HCA, Inc.

Ties that Bind: How HCA's Big Data Transforms Care

Summary

A data set by itself, even if as extensive as HCA's, is useless unless knowledge from analysis of that data is tightly bound to process change. We learned that, and a lot more, at the MSUSA Big Data Day at HCA at the company yesterday. The key point: In our view, 'only HCA' has the excellence in operations AND scale to drive improvement in both care and costs. Buy, $102 PT.

Key Points

The promise of data mining made real: With the advent of EHRs and meaningful use, HCA's already extensive clinical database exploded, adding useful datapoints on millions of patient encounters. Then, natural language processing technology matured enough so that clinical notes could be efficiently processed, queried and analyzed to allow clinicians to understand what happened, why it happened and, most importantly, to identify and analyze those processes and outcomes that are 'good.' HCA invested in the technology and people (data science is alive and well in Nashville) to build an impressive set of real-time tools, dashboards and clinical practice change initiatives that is tightly bound to operating paradigms. In short, big data 'works' (to improve care, outcomes and margins) only because it is tightly bound to and embraced by the clinicians and operating teams and because it is implemented by more than 90 Chief Medical Officers, a position that HCA appears to value much more highly (and imbue with much more responsibility and capability) than its peers.

As a result of the investments made over the last 2.5 years, HCA has not only identified areas of cost savings, but is also able to predict which patients will be at risk for complications and implement best practice protocols that are also informed by analysis of its clinical data. Better care means better margins. It also means happier nurses and doctors (the data shows that nurses have a big influence on outcome), lower turnover and, more importantly, it drives referrals of more complex patients, a virtuous circle.

We've asked HCA before why its margins are so high (and why they are sustainable). Big Data day confirmed what we knew before: HCA's very scale makes its Big Data advantage possible - but it is only an 'advantage' because HCA's ops teams, led by CMOs, embrace and implement the tools that lead to rapid process change. Data unbound to ops is useless. Tightly bound, Big Data and operating excellence create a potentially unmatched competitive advantage. As we've said before: There's HCA....and everybody else. Reiterate Buy and $102 PT.

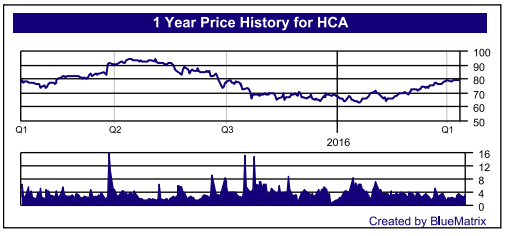
Rating	**Buy**
Previous Rating	No Change
Price (4/12)	**$79.78**
Price Target	**$102.00**
Previous Price Target	No Change

Key Data

Symbol	HCA (NYSE)
52-Week Range	$95.49 - $43.91
Market Cap ($mm)	$31,574
Shares Outstanding (mm)	395.8
Float	335.1
Average Daily Volume	3,558,231
Dividend/Yield	$0.00/0.0%

Fiscal Year-End: Dec 31

	2014A	2015A Prior	2015A Curr	2016E Prior	2016E Curr
Revenue ($bn) Diluted					
1Q	8.8A	–	9.7A	–	10.5E
2Q	9.2A	–	9.9A	–	10.5E
3Q	9.2A	–	9.9A	–	10.1E
4Q	9.6A	–	10.2A	–	10.6E
Yr	**36.9A**	**–**	**39.7A**	**–**	**41.8E**
P/ Revenue	0.9x	–	0.8x	–	0.8x
Earnings per Share ($) Non-GAAP Diluted					
1Q	0.85A	–	1.36A	–	1.68E
2Q	1.37A	–	1.37A	–	1.64E
3Q	1.18A	–	1.17A	–	1.33E
4Q	1.33A	–	1.69A	–	1.81E
Yr	**4.72A**	**–**	**5.56A**	**–**	**6.45E**
P/E	16.9x	–	14.3x	–	12.4x
EBITDA ($bn) Adjusted					
1Q	1.64A	–	1.96A	–	2.15E
2Q	2.01A	–	2.00A	–	2.17E
3Q	1.83A	–	1.82A	–	1.93E
4Q	1.96A	–	2.13A	–	2.25E
Yr	**7.43A**	**–**	**7.92A**	**–**	**8.49E**



Sheryl R. Skolnick, Ph.D.
+1 212 205 7853
Sheryl.Skolnick@us.mizuho-sc.com

Why, Who and What?

Last August, MSUSA spent a day and a half with HCA management in New York visiting with investors. That gave us an opportunity to spend some quality time with management, particularly CEO Milton Johnson. HCA knew of our interest in Optum: indeed, early on in our coverage of Optum/UNH (perhaps even as far back as 2011), we had stressed to HCA that it really needed to understand what Optum was doing to 'transform health care.' So it was natural that HCA would tell us about its own 'big data' initiative. Clearly Milt was excited about the project and so were we: we immediately understood the power of clinical, rather than claims, data to improve quality through better protocols based on hard evidence rather than educated guesses. It wasn't lost on us that HCA had already been leveraging its scale of millions of patients seen per year to effectively do in-house clinical trials. It also wasn't lost on us that if HCA managed to get natural language clinical notes analyzed and processed through technologies linked to Hadoop (as DOR we learned a lot from our colleague Abhey Lamba's coverage of Hortonworks, for example, and then followed up on that with Optum's chief data scientist too) that allow for very efficient processing of and the ability to query unstructured data. HCA invited us to come for a visit to 'see' its data initiatives in action and we readily accepted. That Big Data Day was yesterday.

A Physician-Led Initiative: That Matters in Practice

HCA's Big Data program is led by two impressive physicians: Dr. Jonathan Perlin, President Clinical Services & Chief Medical Officer of HCA and Dr. Ravi Chari, SVP – Clinical Excellence. What those titles don't reveal is that Dr. Perlin is probably the nation's most experienced and respected quality expert, having built a career on using data-driven systems to drive excellence in care delivery and Dr. Chari was a world-renowned liver transplant surgeon before making the transition to corporate executive. It is his job to actually change care: "Care itself is malleable." The team's lead data scientist is Edmund Jackson, Ph.D., HCA's VP of Data Analytics. Those three, in addition to CEO Johnson and the indispensable Mark Kimbrough rounded out the HCA executive team presenting to us.

The point here is that data is only as good as what is done with it and if doctors don't change behavior, patients and hospitals can't benefit from the understanding of what makes for 'good' care that comes from the analysis of that data. In other words, physician leadership is critical to success.

That leadership can't come just from the top of the organization, however. Those familiar with health care know that cramming practice change down doesn't work.

That's why HCA restructured, invested in and elevated the local and regional Chief Medical Officer positions as part of this process. These empowered physicians are the ones who actually are implementing change through processes that work with doctors (benchmarking, highlighting implications and changes suggested by the data, etc.). While the data analysis must be rigorous, the process of changing doc behavior has to be fluid and suggestive: docs have to be led to draw the right conclusions for

themselves, but when they see analytics and outcome improvements in the black and white form delivered by digital medicine (data), they embrace the change. The newer generation of docs is likely also to be increasingly data-driven, but they'll also likely continue to prefer to have a doctor tell them what they're doing could be improved, not an MBA.

Thus, the interface between the data and the doc is important: HCA acquired PatientKeeper software to sit on top of the underlying clinical data system in order to create a single interface across all hospitals in the system (and potentially to allow HCA to acquire hospitals on non-Meditech systems). It uses a series of dashboards that access both static historic and real time data for each of the physician's patients and is a very powerful tool. And, physicians who use it get, on average, 40 minutes per day back by using the tool and find it easier to achieve better patient outcomes: better care, lower costs.

Don't Leave Nurses Out of the Equation

It turns out that the data shows that nurses affect outcomes more than doctors in many cases. While that's intuitively obvious, hospitals frequently aren't run that way, so sometimes data analysis is needed to change that behavior too. ICU outcomes are particularly sensitive to the quality of nursing care, for example. HCA has integrated nursing leadership into its Big Data process change initiatives under the care of Jane Englebright, RN, Ph.D, the company's Chief Nursing Officer. Real time and static dashboards are available and nurses too have a single interface, iMobile, which allow them to access patient information real time.

Bind Data to Ops

Another physician, Dr. Tom Garthwaite, is HCA's COO of its Clinical Services group, the entity that melds clinical data initiatives to operations. This is the place where HCA implements practice changes informed by its data-driven analysis. The team develops and implements models for the optimization of inpatient care: one such model is in diabetes – and with 25% of HCA's patients having that condition, improvements in the process of care for that population will matter.

What is HCA Doing?

Lots of hospitals have looked at their data and changed practices, but most of that work has been done in the context of managing supply costs and, to some extent, identifying high cost/low quality physicians and working with them to change their practice protocols. HCA's approach is both similar and, we think, vastly different.

First, HCA is huge. It is a health care economy by itself. It has more than 8 million ER visits per year, it engages with more than 30,000 physicians on a regular basis and more than one in five babies are born each year in one of its hospitals. The amount of clinical data, the extent of conditions seen and treated and the variations in practice patterns across that economy create a view of clinical practice that is unmatched anywhere else in the hospital sector. That alone would differentiate any data initiative that HCA might undertake.

Second, HCA doesn't only rely on the structured databases created by its clinical IT systems. It has invested in 'data science' and natural language processing (NLP) capabilities. For the health care investor unfamiliar with what this means, we'll digress for a minute: doctors notes can't be mined by traditional structure database analysis tools. They're in 'English.' But those notes are a goldmine: that's where the variation insight can be found. And variation is the enemy of quality and cost control. Historically, analyzing handwritten notes or even typewritten notes inside of a medical record has required vast amounts of computing power and generated limited success because of the importance of context (the same word in a different context has a different meaning, which is really hard to distinguish without sophisticated tools – and those tools didn't exist until fairly recently). But that's where all the juicy insight is into practice variation and outcomes. It's those observations of the patient that provide the leap forward in the development of better practice protocols (in large part). The natural language processing tools of today allow for very fast, cost effective processing of large amounts of unstructured data, including the ability to distinguish context.

As an aside, HCA isn't the only entity using NLP in the analysis of health information. Optum does too. More on that topic later in this report.

Scale plays a role here too: For the inferences to be robust from both structured and unstructured data, the database has to not only be big enough, but subsections of the data have to be big enough to create appropriate samples. That's one of the reasons why, we think, the combination of traditional and NLP techniques works at HCA: it should allow HCA to not only derive robust change implications for common conditions, it likely treats enough of the less common conditions to drive process change there too.

Third, HCA moving beyond what happened and why it happened (practice variation, for example) to predicting what will happen. With big data, big skills and an investment in data scientists already done, HCA is building predictive modelling capabilities. It's important to know, for example, which patients are likely to become septic or have MRSA. But knowing isn't enough…it has to translate into taking action in order to affect patient outcomes. And that's where the fourth initiative comes in.

Fourth, data and analytics are tied tightly to operations. It isn't enough to know: one has to 'do.' HCA has therefore undergone a cultural maturation: it isn't really a cultural change because HCA has long been focused on quality improvement as 'good business,' and has the quality metrics track record to prove it. Elevating the importance of the CMO position is one example of what we mean. Historically, the CMO position was often given to a leading source of referrals (not just at HCA) to recognize the doctor's importance to the hospital (presumably in a Stark-compliant way). It was, however, a position held separate from operations: CMOs led the physician staff and the hospital CEO led everyone else, often with an uneasy truce between the two as profits warred with practice. HCA has changed that: the physician leadership of the data initiative, coupled with the operating mantra that

'good care is good business' is emblematic of the change, in our view. The CMOs are now an integral part of the drive to improve hospital operations and profits by improving care, driven in large part by Big Data. Operating executives, led by Sam Hazen, are fully committed and incentivized to implementing operating changes that support the care process changes. Operators, administrators and clinicians are all accountable for improvements in care.

Data Points from Big Data: Saving Lives and Money

HCA took us through several initiatives driven by the Big Data program. The company has undertaken, for example, to optimize the use of blood products as the data led the company to develop a best practice protocol and dashboard tools to limit the number of transfusions done with hematocrit levels higher than 7. This reduces complications and costs. The sepsis program is even more advanced and is moving into the predictive modelling stage (although the human sepsis coordinators at the hospital are so far equally good at identifying patients with sepsis, the tool identified the patients BEFORE they got sepsis). Other similar programs are ongoing.

Some hard data points are interesting: HCA estimates that since 2013 its process improvements have saved 5,488 lives and $194 million has been saved since 2012.

Bundling: HCA's Data Limitations

HCA is a hospital company. So it has hospital data and data from its outpatient services lines on every patient encounter over the last three years at least. But what it doesn't have is post-acute patient data of its own. It has discharges to post-acute or home and the discharge instructions. It has the ability to predict which patients will fall into the two bundled DRGs for CJR/hips & knees. And it has readmit data (on which patients, doctors and sites of care ended up back in an HCA bed. But it doesn't have data on what was done inside the post-acute setting (facility or home) and has to rely on Medicare for a lot of its post-acute data. Thus, HCA can't yet use its vast data to fully understand what happens to its joint patients post discharge. It likely has enough to avoid the worst sources for readmits, but it doesn't have the kind of outcome and predictive data that we think it would like to have to best predict specific providers to engage as partners in post-acute care under bundling.

Still, we think it has enough data to use the first no-harm-no-foul year of CJR and enough analytical capability to avoid the worst providers and begin to build knowledge about the best. We believe further that HCA could seek data partners who can provide it with more insight (even from claims data) to build a more robust set of discharge plans, protocols and post-acute networks.

HCA's Big Data versus Optum's

The question is a natural one: how is what HCA is doing with data the same or different from Optum? The answer is a simple one: same end goal, different inputs. HCA has patient clinical data. Optum's database is largely (not exclusively) built from claims. Which one is better? Clinical data is 'better,' but again it's only better if

the operators implement changes driven by the analysis. Clinical data shows the outcome and how we got there. Claims data tells us how much it cost and can be used to analyze and identify patterns of best and worst practices. Claims data, such as the humongous amount at Optum, also spans multiple providers and settings, whereas HCA's clinical data 'only spans' the populations within HCA.

Can you imagine what would result if the two were put together? We can.

What We Did NOT Discuss

We did NOT discuss 1Q16 in any way, shape or form. The company hadn't reported or previewed yet (and hasn't as of this writing) and a precondition to the CEO's presence at this meeting was the blindingly obvious fact that we would not discuss or ask about the quarter.

This project is CEO Johnson's 'baby.' It's his signature initiative. We wanted him there. The fact that everyone involved (clinical and operations) knows that it's his particular focus just elevates the importance of it and their commitment to implementing the changes driven by the data. We didn't want to miss that 'flavor' in this meeting and we're delighted and grateful that HCA agreed to allow him to be present at our meeting.

Summary and Final Thoughts

Big Data Day was never about near-term results. We make no changes to our estimates or our valuation thoughts (see the exhibit below). This meeting was always designed as a 'deep dive' analyst due diligence session that we wanted because this is what we do: dig into our companies and figure out what makes them tick. The import of this initiative cannot, in our view, be understated, but it will only be embedded in and supportive of near-term results. Simply put, there are many factors that distinguish HCA from its peers: leveraging its scale is one of them and nothing leverages its scale more than this Big Data program. More importantly, we think that Big Data will likely enable HCA to sustain its margin superiority over its peers, especially as the health care system moves toward value-based and quality-driven payment systems. This puts HCA far ahead of peers, in our view. But don't interpret that to mean that HCA will be taking massive amounts of population risk any time soon, even though Big Data probably prepares them as well or better than peers: HCA won't embrace a nascent, ill-defined concept like 'taking risk' until its either better refined or absolutely necessary. As 'taking risk' is neither well-defined nor necessary at this time, why should HCA change? We can't think of a good reason to do so today.

Exhibit 1: Valuation

$ in Millions, Mizuho Securities Estimates	2014A	2015A	2016E
Revenue	$ 36,918	$ 39,678	$ 41,755
EBITDA	$ 7,428	$ 7,915	$ 8,496
EBITDA Margin	20.1%	19.9%	20.3%
Growth rate			
EBITDA Less Minority Interest	$ 6,930	$ 7,348	$ 7,896
EBITDA Less MI Margin	18.8%	18.5%	18.9%
Growth rate	13.0%	6.0%	7.5%
Cash Revenue			
Cash EBITDA Margin			
Cash EBITDA Less MI Margin			
Free Cash Flow (CFFO less Capex less Minority Distributions)	**$ 1,830**	**$ 1,864**	**$ 2,114**
Current Share Price	**$ 79.78**	**$ 79.78**	**$ 79.78**
Target Price	**$ 102.00**	**$ 102.00**	**$ 102.00**
Net Debt at end-of-period, ending cash	29,079	29,747	29,907
Market Cap at current price	$ 35,929	$ 34,044	$ 32,231
NCI	$ 1,396	$ 1,553	$ 1,553
Enterprise value at current price: ending cash, including NCI	$ 66,404	$ 65,344	$ 63,691
EV at current price EXCLUDING NCI	**$ 65,008**	**$ 63,791**	**$ 62,138**
EV including NCI/EBITDA @ current price	**8.9x**	**8.3x**	**7.5x**
EV excluding NCI/EBITDA less NCI @ current price	**9.4x**	**8.7x**	**7.9x**
Market Cap at Target Price	$ 45,936	$ 43,526	$ 41,208
EV including NCI at Target Price	$ 76,411	$ 74,826	$ 72,668
EV excluding NCI at Target Price	$ 75,015	$ 73,273	$ 71,115
EV including NCI/EBITDA @ Target Price	**10.3x**	**9.5x**	**8.6x**
EV excluding NCI/EBITDA less NCI @ Target Price	**10.8x**	**10.0x**	**9.0x**
EPS	**$4.71**	**$5.56**	**$6.45**
YOY % Change		**18%**	**15.9%**
P/E at current price	**16.9**	**14.4**	**12.4**
P/E at target price	**21.6**	**18.3**	**15.8**
PEG at target price		**1.02**	**0.99**
FCF per share	**$4.06**	**$4.37**	**$5.23**
P/FCF per share at current price	19.6	18.3	15.2
FCF yield at current price	**5.1%**	**5.5%**	**6.6%**

Source: Company reports and MSUSA estimates

Exhibit 2: Income Statement Model

FY DEC ($'s in millions, except EPS)	1Q15A	2Q15A	3Q15A	4Q15A	2015A	1Q16E	2Q16E	3Q16E	4Q16E	2016E	2017E	2018E
Revenues	**$ 10,322**	**$ 10,932**	**$ 11,014**	**$ 11,323**	**$ 43,591**	**$ 11,500**	**$ 11,525**	**$ 11,350**	**$ 11,800**	**$ 46,175**	**$ 48,000**	**$ 50,100**
% change year over year (yoy) excluding rural floo	*6.60%*	*9.78%*	*10.38%*	*8.17%*	*8.74%*	*4.41%*	*4.64%*	*3.05%*	*4.21%*	*5.93%*	*3.95%*	*4.38%*
Provision for doubtful accounts	646	1,035	1,158	1,074	3,913	989	1,026	1,249	1,156	4,420	4,704	4,960
Cash Revenue	**$ 9,676**	**$ 9,897**	**$ 9,856**	**$ 10,249**	**$ 39,678**	**$ 10,511**	**$ 10,499**	**$ 10,102**	**$ 10,644**	**$ 41,755**	**$ 43,296**	**$ 45,140**
	9.6%	7.2%	6.9%	6.4%	7.5%	6.6%	6.5%	2.5%	3.9%	5.2%	3.7%	4.3%
Salaries, wages and benefits	4,398	4,492	4,619	4,606	18,115	4,772	4,761	4,692	4,779	19,005	19,591	20,448
Supplies	1,638	1,670	1,644	1,686	6,638	1,776	1,759	1,677	1,740	6,952	7,144	7,493
Other operating expenses	1,717	1,755	1,796	1,835	7,103	1,839	1,837	1,818	1,884	7,379	7,728	8,035
HITECH Other (Income)	(19)	(18)	(9)	(1)	(47)	(15)	(15)	(5)	(5)	(40)	(10)	-
Investment income/(equity)or loss in affiliates	(19)	(10)	(9)	(8)	(46)	(15)	(8)	(7)	(6)	(36)	(30)	(70)
Guidance Basis EBITDA	***1,961***	***2,008***	***1,815***	***2,131***	***7,915***	***2,153***	***2,165***	***1,926***	***2,251***	***8,496***	***8,872***	***9,233***
EBITDA Less Minority Interest	***1,832***	***1,850***	***1,691***	***1,975***	***7,348***	***2,018***	***2,000***	***1,786***	***2,091***	***7,896***	***8,147***	***8,483***
Depreciation and amortization	473	469	482	480	1,904	485	486	487	488	1,946	2,000	2,100
EBIT	***1,488***	***1,539***	***1,333***	***1,651***	***6,011***	***1,668***	***1,679***	***1,439***	***1,763***	***6,550***	***6,872***	***7,133***
Interest expense	419	425	411	410	1,665	425	435	440	450	1,750	1,725	1,700
Non-recurring expense/debt exting charge/impairme	(9)	130	79	189	389	-	-	-	-	-	-	-
Pre-tax from cont. ops.	***1,078***	***984***	***843***	***1,052***	***3,957***	***1,243***	***1,244***	***999***	***1,313***	***4,800***	***5,147***	***5,433***
Provision for taxes	358	319	270	314	1,261	421	410	327	438	1,596	1,681	1,780
Income from cont. ops.	***720***	***665***	***573***	***738***	***2,696***	***822***	***834***	***673***	***875***	***3,204***	***3,467***	***3,654***
Minority interests	129	158	124	156	567	135	165	140	160	600	725	750
Net income	***$ 591***	***$ 507***	***$ 449***	***$ 582***	***$ 2,129***	***$ 687***	***$ 669***	***$ 533***	***$ 715***	***$ 2,604***	***$ 2,742***	***$ 2,904***
EPS attributable to HCA before charges	**$1.36**	**$1.37**	**$1.17**	**$1.69**	**$5.56**	**$1.68**	**$1.64**	**$1.33**	**$1.81**	**$6.45**	**$7.03**	**$7.64**
EPS attributable to HCA	$1.36	$1.18	$1.05	$1.40	$4.99	$1.68	$1.64	$1.33	$1.81	$6.45	$7.03	$7.64
Weighted average shares, f.d.	435.3	429.4	426.4	415.9	426.7	410.0	408.0	402.0	396.0	404.0	390.0	380.0
Notes:												
Expense ratios												
Salary & benefit expense	45.45%	45.39%	46.86%	44.94%	45.66%	45.40%	45.35%	46.45%	44.90%	45.51%	45.25%	45.30%
Supplies expense	16.93%	16.87%	16.68%	16.45%	16.73%	16.90%	16.75%	16.60%	16.35%	16.65%	16.50%	16.60%
Other operating expenses	17.74%	17.73%	18.22%	17.90%	17.90%	17.50%	17.50%	18.00%	17.70%	17.67%	17.85%	17.80%
Provision for doubtful accounts	6.26%	9.47%	10.51%	9.49%	8.98%	8.60%	8.90%	11.00%	9.80%	9.57%	9.80%	9.90%
EBITDA Margin	**20.27%**	**20.29%**	**18.42%**	**20.79%**	**19.95%**	**20.49%**	**20.62%**	**19.07%**	**21.15%**	**20.35%**	**20.49%**	**20.46%**
EBITDA Less Minority Interest Margin	**18.93%**	**18.69%**	**17.16%**	**19.27%**	**18.52%**	**19.20%**	**19.05%**	**17.68%**	**19.65%**	**18.91%**	**18.82%**	**18.79%**
Income before fixed charges	**20.27%**	**20.29%**	**18.42%**	**20.79%**	**19.95%**	**20.49%**	**20.62%**	**19.07%**	**21.15%**	**20.35%**	**20.49%**	**20.46%**
Depreciation & amortization	4.89%	4.74%	4.89%	4.68%	4.80%	4.61%	4.63%	4.82%	4.58%	4.66%	4.62%	4.65%
Interest expense, net	4.33%	4.29%	4.17%	4.00%	4.20%	4.04%	4.14%	4.36%	4.23%	4.19%	3.98%	3.77%
Pre-tax from cont. ops.	**11.14%**	**9.94%**	**8.55%**	**10.26%**	**9.97%**	**11.83%**	**11.85%**	**9.89%**	**12.34%**	**11.50%**	**11.89%**	**12.04%**
Tax rate	33.21%	32.42%	32.03%	29.85%	31.87%	38.00%	38.00%	38.00%	38.00%	33.25%	38.00%	38.00%
Net margin	**7.44%**	**6.72%**	**5.81%**	**7.20%**	**6.79%**	**7.82%**	**7.94%**	**6.66%**	**8.22%**	**7.67%**	**8.01%**	**8.09%**

Source: Company reports & Mizuho Securities estimates

Source: Company reports and MSUSA estimates

Price Target Calculation and Key Risks

Our valuation of $102 is based on 9.0x our 2016E EV/EBITDA less NCI, a P/E of 16x our $6.45 2016E EPS, for a PEG of 1.0x, blended with our target FCF yield of 5%. The average of these methods yields our $102 PT, which is also consistent with our $105 value from DCF model using a 4.9% WACC (per Bloomberg) and a 1% terminal growth rate. We believe HCA should trade at the high-end of historical EV/EBITDA trends from 2000-2007 given its clear leadership in FCF generation and the continuing growth opportunities that FCF supports, coupled with the potential EPS accretion from the recently announced $3B share repurchase.

Risks to valuation include pricing pressure from government and private payors, continued soft volume growth, further deterioration of bad debt, competition for acquisitions, increasing labor costs and labor market shortages, HITECH payment risk, a levered balance sheet and the implementation of all of the provisions of the ACA.

Companies Mentioned (prices as of 4/12)
Hortonworks, Inc. (HDP- Buy $11.57)
UnitedHealth Group Incorporated (UNH- Buy $126.80)

IMPORTANT DISCLOSURES

The disclosures for the subject companies of this report as well as the disclosures for Mizuho Securities USA Inc. entire coverage universe can be found at https://msusa.bluematrix.com/sellside/Disclosures.action or obtained by contacting EQSupervisoryAnalystUS@us.mizuho-sc.com or via postal mail at Equity Research Editorial Department, Mizuho Securities USA Inc., 320 Park Avenue, 12th Floor, New York NY, 10022.

Ownership Disclosures and Material Conflicts of Interest or Position as Officer or Director

None

Receipt of Compensation

Mizuho Securities USA Inc. and or its affiliates makes a market in the following securities: HCA, Inc., Hortonworks, Inc. and UnitedHealth Group Incorporated

Mizuho Securities USA Inc. and or its affiliates has received compensation for investment banking services for HCA, Inc. and UnitedHealth Group Incorporated in the past 12 months.

Mizuho Securities USA Inc. and or its affiliates expects to receive or intends to seek compensation for investment banking services for HCA, Inc. and UnitedHealth Group Incorporated in the next 3 months.

Mizuho Securities USA Inc. and or its affiliates has managed or co-managed a public offering of securities for HCA, Inc. and UnitedHealth Group Incorporated in the past 12 months.

Mizuho Securities USA Inc. has provided non-investment banking securities-related services for UnitedHealth Group Incorporated who is or was a client in the past 12 months.
The compensation of the research analyst writing this report, in whole or part, is based on MSUSA's annual revenue and earnings and is not directly related to any specific investment banking compensation. MSUSA's internal policies and procedures prohibit research analysts from receiving compensation from companies covered in the research reports.

Regulation Analyst Certification (AC)

I, Sheryl R. Skolnick, hereby certify that the views expressed in this research report accurately reflect my personal views about any and all the subject companies. No part of my compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this research report.

Rating Definitions

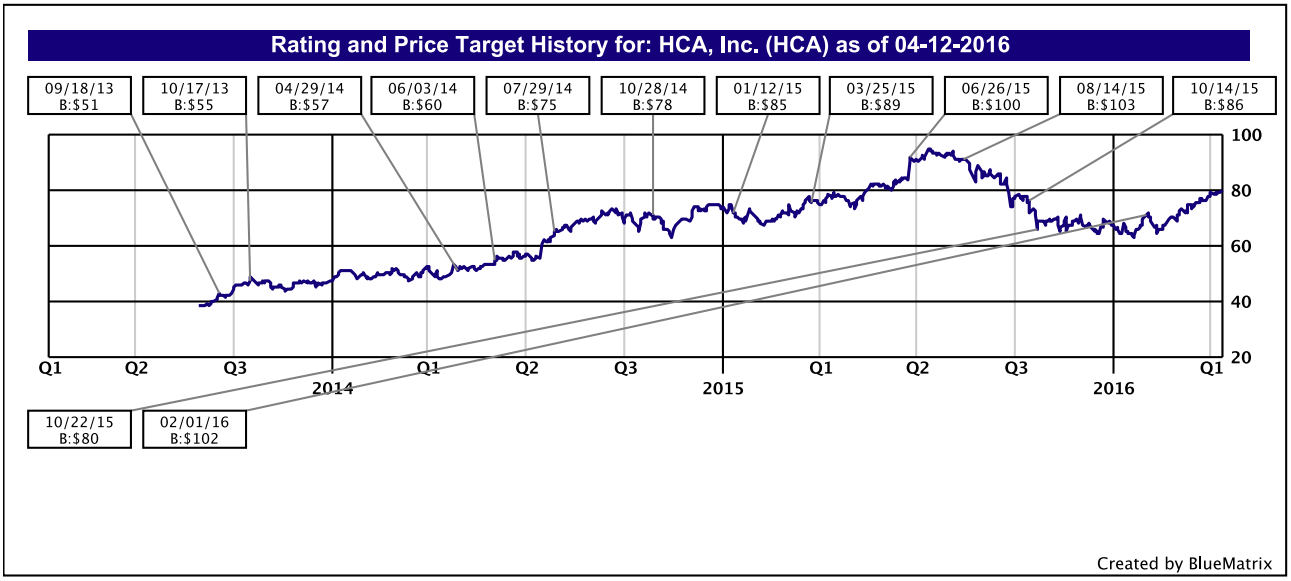
Mizuho Securities USA investment ratings are based on the following definitions. Anticipated share price change is based on a 6- to 12-month time frame. Return expectation excludes dividends.

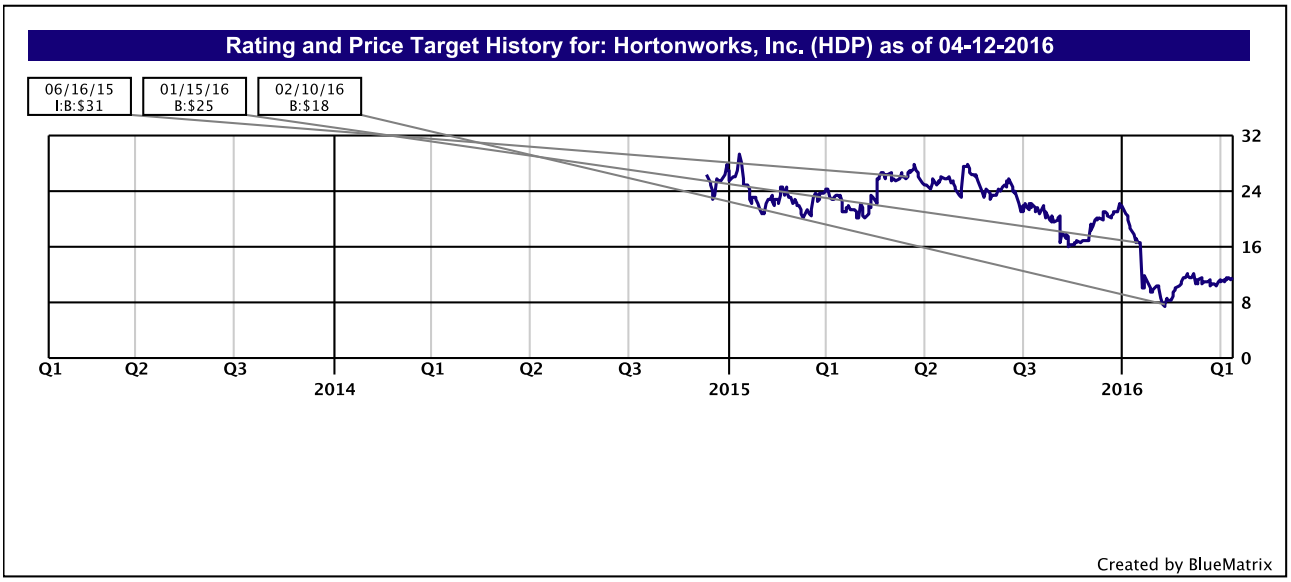
Buy:	Stocks for which the anticipated share price appreciation exceeds 10%.
Neutral:	Stocks for which the anticipated share price appreciation is within 10% of the share price.
Underperform:	Stocks for which the anticipated share price falls by 10% or more.
RS:	Rating Suspended - rating and price objective temporarily suspended.
NR:	No Rating - not covered, and therefore not assigned a rating.

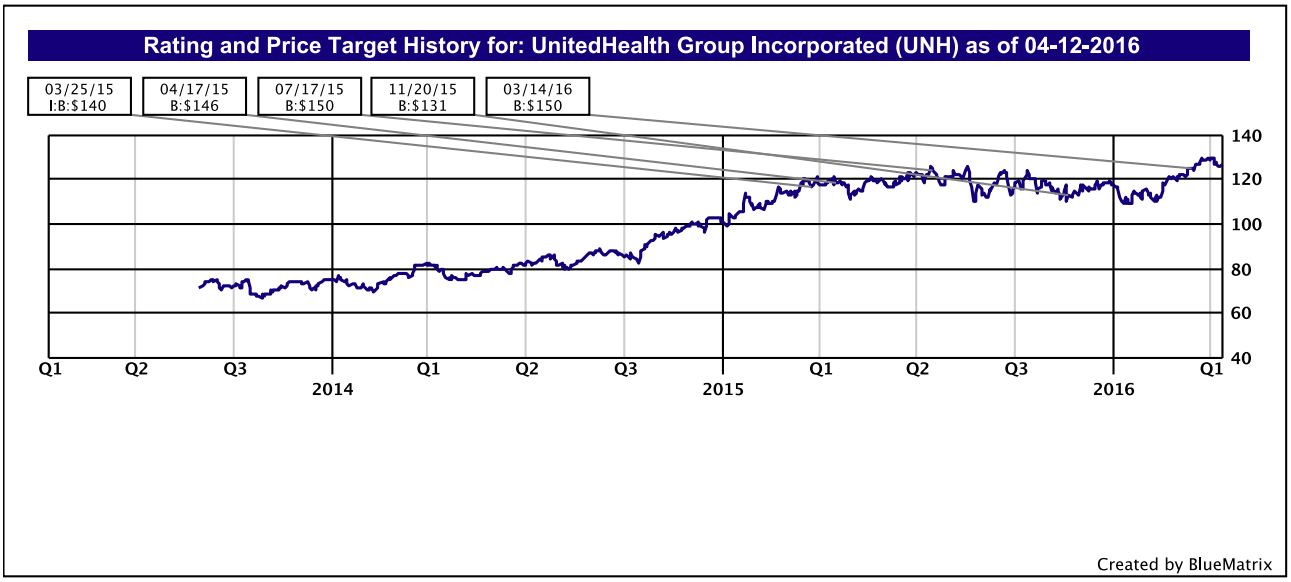
Rating Distribution

(As of 4/12)	% of coverage	IB service past 12 mo
Buy (Buy)	50.26%	35.42%
Hold (Neutral)	48.17%	25.00%
Sell (Underperform)	1.57%	33.33%

For disclosure purposes only (NYSE and FINRA ratings distribution requirements), our Buy, Neutral and Underperform ratings are displayed as Buy, Hold and Sell, respectively.


Rating and Price Target History for: HCA, Inc. (HCA) as of 04-12-2016
09/18/13 B:$51
10/17/13 B:$55
04/29/14 B:$57
06/03/14 B:$60
07/29/14 B:$75
10/28/14 B:$78
01/12/15 B:$85
03/25/15 B:$89
06/26/15 B:$100
08/14/15 B:$103
10/14/15 B:$86
10/22/15 B:$80
02/01/16 B:$102
100
80
60
40
20
Q1 Q2 Q3 Q1 Q2 Q3 Q1 Q2 Q3 Q1
2014
2015
2016
Created by BlueMatrix


Rating and Price Target History for: Hortonworks, Inc. (HDP) as of 04-12-2016
06/16/15 I:B:$31
01/15/16 B:$25
02/10/16 B:$18
32
24
16
8
0
Q1 Q2 Q3 Q1 Q2 Q3 Q1 Q2 Q3 Q1
2014
2015
2016
Created by BlueMatrix


Rating and Price Target History for: UnitedHealth Group Incorporated (UNH) as of 04-12-2016
03/25/15 I:B:$140
04/17/15 B:$146
07/17/15 B:$150
11/20/15 B:$131
03/14/16 B:$150
140
120
100
80
60
40
Q1 Q2 Q3 Q1 Q2 Q3 Q1 Q2 Q3 Q1
2014
2015
2016
Created by BlueMatrix

For additional information: Please log on to http://www.mizuhosecurities.com/us or write to Mizuho Securities USA, 320 Park Ave, 12th FL, New York, NY 10020.

Disclaimers

This report has been prepared by Mizuho Securities USA Inc. ("MSUSA"), a subsidiary of Mizuho Securities Co., Ltd. ("MHSC"), solely for the purpose of supplying information to the clients of MSUSA and/or its affiliates to whom it is distributed. This report is not, and should not be construed as, a solicitation or offer to buy or sell any securities or related financial products.

This report has been prepared by MSUSA solely from publicly available information. The information contained herein is believed to be reliable but has not been independently verified. MSUSA makes no guarantee, representation or warranty, and MSUSA, MHSC and/or their affiliates, directors, employees or agents accept no responsibility or liability whatsoever as to the accuracy, completeness or appropriateness of such information or for any loss or damage arising from the use or further communication of this report or any part of it. Information contained herein may not be current due to, among other things, changes in the financial markets or economic environment. Opinions reflected in this report are subject to change without notice.

This report does not constitute, and should not be used as a substitute for, tax, legal or investment advice. The report has been prepared without regard to the individual financial circumstances, needs or objectives of persons who receive it. The securities and investments related to the securities discussed in this report may not be suitable for all investors, and the report is intended for distribution to Institutional Investors. Readers should independently evaluate particular investments and strategies, and seek the advice of a financial adviser before making any investment or entering into any transaction in relation to the securities mentioned in this report.

MSUSA has no legal responsibility to any investor who directly or indirectly receives this material. Investment decisions are to be made by and remain as the sole responsibility of the investor. Investment involves risks. The price of securities may go down as well as up, and under certain circumstances investors may sustain total loss of investment. Past performance should not be taken as an indication or guarantee of future performance. Unless otherwise attributed, forecasts of future performance represent analysts' estimates based on factors they consider relevant. Actual performance may vary. Consequently, no express or implied warranty can be made regarding future performance.

Any references in this report to Mizuho Financial Group, Inc. ("MHFG"), MHSC and/or its affiliates are based only on publicly available information. The authors of this report are prohibited from using or even obtaining any insider information. As a direct subsidiary of MHSC and indirect subsidiary of MHFG, MSUSA does not, as a matter of corporate policy, cover MHFG or MHSC for investment recommendation purposes.

MSUSA or other companies affiliated with MHFG or MHSC, together with their respective directors and officers, may have or take positions in the securities mentioned in this report, or derivatives of such securities or other securities issued by companies mentioned in this report, for their own account or the accounts of others, or enter into transactions contrary to any recommendations contained herein, and also may perform or seek to perform broking and other investment or securities related services for the companies mentioned in this report as well as other parties generally.

Restrictions on Distribution

This report is not directed to, or intended for distribution to or use by, any person who is a citizen or resident of, or entity located in, any locality, territory, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to or restricted by law or regulation. Persons or entities into whose possession this report comes should inform themselves about and observe such restrictions.

United States: Mizuho Securities USA Inc., a member of the MHSC Group, 320 Park Avenue, 12th Floor, New York, NY 10022, USA, contact number +1-212-209-9300, distributes or approves the distribution of this report in the United States and takes responsibility for it. Any transaction by a US investor resulting from the information contained in this report may be effected only through MSUSA. Interested US investors should contact their MSUSA sales representative.

United Kingdom/European Economic Area: This report is distributed or has been approved for issue and distribution in the UK by Mizuho International plc ("MHI"), Bracken House, One Friday Street, London EC4M 9JA, a member of the MHSC Group. MHI is authorized and regulated by the Financial Services Authority and is a member of the London Stock Exchange. For the avoidance of doubt this report is not intended for retail clients. This report may be distributed in other member states of the European Union.

Japan: This report is distributed in Japan by Mizuho Securities Co., Ltd. ("MHSC"), Otemachi First Square Otemachi 1-chome, Chiyoda-ku, Tokyo 100-0004, Japan. Registered Financial Instruments Firm, No. 94 (Kinsho), issued by the Director, Kanto Local Finance Bureau. MHSC is a member of the Japan Securities Dealers Association, the Japan Securities Investment Advisers Association and the Financial Futures Association of Japan, and the Type II Financial Instruments Firms Association.

Singapore: This report is distributed or has been approved for distribution in Singapore by Mizuho Securities (Singapore) Pte. Ltd. ("MHSS"), a member of the MHSC Group, which is regulated by the Monetary Authority of Singapore. Any research report produced by a foreign Mizuho entity, analyst or affiliate is distributed in Singapore only to "Institutional Investors," "Expert Investors" or "Accredited Investors" as defined in the Securities and Futures Act, Chap. 289 of Singapore. Any matters arising from, or in connection with this material, should be brought to the attention of MHSS.

Hong Kong: This report is being distributed in Hong Kong by Mizuho Securities Asia Limited ("MHSA"), a member of the MHSC Group, which is licensed and regulated by the Hong Kong Securities and Futures Commission.

Australia: This report is being distributed in Australia by MHSA, which is exempted from the requirement to hold an Australian financial services license under the Corporation Act 2001 ("CA") in respect of the financial services provided to the recipients. MHSA is regulated by the Securities and Futures Commission under the laws of Hong Kong, which differ from Australian laws. Distribution of this report is intended only for recipients who are "wholesale clients" within the meaning of the CA.

If you do not wish to receive our reports in the future, please contact your sales person and request to be removed from receiving this distribution.