**Price/Fair Value** 

0.83

Morningstar Rating	Last Price	Fair Value Estimate
****	163.60 USD	196.00 USD
28 Oct 2014	28 Oct 2014	

Morningstar Pillars	Analyst	Quantitative
Economic Moat	Wide	Wide
Valuation	****	Undervalued
Uncertainty	Medium	Medium
Financial Health	AA-	Strong

Source: Morningstar Equity Research

#### Quantitative Valuation

Undervalued	Fairly Value	ed	C	lvervalued
	Current	5-Yr Avg	Sector	Country
Price/Quant Fair Val	ue 0.88	0.98	0.90	0.86
Price/Earnings	10.3	13.2	19.6	20.2
Forward P/E	9.2	_	14.7	15.3
Price/Cash Flow	10.1	10.5	13.0	12.3
Price/Free Cash Flov	v 13.4	13.5	18.3	20.9
Dividend Yield %	2.51	1.72	1.71	2.04
Source: Morningstar				

### **Bulls Say**

Mainframes are still quite relevant and fairly popular in the financial services and telecom sectors. Increasing emerging-market investments will elongate the tail of the otherwise declining mainframe business.

► IBM has been able to continually adjust its product portfolio to target the noncommodified portions of IT, enabling the company to generate healthy profits over the cycle.

► IBM's \$138 billion services backlog and existing relationships provide great insight into customer requirements, which benefits new product development and research initiatives.

### **Bears Say**

The mainframe's addressable market faces secular headwinds as new virtualization technologies enable IT personnel to cost effectively deploy and manage workloads across collections of commodity x86 servers.

The ongoing shift to cloud computing is making large amounts of computing capacity available for rent on-demand and will reduce customers' purchases of IBM's high-end systems.

Customer appetite for multimillion-dollar IT systems was dampened by the economic downturn and is still subject to periodic macro swings. IBM's Incremental Repurchase Authorization Is Smaller Than We Expected, but It's the Right Move

Industry

Market Cap (Bil)

163.21

28 Oct 2014

### Peter Wahlstrom, CFA, 21 October 2014 Investment Thesis

IBM holds a defensible position in enterprise software, services, and hardware. While each of these businesses is an industry leader in its own right, the combination of these products and services provides the firm with a unique solution creation perspective and delivery ability that is key to its wide economic moat.

**Dividend Yield %** 

2.51

28 Oct 2014

IBM's iconic turnaround from the early 1990s, driven primarily by cost reductions and a shift toward software and higher-value services, provided a good start for the firm's ongoing transition. Although mainframes remain an important source of IBM's competitive advantage and profits, its fortunes no longer rest exclusively on the long-term success of these proprietary platforms. IBM has adroitly navigated the secular trend toward distributed, open-standards computing by diversifying its hardware platforms, broadening its software portfolio, and building a formidable services organization. The result has been solid long-term financial performance. Since 2004, IBM's organic revenue, gross profit, and operating profit have compounded at annual rates of 3%, 6%, and 12%, respectively, while returns on invested capital have remained firmly above the firm's cost of capital (in the upper 20% range). Other tech giants have grown faster over the past decade, but few technology companies can point to a track record that is as consistent or shareholder-friendly as IBM's.

Still, IBM is not impervious to emerging long-term threats. Cloud computing is shifting the enterprise IT landscape and creating new challenges for incumbent vendors. As computer resources are increasingly delivered by cloud providers rather than traditional enterprise IT departments, demand for IBM's high-end servers and related software could dampen. Additionally, the middleware and systems management markets will undergo significant change as software-as-a-service gains wider adoption. Finally, large vendors continue to push into each others' territories as they look to deliver a larger portion of the IT stack. Despite these emerging threats, we believe IBM's product development and entrenched customer relationships will ensure that the firm maintains its competitive advantage.

### Peter Wahlstrom, CFA, 29 October 2014 Analyst Note

Information Technology Services

IBM added to its share repurchase authorization by \$5 billion on Oct. 28 in what could be construed as both a prudent yet counterintuitive move. Considering that the firm has repurchased an average of \$11 billion per year since 2011, at an estimated average share price in the \$180 range (versus today's market price of \$162 per share and trading in 4-star territory), the board's decision to actually reduce the scale of its buybacks for the foreseeable future must have been fairly difficult. Management was quick to note that the board will reevaluate future buybacks in six months (as is typical). However, with underperformance in some areas of its business, combined with an ever-evolving portfolio, which will likely require additional investments in the coming quarters/years, we view it as the right move. There is no change to our \$196 fair value estimate or wide economic moat stance at this point, though we'll update our model to incorporate smaller buyback assumptions. Although shares appear fundamentally undervalued, IBM is managing through what we believe to be a multiyear period of change, and it may take some time before the remaining core business realizes its full potential.

From our perspective, IBM has long been a firm that prioritizes innovation, supported by a decades-long string of intense research and development spending and capital expenditures, which averaged \$6 billion and \$5 billion, respectively, since 2002. Although we'd obviously prefer that the company be in the financial position to both fully fund sizable dividend and buyback programs, while also reinvesting heavily in its existing operations (and allocating a few billion dollars to acquisitions--why not?), we are fine with this week's incrementally lower authorization.

### **Economic Moat**

#### Peter Wahlstrom 21 October 2014

We assign IBM a wide economic moat rating. IBM has large and well-established hardware, software, and services businesses, each of which has high switching costs and recurring revenue streams. IBM's server hardware business is focused at the high end of the server market and the firm has recently stepped back from playing in the commoditized space. We do not expect the

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stewardship Exemplary

Morningstar Rating ★★★★ 28 Oct 2014	Last Price 163.60 USD 28 Oct 2014	Fair Value Estimate 196.00 USD	0.83	<b>Dividend Yield %</b> <b>2.51</b> 28 Oct 2014	Market Cap (Bil) 163.21 28 Oct 2014	Industry Informat	tion Technology Services
<b>Close Competitors</b>	Currency	(Mil) Market	Cap TTM Sa	lles Operating Ma	rgin TT	<b>м/ре</b> mid	dleware and systems managemer
Oracle Corporation ORC	L	USD 17	1,270 38,	499 3	8.57	10.10	as, such as business intelligence
Cisco Systems Inc CSCC	)	USD 122	2,712 47,	142 1	9.82	16.18	ve-average growth over the next
Hewlett-Packard Co HP(	ם	USD 66	6,327 112,	179	6.42	13.39	npanies apply new analytic tools to Imes of unstructured data. Base
EMC Corp EMC		USD 5	7,776 23,	580 1	6.48	22.15	mes of unstructured data. Dase

mainframe market to grow, but it's important to consider that migrating mainframe-based applications to alternative architectures can be expensive and risky. As a result, we believe that IBM's mainframe business will remain fairly steady and profitable. IBM's infrastructure--management software also tends to be very sticky, as IT personnel rely on it to operate their data centers and are reluctant to switch to new, less familiar systems. Software maintenance contracts provide profitable recurring revenue, and unlike the proprietary server business, the firm's software business continues to grow. Finally, about half of IBM's services business is composed of long-term outsourcing contracts (\$138 billion backlog) that are sticky and provide recurring annual revenue.

While we think each business holds its own competitive advantages, it is the combination of these businesses which provides IBM with economies of scale in product development and distribution, and an edge in acquiring new customers that further reinforces the wide moat around the company. Additionally, though we generally don't attach much value to brands in the enterprise technology sector, IBM's established brand image as a trusted leader in computing provides the firm with a significant competitive advantage in acquiring new services business. To repurpose the mantra of a bygone era: No one has ever been fired for outsourcing to IBM.

### Valuation

Peter Wahlstrom 21 October 2014

We are lowering our fair value estimate from \$212 to \$196 after reassessing IBM's core business in light of the firm's microelectronics divestiture. Our fair value estimate implies 2014 price/adjusted earnings of approximately 12 times, EV/EBITDA of 9.6 times, and free cash flow yield of approximately 9.6%. We forecast flat annualized revenue growth and 3.6% annualized operating profit growth through 2018. Management continues to allocate significant resources toward expanding its software portfolio, and we expect this segment to grow at roughly 4.5% per year through 2018, with relatively stable gross margin. Certain segments of IBM's software portfolio are fairly mature, including database and portions of its middleware and systems management portfolio. Other areas, such as business intelligence, are poised for above-average growth over the next several years as companies apply new analytic tools to massive, growing volumes of unstructured data. Based on our current forecasts, software will account for 32% of IBM's total revenue and 55% of gross profit in 2018 (up from today's contribution of 26% and 48%, respectively).

Stewardship Exemplary

We forecast below-GDP growth for IBM's services business, which is partially due to the already massive size of this business and partially due to management's discipline in pruning low-margin contracts from its portfolio. Although competitive pressures are mounting in lower-end outsourcing portions of the services market, we think IBM's technical and business expertise and growing software portfolio will allow the firm to maintain blended gross margins of roughly 34% as it focuses on more complex projects and generates more recurring maintenance revenue.

Cloud computing and increasing competitive pressures from Oracle and Cisco will pressure IBM's hardware segment, and we expect almost no organic growth in hardware revenue over the next five years. Despite the firm's ongoing rightsizing, its sale of System x to Lenovo in late 2014 and expected divestiture of its microelectronics business to GlobalFoundries in 2015, we still think there could be some gross margin headwinds over the medium term. We forecast gross margin in hardware to fall from the mid-30% range in 2013 to the low-30% range in 2018.

We forecast IBM's operating expenses to grow slightly slower than revenue over the next five years, based on our expectation that management will maintain firm control over IBM's business and financial model.

### Risk

#### Peter Wahlstrom 21 October 2014

IBM's high-end computing hardware business (namely mainframes and power systems) faces ever-increasing competitive pressure from commodity x86-based servers. Cloud computing makes vast computing capacity available on-demand and could lower revenue and profit opportunities for IBM's high-end hardware business. IBM's custom, best-of-breed approach to meeting customers' needs is also being challenged by Oracle's potentially cheaper integrated solutions that aim to meet



0.83

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Industry

Information Technology Services

Stewardshin Exemplary

80% of customers' requirements without expensive customization. The firm's limited application software portfolio places it at a competitive disadvantage, relative to Oracle, in delivering integrated business solutions. IBM has placed large bets in the analytics space and faces a host of rapidly-growing firms also seeking to ride the big data wave and generate economic profits. Finally, IBM has maintained a disciplined acquisition strategy; should target valuations become stretched (even further) or competition steer IBM to take a more aggressive approach to acquisitions, this would represent a potential risk.

### Management

Peter Wahlstrom 14 October 2014

We view IBM's stewardship of shareholder capital as Exemplary. IBM's management team has capably navigated the secular trend toward distributed, open standards computing by diversifying its hardware platforms, broadening its software portfolio, and building a formidable services organization. The result has been solid long-term financial performance. Since 2004, IBM's organic revenue, gross profit, and operating profit have compounded at annual rates of 2.2%, 6%, and 12%, respectively, while returns on invested capital have remained firmly above the firm's cost of capital. Other technology firms have grown faster over the past decade, but few technology companies can point to a track record that is as consistent or shareholder-friendly as IBM's.



Virginia M. Rometty took over as CEO of IBM in January 2012 and was added as chairwoman of the board in late 2012. Rometty was formerly senior vice president and group executive for sales, marketing, and strategy and has been with the company since 1981. Rometty stated early in her tenure as CEO her intention to continue to execute to IBM's long-run operating strategy of shifting its portfolio to higher-value software and services. So far she has not been shy about selling off non-core or commodity portions of the IBM portfolio, while bolting on acquisitions which fill gaps in the software or enterprise offering. IBM's board of directors maintains the goal of generating at least \$20 per share in non-GAAP earnings in 2015, and that the board plans to repurchase \$50 billion of stock and pay out \$20 billion in dividends to shareholders through 2015. Management's historical track record of achieving its stated long-run targets and the board's transparency relating to IBM's future strategic and financial road maps lead us to assign the firm an Exemplary stewardship rating





0.83

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#### **Analyst Notes Archive**

### **IBM's Incremental Repurchase Authorization Is** Smaller Than We Expected, but It's the Right Move

Peter Wahlstrom 29 October 2014

IBM added to its share repurchase authorization by \$5 billion on Oct. 28 in what could be construed as both a prudent yet counterintuitive move. Considering that the firm has repurchased an average of \$11 billion per year since 2011, at an estimated average share price in the \$180 range (versus today's market price of \$162 per share and trading in 4-star territory), the board's decision to actually reduce the scale of its buybacks for the foreseeable future must have been fairly difficult. Management was quick to note that the board will reevaluate future buybacks in six months (as is typical). However, with underperformance in some areas of its business, combined with an ever-evolving portfolio, which will likely require additional investments in the coming guarters/years, we view it as the right move. There is no change to our \$196 fair value estimate or wide economic moat stance at this point, though we'll update our model to incorporate smaller buyback assumptions. Although shares appear fundamentally undervalued, IBM is managing through what we believe to be a multiyear period of change, and it may take some time before the remaining core business realizes its full potential.



prioritizes innovation, supported by a decades-long string of intense research and development spending and capital expenditures, which averaged \$6 billion and \$5 billion, respectively, since 2002. Although we'd obviously prefer that the company be in the financial position to both fully fund sizable dividend and buyback programs, while also reinvesting heavily in its existing operations (and allocating a few billion dollars to acquisitions--why not?), we are fine with this week's incrementally lower authorization.

### We Remain Upbeat on IBM's Ongoing Transformation, but We're Lowering Our Fair Value Estimate

Peter Wahlstrom 21 October 2014

After reassessing IBM's core business in the wake of the firm's pending microelectronics divestiture, we are lowering our fair value estimate to \$196 per share from \$212. We are encouraged that IBM continues to shed noncore, low-margin businesses to boost longer-term

performance, but we think it continues to face a number of near- and intermediate-term headwinds in its remaining segments that have led us to temper our growth forecasts. Management has acknowledged that the company sees a weaker demand profile and is planning on a restructuring of its workforce in the wake of industry and company-specific challenges. Still, IBM has shed roughly \$7 billion in low-margin revenue through its recent divestitures of its customer care, System X, and microelectronics businesses, which we think will ultimately drive margin expansion, and the firm's continued investment in software should generate mid-single-digit growth over the next several years. Yet we remain cautious and expect that the continued reshuffling at IBM could yield milder services revenue growth amid an increasingly competitive setting.

### IBM Announces Exit From Chip Manufacturing Business, Lowered Guidance in 30 Report

Rick Summer 20 October 2014

Today, IBM announced an agreement to sell its chip manufacturing business to GlobalFoundries. It also lowered its 2014 and 2015 financial outlook. Strategically, IBM continues to move in the right direction, in our opinion, as it decreases exposure to businesses with low returns on capital. However, as the firm publicly acknowledges weaker-than-expected demand for its products and services, we are likely to reduce our fair value estimate by a modest amount. We are placing IBM under review while we adjust our model.

The divestiture of the microelectronics business fits well into IBM's ongoing evolution. Management continues to stress movement away from low-margin businesses, and the disposal of the microelectronics business will take a capital-intensive business that was responsible for roughly \$700 million in pretax losses in 2013 off the books. IBM will still invest research and development capital of roughly \$3 billion over the next five years in the semiconductor business (as a fabless producer), with GlobalFoundries serving as its exclusive server processor manufacturer for the next 10 years under the terms of the agreement. The deal is expected to close in 2015 and should not face much scrutiny from regulators.

Looking at the impact of the deal on IBM's broader business, the firm will be giving up roughly \$7 billion in revenue (based on 2013 financial results) stemming from the divestiture of the microelectronics business,



Morningstar Rating ★★★★ 28 Oct 2014 Last Price 163.60 USD 28 Oct 2014 Fair Value EstimatePrice/Fair Value196.00 USD0.83

Price/Fair Value Dividend Yield % 0.83 2.51 28 Oct 2014

% Market Cap (Bil) 163.21 28 Oct 2014 Industry Information Technology Services **s**tewardship Exemplary

customer-care business, and x86 server business (recently sold to Lenovo). While we applaud IBM for increasing its focus on its other higher-margin businesses, we maintain a level of caution as the remaining core business continues to search for increased consistency in performance.

### IBM Transformation Still Evolving, but on Track After 20 Results; Shares Still Look Undervalued Peter Wahlstrom 18 July 2014

IBM posted second-quarter results that were modestly ahead of our expectations, and the firm is on track to meet our full-year outlook. While the glass may have seemed half empty last quarter, investors may be more likely to view this quarter's results as half full, even though the story hasn't fundamentally changed when we take a look through our long-term lens. Although IBM is still a firm in transition, we don't believe it is the same company that CEO Virginia Rometty inherited just a few short years ago, and we generally agree with management's overarching strategy. We plan to review our financial model after the quarter's results and, combined with the time value of money, may modestly increase our fair value estimate.

Second-guarter revenue was down 1% on an adjusted basis (excluding divestitures) to \$24.3 billion, and while systems and technology remained a drag on the top line, the reported 11% drop wasn't as extreme as we had anticipated. Instead, management remains focused (as well it should) on its strategic growth businesses, which it characterized as being up double digits year over year. As we think about the broader IBM revenue "engine," software is the segment that is clearly pulling more of the weight, with services treading water (but lagging) and hardware still caught in the cyclical undertow. If the senior leaders can steer the IBM vessel toward calmer waters. we think this can still be a GDP-plus grower on the top line, on a normalized basis--but it's probably going to take some time. Operating profitability in the quarter was slightly better than we anticipated, and while we had expected some reduction in selling, general, and administrative expenses, the gross margin gains (50 basis points year over year) was encouraging. All-in, IBM reported non-GAAP diluted EPS of \$4.32, up 34% year over year, and \$0.09 ahead of our estimate.

Two 'Gold Standards'? IBM Strikes Partnership With Apple; Incremental Long-Term Positive

Peter Wahlstrom 15 July 2014

After Tuesday's market close, Apple and IBM announced an exclusive partnership to further promote and deliver iOS to the enterprise customer. The arrangement is designed to bring IBM's big data and analytics to iOS, develop over 100 industry-specific enterprise apps and solutions built solely for iOS devices, and allow Apple to leverage IBM's sales force and enterprise customer relationships into additional iPhone and iPad device sales to corporations.

Our DCF-based valuation for IBM remains at \$212 per share, as does our wide economic moat rating, though we view the partnership as an incremental positive. IBM faces a number of headwinds, but we continue to believe that shares are fundamentally undervalued

From IBM's perspective, the cornerstone of the agreement will be its new MobileFirst for iOS solution, which we believe could be a catalyst that spurs growth (and monetizes) the ongoing shift towards BYOD in the workplace. Both senior leaders talked about this being a partnership between the two "gold standards," IBM on the enterprise side, and Apple on the consumer/device side. IBM CEO Virginia Rometty was quick to tout three strategic features that it brings to the partnership; strength in (1) analytics, (2) security, and (3) cloud.

### IBM to Invest \$3 Billion in Chip Research to Support Cloud and Analytics Growth

Peter Wahlstrom 10 July 2014

Late Wednesday, IBM announced that it will focus a larger percentage of its already sizable research and development budget on programs that seek to address some of the physical challenges of current semiconductor manufacturing. The total expected investment is expected to be \$3 billion over the next five years, and our response is neutral to generally favorable. Even if this investment is incremental to the firm's existing \$6 billion annual R&D budget, adding this slug over five years doesn't move the needle on our \$212 fair value estimate.

We reiterate our wide economic moat rating, as we continue to believe that IBM's intangible assets and switching costs should help to drive economic profits for an extended period. Although this new chip initiative could pay off handsomely and support the moat, IBM is not alone in looking for unique and innovative ways to keep pace with Moore's Law. The announcement referenced so-called "7 nanometer and beyond" silicon technology;



0.83

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put in perspective, 7nm technology is three generations of manufacturing into the future from IBM's current flagship processor, the Power8, built with a 22nm process. This is a medium-term bet on management's strategy and the capability of IBM's engineers, which is really difficult to quantify at this point. While Intel has talked about 5nm manufacturing and Applied Materials has even mentioned 3nm, the headwinds are formidable and a lot of the work is exploratory at this point. Importantly, we don't view IBM as making these investments to sit in the mainstream of chips and, if successful, the leading-edge products may only find a home in the premium niche, which means that it probably won't move the needle on our valuation.

### IBM's Investor Day Is Sufficient as Firm Continues to Navigate Challenging Marketplace

Peter Wahlstrom 15 May 2014

We attended IBM's investor briefing in New York on Wednesday, and while we believe management has laid out a realistic long-term vision and is reasonably well positioned, the firm still faces some headwinds. The session could be summarized in a single word, "sufficient"--the same one that CFO Martin Schroeter used to describe the firm's free cash flow realization goal. In a vacuum, the free cash flow conversion rate of 90%-plus could be viewed as quite good, yet when compared with the firm's historical performance over a 3and 10-year period (102% and 110%, respectively), the statement loses some of its luster. There is no update to our financial model or wide economic moat rating following this meeting, and we view the shares as undervalued relative to our \$212 fair value estimate, but still in 3-star territory.

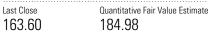
Overall, there were few surprises in IBM's presentation, and management appears to be tweaking its strategy at most. The three overarching themes of data, cloud IT, and engagement were outlined clearly, but management was also frank about some of the challenges that it faces (China and other growth markets and hardware, in particular). From our perspective, IBM's economic moat is derived from switching costs and intangibles that are present in each of the firm's three primary segments (software, services, and hardware). However, it's the combination of these businesses that provides IBM with economies of scale in product development and distribution and an edge in acquiring new customers that reinforces the wide moat around the company.





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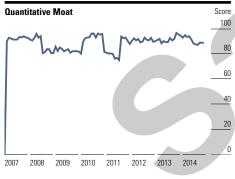
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Quantitative Scores		Score	S	
		All	Rel Sector	Rel Country
Quantitative Moat	Wide	100	100	100
Valuation	Undervalued	53	55	46
Quantitative Uncertainty	Medium	96	98	93
Financial Health	Strong	76	67	76



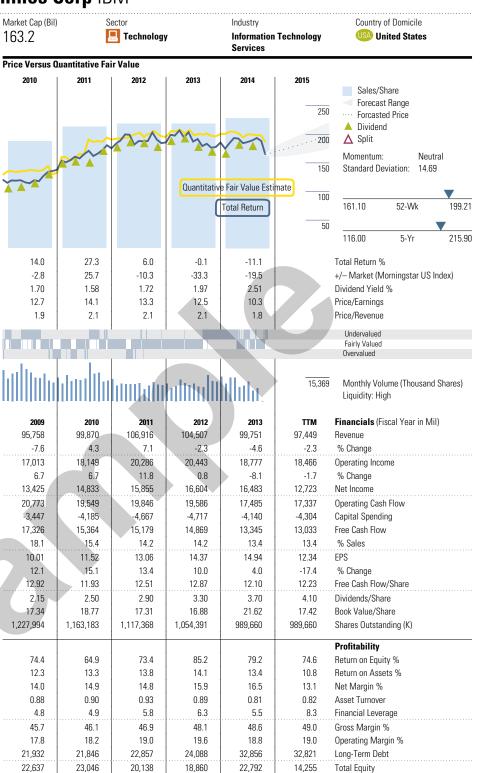
Valuation	0		Sector	Country
	Current	5-Yr Avg	Median	Median
Price/Quant Fair Value	0.88	0.98	0.90	0.86
Price/Earnings	10.3	13.2	19.6	20.2
Forward P/E	9.2	—	14.7	15.3
Price/Cash Flow	10.1	10.5	13.0	12.3
Price/Free Cash Flow	13.4	13.5	18.3	20.9
Dividend Yield %	2.51	1.72	1.71	2.04
Price/Book	9.4	9.2	1.9	2.3
Price/Sales	1.8	2.0	1.3	1.8

Profitability	Current	5-Yr Avg	Sector Median	Country Median
Return on Equity %	95.3	75.4	11.1	12.4
Return on Assets %	14.0	13.4	5.9	5.0
Revenue/Employee (K)	211.9	231.9	390.8	299.9



Financial Health	Current	5-Yr Avg	Sector Median	Country Median
Distance to Default	0.7	0.7	0.6	0.6
Solvency Score	326.5	_	473.6	546.6
Assets/Equity	5.5	5.5	1.6	1.6
Long-Term Debt/Equity	1.4	1.2	0.1	0.3

Growth Per Share				
	1-Year	3-Year	5-Year	10-Year
Revenue %	-4.6	0.0	-0.8	1.1
Operating Income %	-8.2	1.1	3.3	6.4
Earnings %	4.0	9.1	10.9	13.2
Dividends %	12.1	14.0	14.3	19.4
Book Value %	28.1	4.8	16.5	2.9
Stock Total Return %	-5.4	-2.4	8.1	7.6



Quarterly Reve	nue & EPS	S			
Revenue (Bil)	Mar	Jun	Sep	Dec	Total
2014	22.5	24.4	22.4	_	
2013	23.4	24.9	23.7	27.7	99.8
2012	24.7	25.8	24.7	29.3	104.5
2011	24.6	26.7	26.2	29.5	106.9
Earnings Per Sha	are				
2014	2.29	4.12	0.02	_	_
2013	2.70	2.91	3.68	5.73	14.94
2012	2.61	3.34	3.33	5.13	14.37
2011	2.31	3.00	3.19	4.62	13.06

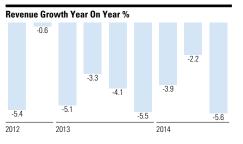
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7.5

7.2

7.8

7.1



Fixed Asset Turns

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6.7



# Morningstar Equity & Credit Research Methodology

### **Fundamental Analysis**

At Morningstar, we believe buying shares of superior businesses at a discount and allowing them to compound over time is the surest way to create wealth in the stock market. The long-term fundamentals of businesses, such as cash flow, competition, economic cycles, and stewardship, are our primary focus. Occasionally, this approach causes our recommendations to appear out of step with the market, but willingness to be contrarian is an important source of outperformance and a benefit of Morningstar's independence. Our analysts conduct primary research to inform our views on each firm's moat, fair value and uncertainty.



#### **Economic Moat**

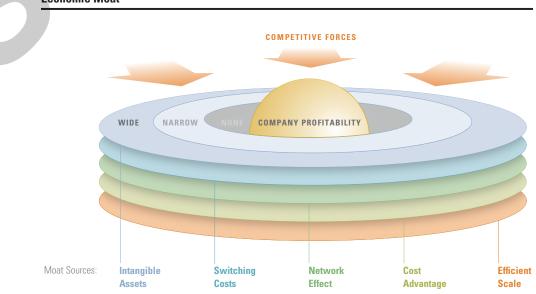
The economic moat concept is a cornerstone of Morningstar's investment philosophy and is used to distinguish high-quality companies with sustainable competitive advantages. An economic moat is a structural feature that allows a firm to sustain excess returns over a long period of time. Without a moat, a company's profits are more susceptible to competition. Companies with narrow moats are likely to achieve normalized excess returns beyond 10 years while wide-moat companies are likely to sustain excess returns beyond 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe lower-quality no-moat companies will see their returns gravitate toward the firm's cost of capital more quickly than companies with moats will. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

#### **Fair Value Estimate**

Our analyst-driven fair value estimate is based primarily on Morningstar's proprietary three-stage discounted cash flow model. We also use a variety of supplementary fundamental methods to triangulate a company's worth, such as sum-of-the-parts, multiples, and yields, among others. We're looking well beyond next quarter to determine the cash-generating ability of a company's assets because we believe the market price of a security will migrate toward the firm's intrinsic value over time. Economic moats are not only an important sorting mechanism for quality in our framework, but the designation also directly contributes to our estimate of a company's intrinsic value through sustained excess returns on invested capital.

### **Uncertainty Rating**

The Morningstar Uncertainty Rating demonstrates our assessment of a firm's cash flow predictability, or valuation risk. From this rating, we determine appropriate margins of safety: The higher the uncertainty, the wider the margin of safety around our fair value estimate before our recommendations are triggered. Our uncertainty ratings are low, medium, high, very high, and extreme. With each uncertainty rating is a corresponding set of price/fair value ratios that drive our recommendations: Lower price/fair value ratios (<1.0) lead to positive recommendations, while higher price/fair value



**Economic Moat** 

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# Morningstar Equity & Credit Research Methodology

ratios (>1.0) lead to negative recommendations. In very rare cases, the fair value estimate for a firm is so unpredictable that a margin of safety cannot be properly estimated. For these firms, we use a rating of extreme. Very high and extreme uncertainty companies tend to have higher risk and volatility.

### **Credit Rating**

The Morningstar Corporate Credit Rating measures the ability of a firm to satisfy its debt and debtlike obligations. The higher the rating, the less likely we think the company is to default on these obligations.

### **Quantitatively Driven Valuations**

To complement our analysts' work, we produce Quantitative Ratings for a much larger universe of companies. These ratings are generated by statistical models that are meant to divine the relationships between Morningstar's analyst-driven ratings and key financial data points. Consequently, our quantitative ratings are directly analogous to our analyst-driven ratings.

Quantitative Fair Value Estimate (QFVE): The QFVE is analogous to Morningstar's fair value estimate for stocks. It represents the per-share value of the equity of a company. The QFVE is displayed in the same currency as the company's last close price.

Valuation: The valuation is based on the ratio of a company's quantitative fair value estimate to its last close price.

Quantitative Uncertainty: This rating describes our level of uncertainty about the accuracy of our quantitative fair value estimate. In this way it is analogous to Morningstar's fair value uncertainty ratings.

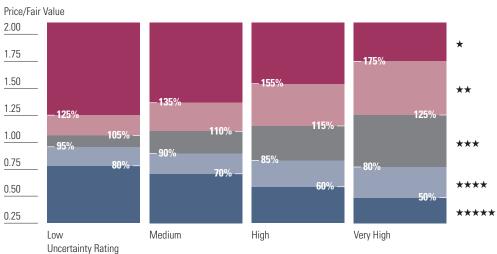
Quantitative Economic Moat: The quantitative moat rating is analogous to Morningstar's analyst-driven economic moat rating in that both are meant to describe the strength of a firm's competitive position.

Financial Health: Financial health is based on Morningstar's proprietary Distance to Default calculation.

### **Understanding Differences Between Analyst** and Quantitative Valuations

If our analyst-driven ratings did not sometimes differ from our quantitative ratings, there would be little value in producing both. Differences occur because our quantitative ratings are essentially a highly sophisticated analysis of the analyst-driven ratings of comparable companies. If a company is unique and has few comparable companies, the quantitative model will have more trouble assigning correct ratings, while an analyst will have an easier time recognizing the true characteristics of the company. On the other hand, the quantitative models incorporate new data efficiently and consistently. Empirically, we find quantitative ratings and analyst-driven ratings to be equally powerful predictors of future performance. When the analystdriven rating and the quantitative rating agree, we find the ratings to be much more predictive than when they differ. In this way, they provide an excellent second opinion for each other. When the ratings differ, it may be wise to follow the analyst's rating for a truly unique company with its own special situation, and follow the quantitative rating when a company has several reasonable comparable companies and relevant information is flowing at a rapid pace.





**Uncertainty Rating** 

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Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
****	163.60 USD	196.00 USD	0.83	2.51	163.21	Information Technology Services	Exemplary
28 Oct 2014	28 Oct 2014			28 Oct 2014	28 Oct 2014		

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The Morningstar Rating for stocks identifies stocks trading at a discount or premium to their intrinsic value. Five-star stocks sell for the biggest risk-adjusted discount whereas one-star stocks trade at premiums to their intrinsic value. Based on a fundamentally focused methodology and a robust, standardized set of procedures and core valuation tools used by Morningstar's Equity Analysts, four key components drive the Morningstar Rating: 1. Assessment of the firm's economic moat, 2. Estimate of the stock's fair value, 3. Uncertainty around that fair value estimate and 4. Current market price. Further information on Morningstar's methodology is available from http://global.morningstar.com/equitydisclosures.

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