

Illumina, Inc.

Initiating Coverage With an Outperform Rating and Aggressive Growth Company Profile

- We are initiating coverage on the stock with an Outperform rating. Illumina is a leading life sciences tools provider with an annual (2010) revenue base of \$880 million and a market capitalization of \$8.3 billion.
- As a pure-play life sciences tools company, Illumina has an impressive track record of agility, innovation, and operational excellence, which has enabled it to become the market leader in the two primary segments in which it operates: next-generation sequencing (used to determine the order of nucleotide bases of a DNA strand) and the microarray genotyping market (or use of microarrays to identify the presence of a specific DNA strand(s)).
- We expect the company's latest next-generation sequencing (NGS) platform introduction, the HiSeq, to continue to drive 30%-plus earnings growth over the next two years. We expect the acceleration in instrument sales growth in 2010 to translate into acceleration in higher-margin reagent revenue in 2011 and 2012; management expects the HiSeq to use on average double the reagents as the Genome Analyzer (or \$300,000 to \$400,000 per machine per year). This should drive a positive mix shift, as the installed base becomes more weighted to the HiSeq.
- Our e-mail-based survey of 73 researchers (November 2010) points to positive purchasing trends for Illumina in 2011 (11 of 49 machines respondents plan to purchase are Illumina instruments). Responses and subsequent follow-up also point to favorable consumable trends: 1) 78% of respondents with an NGS platform expect reagent use to be up (32% said up 30% or more), and 2) responses suggest average HiSeq usage should fall at least in the \$300,000 to \$400,000 range per machine. We estimate that reagent usage per machine closer to \$400,000 (at a gross margin of 65%) could drive 10 cents in EPS upside in 2011. We assume \$315,000 in 2011 and \$350,000 in 2012 in reagents per HiSeq.
- In addition, although we acknowledge that the success of initial rare variant studies in identifying strong associations is critical to the longer-term viability of genome-wide association studies (GWAS), we believe the addition of rare variant content arrays (i.e., Illumina's Omni 2.5 and later this year Omni 5) should continue to stabilize and potentially reaccelerate Illumina's microarray business. We project a more-normalized growth rate in the company's array business but estimate that a 10% acceleration in average consumable utilization per iScan could add \$0.10 to our 2011 EPS estimate. Data from initial studies of rare variant associations (expected in the first half of 2011) could be an important catalyst for the stock this year, in our view.

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Healthcare | Life Sciences

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Stock Rating: **Outperform**
Company Profile: **Aggressive Growth**

Symbol: ILMN (NASDAQ)
Price: \$67.00 (52-Wk.: \$32-\$68)
Market Value (mil.): \$8,253
Fiscal Year End: December
Long-Term EPS Growth Rate: 30%
Dividend/Yield: None

	2009A	2010E	2011E
Estimates*			
EPS Q1	\$0.20	A\$0.21	\$0.32
Q2	\$0.22	A\$0.26	\$0.34
Q3	\$0.17	A\$0.30	\$0.38
Q4	\$0.21	\$0.29	\$0.41
FY	\$0.80	\$1.06	\$1.46
CY		\$1.06	\$1.46

Valuation			
FY P/E	83.8x	63.2x	45.9x
CY P/E		63.2x	45.9x

* Estimates do not reflect the adoption of FAS 123R.

Trading Data (Thomson Financial)

Shares Outstanding (mil.)	125
Float (mil.)	83
Average Daily Volume	1,198,006

Financial Data (Thomson Financial)

Long-Term Debt/Total Capital (MRQ)	88.7
Book Value Per Share (MRQ)	4.0
Enterprise Value (mil.)	7,877.2
EBITDA (TTM)	213.6
Enterprise Value/EBITDA (TTM)	36.9x
Return on Equity (TTM)	8.9

Source: Thomson Financial, William Blair & Company estimates

- The stock is trading at 46 times our 2011 EPS estimate of \$1.46, slightly above its three-year average of 43 times. While we do not expect multiple expansion, we believe the valuation is sustainable since the HiSeq rollout should help fuel 30%-plus earnings growth and potential upside over the next two years.

Illumina provides proprietary life science tools (microarrays, NGS, and PCR) to support genetic analysis for customers, including genomic research centers, academic institutions, pharmaceutical and biotech companies, and clinical labs.

A more-comprehensive Basic Report on Illumina, Inc. and a report with conclusions from our e-mail-based survey entitled "Next-Generation Sequencing Survey," will be available later today. Please contact your William Blair & Company, L.L.C. sales representative to attain a copy of the reports.

Executive Summary

Founded in 1998 and public in 2000, Illumina manufactures instruments and reagents (consumables) to facilitate genetic analysis through sequencing (50% of revenue) and microarray (40% of revenue) platforms. Sequencing instruments, such as Illumina's HiSeq, are used by researchers to identify the specific nucleotide sequence of a DNA fragment (DNA is made up of a series of four nucleotides, or bases, identified as A, C, T, or G) and provide resolution down to a single base level for all areas of the genome, known and unknown. Microarrays are substrates, such as glass slides, silicon wafers, or microscopic beads, with hundreds to millions of DNA fragments attached. Microarrays provide less resolution than sequencing (in the sense that they provide single base resolution for specific known areas of the genome) but allow high-throughput (and thus cost-effective) screening of tens to millions of specific DNA nucleotide sequences at a time. Microarrays are most often used to identify the presence or relative presence of a specific DNA sequence (genotyping) or identify which genes are turned on or off in a sample (gene expression).

Illumina began as a microarray company commercializing a new array platform based on Dr. David Walt's technology, which used microscopic beads as a substrate (versus the typical glass slides or wafers). In 2006, the company acquired sequencing technology through its acquisition of Solexa and quickly became the leader in next-generation sequencing (NGS), now with an estimated 60% market share. The company's customers are focused primarily on life science research and include genomic research centers, academic institutions, pharmaceutical and biotech companies, and clinical labs.

Brief History and Overview

DNA sequencing methods were first developed in the late 1970s by two labs, Allan Maxim and Walter Gilbert's lab at Harvard and Frederick Sanger's lab at the University of Cambridge. Applied Biosystems (ABI, now part of Life Technologies) was the first to commercialize sequencing technology in 1986, leveraging Sanger's chain termination sequencing methodology to introduce an automated sequencing platform based on slab electrophoresis. Later, ABI replaced the slab gel with capillary electrophoresis (CE) and remains the primary vendor of Sanger/CE-based machines, which continue to be used by labs to this day.

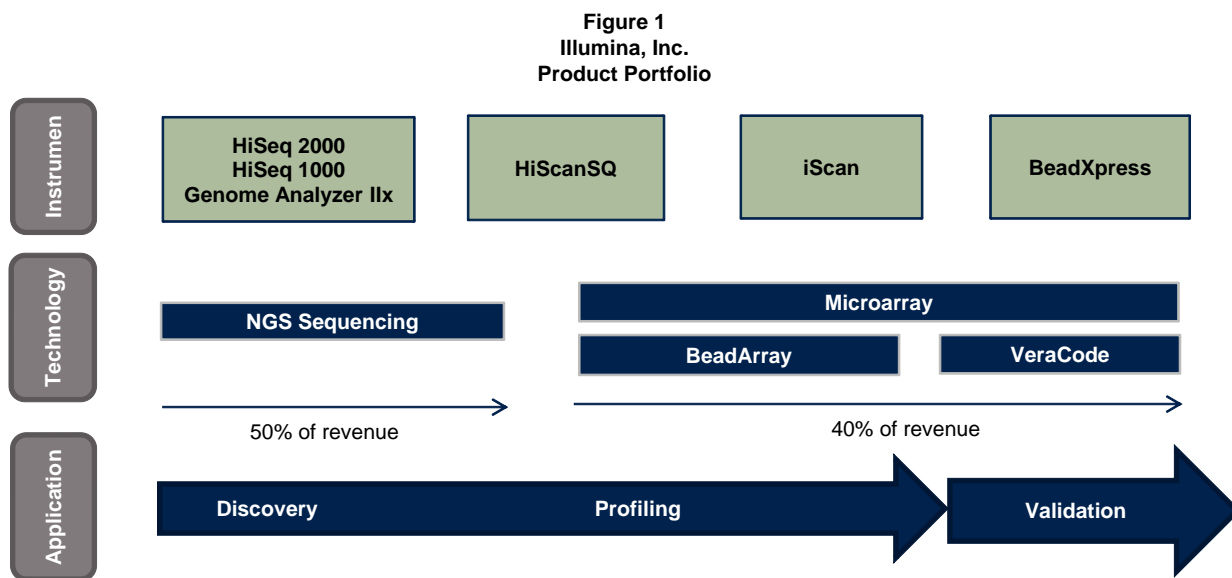
In 2005, companies such as 454/Roche, ABI/Life, and Solexa/Illumina began to commercialize a new generation of sequencing technology, referred to as next-generation sequencing, or NGS. NGS dramatically improved the throughput (amount of DNA sequenced per unit of time) relative to Sanger/CE sequencing through better chemistry and by leveraging massive parallelism (or a number of sequencing reactions performed at once). Over the past five years, scientists have improved these technologies and platforms, leading to a dramatic reduction in sequencing cost. As an example, the Human Genome Project, which sought to sequence the human genome for the first time, took 13 years and cost more than \$3 billion (the sequencing component was estimated to cost roughly \$500 million). Now, Illumina offers whole genome sequencing to consumers for as low as \$9,500 for a single patient when sequencing could provide direct clinical value.

Although many labs still use CE/Sanger sequencing instrumentation (still primarily provided by ABI platforms), the sequencing market has evolved rapidly since the next-generation platform was first developed. There are three primary next-generation instrumentation vendors that have been widely adopted: 454 (owned by Roche), ABI's SOLiD (Life Technologies), and Solexa (owned by Illumina). Although next-generation platforms use similar workflows, each of these platforms is based on

different chemistry and therefore has different advantages and disadvantages. In 2005, 454 Life Sciences introduced the first next-generation platform, the GS 20, which was based on pyrosequencing and emulsion PCR; the company introduced its updated version, the FLX, in 2007. In 2006, Solexa, acquired by Illumina in 2006, introduced the first “short-read” platform, the Genome Analyzer; Illumina recently launched an updated version, the HiSeq. ABI introduced another short-read platform in 2007, the SOLiD (and at the end of 2010, introduced an improved version, the 5500xl).

Illumina’s platforms have historically provided the greatest throughput and thus have become more widely adopted. Long-read technologies, such as Roche 454, have been the preferred platform for *de novo* sequencing (or when there is no or limited preexisting information about that sequence). Use of paired-end and mate pair read methodologies (essentially sequencing the same DNA fragment from both ends, which allows for relative positioning of contiguous DNA reads into physical scaffolds), however, has improved the ability to use short-read sequencing technology for *de novo* sequencing and detection of structural variants. Consequently, Illumina has become the NGS leader, garnering an estimated 60% of the NGS market; Roche 454 and Life Technologies essentially split the remainder, at 20% each.

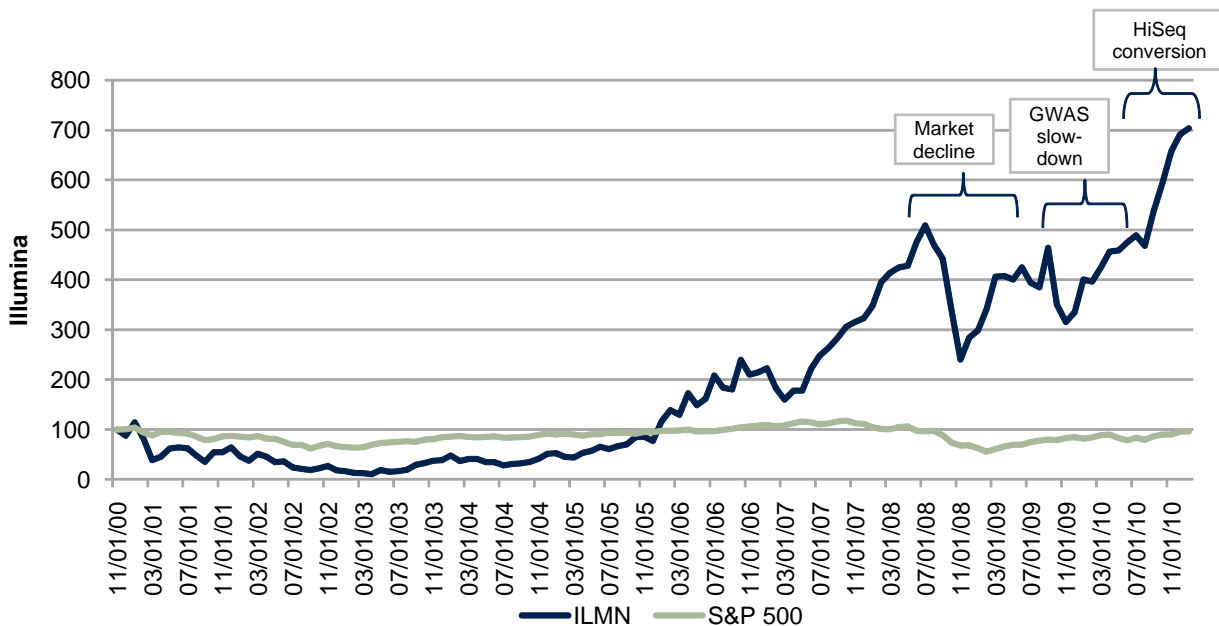
The company recognizes revenue based on a razor/razorblade model—generating revenue from machine sales, which then translate into a recurring revenue stream of higher-margin reagent sales. Roughly 50% of Illumina’s revenue is generated by NGS-related sales (instruments and reagents), another 40% by microarray sales (instruments and reagents), and the remaining 10% by the company’s services and other business (genotyping and sequencing services, extended-warranty sales, and revenue earned under research agreements with government grants).



Source: Company reports

Illumina has an impressive record of agility in the marketplace, innovation, and operational excellence, enabling it to secure the majority of the genotyping microarray market (roughly 75% share) as well as of NGS platforms (roughly 60% share). The company has reported at least 30% top-line growth and at least 30% net income growth since it turned profitable in first quarter 2005 (with the exception of 2009, when a slowdown in the genome-wide association studies, or GWAS, market resulted in revenue growth of 16% and EPS growth of 17%). Illumina’s continued record of impressive earnings growth as well as positive earnings surprises has driven strong stock performance over the past four years, as illustrated in figure 2.

Figure 2
Illumina, Inc.
Stock Price (Normalized to 100)



Source: Thomson One

The reacceleration of revenue and earnings growth in 2010 has been driven primarily by adoption of the HiSeq 2000, a new NGS platform Illumina rolled out in early 2010. With HiSeq, Illumina effectively quadrupled the throughput of its existing platform, the GA, to 200 billion nucleotides or bases—often referred to as gigabases (Gb) per run. The company first introduced the GA in late 2006 based on Solexa’s technology, with the latest version, the GAIIx, introduced in early 2009. At a list price of \$690,000, the HiSeq was expected to sell first to large genome centers and larger core labs; however, the product conversion has progressed better than expected, with a significant portion of orders coming from outside the genome centers and from new customers. Table 1 provides an overview of Illumina’s sequencing product portfolio.

Table 1
Illumina, Inc.
Comparison of Next-Generation Sequencing Machine Specifications

	<u>HiSeq 2000</u>	<u>HiSeq 1000</u>	<u>Genome Analyzer IIx</u>	<u>HiScanSQ</u>
Throughput	Up to 200 Gb	Up to 100 Gb	54 to 60 Gb, up to 95 Gb with new kit	>50 Gb
Target Customers	Large core labs/genome centers	Medium core labs	Small core labs/individual principal investigators	Small core labs/individual principal investigators
Run Time	8 days	8 days	7 days	8 days
Daily Output*	Up to 25 Gb	Up to 12.5 Gb	Up to 6.5 Gb	At least 6 Gb
Read Lengths*	2 x 100 base pair	2 x 100 base pair	2 x 100 base pair	2 x 100 base pair
Reads Per Run*	1 billion single-end reads, 2 billion paired-end reads	Up to 500 million single-end reads, 1 billion paired-end reads	320 million single-end reads per run, 640 million paired-end reads	NA
Instrument Cost	\$690,000	\$550,000	<\$300,000	\$400,000
Peripherals	cBot - \$55,000	cBot - \$55,000	cBot - \$55,000	cBot - \$55,000

*Refers to minimum specs and not necessarily what customers are experiencing

Sources: Company reports

Investment Highlights

The following summarizes the investment highlights for Illumina:

- The HiSeq product cycle should fuel earnings growth of 30% or more over the next two years.*** We believe that the HiSeq conversion should sustain the company's momentum for the next couple of years through instrument sales, consumable pull-through, future upgrade cycles, and gross margin improvement as the company continues to optimize the HiSeq platform. Although Illumina does not provide specific HiSeq placements (other than to say the company had shipped 100 machines as of the second quarter), management commentary about the success of the HiSeq rollout has been encouraging. First, the company has increased manufacturing capacity three times to handle the influx of HiSeq orders; it increased capacity by 70% in the third quarter. Second, a significant percentage of orders have come from outside the genome centers—90% in the third quarter and 40% in the second quarter—suggesting that smaller labs have been able to find funding despite the price tag. Lastly, HiSeq orders have driven strong growth in the company's backlog, which in the third quarter was up sequentially for the fourth consecutive quarter. Although the company did not specifically outline the backlog number in the third quarter, according to management it exited 2009 with a backlog of \$228 million, including a large BGI (formerly Beijing Genomics Institute) order for 128 HiSeqs. The company's backlog increased 12% sequentially in the first quarter (excluding the BGI order), was up 20% sequentially in the second quarter (also excluding BGI), and increased materially in the fourth quarter to record levels (excluding BGI).

In addition, we conducted an e-mail-based survey of 73 researchers in November 2010 that focused on 2011 NGS trends. See our report titled "Next-Generation Sequencing Survey," published January 7, for more details about our survey conclusions. In summary, we believe that the results bode well for HiSeq purchasing trends as well as consumable utilization (although admittedly it is early in the product life cycle). Forty-two percent of respondents indicated they plan to purchase an NGS platform in the next 12 months. Of the 49 NGS machines identified, 22% were Illumina platforms (seven HiSeq 2000, one HiSeq 1000, two GAIIx, and one HiScan). Sequencing is not a zero-sum market; in other words, other platforms identified (such as Life Technologies' Ion Torrent, which represented 24% of machines identified) are complementary to the HiSeq and do not necessarily cannibalize Illumina's market opportunity.

Consumable usage trends were also positive; 78% of respondents with an NGS platform expect reagent use to be up in 2011, with 32% pointing to growth in reagent usage of more than 30%. Illumina has indicated that it expects HiSeq consumable use to be in the range of \$300,000 to \$400,000 per instrument annually. Our survey included responses from 10 HiSeq owners, which were more weighted toward smaller labs (midsize core labs and academic/individual PIs). Many users own multiple NGS machines and thus it is difficult to assess specific per machine HiSeq usage, and we admittedly have a small sample size to analyze. Still, survey responses and subsequent follow-up support the notion that HiSeq 2000 consumable use on average across the installed base should be at least roughly double that of the GA (or, on average, in the \$300,000 to \$400,000 range). In addition, almost half of HiSeq users expect consumable usage to be up more than 30% in 2011 (with the other users indicating up 20% to 25%, n=3, or that they are unsure, n=3).

Given that our sensitivity analysis suggests that consumable utilization represents by far the greater upside opportunity (versus machine sales), this bodes well for Illumina's growth prospects in 2011. We estimate HiSeq consumable utilization could drive about \$0.10 per share (or 7%) in upside in 2011 (assuming consumable gross margin of 65% and \$400,000 in reagents per machine).

Lastly, although uncertainty about the National Institutes of Health (NIH) budget remains in a Republican-dominated Congress, our survey suggests the overall funding environment appears to have stabilized with a positive skew, boding well for life sciences vendors (including Illumina) in the coming year. Thirty-six percent of respondents expect sequencing instrumentation funding to be up over the next year (versus 41% flat and 3% down). The American Recovery and Reinvestment Act of 2009 (ARRA) included \$10.4 billion in funds for the NIH; these funds have been dispersed to researchers somewhat more slowly than originally anticipated. Based on information provided by the NIH, we estimate 39% of total ARRA funds (or \$4.0 billion) have been released to researchers to date, suggesting that the stimulus should continue to be a tailwind for life sciences equipment and consumable manufacturers for a year or more.

- ***Rare variant content should stabilize and potentially reaccelerate Illumina's microarray business.*** Although Illumina's microarray business has slowed—microarray instrument revenue was down 30% and consumable revenue was down 4% in 2009—we believe the introduction of Illumina's Omni 2.5 and eventually Omni 5 arrays (in mid-2011) should help drive a revival of the company's array business.

The deceleration in microarray revenue has been driven primarily by a slowdown in sales related to genome-wide association studies (GWAS), which make up 50% to 60% of Illumina's microarray consumable sales. GWAS conducted over the past five years have identified hundreds of SNPs (single nucleotide polymorphisms, or single nucleotide base mutations) associated with disease. Many of the variants identified, however, explain only a small portion of disease heritability, particularly for complex diseases, which has led some to question the validity and relevance of the approach. To date, GWAS have focused on analyzing common variants, given: 1) the hypothesis that common mutations (e.g., those present in more than 5% of the population) cause common diseases and 2) that rare variants (those present in less than 5% of the population) have not been the focus of previous initiatives to catalog human genetic variation (e.g., the International HapMap Project).

Given the lack of strong associations identified to date, there is a growing belief that rare variants are the key to identifying the genetic component to common illnesses. Some believe that disease can be attributed to a large number of rare variants that individually have a small effect but together interact to explain a large portion of disease risk; others believe that disease will be explained by a few rare variants that have a large impact on health risk. Consequently, the 1000 Genomes Project, launched in January 2008, sought to further catalog rare and structural variants by sequencing human genomes. Initial data was released in June 2010.

Although we acknowledge that the success of initial rare variant studies in identifying strong associations is critical to the longer-term viability of GWAS, content generated by the 1000 Genomes Project should drive a reacceleration in GWAS as researchers initiate new studies that incorporate rare and structural variant content. Despite concerns that these researchers could switch to next-generation gene sequencing methods as costs continue to decline dramatically, we believe that arrays are still the most cost-effective technology (with microarrays enabling interrogation of a sample at one-tenth the cost of sequencing). Illumina's commentary on the adoption of its Omni 2.5 array (which includes 2.5 million rare variants identified in the first phase of the 1000 Genomes Project) is encouraging. The company began shipping the Omni 2.5 chip in June, and in the third quarter it had already become Illumina's best-selling array. In addition, the company's overall microarray business, which has been up sequentially for four consecutive quarters, appears to have stabilized.

We project a more normalized growth rate in the company's microarray business; to be conservative, we estimated annual consumable usage per iScan (the company's primary microarray platform) of \$450,000 per machine in 2011 and 2012. Last quarter, management indicated microarray consumable pull-through was above the targeted range of \$400,000 to \$500,000 per machine and at levels not seen since first quarter 2009. Again based on our sensitivity analysis, consumables represent the most opportunity for upside (versus instrument sales); we estimate that average consumable utilization per iScan closer to \$500 thousand per machine annually could add \$0.10 to our 2011 EPS estimate of \$1.46. Data from initial studies of rare variant associations (expected in the first half of 2011) could be an important catalyst for the stock this year, in our view.

- ***Applied markets, such as diagnostics, represent large relatively untapped markets, which are pivotal to longer-term growth.*** We believe that expanding the addressable sequencing and array markets (e.g., into applied markets such as diagnostics) is critical to Illumina's three- to five-year growth profile and its ability to sustain 20%-plus earnings growth over that period. In the longer term, as array and sequencing-based costs continue to fall, the technologies become more accessible to a wider variety of more price-sensitive, capital-expenditure-restricted potential customers (as those in applied markets tend to be).

The overall clinical diagnostics market represents by far the largest potential opportunity in applied markets—use of arrays and Sanger/CE sequencing in diagnostics is one of the fastest-growing markets in the lab services/diagnostic product space. From a diagnostic product standpoint, the market is roughly \$4.6 billion, according to Scientia Advisors, which represents the market opportunity as a product manufacturer (sequencing/array machines and reagents). The diagnostics services market is currently near \$60 billion, according to Washington G2 reports. Esoteric testing represented \$15 billion (or 24% of the market) and likely represents Illumina's addressable market as a sequencing-based testing service provider.

In our view, the ultimate opportunity is to transition NGS into the diagnostic realm. We believe the wide-scale incorporation of whole genome sequencing into the clinical realm is 10 or more years away, given a number of existing hurdles (need for clinical relevance, continued cost reductions, physician addition, payer reimbursement, and FDA regulatory uncertainty). There are some nearer-term applications for NGS in diagnostics, however—for example, HLA typing and use of NGS by large labs to multiplex a large number of samples. In addition, as more and more cancer genomes are sequenced, sequencing of tumors either to identify appropriate therapeutics or as a monitoring mechanism could become a clinical reality in the next three to five years, in our view. If sequencing technology is incorporated into cancer diagnosis, therapeutic decision-making, and monitoring, markets would be defined by annual cancer incidence rates (1.5 million people are diagnosed with cancer in the United States annually) and could extend to prevalence estimates if tests are obtained on an ongoing basis. As the cost of sequencing declines, it will become more viable to perform whole-genome sequencing on patients, which leads to sizable market opportunity calculations driven by population numbers (e.g., with 300 million genomes in the United States, assuming commercial cost to sequence a genome is \$1,000, clinical whole-genome sequencing represents a \$300 billion market).

On the array side of the business, Illumina's diagnostics strategy is to build a base of microarray platforms within the clinical community, which it can leverage to drive adoption of higher-plex content as it becomes available. The company is initially rolling out its own proprietary content of low- to midplex arrays (e.g., respiratory virus, multidrug-resistant organism, and herpes virus panels) in collaboration with EraGen (which has proprietary molecular diagnostics chemistry). In diagnostics, multiplexing refers to the ability to run a number of distinct tests in parallel. Microarrays (in addition to PCR) are often used for this purpose. Low-plex typically refers to assays testing for 10 markers or less (e.g., a gastrointestinal panel that looks for three common GI viruses), midplex to assays testing for 10 to 100 markers (e.g., a cystic fibrosis panel that looks for 23 mutations in the CFTR gene) and high-plex to assays testing for 100-markers-plus (e.g., a pharmacogenomic panel that tests for thousands of mutations in enzymes related to drug metabolism or genome-wide cytogenetics arrays that look for chromosomal deletions and insertions).

Illumina also filed for general registration of its bead technology, which allows customers to generate their own home-brew assays on Illumina's microarray instrument and should also help facilitate adoption of its platform. In addition, Illumina has a rather extensive biomarker discovery competency, where the company is working to identify clinically relevant variants (e.g., SNPs, insertions, deletions, structural variants, chromosomal copy number changes, and loss of heterozygosity—when the normal copy of mutated/normal gene pair loses function). When the clinical relevance of high-density, high-plex arrays with tens of thousands (if not millions) of markers becomes proven (e.g., cytogenetics in the near term and potentially molecular profiling of tumors in the long term), Illumina would already have established an installed base of its BeadXpress (for low- to midplex assays) and potentially its iScan (high-plex) platform, which the company is submitting to the FDA as a pre-IDE.

On the sequencing side, the company has opened a CLIA lab where it offers whole-genome sequencing services to the clinical community and has the potential to provide additional services. Like human leukocyte antigen (HLA)-typing and cancer sequencing. In addition, Illumina acquired Avantome in 2008, which is developing a low-capital-cost, long-read sequencing technology. Although Illumina has not provided many details about the status of Avantome's technology, which is still in the development phase, the company has indicated that with Avantome, it could address the piece of the clinical market that today uses Sanger/CE-based methods.

Valuation and Risks

The stock is trading at 45 times our 2011 EPS estimate of \$1.46—slightly above its three-year average of 43 times—and 34 times our 2012 EPS estimate of \$1.93 (including stock-based compensation). The stock had an enormous move in 2010 (up 115% for the year, versus a more difficult 2009, when the stock closed the year up 14%). It has been a great momentum name—the company has exceeded expectations in five of the past six quarters—exceeding revenue estimates by 9% and earnings estimates by 17% year to date.

While we do not expect multiple expansion, we believe the current valuation is sustainable as the HiSeq rollout should continue to fuel 30%-plus earnings growth and earnings upside over the next two years, particularly as the surge in HiSeq instrument sales in 2010 translates into a surge in sequencing consumable sales. We estimate stronger-than-expected HiSeq consumable utilization could drive \$0.10 in EPS upside to our 2011 EPS estimate, which in conjunction with potential upside in the array business (we project a more normalized growth rate in the array business, although early signs suggest we could see an acceleration in microarray sales) could result in \$0.20 in EPS upside (or 15%). We expect share appreciation to be driven by our 30%-plus earnings growth estimate over the next two years as well as upward earnings revisions. As a result, we are initiating coverage with an Outperform rating.

In our view, the premium valuation reflects the company's leading market position, record of superior execution and stability in its recurring reagent revenue stream as well as consensus expectations for

annual earnings growth of roughly 30% over the next two years. We acknowledge, however, that multiple contraction is the key risk with this name, particularly as investors start to look to growth in 2013 or if the microarray business declines in 2011 rather than exhibit normalized growth as we project. Illumina has been successful in continuously reinventing itself (through upgrade cycles and new platform introductions); however, the sequencing market has become increasingly competitive with a number of established players and new (third-generation) players entering the market. We have assumed that the company is able to not only switch existing Genome Analyzer users to the HiSeq, but also capture users of other NGS platforms/new users beyond the existing 1,500 NGS users. Therefore, we believe the ability to expand the addressable sequencing market through expansion into diagnostics, for example, is key to the company's three- to five-year growth profile. While diagnostics represents a large opportunity, but one that is not without challenges— increasing FDA regulation, reluctance on the part of payers to cover tests without well-established clinical relevance, reluctance on the part of physicians to use tests without payer coverage and support from professional guideline organizations, and hospital capital expenditure constraints, to name a few. Lastly, although there have been some positive early papers, it is difficult to predict whether initial rare variant studies will be successful, which is critical to sustain microarray growth trends.

Projected Income Statement (2007 to 2012E)

	2007	2008	Q1'09	Q2'09	Q3'09	Q4'09	2009	Q1'10	Q2'10	Q3'10	Q4'10E	2010E	Q1'11E	Q2'11E	Q3'11E	Q4'11E	2011E	2012E
Revenues:																		
Product Revenue	326,700	532,390	156,199	153,204	150,306	167,532	627,240	173,679	198,538	224,668	227,186	824,071	239,842	254,079	275,727	291,352	1,061,000	1,330,192
Service & Other Revenue	40,100	40,835	9,558	8,439	8,054	13,032	39,084	18,452	13,465	12,641	12,495	57,053	13,191	13,974	15,165	16,024	58,355	73,161
Total Revenue	\$366,800	\$573,225	\$165,757	\$161,643	\$158,360	\$180,564	\$666,324	\$192,131	\$212,003	\$237,309	\$239,682	\$881,125	\$253,033	\$268,054	\$290,892	\$307,376	\$1,119,355	\$1,403,353
Total Cost of Revenue	\$131,495	\$205,624	\$54,022	\$48,815	\$49,564	\$53,368	\$205,769	\$58,333	\$64,317	\$77,869	\$81,252	\$281,771	\$82,236	\$86,045	\$91,049	\$94,979	\$354,309	\$433,493
Total Gross Profit	\$235,305	\$367,601	\$111,735	\$112,828	\$108,796	\$127,196	\$460,555	\$133,798	\$147,686	\$159,440	\$158,430	\$599,354	\$170,797	\$182,008	\$199,843	\$212,397	\$765,046	\$969,860
R&D	73,943	98,430	29,807	32,198	33,487	39,449	134,941	42,756	42,748	43,885	41,927	171,316	45,546	48,250	52,361	55,328	201,484	241,377
SG&A	101,257	148,013	42,831	41,939	42,096	49,471	176,337	50,278	53,135	55,006	56,325	214,744	58,198	62,725	66,905	70,697	258,524	312,307
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Expenses	175,200	246,443	72,638	74,137	75,583	88,920	311,278	93,034	95,883	98,891	98,252	386,060	103,744	110,974	119,266	126,024	460,008	553,684
Operating Income	60,105	121,158	39,097	38,691	33,213	38,276	149,277	40,764	51,803	60,549	60,177	213,293	67,054	71,034	80,577	86,373	305,038	416,176
Interest Expense (Income)	(12,416)	(10,449)	(1,950)	(3,679)	(3,013)	(1,932)	(10,574)	(1,304)	(773)	(1,859)	(1,112)	(5,048)	(1,212)	(1,385)	(1,435)	(1,778)	(5,810)	(11,399)
Other Expense (Income), net	-	-	3,156	-	-	-	3,156	1,113	(567)	(774)	-	(228)	-	-	-	-	-	-
Total Other Expenses, net	(12,416)	(10,449)	1,206	(3,679)	(3,013)	(1,932)	(7,418)	(191)	(1,340)	(2,633)	(1,112)	(5,276)	(1,212)	(1,385)	(1,435)	(1,778)	(5,810)	(11,399)
Pretax Income	\$72,521	\$131,607	\$37,891	\$42,370	\$36,226	\$40,208	\$156,695	\$40,955	\$53,143	\$63,182	\$61,290	\$218,570	\$68,265	\$72,419	\$82,012	\$88,151	\$310,848	\$427,575
Income Tax Expense (Benefit)	23,320	45,443	12,468	13,204	13,665	13,181	52,518	14,397	19,107	22,442	21,022	76,968	23,415	24,478	27,474	29,090	104,457	141,100
Net Income (excl. non-recurring items)	\$49,201	\$86,164	\$25,423	\$29,166	\$22,561	\$27,027	\$104,177	\$26,558	\$34,036	\$40,740	\$40,267	\$141,601	\$44,850	\$47,941	\$54,538	\$59,061	\$206,391	\$286,475
Stock-Based Comp	33,747	47,688	14,860	14,901	14,572	16,477	60,810	16,999	16,845	17,960	19,654	71,458	20,749	21,980	23,853	25,205	91,787	112,268
Tax Adjustments	11,005	15,844	5,336	4,683	4,841	5,744	20,121	6,193	6,057	6,324	6,741	25,315	7,117	7,429	7,991	8,318	30,855	37,049
Stock-Based Comp (net of tax)	22,742	31,844	9,524	10,218	9,731	10,733	40,689	10,806	10,788	11,636	12,913	46,143	13,632	14,551	15,862	16,887	60,933	75,220
Adjusted Net Income (excl. stock-based comp)	71,943	118,008	34,947	39,384	32,292	37,760	144,866	37,364	44,824	52,376	53,180	187,745	58,482	62,492	70,401	75,948	267,324	361,695
Non Recurring Items	(361,306)	(58,921)	(8,540)	(7,347)	(8,763)	(17,920)	(42,570)	(7,594)	(6,617)	(8,472)	(12,686)	(35,369)	(12,772)	(12,729)	(12,834)	(12,900)	(51,236)	(53,211)
Tax Adjustments	(33,746)	(12,173)	(1,928)	(2,869)	(3,279)	(2,598)	(10,674)	(2,244)	(2,377)	(3,179)	(4,351)	(12,151)	(4,381)	(4,303)	(4,300)	(4,257)	(17,240)	(17,560)
Non Recurring Items (net of tax)	(327,560)	(46,748)	(6,612)	(4,478)	(5,484)	(15,322)	(31,896)	(5,350)	(4,240)	(5,293)	(8,335)	(23,218)	(8,391)	(8,427)	(8,535)	(8,643)	(33,996)	(35,651)
Net Income (GAAP)	(278,359)	39,416	18,811	24,688	17,077	11,705	72,281	21,208	29,796	35,447	31,933	118,384	36,459	39,515	46,003	50,418	172,395	250,824
EPS (exc. non-recurring)	\$0.42	\$0.68	\$0.20	\$0.22	\$0.17	\$0.21	\$0.80	\$0.21	\$0.26	\$0.30	\$0.29	\$1.06	\$0.32	\$0.34	\$0.38	\$0.41	\$1.46	\$1.93
Adjusted EPS (excl. stock-based comp)	\$0.62	\$0.93	\$0.27	\$0.30	\$0.24	\$0.29	\$1.11	\$0.29	\$0.34	\$0.39	\$0.38	\$1.40	\$0.42	\$0.44	\$0.49	\$0.53	\$1.89	\$2.43
EPS (GAAP)	(\$2.57)	\$0.30	\$0.14	\$0.18	\$0.12	\$0.09	\$0.53	\$0.16	\$0.21	\$0.24	\$0.23	\$0.88	\$0.26	\$0.28	\$0.32	\$0.35	\$1.22	\$1.69
W. Avg. Shares Outstanding (Diluted)	116,860	126,836	127,546	132,329	132,839	129,698	130,599	128,960	132,547	135,913	138,913	134,083	139,853	140,448	142,248	144,048	141,649	148,548
MARGIN ANALYSIS:																		
Total Gross Profit	64.2%	64.1%	67.4%	69.8%	68.7%	70.4%	69.1%	69.6%	69.7%	67.2%	66.1%	68.0%	67.5%	67.9%	68.7%	69.1%	68.3%	69.1%
Service Revenue (% of Product Revenue)	12.3%	7.7%	6.1%	5.5%	5.4%	7.8%	6.2%	10.6%	6.8%	5.6%	5.5%	6.9%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
R&D	20.2%	17.2%	18.0%	19.9%	21.1%	21.8%	20.3%	22.3%	20.2%	18.5%	17.5%	19.4%	18.0%	18.0%	18.0%	18.0%	18.0%	17.2%
SG&A	27.6%	25.8%	25.8%	25.9%	26.6%	27.4%	26.5%	26.2%	25.1%	23.2%	23.5%	24.4%	23.0%	23.4%	23.0%	23.0%	23.1%	22.3%
EBIT	NM	21.1%	23.6%	23.9%	21.0%	21.2%	22.4%	21.2%	24.4%	25.5%	25.1%	24.2%	26.5%	26.5%	27.7%	28.1%	27.3%	29.7%
Tax Rate	32.2%	34.5%	35.9%	29.5%	37.8%	32.8%	36.7%	36.4%	36.0%	35.2%	34.3%	35.2%	34.3%	33.8%	33.5%	33.0%	33.6%	33.0%
Stock-Based Comp	9.2%	8.3%	9.0%	9.2%	9.2%	9.1%	9.1%	8.8%	7.9%	7.6%	8.2%	8.1%	8.2%	8.2%	8.2%	8.2%	8.2%	8.0%
Net Income	13.4%	15.0%	15.3%	18.0%	14.2%	15.0%	15.6%	13.8%	16.1%	17.2%	16.8%	16.1%	17.7%	17.9%	18.7%	19.2%	18.4%	20.4%

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Coverage Universe	Percent	Inv. Banking Relationships*	Percent
Outperform (Buy)	64	Outperform (Buy)	8
Market Perform (Hold)	35	Market Perform (Hold)	2
Underperform (Sell)	1	Underperform (Sell)	0

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