Strategic Report for
Advanced Micro Devices, Inc.

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Executive Summary

Advanced Micro Devices, Inc. (NYSE: AMD) designs and sells microprocessors and graphics chipsets. AMD has struggled to compete with Intel (NASDAQ: INTC) in the highly competitive integrated circuits industry. Going head to head with Intel, AMD has had difficulty posting quarterly and annual profits since 2006. On the other hand, AMD, through its acquisition of ATI Technologies in 2006, has competed effectively against Nvidia (NASDAQ: NVDA) in the graphics space.

Over the last several years, burdensome debt has weighed down on AMD's profitability and undermined its competiveness. AMD's debt issues partly stemmed from its acquisition of ATI, though were largely fueled by AMD's unprofitable, capital-intensive manufacturing segment. In 2009, AMD adopted a fabrication-less (fabless) business model, spinning off its manufacturing arm in a joint venture. The divestiture, in addition to a $1.25 billion settlement with Intel, has allowed AMD to alleviate some of its high debt.

In the short-term, AMD must focus on generating sustainable profits. This partly depends on its ability to continue to pay down its debt. Also, AMD's inability to execute its roadmap has led to a loss of market share and allowed Intel to gain a dominant position in most market segments. AMD must focus on meeting PC makers and Original Equipment Manufacturers' (OEMs) schedules as the quality of its products improve. In addition, AMD should further its relationships with its channels partners, notably distributors and resellers, while looking for key design wins in the notebook and server markets, areas in which it has relatively lower market share. Lastly, AMD should remain committed to pricing aggressively, framing itself as the lower-cost alternative to Intel.

In the long-term, AMD should look to expand into higher growth markets in the semiconductor industry. The microprocessor market has matured and presents limited growth potential at this time, a problem amplified by Intel's dominance.

Company Overview

Advanced Micro Devices, Inc. (AMD) is a global semiconductor company that designs and sells microprocessors, chipsets, and graphics processors. AMD sells primarily x86 microprocessors, for the commercial and consumer markets, embedded microprocessors for commercial, commercial client, and consumer markets, and chipsets for desktop and notebook PCs, professional workstations, and servers.[1] In addition, AMD offers graphics, video, and multimedia products for desktop and notebook PCs, including home media PCs, professional workstations and servers, and technology for game consoles.[2]

AMD is one of two companies that design and deliver central processing units (CPU) based on the x86 instruction set architecture in volume, the other being Intel. AMD is also one of two companies that design and deliver state of the art 3D graphics, the other being Nvidia. AMD, however, is the only company that develops and delivers both x86 microprocessors and leading-edge graphics solutions.

Company History

AMD was founded in 1969 by a group of former executives and engineers from Fairchild Camera & Instruments. Fairfield's marketing hotshot Jerry Sanders served as the chief executive officer of AMD from its founding until 2002. The company initially utilized chip designs licensed from other companies, introducing its first proprietary device, the Am2501 logic counter, in 1970. AMD went public two years later. In an effort to enter the United States semiconductor market, Siemens acquired nearly 20 percent of AMD for $30 million in the late 1970s (Siemens maintained a stake in AMD until 1991). In 1976, AMD and Intel signed their first comprehensive cross-licensing agreement, where they both agreed to license to each other all the patents each company held.[3] AMD debuted on the New York Stock Exchange in 1979. In 1982, AMD reached an agreement with Intel that allowed AMD to become a licensed second-source manufacturer of Intel's 8088, 8086, and iAPX86 microprocessors. IBM wanted to use Intel's

8088 microprocessor in its PC but required that there be at least one other manufacturer.

By the mid-1980s, AMD was designing and manufacturing its own chips. In 1987, however, Intel terminated the second source agreement established in 1982 in an effort to prevent AMD from selling a 486-compatible microprocessor. AMD sued Intel for violating the licensing agreement, prompting years of legal disputes between the two chipmakers. Intel sued AMD for copyright infringement when AMD introduced versions of Intel's 287 math coprocessor (1990), 386 chip (1991), and 486 chip (1993). In 1987, AMD acquired Monolithic Memories seeking to expand its portfolio of memory devices and enter the programmable logic business. In 1988, work began on the AMD Submicron Development Center, which would play a vital role in the research and development of future products.

AMD formed a joint venture with Fujitsu to make flash memory sticks in 1993. The following year a jury ruled in favor of AMD in the 287 math coprocessor case, prompting AMD and Intel to settle their legal differences. The victorious AMD won a perpetual license to the microcode of Intel's 386 and 486 chips. In 1996, AMD introduced the K5 processor, its first independently designed, socket-compatible x86 microprocessor, more than a year behind schedule. In the same year, AMD purchased microprocessor developer NexGen Microsystems and its technology for use in K6. AMD introduced its K6 microprocessor a year later but faced difficulties scaling up production to meet demand. In 1999, AMD sold its wholly owned subsidiary Vantis, its programmable logic business, to Lattice Semiconductor for $500 million in cash.

AMD made strides against its rival Intel in 1999. AMD released its Athlon (K7) chip to positive reviews, winning design contracts with Compaq Computers and IBM. In 2000, AMD co-founder and chief executive officer Jerry Sanders recruited Hector Ruiz, then head of Motorola's semiconductor operation, to serve as president and chief operating officer. Ruiz succeeded Sanders as CEO in 2002 and became chairman of the board in 2004. Additionally, in 2000, AMD sold 90

percent of its communications circuits business to Francisco Partners for $375 million. The deal required AMD to provide manufacturing capabilities to the new company, which was titled Legerity. The arrangement ended in 2002, however, when AMD closed the fabrication plant that had supported it. In 2000, improved manufacturing processes, increased sales of high-end Athlon chips, and a worldwide shortage of flash memory enabled AMD to post its first annual profit since 1995. In 2001, however, a slowdown in the global chip business forced AMD to close two fabrication facilities in Texas and cut 15 percent of its total workforce in an effort to cut costs.

In 2002, AMD purchased Alchemy Semiconductors for $50 million for its low-power, embedded processor technology, which was typically used in mobile devices. The following year, AMD and long time joint venture partner Fujitsu formed a new company, named FASL (later renamed Spansion), pooling the two companies' flash memory operations. Also, AMD acquired National Semiconductor's Information Appliance unit (x86 business). Additionally, AMD and IBM inked a joint manufacturing technology development agreement to develop future generation wafer fabrication technologies. In late 2003, AMD initiated construction on a new fabrication plant in Germany, which contributed to market share gains against Intel over the next year and a half. One year later, AMD expanded its production capacity through a deal with chip foundry Chartered Semiconductor Manufacturing (CSM).

In 2005, AMD launched an antitrust suit against Intel for engaging in anticompetitive behavior in the United States, Asia, and Europe. An investigation by Japan's Fair Trade Commission found that AMD participated in unfair competition by offering rebates to Japanese PC manufacturers who agreed to eliminate or limit purchases of microprocessors made by AMD or a smaller manufacturer, Transmeta.[4] In early 2006, AMD began shipping processors from its latest fabrication plant in Germany. That same year AMD acquired ATI Technologies, a leading producer of graphics processing units, for about $5.4 billion in cash and stock. The European Commission, the antitrust regulator for

the European Union, levied formal charges against Intel on behalf of AMD in 2007. In May 2009, the European Commission found Intel guilty of abusing its dominant position in the global x86 microprocessor market.

After seven consecutive unprofitable quarters, Mr. Ruiz stepped down as CEO in 2008. Dirk Meyer, a 13-year veteran of AMD, succeeded him as CEO. Mr. Meyer had been promoted to president and COO in 2006. Consistent losses prompted AMD to focus on its core businesses. AMD sold its digital television business to Broadcom Corporation for $141 million in October 2008. Later that month, Qualcomm acquired AMD's handheld business for $65 million. Similarly, unprofitability drove AMD to embrace a variation of the fabless business model, in which AMD would spin off its manufacturing arm. In a joint venture, AMD and the Advanced Technology Investment Company (ATIC), an investment company created by the Government of Abu Dhabi, founded Globalfoundries. AMD currently owns around 30 percent of Globalfoundries, which amounts to a stake worth around $700 million. In March 2009, AMD completed the spin off of its manufacturing operations. In November 2009, Intel agreed to pay AMD $1.25 billion as part of a deal to settle all outstanding legal disputes between the two companies dating back to 2005, effectively revitalizing previous cross-licensing agreements between the long-time rivals. Also, starting in 2010, AMD would be allowed to remove Globalfoundries and its debt from its balance sheet. In January 2010, AMD announced its first profits in thirteen quarters, thanks in part to its settlement with Intel.

Business Model

AMD has embraced the increasingly common fabless business model. In October 2008, AMD announced its intention to spin off its manufacturing operations, forming a joint venture with ATIC. At that time AMD was significantly lagging behind Intel, struggling to manufacture its first 45nm microprocessors nearly a year after Intel had released its first chip of that size. Despite former AMD CEO and Chairman Jerry Sander's belief, "Real men have fabs," the regular capital

expenses required to upgrade fabrication facilities undermined AMD's profitability and competitiveness.[5] AMD plans to become completely fabless, allowing its economic ownership in Globalfoundries to decline with future capital calls. Adopting a fabless business model will allow AMD to concentrate on the design and sale of its chips. AMD, pursuant to the Wafer Supply Agreement, plans to purchase the majority of its microprocessors from Globalfoundries through 2024. AMD, however, does own three microprocessor assembly and test facilities. Alternatively, AMD relies primarily on Taiwan Semiconductor Manufacturing Company (TSMC) for the fabrication of a majority of its graphics and chipset products.

AMD sells its microprocessors, graphics processors, and chipsets largely to OEMs, original design manufacturers (ODMs), and third-party distributers. AMD's sales and marketing team communicate with customers to determine the product features and performance in order to meet the needs of its customers.

Market Overview and Trends

Given the highly cyclical nature of the semiconductor industry, its operating results should be evaluated within the context of market conditions. The microprocessor segment serves primarily manufacturers of corporate- and consumer-focused computing devices, making AMD and Intel sensitive to fluctuations in demand for computer hardware. As seen in the recent recession, weak economic conditions force both end consumers and corporations to tighten spending on durable goods. According to Standard & Poor's, semiconductor industry revenues fell by nearly 9 percent in 2009.[6]

Similarly, the microprocessor market is inherently seasonal. For example, many semiconductor companies experience a slow down during the summer months due to declines in business volume from European countries. Also, there tends to be a dip in sales in the first quarter in Asia due to the New Year celebrations,

although less severe than that found in Europe. Such fluctuations should be considered when comparing financials between quarters.

Given rapidly changing demand, technology, and market conditions, corporate strategies have evolved over the last several decades. The current trend in the semiconductor industry is toward specialization. This change is largely driven by the growing costs of research and maintaining competitive wafer fabrication plants in addition to the advantages of owning intellectual property and developing a deep knowledge base about a particular product.[7] This strategy has enabled Intel to regain market share from AMD since 2006. At the time, Intel decided to recommit itself to the microprocessor market, spinning off segments based on semiconductors used in non-computer applications. More specifically, Intel sold off its handheld and NOR flash business due to their negative impact on its overall profitability and margins. On the other hand, Samsung has embraced diversification, maintaining a dominant position in several markets, such as DRAM (30 percent market share) and NAND (38 percent market share).

Starting in the 1980s, consistent with this specialization trend, firms have increasingly outsourced semiconductor manufacturing. Choosing to focus their resources on chip design, many chipmakers have contracted with foundry partners to manufacture their chips. Integrated device manufacturers (IDMs), or chipmakers that own fabs, have increasingly looked to foundries to handle low-tech operations, such as testing and packaging. Many IDMs, however, control their manufacturing in order to protect and utilize their proprietary techniques and processes, ensure sufficient capacity, and minimize premiums paid to foundries. Alternatively, chipmakers may look to foundries to gain benefits from new manufacturing techniques. For example, in an unusual move for the chipmaker, Intel partnered with TSMC to produce the Atom, the chip featured in most netbooks. Intel hopes to leverage its strategic partnership with TSMC to enter the smartphone market, making increasingly smaller chips based on the x86 architecture.[8] Outsourcing manufacturing also provides chipmakers with access to additional capacity and minimizes costly capital expenditures.

Other companies have gone farther, adopting a "fab lite" business model. Since the 2001 market downturn, chipmakers have looked increasingly to foundries to manufacture a greater portion of their products. Other companies, such as AMD, have assumed a fabless business model, relying on foundries for their chips. The Global Semiconductor Association (GSA), a trade group, projects that as much as half of worldwide semiconductor revenue may come from fabless chipmakers by 2010, up from less than 15 percent in 2001.[9]

Competitive Analysis

Force	Strategic Significance
Internal Rivalry	High
Barriers to Entry and Exit	Low
Buyer Power	Moderate
Supplier Power	High
Substitutes and Complements	Low to Moderate

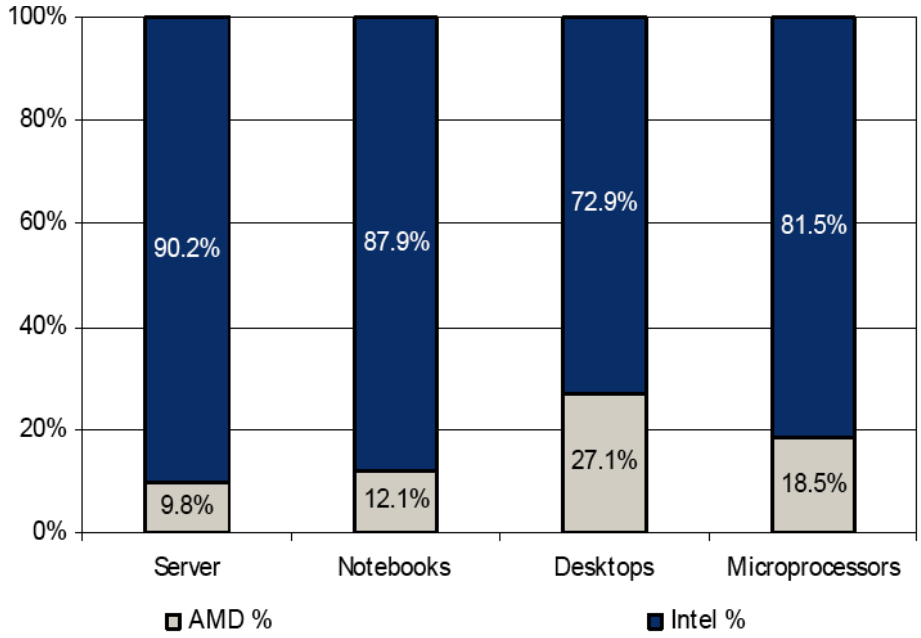
Internal Rivalry

AMD operates in a broad industry generally defined as semiconductors and related devices (SIC 3674). AMD is one of the two companies that design and deliver CPU in volume. The microprocessor industry is highly competitive. Intel and AMD compete on product quality, reliability, performance, size (or form factor), cost, selling price, adherence to industry standards, software and hardware compatibility and stability, brand recognition, timely product introductions, and availability.[10] With respect to performance, products compete on work-per-cycle, clock speed, power consumption, number of cores, bit ratings, memory size, and data access speed.[11]

Intel is the dominant firm in the industry, generating $35 billion in revenue in 2009 compared to AMD's $5.4 billion. From 2002 to 2006, AMD improved its product line and cut prices, increasing its market share from 10 percent to 25 percent.[12] Product delays associated with design flaws, combined with Intel's

improvements in product development, manufacturing, and cost controls, forced AMD's market share to slip over the last several years. In 2009, Intel earned 79.7 percent unit market share, a loss of 0.7 percent, AMD earned 20.1 percent, a gain of 0.8 percent.[13]

Figure 1: 4Q09 Microprocessor Unit Share



Source: Mercury Research and Barclay Capital

AMD's rivalry with Intel extends to every aspect of the business. Intel's significant financial resources enable it to market its products aggressively, to target AMD customers and channel partners with special incentives, and to discipline customers who do business with AMD. These aggressive activities have resulted in lower unit sales and average selling prices for AMD products and adversely affected AMD's margins and profitability.[14] In addition, Intel exerts substantial influence over computer manufacturers and their channels of distribution through various brand and marketing programs. Due to its dominant position in the microprocessor market, Intel has been able to control x86 microprocessor and computer system standards, which could cause AMD and other companies to have delayed access to such standards. Also, given its overwhelming market share, Intel dictates the type of products the

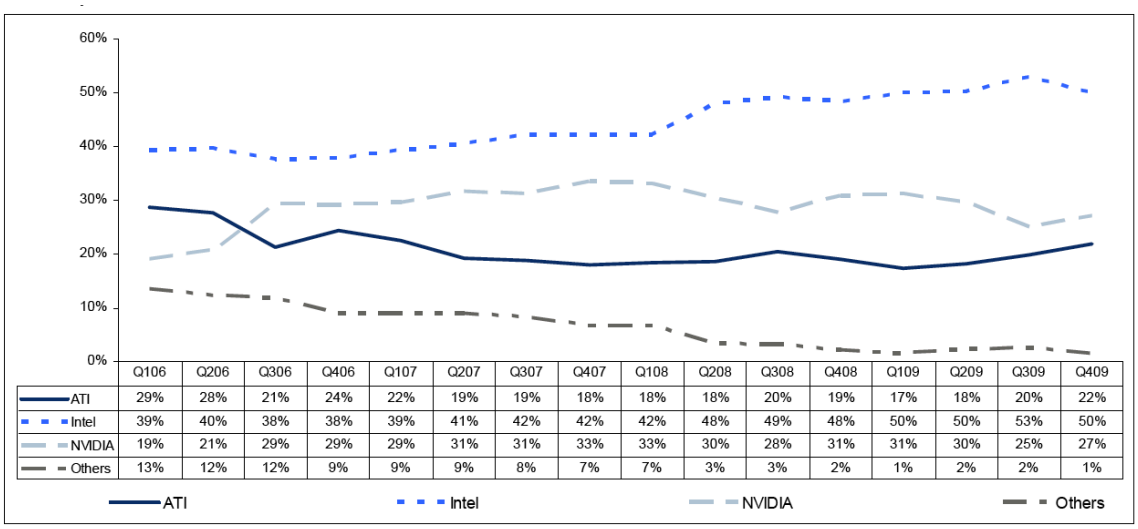
microprocessor market requires of AMD. Intel also dominates the computer system platform, which includes core logic chipsets, graphics chips, motherboards and other components necessary to assemble a computer system. As a result, OEMs that purchase microprocessors for computer systems are highly dependent on Intel, and, to a large extent, are distributors of Intel technology.[15] Intel's greater financial resources allow it to spend more on research and development. Ultimately, Intel is better positioned than AMD to regularly and rapidly introduce competitive new products.

AMD expects Intel to maintain its dominant position and to continue to invest heavily in marketing, research and development, new manufacturing facilities, and other technology companies. Intel also manufactures and sells integrated graphics chipsets bundled with its microprocessors, extending the rivalry beyond traditional x86 processors.

In 2009, AMD spun off its manufacturing operations, adopting a "fab lite" strategy. Rather than continuously building and upgrading multibillion-dollar wafer fabrication facilities, AMD can invest a greater percentage of its limited resources to research and development. However, because Intel maintains control over key process technologies by continuing to manufacture its microprocessors itself, it is likely to remain the industry leader.

In addition, AMD is one of two companies that design and deliver leading-edge graphics processors, competing with Nvidia. Nvidia maintains nearly 60 percent of market share in the discrete graphics processing units market. Historically, AMD and Nvidia have undergone intense pricing competition.

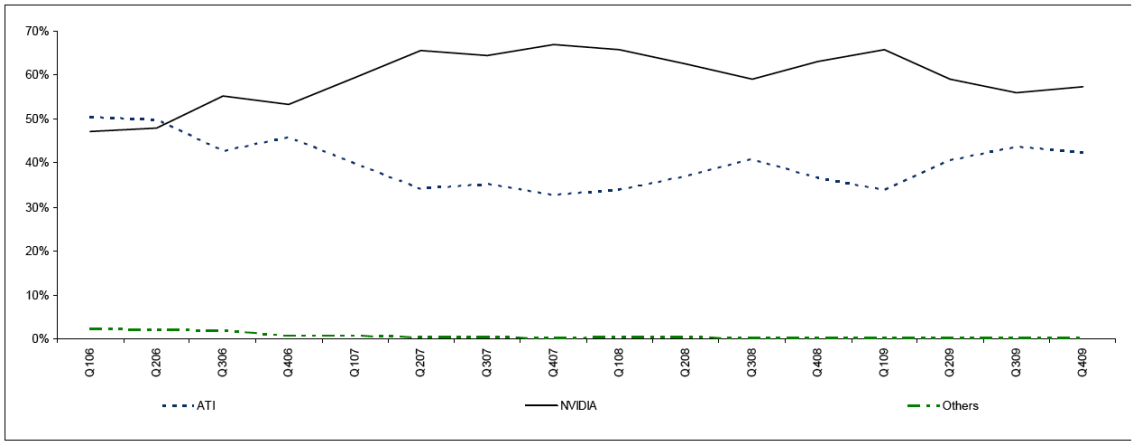
Figure 2: Total Graphics Market Share



	Q106	Q206	Q306	Q406	Q107	Q207	Q307	Q407	Q108	Q208	Q308	Q408	Q109	Q209	Q309	Q409
ATI	29%	28%	21%	24%	22%	19%	19%	18%	18%	18%	20%	19%	17%	18%	20%	22%
Intel	39%	40%	38%	38%	39%	41%	42%	42%	42%	48%	49%	48%	50%	50%	53%	50%
NVIDIA	19%	21%	29%	29%	29%	31%	31%	33%	33%	30%	28%	31%	31%	30%	25%	27%
Others	13%	12%	12%	9%	9%	9%	8%	7%	7%	3%	3%	2%	1%	2%	2%	1%

Source: Mercury Research and Barclays Capital

Figure 3: Discrete Graphics Unit Share Trend



Source: Mercury Research and Barclays Capital

Barriers to Entry and Exit

The emergence of fabless manufacturing has changed the nature of the semiconductor industry. The high costs of billion-dollar manufacturing facilities had served as a major barrier to entry.[16] Although capital expenditures had served as a barrier to entry, industry know-how remains a significant barrier. AMD relies on a combination of protections provided by contracts, including confidentiality and nondisclosure agreements, copyrights, patents, trademarks

and common law rights, such as trade secrets, to protect its intellectual property. Semiconductor companies commit substantial portions of their resources to research and development, making it difficult for entrants to compete effectively.

Many barriers to entry are specific to Intel. Intel's tremendous brand equity has emerged as a significant barrier to entry for competing firms. The Intel brand is one of the top ten known-brands in the world.[17] In order for entrants to challenge Intel successfully, they not only must develop compelling technologies, but must also offer distinct price advantages in order to wrest market share from the dominant chipmaker.[18] Furthermore, Intel is seeking to leverage its dominant position in the microprocessor market by offering integrated chip solutions in which it bundles integrated graphics chipsets with its microprocessors. In addition, access to distribution channels remains competitive. Intel exerts substantial influence over computer manufacturers and their channels of distribution through various brand and marketing programs.[19] Intel offers exclusivity payments to its current and potential customers as well as channel partners.

Supplier Power

Suppliers exert significant influence over AMD. Unlike Intel, which controls the majority of its manufacturing processes, AMD relies on foundries to manufacture its chips. With respect to x86 microprocessors, as pursuant to the Wafer Supply Agreement, AMD relies solely on Globalfoundries, the manufacturing unit it spun off in early 2009. If AMD were unable to secure sufficient supply from Globalfoundries, it would have to move production of its microprocessors to new manufacturers, which could result in significant delays and a subsequent loss in market share. The switching costs in the semiconductor industry are high, partly due to the fact that it could take several quarters to adequately scale production at a new foundry. Also, foundries are highly concentrated, with United Microelectronics Corporation and Taiwan Semiconductor Manufacturing Company controlling over 65 percent of the market in 2008.[20] In January 2010,

Globalfoundries announced that it is integrating operations with CSM, making it the second largest foundry in the world.[21] With CSM, Globalfoundries expanded its customer base to over 150 customers. Although Globalfoundries' manufacturing capacity also increased, the integration process and the increased customer base could lead to delays or disruptions in manufacturing AMD products. Also, despite owning a minority stake of Globalfoundries, AMD faces the possibility of capacity limitations in light of a rapid increase in demand.[22]

AMD relies on third-party foundries, most notably TSMC, and other contractors to manufacture its graphics and chipset products. AMD depends on its suppliers to allocate an adequate percentage of its manufacturing capacity to allow AMD to meet customer demand. For example, in the second half of 2009, AMD experienced supply constraints for its latest generation of graphics products, which received largely positive reviews. AMD must ensure dependable relationships with its suppliers in order to secure sufficient product supply to meet customer demand. Furthermore, switching manufacturers would prove difficult, resulting in lower yields and performance. Also, it would take several quarters to establish a strategic relationship with a new manufacturing partner. AMD's inability to replace manufacturers in a short time frame presents the potential threat of holdups by suppliers. If AMD were required to find alternative suppliers, it would experience significant delays in the shipment of its graphics and integrated products.[23] This concern is only amplified by the concentration of suppliers in the foundry market.

Buyer Power

Buyers consist primarily of OEMs, ODMs, and third-party distributers. ODMs provide design and manufacturing services to branded and unbranded private label resellers and OEMs.[24] AMD's sales and marketing team communicate with customers to determine product features, performance, and timing of new products to better meet the needs of its customers, suggesting there exists a switching cost for buyers. AMD's efforts to enhance product compatibility improve customers' time-to-market and helps establish customer loyalty.

AMD, however, relies on a handful of customers for a significant portion of its revenue. In 2009, Hewlett-Packard (HP) accounted for more than 10 percent of AMD's revenue. Five customers, including HP, accounted for approximately 56 percent of the revenue attributable to its computing solutions segment. Similarly, five customers accounted for approximately 52 percent of the revenue attributable to AMD's graphics segment.[25] Given such large volumes, these few companies wield significant power. PC makers, however, prefer to have more than one microprocessor supplier, as seen with IBM in 1982.[26] Also, buyer power varies across the industry. The top-tier PC makers, such as Dell and HP, have greater control over chipmakers than smaller companies.

In addition, AMD relies on existing channels of distribution that are controlled by intermediary buyers. These channels deliver a wide range of products, including those that compete with AMD's. These intermediaries have very different relationships with Intel and AMD, given Intel's brand recognition, historically more competitive product offering, and ability to pay exclusivity payments.

Substitutes and Complements

Today, the x86 instruction set architecture (ISA) remains the dominant instruction set. AMD offers x86 microprocessor products for servers, workstations, notebooks, and desktop PCs. The x86 ISA is used in more than 90 percent of the world's PCs and servers.[27] Other instruction sets exist, such as IBM's Power, Sun Microsystems' Sparc, and Intel's own EPIC (explicitly parallel instruction computing) Itanium project, but none pose as a serious substitute and have not gained much traction in the industry.[28] Major hurdles for such substitutes include hardware and software compatibility requirements and challenges. Substitutes are more likely to be found in the form of heterogeneous computing solutions. AMD plans to launch Fusion, a new multi-core processor for notebooks, in 2011. AMD's "hybrid" design would be a combination of a central processing unit and a graphics processing unit.[29] Graphics cards are considered more advanced in tackling scientific and math applications than

standard microprocessors, which are designed to handle generic computing tasks.[30]

Integrated chips are emerging as a substitute for discrete graphics chips. Integrated graphics cards, which are built into the basic computing platform, offer users the ability to view photos, surf the Internet, watch movies, and play online games. Discrete graphics cards deliver more processing power compared to integrated chips and offer better visual quality, but integrated graphics processor (IGP) chipsets offer a lower cost solution and in some circumstances can offer reduced power consumption or smaller system form factors.[31] A majority of desktop and notebook PCs use IGP chipsets, while discrete chipsets are used in higher performance PCs and servers. Intel manufactures and sells IGP bundled with its microprocessors. Intel leverages its dominance in the microprocessor market to sell integrated chips. AMD's acquisition of ATI, a leader in the graphics business, was partly driven by customer demand for integrated solutions.

Computer software, particularly operating systems, is a critical complement to the microprocessor industry. AMD designs its microprocessors to be compatible with operating system software such as the Microsoft Windows, Linux, NetWare, Solaris, and UNIX. As AMD notes, its ability to innovate beyond the x86 instruction set controlled by Intel depends partially on Microsoft designing and developing its operating systems to run on or support AMD's microprocessor products. If Microsoft does not continue to design and develop its operating systems so that they work with AMD's x86 instruction sets, independent software providers may forego designing their software applications to take advantage of AMD's innovations. These developments would discourage end-customers from purchasing PCs with AMD microprocessors.

High-Definition content, Blu-ray movies, and advanced 3D games are all complements to discrete graphics cards. Integrated graphics processors are not powerful enough to sufficiently run such products. Similarly, full high definition

monitors and displays (i.e. 1080p) are important supplements to powerful discrete cards. The growing popularity of such products will further support AMD's discrete graphics chipset sales.

Financial Analysis

Overview

Given the intense internal rivalry of the semiconductor industry, particularly in the microprocessor market, AMD has had difficulty regularly posting profits since 2005. In 2006, AMD acquired graphics card designer ATI, which has been called "a disaster on all fronts."[32] While the two companies generated $8.1 billion in 2006, by the end of 2009 revenue had plummeted to $5.2 billion. The acquisition of ATI, which was intended to enhance AMD's position in the GPU market, led to a decrease in market share in both the CPU and GPU market, as reflected in the poor performance of AMD's stock. In early 2009, AMD sold a majority stake of its manufacturing operations to ATIC.

In 2010, AMD will deconsolidate Globalfoundries and account for it under the equity method of accounting. Given the company's previous fixed cost structure that included fabrication facilities and equipment, variations in sales had significant effects on AMD's margins. AMD should expect to have more consistent, steadier margins going forth due to limited exposure to fluctuations in factory utilization rates. In addition, AMD will no longer need to invest in costly facility upgrades, allowing it to commit more funds to research and development. It is important to note that large levels of debt threaten AMD's competitiveness and viability going forward, though these concerns have declined as AMD has worked hard to reduce its debt in the last six months. AMD, however, has one of the highest debt loads in the industry and interest payments will continue to weigh on its bottom line. AMD recently restructured its debt, which may enhance its profitability. Also, AMD lags behind Intel in operational efficiency. This may ultimately reflect its shallow market power and inability to dictate its payments schedules.

AMD is subject to the cyclical swings of the semiconductor industry driven by demand fluctuations for computer end products among businesses and consumers. Although semiconductor industry revenues fell in 2009, orders have picked up this year.[33] Standard & Poor's expects growth to resume in coming quarters. For 2010, Standard & Poor's foresees sales growth of 20 percent for the industry.[34]

Profitability and Growth

Figure 4: Historical Profitability Figures (in millions)

	2005	2006	2007	2008	2009
Net Revenue	5,848	5,627	5,858	5,808	5,403
Computing Solutions	3,929	5,367	4,702	4,559	4,131
Graphics	--	189	992	1,165	1,206
Memory Products	1,913	--	--	--	--
Foundry	--	--	--	--	1,101
All Other	6	71	164	84	66
Intersegment	--	--	--	--	(1,101)
Gross Profit	2,391.8	2,793.0	2,262.0	2,320.0	2,272.0
Operating Income	231.7	(47.0)	(2,865.0)	(1,955.0)	664.0
Earning Before Taxes	146.9	(236.0)	(3,189.0)	(2,328.0)	296.0
Net Income	165.5	(166.0)	(3,379.0)	(3,098.0)	304.0
Free Cash Flows	(30.3)	(570.0)	(1,995.0)	(1,316.0)	7.0

Sources: Hoovers, AMD Annual Report, and Morningstar

As reflected in Figure 4, AMD has struggled to compete with Intel, posting annual losses over the last three years. After thirteen consecutive quarters operating at a loss, AMD reported a net income of $1.18 billion dollars for the fourth quarter of 2009.[35] Many analysts, however, attribute such profitability to the cash obtained through the $1.25 billion settlement with Intel. Without such a cash infusion, AMD would have posted a loss of $47,000, nearly breaking even.[36] Note that, although graphics sales have increased since its acquisition of ATI, AMD's revenue has remained relatively flat over the last five years.

Figure 5: Key Profitability Ratios				
	AMD	Intel	Nvidia	ARM Holding
Gross Profit	42.05%	55.69%	34.29%	89.00%
Pre-Tax Profit Margin	7.55%	16.24%	(1.25%)	21.14%
Net Profit Margin	5.63%	12.44%	(0.88%)	14.58%
Return on Equity	107.4%	10.8%	(1.2%)	7.1%
Return on Assets	3.6%	8.4%	(0.8%)	6.2%
Return on Invested Capital	5.9%	10.3%	(1.2%)	7.1%

Sources: Hoovers, AMD Annual Report, and Morningstar

Figure 5 shows how AMD's margins compare to those of its primary competitors. Intel's robust margins reflect its financial superiority to AMD and ability to compete effectively on price. Despite the sale of its fabrication segment, AMD's return on assets remains below that of Intel. Given AMD's disproportionate amount of debt in its capital structure, its high return on equity should be analyzed critically.

Figure 6: Key Historical Profitability Ratios					
	2005	2006	2007	2008	2009
Return on Equity	5.20%	(3.63%)	(77.01%)	--	107.42%
Return on Assets	2.19%	(1.62%)	(27.36%)	(32.23%)	3.63%
Gross Margin	40.9%	49.4%	37.6%	39.9%	42.1%
Operating Margin	4.0%	(0.8%)	(47.6%)	(33.7%)	12.3%
Pre-Tax Profit Margin	2.4%	(3.8%)	(52.7%)	(38.9%)	7.6%
Net Margin	2.83%	(2.94%)	(56.19%)	(53.34%)	5.63%

Sources: Hoovers, AMD Annual Report, and Morningstar

As shown in Figure 6, AMD's margins have fluctuated over the last several years. Given the volatility caused by fabrication utilization rates, analysts expect AMD to have steadier margins now that it has spun off its manufacturing segment.

Solvency and Liquidity

Figure 7: Key Financial Ratios

	AMD	Intel	Nvidia	ARM Holding
Current Ratio	1.93	2.79	2.78	1.82
Quick Ratio	1.55	1.52	2.0	1.5
Leverage Ratio	14.01	1.27	1.40	1.15
Total Debt-to-Equity	6.5	0.05	--	--
Interest Coverage	1.93	5,705.00	--	1,240.00
Debt-to-Capital	0.88	0.050	0.009	--
% LT Debt-to-Capitalization	67.7	4.7	--	--

Sources: Hoovers, 10-K, Morningstar

As shown in Figure 7, AMD faces significant solvency and liquidity challenges. AMD's current ratio compared to its primary competitors, Intel and Nvidia, reflects its recent financial distress and high levels of debt. AMD is less capable of paying back its short-term liabilities than its competitors. In addition, the current ratio gives a sense of the efficiency of AMD's operating cycle compared to that of its competitors. AMD, however, has the same quick ratio as its archrival Intel. AMD is equally capable of meeting its short-term obligations with its most liquid assets compared to Intel. The leverage ratio indicates that AMD is far more leveraged than its competitors and has more difficulty meeting its financial obligations. AMD's high total debt-to-equity ratio reflects that it has been aggressive in its financing through debt. Although a high debt-to-equity ratio would be expected in a capital-intensive industry such as the semiconductor industry, AMD spun off its fabrication segment. Given the adoption of a fabless business model, AMD's debt-to-equity ratio should be expected to decline. In addition, rather than using debt to fuel future growth, AMD took on long-term debt to meet short-term obligations and pay operating expenses. AMD's low

interest coverage compared to those of its competitors' highlights the fact that AMD is far more burdened by its debt expense, which presents competitive disadvantages with respect to the funding of research and development as well as marketing. Similarly, AMD's debt-to-capital ratio highlights the company's inclination to use debt for financing as well its lack of financial strength compared to its competitors. AMD's long-term debt to capitalization ratio underscores the fact that AMD has greater risk exposure than its competitors.

Figure 8: Key Historical Financial Ratios

	2005	2006	2007	2008	2009
Current Ratio	1.95	1.39	1.45	1.07	1.93
Quick Ratio	1.51	0.94	0.96	0.64	1.55
Leverage Ratio	2.17	2.27	3.86	--	14.01
Long-term Debt-to-Equity	0.40	0.63	1.68	--	6.56
Interest Coverage	(2.20)	(0.13)	(6.04)	(5)	1.51
Debt-to-Capital	0.29	0.40	0.63	1.016	0.88
Long Term Debt-to-Capitalization	26.5	37.6	60.7	96.4	67.7

Source: S&P Stock Report, Hoovers, and Morningstar

As shown in Figure 8, AMD's debt burden has grown significantly over the last several years. AMD's current ratio reveals its increasing financial insecurity since 2005. AMD' interest coverage over the last five years highlights the extent of its debt burden. As mentioned previously, AMD's inability to meet interest expenses and other short-term liability prompted it to take on more debt. AMD's improvement in current ratio and quick ratio in the last year reflects the cash obtained through its $1.25 billion antitrust settlement with Intel as well as the sale of a majority stake of its manufacturing segment to ATIC.

Operational Efficiency

Figure 9: Key Operational Ratios				
	AMD	Intel	Nvidia	ARM Holdings
Days of Sales Outstanding	35.97	20.70	52.48	88.50
Inventory Turnover	5.1	4.7	5.0	15.3
Days Cost of Goods Sold in Inventory	71	78	73	24
Asset Turnover	0.6	0.7	1.0	0.4
Net Receivables Turnover Flow	10.1	17.6	7.0	4.1
R&D/Revenue	0.31	0.16	0.24	--

Sources: Hoovers, AMD 10-K, Morningstar

As shown in Figure 9, AMD has a higher days of sales outstanding (DSO) than its primary rival, Intel. A higher DSO reflects that AMD is selling its chips on credit and taking longer to collect money compared to its rival. Given AMD's need for cash to meet debt interest payments, this is a concern. Despite the global economic recession and fierce competition with Intel, AMD has managed to maintain an inventory turnover slightly above the industry average, signaling AMD does not have excess risk exposure to a rapid decline in prices.[37] In light of the Semiconductor Industry Association's announcement that worldwide chip sales in January rose to $22.5 billion, a 47.2 percent increase from the same month a year ago, companies may begin building inventory in anticipation of rising sales.[38] The asset turnover reflects, however, that AMD is not as efficient as its top competitors, Intel and Nvidia, in terms of utilizing its assets in generating sales and revenue. AMD, though, is sufficiently competitive. AMD's net receivables turnover flow suggests it should re-evaluate its credit policies in order to assure timely collection of bestowed credit that is not earning AMD interest.

Figure 10: Key Historical Operational Ratios					
	2005	2006	2007	2008	2009
Days of Sales Outstanding	47.6	62.9	54.0	30.2	36.0
Days Inventory	66.7	76.9	79.6	77.3	71.3
Inventory Turnover	5.5	4.8	4.6	4.7	5.1
Asset Turnover (Average)	0.77	0.55	0.49	0.60	0.65
Net Receivables Turnover Flow	7.7	5.8	6.8	12.1	10.2
Payable Period	79.8	140.2	114.2	85.8	74.5
R&D/Revenue	0.19	0.21	0.30	0.31	0.31

Sources: Hoovers, AMD 10-K, Morningstar

The net receivable turnover flow can help determine bad debt risk. A rising ratio, as seen between 2007 and 2008 in Figure 10, indicates that AMD faced cash flow problems and could not pay its account balances. A decline in net receivable turnover flow between 2008 and 2009 reflects that AMD has taken steps to improve the rate at which the firm collects its accounts receivable. The payable period reveals how AMD has improved its ability to pay its trade creditors in the last year. Given the intense competition with Intel and Nvidia, AMD has increased its research and development expenditures despite its debt burden. The greater the percentage spent on research and development, the more opportunities there are to develop new chip products. In general, the higher the R&D-to-revenue ratio, the better the prospects for the chipmaker.

Market Valuation

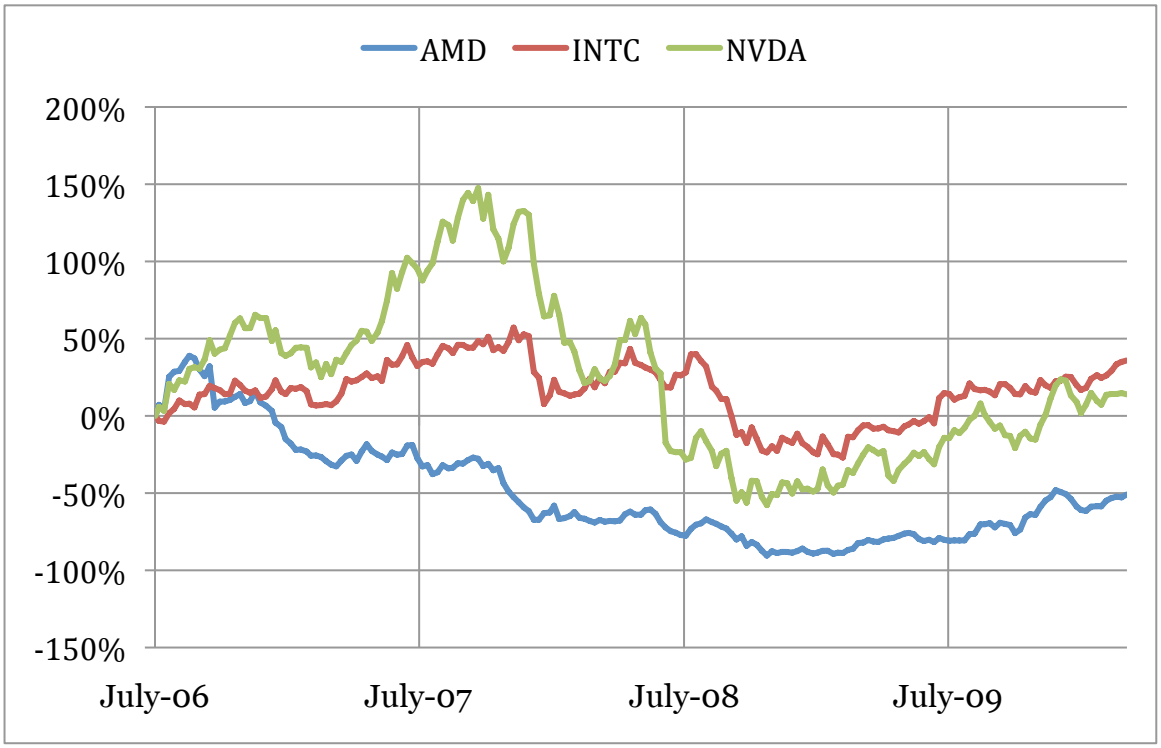
Figure 11: Market Valuation			
	AMD	Intel	Nvidia
Current Price	9.52	22.55	17.49
Market Capitalization	6.40B	124.61B	9.91B
Enterprise Value (April 10, 2010)	8.35B	112.12B	8.05B
Price/Earnings	20.8	29.1	--
Forward Price/Earnings	22.8	12.4	18.5
PEG Ratio	2.1	1.0	1.1
Price/Book (TTM)	9.7	3.0	3.7
Price/Sales (TTM)	1.2	3.6	2.8
Price/Cash Flow (TTM)	13.4	11.3	19.4
Enterprise Value/Revenue (TTM)	1.55	3.19	2.42
Enterprise Value/EBITDA (TTM)	13.58	8.19	276.50

Sources: Morningstar and Yahoo Finance

As shown in Figure 11, AMD is smaller than both its rivals. As reflected by each company's market capitalization and enterprise value, Intel is overwhelmingly bigger than AMD, though Nvidia is of a comparable size. The difference in AMD's market capitalization and the enterprise value conveys the extent of the chipmaker's debt load. On the other hand, the difference in Intel's market capitalization and enterprise value highlights how much cash the monolithic chipmaker has, a distinct advantage in terms of research and development. AMD's price-to-earnings ratio compared to Intel's shows that investors expected higher earnings growth in the future for Intel, while analysts believe that Nvidia will continue to have negative earnings in the upcoming quarter. The forward price-to-earnings ratio, however, highlights the fact that investors may expect higher earnings growth in the future for AMD than Intel. This ratio also implies that Nvidia will return to profits in the fiscal year of 2010. The forward price-to-earnings ratio also indicates that AMD and Intel may scrape off some market share from industry leader Intel. The price-to-earnings to growth ratio suggests that Intel may be undervalued compared to AMD. This conclusion is supported by the difference in the chipmakers' price-to-book ratios. The price-to-cash flow

ratio reveals that the market has high expectations of AMD's future financial health. Alternatively, AMD's lower enterprise-to-sales value may suggest that AMD's future sales prospects are not very attractive or that it simply is undervalued.

Figure 12: AMD's stock performance compared to primary competitors, Intel and Nvidia, since July 2006, the month AMD announced its acquisition of ATI.



As Figure 12 highlights, AMD has drastically underperformed its rivals with respect to stock performance since 2006.

SWOT

Strengths	Weaknesses
• Market necessity • Diversification into graphics • Moving towards fabless • Low-end markets • Power efficiency	• Execution • Innovation • Debt • Dependence on third-party suppliers for graphics products • Dependence on Globalfoundries for computing solutions • Distribution channels • Limited number of customers • Reliance on Microsoft
Opportunities	**Threats**
• Heterogeneous computing • Mobile discrete graphics • Notebook microprocessors • Server market • Desktop discrete graphics • Anti-monopoly litigation against Intel	• Innovation and marketing of Intel • High-end markets • Chip integration

Strengths

Market Necessity: Although most PC makers rely on Intel as their primary source of microprocessor chips, given the risk of holdups and opportunistic behavior, they prefer to have more than one chip source. Standard & Poor's analysts believe that OEMs will "support AMD as long as financially feasible."[39] In 2009, when asked why his company continues to use AMD microprocessors, an executive at one of the top notebook makers responded, "We need them to keep Intel honest… We need AMD to keep Intel's pricing from spiraling out of control."[40] In addition, AMD's existence is Intel's insurance against accusations of a monopoly position, which could result in the monolithic chipmaker being broken up into separate entities like AT&T was in the 1980s.[41]

Diversification into Graphics: With the acquisition of ATI, AMD expanded its presence in the discrete graphics chipset market. ATI has made AMD a leader in the market. Similarly, ATI enabled AMD to meet customer demand for integrated graphics products. In addition, AMD's advanced graphics know-how may yield greater synergies in the future based on technological trends toward heterogeneous computing solutions, which incorporates a CPU and GPU on the same chip. AMD plans to launch Fusion, its first heterogeneous chip, in early 2011. Lastly, AMD's diversification into discrete graphics limits its direct competition with Intel. Although Intel announced its intention to enter the discrete GPU market in 2007, it has yet to deliver its first chip, Larrabee. AMD has had success against Nvidia in the consumer graphics space, increasing market share over the last year. Also, GPU sales made up approximately 25 percent of AMD's revenue in Q409.[42]

Moving Toward Fabless: With the sale of its manufacturing operations, AMD will no longer have to invest billions upgrading its fabrication facilities every several years. AMD's ten-year capital expenditures were $1.1 billion per year.[43] Now AMD's capital expenses are only about $100 to $200 million a year.[44] Similarly, AMD's operating expenses have dropped from $3 billion to $2 billion with the spin off of Globalfoundries.[45] Given the fact that AMD has generated no more than $6 billion in revenue in each of the last several years, the adoption of a fabless business model will enhance profitability in the future. In addition, the decline in AMD's fixed costs will result in less volatile margins going forward, which stem from fluctuations in utilization rates.[46] Also, the divestiture will allow AMD, which owns 32 percent of Globalfoundries, to increasingly focus on the design of chips, rather than its costly and unprofitable manufacturing unit. Lastly, AMD's board representation at Globalfoundries may be strategically important with respect to the supply of AMD microprocessors in the short-run.

Low-End Market: Despite a loss in market share in the microprocessor segment, AMD has managed to preserve some share in lower-end markets.[47] AMD has fared relatively well in the desktop microprocessor space, which generally has a lower price points than its other offerings.[48] In addition, analysts expect AMD to gain traction in the low-end notebook market.[49] While Intel has seized control of the high-end chip market with its Intel Core processors, AMD has competed well on price-to-performance in the low- and medium-ends of the market.[50]

Power efficiency: In 2005, when Intel concentrated on creating faster, more powerful microprocessors, AMD decided to focus its efforts on creating more energy efficient chips. Power efficiency has become increasingly important in the server market due to costly electricity bills and the rise of the notebook, in which longer battery life is critical. This may give AMD an edge when negotiating future contracts.[51]

Weaknesses

Execution: Poor execution has been a consistent problem in AMD's recent past. AMD has had trouble launching products in a timely fashion and without significant technological glitches, or errata. AMD has experienced major delays, which is particularly problematic in the semiconductor industry given how competitive it is. Similarly, AMD's inability to deliver according to its outlined roadmaps, determined several years in advance, has hurt its relationships with PC makers and OEMs. Also, AMD's manufacturing problems and limited capacity has prevented it from meeting market demand in the past. Intel serves as a distinct contrast as of late, reporting one of the most profitable quarters in its history in January 2010.[52] Many analysts have "low confidence in AMD's design and manufacturing execution."[53] AMD's previous execution shortcomings have raised concerns regarding the chip designer's Fusion chip, considering its usage of complex new 32nm geometry.[54]

Innovation: Although AMD regularly launches competitive products, the company rarely has a first-mover advantage. In addition, AMD chips are considered inferior in certain market segments. Due to its lack of innovation, it often finds itself responding to the latest chip from Intel. Also, Intel has a major lead in reducing chip size from 65nm to 45nm to 32 nm.[55] Due to a weaker balance sheet, AMD cannot launch chips as frequently as its primary rival. The spinoff of Globalfoundries may allow AMD to pursue more opportunities and further innovation by allowing AMD to commit more funds to research and development rather than fabrication facility upgrades.

Debt: High levels of debt have weighed down AMD's profitability over the last several years. AMD's debt, among the highest in the industry, and capital lease obligations as of December 26, 2009 were $4.7 billion, of which $2.0 billion represented Globalfoundries obligations.[56] Although the sale of Globalfoundries and the $1.25 billion settlement with Intel has helped alleviate the company's debt, analysts believe interest payments may remain a notable problem and undermine AMD's performance. Given the competiveness of the industry and its cyclical nature, AMD needs sufficient cash to further research and develop new chips that can compete with those of Intel. In addition, AMD needs funds to market its products effectively.

Dependence on Third-Party Supplier for Graphics Products: AMD relies on third-party suppliers of graphics chipsets. AMD's graphics business depends on these suppliers to allocate to it a portion of their manufacturing capacity sufficient to meet AMD's needs, to manufacture products of acceptable quality and at acceptable manufacturing yields, and to deliver those products to AMD on a timely basis at acceptable prices.[57] In addition, the suppliers AMD uses provide services for its competitors. Suppliers could prioritize capacity for other users. Rather than allocating limited manufacturing capacity to AMD, foundries could provide critical capacity to AMD's rivals. This proved to be a problem when faced with high demand for its chips in 4Q09. Due to a lack of manufacturing capacity, AMD lacked sufficient inventory. AMD is vulnerable to holdups and

lacks control over the manufacturing process. Ultimately, AMD must have reliable relationships with its wafer manufacturers and subcontractors to ensure adequate product supply to respond to customer demand, especially given the high costs and delays associated with switching suppliers.

Dependence on Globalfoundries for Computing Solutions: AMD depends solely on Globalfoundries for the supply of microprocessors. The Wafer Supply Agreement with ATIC and Globalfoundries governs the terms by which AMD purchases products manufactured by the spinoff. In accordance with the Wafer Supply Agreement, AMD purchases, subject to limited exceptions, all of its microprocessor unit product requirements from Globalfoundries. In addition, pursuant to the agreement, AMD must provide Globalfoundries with product forecasts of its product requirements. The Wafer Supply Agreement is in effect through May 2, 2024. The Wafer Supply Agreement may be terminated if a business plan deadlock exists and ATIC elects to enter into a two-year transition period. The fact that AMD relies on Globalfoundries for all of its microprocessor products presents clear supply risks.

Distribution Channels: AMD relies on specific distributers to sell its products. AMD's agreements with its channel partners are non-exclusive and permit its distributors to offer its competitors' products.[58]

Limited Number of Customers: AMD relies on only a few customers. In 2009, AMD's top five customers made up nearly 50 percent of its revenue. During 2009, five customers accounted for approximately 56 percent of the net revenue of AMD's computing solutions segment and five customers accounted for approximately 52 percent of the net revenue of AMD's graphics segment.[59]

Reliance on Microsoft: AMD relies on Microsoft to ensure viability and compatibility of its products. AMD's ability to develop microprocessors beyond the x86 instruction set dictated by Intel is contingent on Microsoft designing and developing its operating system to run or support AMD's microprocessors.

Opportunities

Heterogeneous computing: Heterogeneous computing, which refers to computer systems that depend on several computational units such as the CPU and the GPU, will allow AMD to fully utilize the expertise gained through this acquisition of graphics chipmaker ATI.[60] Heterogeneous computing product offerings will yield better performance for customers, based on the architectures ability to "offload" selected tasks.[61] AMD plans to launch its first Fusion Accelerated Processing Unit in early 2011. Intel, however, launched similar computing solutions (Arrandale and Clarkdale) in 2010.[62]

Mobile Discrete Graphics: AMD has the opportunity to increase its presence in the notebook space, particularly with respect to value computers and mobile graphics cards. Notebooks represent a significant growth area for the company. AMD's DX11 is the leading chip in mobile graphics market at the moment, giving AMD a rare first-mover advantage and the opportunity to increase market share over Nvidia.[63]

Notebook Microprocessors: Given the fact that notebook unit share is presently less than half of AMD's desktop unit share, the notebook category presents the best opportunity for market share gains.[64] AMD can grow market share among consumers, and small and medium business end markets.[65] Notebook units recently reached a record high, exceeding 50 million units for the first time in 4Q09. AMD recently formed a new partnership with Lenovo for new models of the ThinkPad laptop line. In addition, AMD secured design contracts with major PC OEMs HP, Acer, and Toshiba.[66] Also, HP announced plans to significantly reduce its investment in the 10-inch netbook segment, turning its focus to the AMD-based 11.6-inch notebooks, due to weak profits from Intel's Pine Trail-based netbooks.[67]

Server Market: AMD is dependent on the high-margin, high-end server sales.[68] Intel had entered the high-end server market with a new product line that analysts believed would drive down AMD's market share.[69] Goldman Sachs analysts projected that AMD could lose as much as a third to a half of its current share of the market for processors used in high-end servers.[70] Shortly thereafter, AMD launched its latest Opteron 6000 series, dubbed the world's fastest chips, in March 2010.[71] AMD has announced that several hardware OEMs, such as HP, Dell, Acer, Cray Inc., and SGI, are already developing systems based on its new chips.[72] AMD's new server microprocessors are "extremely competent and cost-effective for smaller systems," establishing a sustainable market niche for the product.[73]

In addition, developments in server technology complement AMD's offerings well. Companies may increasingly utilize graphics chips in servers. With the acquisition of ATI, AMD assumed industry leading expertise and know-how with respect to graphics chips. AMD will put more focus on tightly integrating graphics processor cores into mainstream servers starting in 2012, which may yield gains in market share in the embedded chip space.[74]

Desktop Discrete graphics: In light of recent lackluster reviews of Nvidia's latest discrete graphics processors, Fermi, AMD has the opportunity to gain market share in the space.[75] Having released its latest Radeon chips to good reviews over six months ago, AMD is poised to seize even greater market share.

Anti-monopoly Litigation Against Intel: Not only has recent litigation against Intel helped AMD alleviate its debt burden, recent settlements and rulings have revitalized previous cross-licensing pacts. In addition, the European Commission's ruling in May 2009 found Intel guilty of abusing its dominant position in the global x86 microprocessor market. This should discourage Intel from engaging in excessive anti-competitive practices, thereby creating more commercial opportunities for AMD.

Threats

Innovation and Marketing of Intel: Intel is the overwhelming leader in the design and manufacture of microprocessors. Intel has maintained more than 70 percent of the market for several years now. Intel's significant financial resources allow it to market its products aggressively, to target AMD customers and channel partners with special incentives, and to discipline customers who do business with AMD (despite antitrust implications of such activities). Intel exerts substantial influence over PC makers and their channels of distribution through various brand and marketing programs. AMD expects Intel to maintain its dominant position and to continue to invest heavily in marketing, research and development, new manufacturing facilities, and other technology companies.[76]

High-End Markets: Although AMD has fared well in low-end markets, it has not had similar success in the high-end markets. AMD has yet to release a chip that can compete with Intel's Core CPUs. Future product lines by Intel may further harm AMD's market share. In addition, Intel has the ability to offer lower prices than AMD due to its more robust margins. Market share loss in the high-end markets is concerning given the profitability of such segments.

Chip Integration: While the ongoing trend of integration of memory, graphics, and other functionalities into the microprocessor may serve as opportunity for AMD, it may also present a threat in that Intel often has superior relationships with PC makers and OEMs. The bundling of functions may further marginalize AMD and undercut its advantage in the discrete graphics chips space. Intel could leverage its dominance in the microprocessor market to sell its integrated chipsets. Computer manufacturers are increasingly using integrated graphics chipsets, particularly for notebooks, instead of discrete graphics chipsets because they cost less and require less energy. In 4Q09, however, AMD's market share rose 2 percentage points to 13 percent in the integrated graphics market.[77]

Strategic Recommendations

Short-Term Solutions

Remain committed to paying down debt

Since November 2009, AMD has made significant progress in addressing its burdensome debt. As of that time, AMD faced $3.2 billion in debt beginning to mature in 2012 at an interest rate of 7.75 percent with a cash position of only $1.5 billion.[78] After AMD's $1.25 billion settlement with Intel, however, the company purchased $1 billion of 5.75 percent convertible senior notes due 2012. As outlined in a filing with the Securities and Exchange Commission, AMD redeemed $390 million of senior notes due December 18, 2009 that carried 7.75 percent interest using cash and $500 million of senior notes, due in 2017.[79] Such measures prompted Moody's Investor Service to raise AMD's credit rating from B3 to B2.[80] AMD's debt reduction and refinancing efforts relieved AMD of debt covenants that prohibited it from separating from its semiconductor production unit Globalfoundries. Subsequently, beginning in 2010, AMD can deconsolidate Globalfoundries and account for it under the equity method of accounting, thereby effectively removing debt from its balance sheet. Further debt reduction will allow AMD to direct more funds toward research and development as well as marketing, rather than interest payments.

Make execution a top priority

Given the recent alleviation of debt and the spinoff of its capital-intensive manufacturing arm, AMD should commit a greater percentage of its cash holdings to research and development. Although AMD already commits a larger portion of its revenue to research and development than Intel, in absolute terms, AMD's investment is less than half of that of its bitter rival. Further investment in research and development will help AMD address its innovation and execution shortcomings, allowing the chipmaker to finally start to conduct its roadmaps on target. Following the Intel settlement and the deconsolidation of Globalfoundries, AMD released several "Ahead of Schedule" statements.[81] Many of the

announcements, however, referred to products already significantly behind schedule. For example, Fusion microprocessors were originally due in 2009, not 2011. AMD, having adopted a fabless business model, must recommit itself to chip design and roadmap execution. Having spun off its manufacturing arm, AMD must allocate more resources to its core designing competencies, as it is no longer burdened by complex and expensive manufacturing processes.

Develop relations with channel partners

AMD should continue to further relationships with channel partners, which include distributors and resellers. In September 2009, AMD announced the Fusion Partner Program, its first global partner program designed to provide its channel partners with customized tools and resources to help them gain sales traction based on their specific business models. AMD places partners in one of six business tracks, which allows AMD to tailor its programs to suit the partners' respective business models. The tracks include: "channel providers, e-tailers, retailers, commercial solution providers, consumer solution providers and commercial volume resellers."[82] The program gives distributors incentives to sell all-AMD solutions (offerings including CPU, GPU, and chipsets designed by AMD).

The Fusion Partner Program aims to increase sales of computers that include more of AMD's components instead of those of its competitors, most notably Intel and Nvidia. AMD plans to provide partners with personalized tools, training, and resources to help increase sales. AMD will categorize its partners based on their sales record of all-AMD solutions, assigning them to one of three tiers. In March 2010, AMD expanded the Fusion Partner Program to include companies that sell computers to corporate customers. The commercial program will include co-marketing efforts and aim to package sales of Fusion-based computers with other products, such as software.[83] The success of AMD's new Fusion chips depends on AMD's ability gain the approval of channel partners. Without the support of channel distributors and resellers, AMD will be unable to get its new chip line to end-users.

Expand partnerships with current PC Makers and OEMs

AMD relies on a handful of companies for a majority of its revenue. It is difficult, however, to develop relationships with new customers, particularly those considered to be of the top tier. For example, AMD pursued Dell for several years before breaking the computer maker's exclusive supplier relationship with Intel in 2006.[84] Although Intel still made the processors used in most computers sold by Dell, AMD raised its profile in the chip field by being inside some Dell machines.

Rather than committing limited resources to wooing other PC makers, AMD should seek to develop the relationships it already has with current customers in the short-term. AMD can increase its revenue by pushing computer makers to include its microprocessors in a greater number of products through design wins. For example, AMD recently expanded its relationship with Lenovo to include ThinkPad laptops.[85] AMD should continue to focus on notebook processors given its competitive offerings and limited market share. AMD's Fusion microprocessor due out in early 2011 could lead to further critical design wins. AMD's ability to expand and develop its relationships with its partners in the future depends on its ability to execute its roadmap on time and deliver competitive, quality products.

In particular, AMD should look to develop its relationship with Acer, one of the fastest growing PC makers in the industry. In 2009, Acer showed a 21 percent increase in PC shipments and is on the verge of overtaking Dell as the second largest PC maker in the world.[86] Acer's success was largely driven by notebook sales, which complements AMD's desire to expand its market share in the segment. Notebooks accounted for nearly 80 percent of Acer's shipments in 2009. In addition, AMD and Acer are similar in that they are both low-cost suppliers trying to compete with bigger, richer rivals.[87]

Price aggressively

Due to its inability to secure a clear first-mover advantage in the microprocessor market, AMD must adopt aggressive pricing strategies in order secure market share. Having adopted a fabless business model, AMD will face lower operational and capital expenses. AMD should embrace its reputation as a low-cost alternative to Intel. It will enable AMD to differentiate itself in the highly competitive market. Also, given its dominant position in the market, Intel may be reluctant to participate in a price war.

One specific example in which AMD should be aggressive is in the server market. The superior performance of AMD's Opteron 6000 series, combined with improved macroeconomic conditions, provides AMD the opportunity to gain share in the market. In 4Q09, AMD held only 9.8 percent of server microprocessor unit share. Given the robust margins of high-end servers, AMD has the ability to compete on price more so than in other chip segments. In addition, the improving economy offers a unique opportunity to seize market share. Corporate customers' desire for new server technology appears to be improving.[88] Prior to the economic slowdown, many companies were uninterested in upgrading their server systems. In addition, the proliferation of virtualization software technology, which "allows multiple operating systems to be run simultaneously and helps customers get more work done with fewer machines," depressed unit sales.[89] The market-research firm IDC found that in 4Q09 x86 server sales rose 20 percent from 3Q09 and 13 percent from the 4Q08.[90] Revenue grew faster than unit sales, which is highly unusual in market where system prices have generally been falling.

Long-Term Solutions

Diversify into higher growth markets through M&A

Despite market trends toward specialization, AMD should look to expand into higher growth markets in the semiconductor industry. The microprocessor market has matured, presenting limited growth opportunities. In addition, the overwhelming financial and marketing advantage of Intel will continue to undermine the competitiveness of AMD. The chipmaker should look to startups as a key source of its future innovation in more dynamic markets.

One high growth area in the semiconductor industry is smartphones. The number of smartphones shipped in the last quarter of 2009 hit 54.4 million, a 39 percent increase on the previous year's figures.[91] IDC anticipates smartphone semiconductor bill of materials (BOM) revenues will reach $18.86 billion, or about 42 percent of the total mobile phone BOM revenue of $44.57 billion expected in 2010.[92] Following an annual sales decline of 12.3 percent in 2009 due to macroeconomic headwinds, mobile phone semiconductor sales are expected to resume in 2010 and follow a 7.7 percent compound annual growth rate through 2013.[93]

In November 2008, however, AMD announced it would not pursue the class of so-called Mobile Internet Devices (MIDs) and smartphones Intel decided to pursue with its current and future Atom microprocessors. During the annual analyst meeting, Randy Allen, general manager of AMD's computing solutions group, ruled out the microprocessors for smartphones and stressed that AMD would target everything "from a mini-notebook to the highest-end of x86 performance."[94] AMD's reluctance to commit resources to new segments beyond the familiar microprocessor market at the time is understandable considering the fact that AMD posted a loss of $3.1 billion that year. AMD committed itself to overhauling its business model and becoming profitable.

Given the competitiveness of its most recent product offerings, the adoption of a fabless business model, and the improvement of the global economy, AMD is expected to be profitable next year, even without a settlement from Intel. AMD should look to the numerous fabless startups in the smartphone market as acquisition targets in order to compete with the likes of Intel, ARM, and Broadcom.

The Wi-Fi market, once thought to have peaked, presents another area of growth.[95] Wi-Fi chip shipments in 2009 increased approximately 28 percent, according to data from ABI Research.[96] The mobile Wi-Fi market is expected to expand the greatest. The fact that roughly 80 percent of the world's desktops will be replaced by sales of notebooks highlights the growth potential for the Wi-Fi market.[97] Also, mobile Wi-Fi is being incorporated into both smartphones and feature phones. ABI Research believes that Wi-Fi in smartphones will grow from a 45 percent attach rate in 2009 to a 90 percent attach rate in 2014.[98] Similarly, the market for mobile Wi-Fi will continue to grow with user demand for web browsing and peer-to-peer communications.[99] Although feature phones do not use an open operating system, many offer web browsers, presenting the opportunity for Wi-Fi. In February 2009, LG announced the launch of the LG Arena, which allows users to surf the web using Wi-Fi. Similarly to the smartphone market, AMD should look to acquire companies in the space.

A general trend to note, however, is the decline in M&A activity in the semiconductor space over the last decade. Globally, Goldman Sachs data shows semiconductor M&A transactions declining from 137 deals with a total value of $33.7 billion in 1999 to 86 deals with a total value of $2.2 billion in the first half of 2009.[100] Semiconductor IPOs were nearly non-existent in 2009, with Goldman Sachs showing 10 deals worldwide with a total value of only $43 million.[101] The decline in deals suggests there may be fewer opportunities as the semiconductor industry as a whole has matured. This trend highlights the fact that AMD must look to smaller startups, potentially in China, that may have competitive patents.

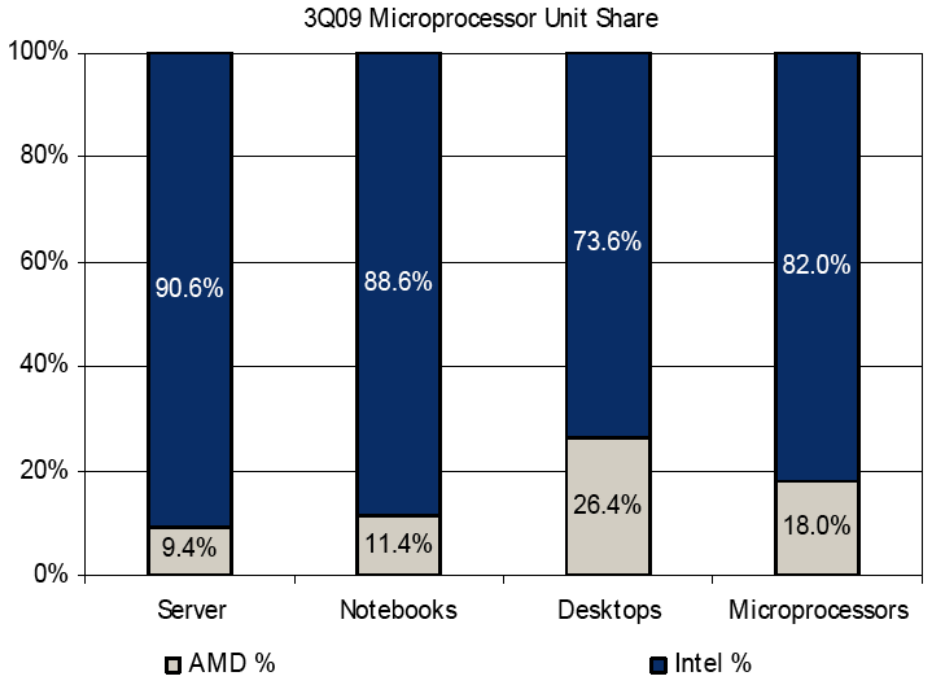
Conclusion

AMD has taken drastic measures to enhance its competitiveness and profitability in the semiconductor industry, most notably adopting a fabless business model. In addition, AMD used the majority of its settlement to buy back debt scheduled to come due in 2012, thereby alleviating interest payments. Whether such measures will be sufficient to make the perennially unprofitable chip designer viable has yet to be determined. In the short-term, AMD should concentrate on its core businesses and generating profits. In the long-term, however, AMD should look to diversify into high growth areas in the semiconductor industry, despite it own history and general market trends toward specialization.

Appendix A: Market Share

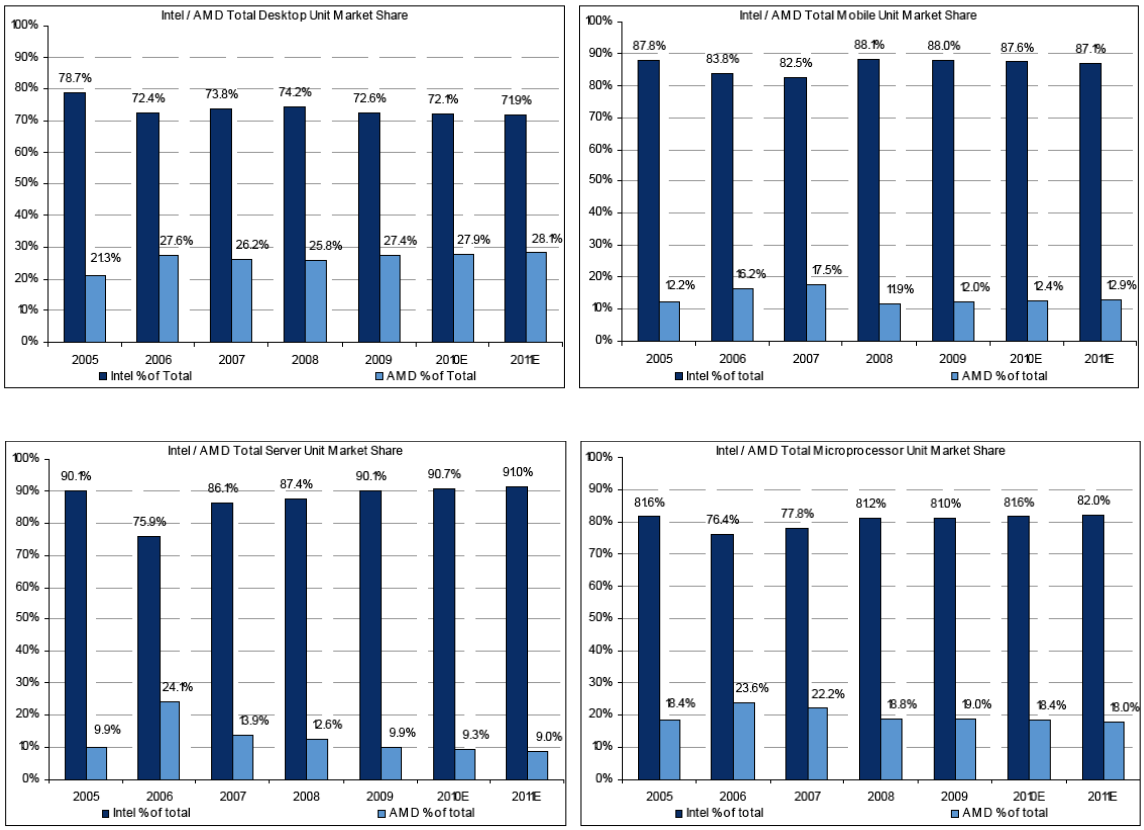
Microprocessor Market Share

Figure 13: 3Q09 Microprocessor Unit Share



Source: Mercury Research and Barclay Capital

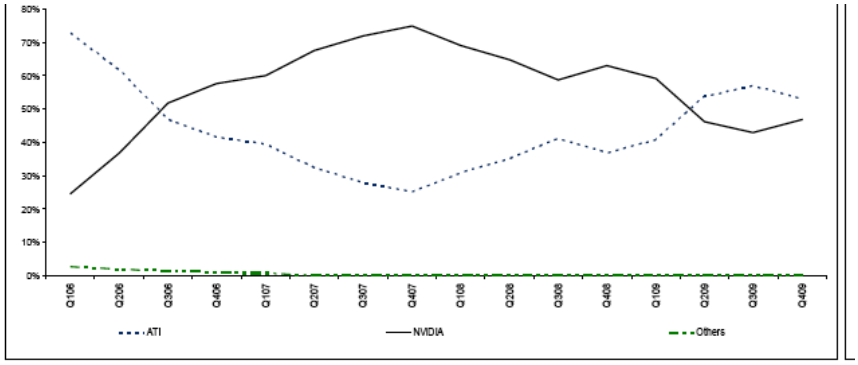
Figure 14: Historical Microprocessor Unit Share



Source: Mercury Research and Barclay Capital

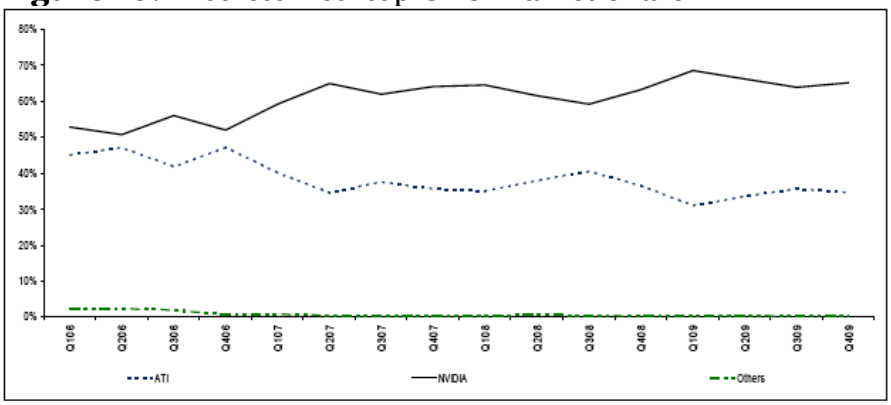
Discrete Graphics Market Share

Figure 15: Discrete Notebook GPU Market Share



Source: Mercury Research and Barclay Capital

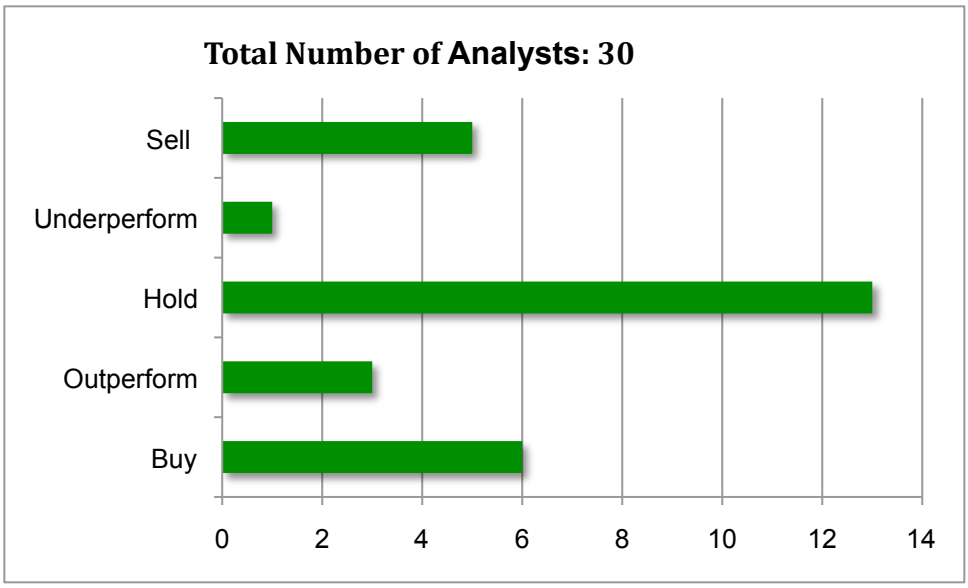
Figure 16: Discrete Desktop GPU Market Share



Source: Mercury Research and Barclay Capital

Appendix B: Analyst Coverage

Figure 17: Analyst opinions as of April 5, 2010



Sources: Morningstar

Figure 18: Price Target Summary (April 5, 2010)	
Mean Target	9.58
Median Target	9.50
High Target	14.00
Low Target	6.00
Number of brokers	20

Source: Thompson/First Call

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