow
Core Unlervered Free Cash Flows	1,511	5,218	5,014	10,780	16,061	22,435	33,708	39,298	41,563	43,425	47,532	52,768	55,639	58,699
Discount rate (Ru)	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	
PV of Core Unlervered Free Cash Flow	-	4628	3944	7521	9939	12313	16408	16966	15915	14748	14317	14097	13183	
Core Unlevered Enterprise Value	**335,844**	**373,443**	**416,039**	**458,301**	**500,669**	**542,065**	**577,464**	**611,788**	**648,222**	**687,439**	**727,550**	**767,538**	**809,752**	
Interest Tax Shield		16	131	127	123	119	109	99	89	79	69	59	49	52
Discount rate (Rtxa = Ru)	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	12.75%	
Value Interest Tax Shield	724	801	771	742	714	685	663	649	642	645	657	682	719	
Core Levered Enterprise Value	**336,568**	**374,243**	**416,811**	**459,043**	**501,383**	**542,750**	**578,128**	**612,436**	**648,864**	**688,084**	**728,207**	**768,219**	**810,472**	
Total Levered Enterprise Value	**336,568**	**374,243**	**416,811**	**459,043**	**501,383**	**542,750**	**578,128**	**612,436**	**648,864**	**688,084**	**728,207**	**768,219**	**810,472**	

APV Valuation	
PV of Forecasted Cash Flows	143,978
PV of Terminal Value	191,865
Unlevered Core Enteprise Value	**335,844**
PV of Interest Tax Shields	724
Non Core Assets	
Net Financial Debt	-1,001
Equity Value	**337,570**
# Shares Outstanding	1724
Share Price	**195.85**

Group Part

Value Creation

	Conservative Case	Value Creation	Base Case	Value Creation	Optimistic Case	Value Creation
AMD Enterprise Value	$ 277,413	15.86%	$ 316,119	32.02%	$ 335,844	40.26%
GlobalFoundries Enterprise Value	$ 14,277	-24.53%	$ 17,715	-6.36%	$ 19,540	3.29%
Combined Entity Enterprise Value	**$ 291,690**	**12.90%**	**$ 333,834**	**29.21%**	**$ 355,384**	**37.55%**