

Not All Moats Are Created Equal

Analyzing economic moats through a quantitative lens.

Morningstar Equity Research
30 May 2017

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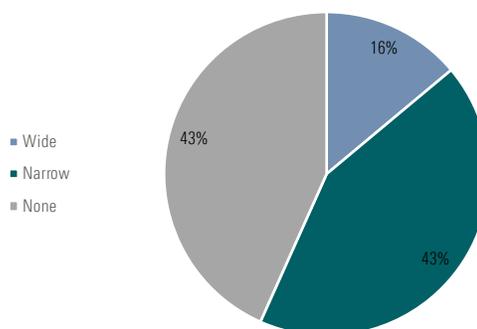
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Executive Summary

When assigning economic moat ratings, Morningstar analysts and the Morningstar economic moat committee take both quantitative and qualitative considerations into account. On the quantitative side, we look to the spread between forecast returns on invested capital and our assumed weighted average cost of capital, which represents economic profit generation. Per our methodology, the durability of economic profits is far more important than magnitude. Additionally, clear evidence must exist that the company benefits from at least one of five moat sources. These moat sources are intangible assets, cost advantage, switching costs, network effect, and efficient scale.

In this report, we analyze various financial metrics across different moat ratings and moat sources in order to better substantiate the fundamental performance that investors should expect when investing across the cohorts we define. Our findings indicate that not all moats are created equal, as certain moat characteristics consistently lead to more attractive financial performance than others.

Exhibit 1 Morningstar Coverage Universe: Economic Moat Incidence and Fundamental Performance



All Figures Are Medians	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE Trailing 10 Yr (%)	Op. Margin Trailing 10 Yr (%)	Net Margin Trailing 10 Yr (%)
Wide	209	12.5	13.5	19.0	21.1	14.1
Narrow	643	9.0	9.7	14.8	14.7	9.0
None	651	5.1	4.8	8.6	7.6	4.4

Top Performer **Bottom Performer**

Important Disclosure

The conduct of Morningstar's analysts is governed by Code of Ethics/Code of Conduct Policy, Personal Security Trading Policy (or an equivalent of), and Investment Research Policy. For information regarding conflicts of interest, please visit: <http://global.morningstar.com/equitydisclosures>

Data as of May 16, 2017
Source: Morningstar

Moat Methodology Overview

Morningstar analysts assign an economic moat rating to each of the roughly 1,500 companies under our coverage. An economic moat is a sustainable competitive advantage that allows a company to generate positive economic profits for the benefits of its owners over an extended period. Of the companies we cover, 14% have a wide moat rating, 43% have a narrow moat rating, and 43% have a no-moat rating.

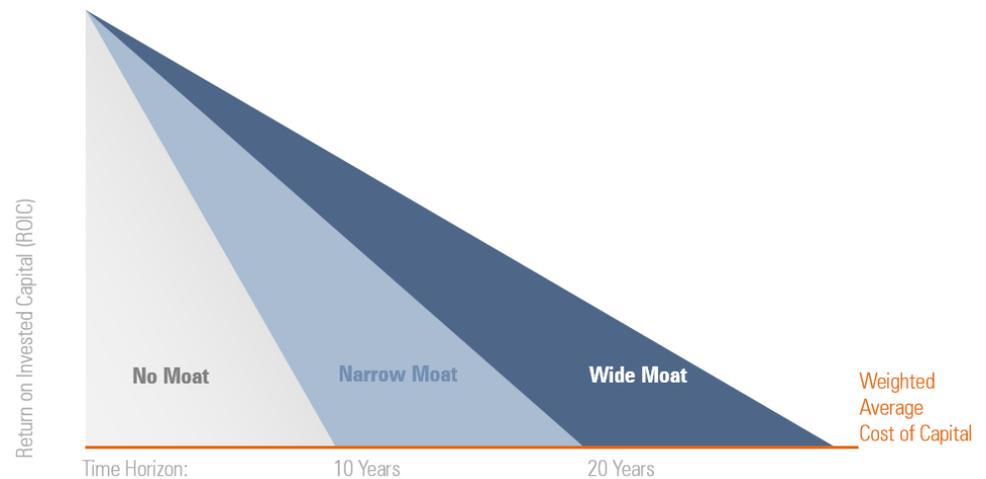
For a company to earn a narrow economic moat, excess normalized returns must, more likely than not, be positive 10 years from now. In addition, there must not be any substantial threat of major value destruction.

For a company to earn a wide economic moat, excess normalized returns must, with near certainty, be positive 10 years from now. In addition, excess normalized returns must, more likely than not, be positive 20 years from now.

A no-moat company exhibits no evidence of sustainable competitive advantage and, therefore, is unlikely to generate excess normalized returns over the course of a full business cycle.

Based on our methodology, evidence of an economic moat must be borne out both quantitatively and qualitatively. On the quantitative side, we compare forecast returns on invested capital to our estimated weighted average cost of capital for a company. As returns on invested capital oscillate over the course of a full business cycle, we'd need to see a net positive area under the curve between forecast returns on invested capital and the company's weighted average cost of capital to assign a narrow or wide moat rating. The area under the curve represents the company's economic profit over time.

It is important to note that the duration of forecast economic profits is far more important than the absolute magnitude. For example, if a high-flying tech company is a first-mover in offering a popular, innovative product or service, it might quickly achieve very high returns on invested capital. However, if there is no moat source (such as intellectual property) preventing competitors from replicating that product or service, we would assign a no-moat rating. In this case, the heady economic profits the company has been able to generate due to its first-mover advantage would likely deteriorate quickly as new competition enters the market. On the other side of the coin, many regulated utility companies generate relatively thin economic profits spreads due to regulatory price-capping. However, because of the high likelihood that they will continue to generate economic profit into the future, we are comfortable assigning a narrow moat rating to many of them.

Exhibit 2 Duration of Excess Returns Is Far More Important Than Magnitude

Source: Morningstar

On the qualitative side, when analyzing a company's business model we look for evidence of at least one of five moat sources in order to ascribe a wide or narrow moat rating to a company. Given that it is challenging to forecast returns on invested capital 10 or even 20 years forward, we analyzed empirical data to identify common traits that allow for long-lasting economic profit generation. These moat sources are cost advantage, intangible assets, switching costs, network effect, and efficient scale. To provide better context for the analysis that follows, we've included each moat source definition below.

Cost Advantage

Firms that provide goods or services at a lower cost than their peers maintain a competitive advantage because they are able to undercut their rivals on price. Alternatively, they may sell their goods or services at the same price as rivals but achieve a more attractive profit margin. Wal-Mart is a textbook example of a low-cost operator because it uses its enormous scale to acquire and distribute merchandise at far lower costs than competitors. Beyond economies of scale, unique assets can also drive cost advantage. Compass Minerals, which holds an enviable portfolio of low-cost rock salt and sulfate of potash assets, is a good example. The company's Goderich rock salt mine in Ontario benefits from unique geology and access to a deep-water port, allowing for the delivery of deicing salt to customers at a cost far lower than peers.

Intangible Assets

Intangible assets often take the form of patents, brands, or regulatory licenses that explicitly keep competitors at bay. Pharmaceutical firms such as Pfizer and Allergan benefit from strong pipelines of patented products, which provide legalized product monopolies for a set period. Strong brand equity can also serve as an intangible asset moat source. However, not all well-recognized brands actually provide pricing power. Only brands that attract customers and entice them to pay more drive an intangible assets moat source. American Airlines and Gap are examples of globally recognized brands associated

with no-moat companies, as their brand equity is not powerful enough to convey significant pricing power relative to peers. On the other hand, Coca-Cola can price its beverage products higher than those of lesser-known competitors even though it effectively sells a commodity in the form of sugar water.

Switching Costs

Switching costs represent one-time expenses or inconveniences a customer would have to incur in changing from one supplier to another. Customers facing high switching costs often won't switch unless they are offered a significant value proposition in the form of lower costs or improved performance relative to their incumbent supplier. A company that entrenches strong switching costs in its customer base can charge higher prices and, therefore, reap more profits without the threat of losing business. Many software companies, like Salesforce.com, benefit from switching costs. For customers that rely heavily on Salesforce.com's software as a key element of day-to-day operations, the cost, time, hassle, or risk that could be incurred in switching to a competitor might far outweigh any small potential reduction in costs. Typically, a software company's switching costs become increasingly powerful as customers use more of the software solutions it offers as part of their product suite. Alternatively, switching costs can exist when the value proposition of switching is low. For example, although it is relatively easy for a consumer to switch banks, doing so provides a minimal value proposition, which doesn't justify even the minor hassle of making the switch.

Network Effect

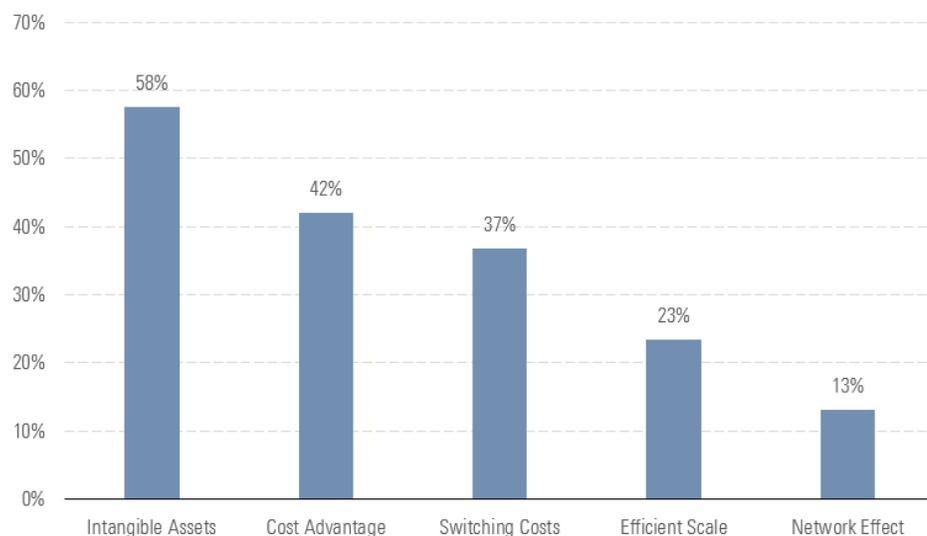
We observe the network effect when the value of a particular good or service increases for both new and existing users as more people use that good or service. This often creates a virtuous cycle that allows the strong to get stronger. The network effect phenomenon is perhaps best explained when we hark back to the fax machine. If someone were the first and only user of the fax machine, his or her fax machine would have effectively zero utility. However, as more people purchased fax machines, the utility of that very first fax machine grew exponentially. Social media and credit card companies enjoy powerful network effects, as do financial exchanges. Consider CME Group. As more buyers and sellers use a financial exchange, bid-ask spreads tighten and the order book deepens. This represents a virtuous cycle for all new and existing market participants.

Efficient Scale

Efficient scale is a dynamic whereby a market of limited size is effectively served by one or a small handful of companies. In many of these situations, the existing players earn economic profits and a potential competitor is discouraged from entering because market entry would cause returns in the market to fall below the cost of capital. Companies that benefit from this dynamic are efficiently scaled to supply a market that is only "juicy" enough to support one or a few competitors, which limits competitive pressures. Additionally, for efficient scale markets, market entry often requires very high capital costs, which are not justified by the limited profit potential a new competitor might achieve. This moat source commonly applies to utilities, railroads, pipelines, and airports.

Intangible assets represent the most common moat source by a wide margin, applying to 58% of all wide- and narrow-moat-rated companies under our coverage. Network effect is the least common, assigned to only 13% of the moaty companies we cover.

Exhibit 3 Moat Source Incidence Across Wide- and Narrow-Moat Companies



Data as of May 16, 2017
Source: Morningstar

A Summary of Our Method for This Report

In conducting our analysis, we included our entire coverage universe after eliminating duplicate share classes for companies like Berkshire Hathaway and Royal Dutch Shell. We counted companies with ADRs only once. This ensures that each company receives an equal weighting in our calculations.

After we categorized our entire coverage universe of wide-, narrow-, and no-moat stocks, we then divided companies into different cohorts, sorted by their sources of competitive advantage. We compared various financial metrics across these cohorts to better understand the fundamental characteristics investors should expect to see across the classifications that we use.

We were forced to make one major assumption in performing this analysis. When assigning companies to cohorts based on moat rating and moat source, we employ a static approach. In other words, for time series data, we treat each company as though it has always existed in the cohort to which it is currently assigned. For the vast majority of companies, this assumption is not problematic. However, some companies have moved between different moat rating and moat source buckets over time. Historical data for these companies is considered only in the context of their current classifications.

All data used in this analysis was derived from Morningstar Direct and pulled on May 16, 2017. To minimize the effect of outliers, we used medians whenever possible.

Wide-moat firms are far more profitable than narrow- and no-moat firms.

This conclusion comes as no surprise, given that a company's return on invested capital is the primary form of quantitative evidence we consider when assigning an economic moat rating in the first place. However, in observing the metrics associated with each moat rating cohort, the data in Exhibit 4 is useful in quantifying the potency of each moat rating.

Exhibit 4 Fundamental Performance by Moat Rating Cohort

All Figures Are Medians	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE Trailing 10 Yr (%)	Op. Margin Trailing 10 Yr (%)	Net Margin Trailing 10 Yr (%)
Wide	209	12.5	13.5	19.0	21.1	14.1
Narrow	643	9.0	9.7	14.8	14.7	9.0
None	651	5.1	4.8	8.6	7.6	4.4

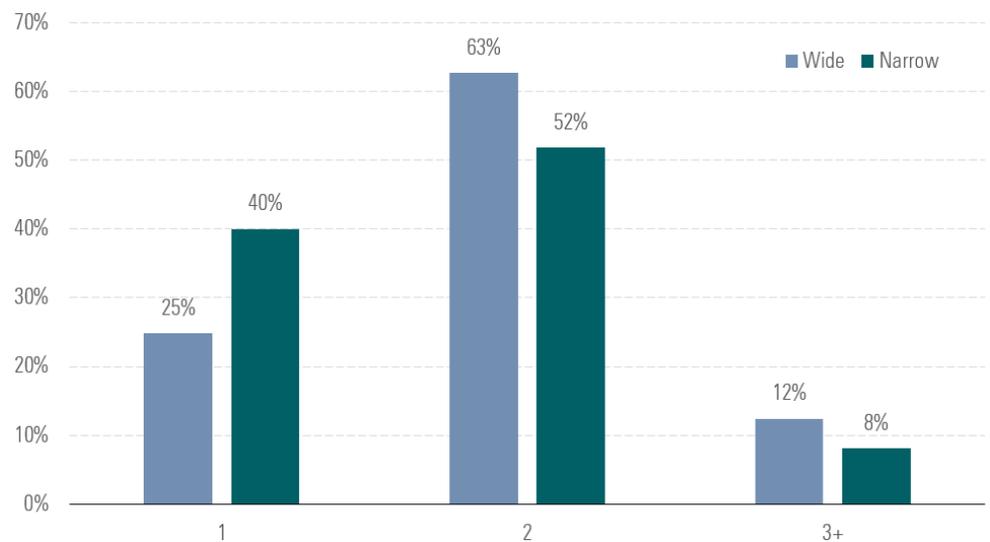
Top Performer Bottom Performer

Data as of May 16, 2017
Source: Morningstar

Wide-moat firms are more likely to benefit from multiple moat sources than narrow-moat firms.

Again, this is an intuitive result, as a higher number of moat sources should lead to more-sustainable economic profits. Our research indicates that 75% of wide-moat firms derive their competitive advantage from more than one moat source, compared with just 60% of narrow-moat firms.

Exhibit 5 Number of Moat Sources by Moat Rating Cohort



Data as of May 16, 2017
Source: Morningstar

The most frequent moat source combination is intangible assets and switching costs (179 companies), followed closely by intangible assets and cost advantage (167 companies). The combination of network effect and efficient scale is the least common by a wide margin (19 companies).

Exhibit 6 Moat Source Combination Frequency

	Network Effect	Efficient Scale	Switching Costs	Cost Advantage
Intangible Assets	49	41	179	167
Cost Advantage	38	70	94	
Switching Costs	24	29		
Efficient Scale	19			

Most Common **Least Common**

Data as of May 16, 2017

Source: Morningstar

When multiple moat sources might apply to a given business model, each moat source must be examined on its own merits. Although sources of competitive advantage are linked in many instances, the litmus test we use in considering each moat source that might apply is the following: Would the company still have an economic moat if this were the singular moat source at play? For example, Coca-Cola benefits from an intangible asset related to its powerful brand equity and wide distributor breadth. However, all else equal, if the pricing power conveyed by its brands were to erode over time, the company would still have a sustainable cost advantage thanks to its economies of scale in purchasing raw materials and leveraging marketing spending and employee costs.

Firms that benefit from multiple moat sources exhibit better fundamental performance than those with only one moat source.

This finding is intuitive as well. The more barriers to entry a company enjoys, the lower the risk that its competitive positioning will deteriorate and the more sustainable its profitability.

Exhibit 7 Fundamental Performance by Number of Moat Sources (All Wide- and Narrow-Moat Firms)

<small>All Figures Are Medians</small>	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE TTM (%)	ROE Trailing 10 Yr (%)
1 Moat Source	309	9.5	9.9	14.7	16.0
2+ Moat Sources	543	10.1	10.8	15.4	16.0

Top Performer

Data as of May 16, 2017

Source: Morningstar

We then performed the same analysis across each of the wide- and narrow-moat cohorts in order to control for moat rating mix. For wide-moat companies with multiple moat sources versus just one, returns on invested capital have been higher in recent years, but both trailing 12-month and trailing 10-year term returns on equity have actually been lower. This represents a change from the findings in our 2012 iteration of this report, which indicated that wide-moat firms with multiple moat sources had delivered better fundamental performance across all four metrics. More often than not, we'd expect firms with multiple moat sources to report higher profitability than those with only one moat source.

Exhibit 8 Wide-Moat Firms: Fundamental Performance by Number of Moat Sources

All Figures Are Medians	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE TTM (%)	ROE Trailing 10 Yr (%)
1 Advantage	52	12.2	13.1	24.3	20.6
2+ Advantages	157	12.6	13.6	17.9	18.8

Top Performer

Data as of May 16, 2017
Source: Morningstar

For narrow-moat companies, however, we observe more typical results, with both returns on invested capital and returns on equity modestly higher for companies with two or more moat sources than those with only one moat source.

Exhibit 9 Narrow-Moat Firms: Fundamental Performance by Number of Moat Sources

All Figures Are Medians	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE TTM (%)	ROE Trailing 10 Yr (%)
1 Advantage	258	8.8	9.6	13.6	14.6
2+ Advantages	385	9.2	9.8	14.9	14.8

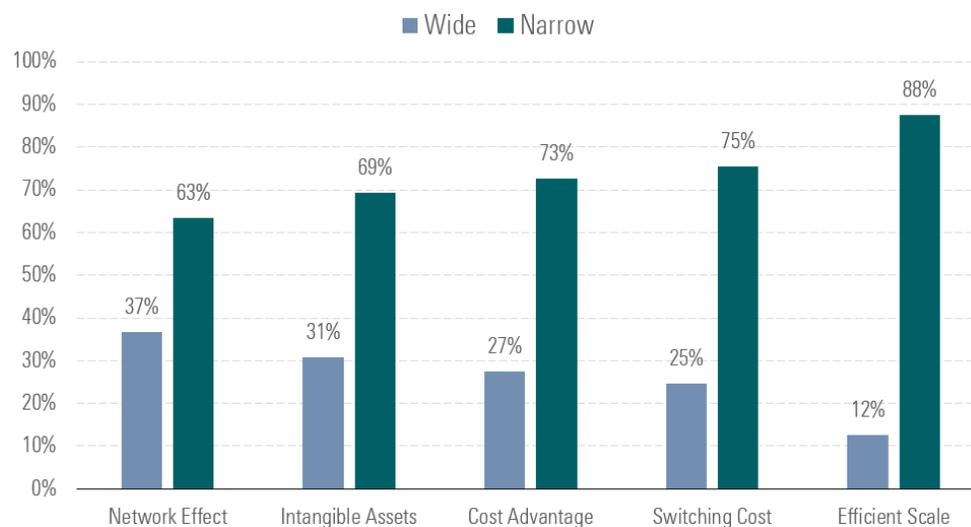
Top Performer

Data as of May 16, 2017
Source: Morningstar

Across the five moat sources, efficient scale is the most likely to drive a narrow moat rating while network effect is the most likely to drive a wide moat rating.

When efficient scale is cited as a moat source, the associated company has been assigned a narrow moat rating 88% of the time. To explain this dynamic, given that returns on invested capital for efficient scale companies tend to be only modestly above capital costs, it is difficult to establish a high degree of conviction that a company we expect to generate minimal economic profit 10 years from now will be able to replicate that performance over the subsequent 10 years. When economic profit spreads are thin, any number of exogenous factors, such as market size fluctuations, a changing regulatory landscape, or changing consumption patterns, could derail economic profit generation over a longer time horizon.

Network effect leads to a wide moat rating for 37% of the companies to which it is applied, a higher frequency in percentage terms than any other moat source. This makes intuitive sense. When a company establishes the network effect, it can often be a winner-take-all situation, providing the leading firm with a wide moat while leaving competitors with no moat at all. Consider the early days of social media when Facebook competed with Myspace. Although Myspace was at one time the most visited website in the United States, Facebook ultimately overtook it and is the dominant player, maintaining a wide moat rating. Myspace was acquired by Rupert Murdoch's News Corporation for \$580 million in 2005 before being sold again for a reported \$35 million in 2011. Meanwhile, Facebook's market capitalization has ballooned to roughly \$430 billion.

Exhibit 10 Moat Source Distribution by Moat Rating Cohort

Source: Morningstar Direct
Data as of 5/16/2017

Network effect drives better fundamental performance than other moat sources across nearly every metric examined.

As reflected in Exhibit 11, among the five potential moat sources, the cohort of companies that derive their competitive advantage from network effect has posted the highest profitability across every metric except trailing three-year returns on invested capital. This outcome reflects the fact that although network effect is the least common moat source, it is very powerful once established.

Companies that benefit from efficient scale have had the least favorable fundamental performance across nearly all metrics and measurement periods. This probably reflects the fact that regulated utilities commonly enjoy efficient scale but have their returns on invested capital capped by regulatory bodies in order to shift would-be economic profits into consumer surplus.

Exhibit 11 Fundamental Performance by Moat Source

All Figures Are Medians	n	ROIC Trailing 3 Yr		ROE Trailing 10 Yr (%)	Op. Margin Trailing 10 Yr (%)	Net Margin Trailing 10 Yr (%)
		ROIC TTM (%)	(%)			
Network Effect	112	10.9	11.3	17.9	18.0	12.7
Intangible Assets	491	10.9	11.9	17.4	17.0	9.7
Switching Cost	314	10.4	10.8	15.1	16.0	10.8
Cost Advantage	358	9.8	11.1	14.7	16.2	9.9
Efficient Scale	200	7.4	7.3	11.9	12.5	10.4

Top Performer Bottom Performer

Data as of May 16, 2017
Source: Morningstar

The combination of intangible assets and cost advantage has delivered higher returns on invested capital than any other moat source combination.

We looked at all the possible combinations of economic moat sources to analyze relative potency. As reflected in Exhibit 12, the companies with the combination of intangible assets and cost advantage provide the highest returns on invested capital. This cohort includes companies such as Amazon.com, Procter & Gamble, and Nike.

Exhibit 12 Fundamental Performance by Combination of Moat Sources

All figures are Medians	n	ROIC Trailing 3 Yr (%)	ROA Trailing 5 Yr (%)	ROE Trailing 10 Yr (%)	Op. Margin Trailing 10 Yr (%)	Net Margin Trailing 10 Yr (%)
Intangible Assets/Cost Advantage	167	12.4	7.1	17.8	14.6	9.7
Network Effect/Intangible Assets	49	12.2	4.9	18.0	19.7	14.0
Switching Cost/Cost Advantage	94	12.0	1.4	14.3	20.2	14.3
Network Effect/Cost Advantage	38	11.3	4.7	17.8	14.8	9.7
Switching Cost/Intangible Assets	179	11.2	6.8	17.3	14.1	9.7
Network Effect/Efficient Scale	19	9.7	6.0	18.2	24.1	15.2
Switching Cost/Network Effect	24	9.6	6.5	19.1	19.9	12.4
Cost Advantage/Efficient Scale	70	9.0	5.8	14.8	17.3	11.2
Intangible Assets/Efficient Scale	41	8.4	5.1	12.7	16.7	9.5
Switching Cost/Efficient Scale	29	6.6	3.5	13.6	17.0	7.3

Top Performer

Bottom Performer

Data as of May 16, 2017

Source: Morningstar

We also looked at equity total returns by moat source combination. We discovered that the efficient scale moat source has a polarizing effect. Over the past five years, efficient scale firms that also benefit from intangible assets delivered very high total returns. However, efficient scale firms that also enjoy cost advantage delivered the lowest total returns. The cohort with the highest total returns (intangible assets and efficient scale) includes companies such as International Speedway, Carnival, and Waste Management.

Combinations involving network effect generally performed well, ranking second, third, and fourth (as well as ninth) on trailing five-year total returns (with the ninth-place cohort representing the smallest sample size of any combination). Network effect and intangible assets performed the best in combination. This group includes companies such as Facebook, Alphabet, and American Express.

Exhibit 13 Market Performance by Combination of Moat Sources

	n	Median Annualized 5 Yr Total Return (%)	Mean Annualized 5 Yr Total Return (%)	Median Annualized 10 Yr Total Return (%)	Mean Annualized 10 Yr Total Return (%)
Intangible Assets/Efficient Scale	41	19.1	17.9	10.6	10.5
Network Effect/Intangible Assets	49	18.8	20.7	10.5	12.5
Switching Cost/Network Effect	24	17.5	18.2	11.1	12.4
Network Effect/Cost Advantage	38	17.1	17.7	10.1	10.5
Switching Cost/Cost Advantage	94	16.5	16.3	7.3	6.9
Intangible Assets/Cost Advantage	167	16.4	17.1	9.8	10.3
Switching Cost/Intangible Assets	179	15.8	16.4	9.0	8.9
Switching Cost/Efficient Scale	29	14.3	14.8	11.5	10.8
Network Effect/Efficient Scale	19	14.0	14.8	7.8	6.9
Cost Advantage/Efficient Scale	70	12.2	12.2	7.0	7.3

Top Performer

Bottom Performer

Data as of May 16, 2017

Source: Morningstar

We did not look at companies with three or more combinations because the cohorts are too small to draw meaningful conclusions. Only 74 companies in our coverage universe source their moat from three or more advantages.

Network effect drives the highest earnings volatility.

In looking at the stability of earnings through time, we took a 10-year time series of the median return on equity, return on assets, and operating margin for each moat source cohort and measured the associated standard deviation over those 10 years. The network effect had the highest variability across all three metrics.

Exhibit 14 Earnings Stability by Moat Source

All figures are Medians	n	ROE Trailing 10		ROA Trailing 5		Op. Margin	
		Yr (%)	Std. Deviation (%)	Yr (%)	Std. Deviation (%)	Trailing 10 Yr (%)	Std. Deviation (%)
Network Effect	112	18.0	9.0	6.0	1.9	15.8	5.1
Intangible Assets	491	17.0	7.9	7.3	1.8	19.0	3.8
Cost Advantage	358	16.2	6.3	5.9	1.3	14.9	3.7
Switching Cost	314	16.0	6.2	5.5	1.4	15.4	4.1
Efficient Scale	200	12.5	6.5	4.3	1.5	17.9	4.2

Top Performer

Bottom Performer

Data as of May 16, 2017

Source: Morningstar

We took this analysis one step further by breaking down each of the five sources of moat into wide- and narrow-moat cohorts. We can see that wide-moat companies with switching costs had the most stable returns on equity, narrow-moat companies with efficient scale had by far the most stable returns on assets, and wide-moat companies with cost advantage had the most stable operating margins. Conversely, narrow-moat companies with network effect had the least stable returns on equity, wide-moat companies with network effect had the least stable returns on assets, and narrow-moat companies with network effect had the least stable operating margins.

Exhibit 15 Risk-Adjusted Profitability Index by Moat Source and Moat Rating

All figures are Medians	Economic Moat	n	ROE Trailing 10 Yr			ROA Trailing 5 Yr			Op. Margin Trailing 10 Yr (%)		
			(%)	Std. Deviation (%)	(%) / Std. Dev (%)	(%)	Std. Deviation (%)	(%) / Std. Dev (%)	(%)	Std. Deviation (%)	(%) / Std. Dev (%)
Morningstar Coverage Universe	Wide	209	19.0	6.1	3.1	8.1	1.6	5.0	21.1	3.6	5.9
	Narrow	643	14.8	7.5	2.0	5.6	1.7	3.3	14.7	4.0	3.6
	Difference		4.3	-1.4	1.1	2.4	-0.1	1.7	6.4	-0.5	2.2
Switching Cost	Wide	77	17.9	4.7	3.8	6.3	1.3	4.8	20.2	3.3	6.1
	Narrow	237	15.2	7.4	2.1	5.0	1.4	3.6	14.8	4.4	3.4
	Difference		2.7	-2.7	1.8	1.3	-0.1	1.3	5.3	-1.1	2.7
Network Effect	Wide	41	20.7	7.7	2.7	7.8	2.1	3.7	21.7	4.5	4.9
	Narrow	71	17.7	9.4	1.9	6.0	1.7	3.5	15.6	5.6	2.8
	Difference		3.0	-1.6	0.8	1.8	0.4	0.2	6.1	-1.2	2.1
Intangible Assets	Wide	151	20.8	6.6	3.1	8.4	1.7	4.9	19.7	3.7	5.4
	Narrow	340	15.7	8.3	1.9	6.6	1.9	3.5	13.1	3.9	3.3
	Difference		5.1	-1.7	1.3	1.8	-0.2	1.3	6.6	-0.3	2.1
Cost Advantage	Wide	98	19.9	5.4	3.7	7.8	1.3	5.8	19.4	2.8	7.0
	Narrow	260	15.1	6.6	2.3	5.6	1.2	4.5	14.5	3.9	3.7
	Difference		4.7	-1.2	1.4	2.1	0.1	1.3	4.9	-1.1	3.3
Efficient Scale	Wide	25	15.0	5.3	2.8	6.7	1.2	5.6	27.8	4.1	6.8
	Narrow	175	12.0	6.6	1.8	3.8	1.6	2.4	17.2	4.3	4.0
	Difference		3.0	-1.3	1.0	2.9	-0.4	3.3	10.6	-0.2	2.8

Top Performer

Bottom Performer

Data as of May 16, 2017
Source: Morningstar

We also divided each profitability metric by its associated standard deviation in order to create a risk-adjusted index for each metric. For each risk-adjusted profitability metric, wide-moat companies stand out as top performers across each moat source. However, within the wide-moat cohort, companies with network effect performed the worst. For these companies, although profitability is high, they are also subject to elevated risk.

Network effect firms have delivered the best market performance on a total return basis.

Over the trailing 5- and 10-year periods, network effect firms have outperformed other moat source cohorts on a total return basis, with efficient scale companies bringing up the rear. We'd anticipate these findings to change over time depending on the performance of growth stocks versus value stocks. The constituents of the network effect bucket lean toward growth characteristics while the constituents of the efficient scale bucket lean toward value characteristics. When we conducted this analysis in 2012, efficient scale stocks had delivered the best trailing total returns, with network effect stocks delivering the second-lowest.

Exhibit 16 Market Performance by Moat Rating and Moat Source

All figures are Medians	n	Median Annualized 5 Yr Total Return (%)	Mean Annualized 5 Yr Total Return (%)	Median Annualized 10 Yr Total Return (%)	Mean Annualized 10 Yr Total Return (%)
Morningstar Coverage Universe	1503	13.7	13.2	7.3	6.8
Wide-Moat Companies	209	15.7	15.6	10.6	11.0
Narrow-Moat Companies	643	15.5	16.0	8.6	9.0
No-Moat Companies	651	10.5	9.6	3.3	2.9
Switching Cost	314	16.4	16.5	9.3	8.9
Network Effect	112	17.1	18.0	10.0	11.7
Intangible Assets	491	15.9	16.8	9.6	10.1
Cost Advantage	358	15.9	15.7	8.9	8.9
Efficient Scale	200	13.2	13.3	9.0	8.5

Top Performer **Bottom Performer**

Data as of May 16, 2017

Source: Morningstar

Additional Conclusions

Moving beyond profitability and total return measures, we looked at other metrics not related to fundamental or market performance.

Exhibit 17 Other Characteristics by Moat Rating and Moat Source

All figures are Medians	n	P/E 5 Yr Avg (%)	Current P/E (%)	10 Yr Revenue Growth (%)	Days to Cover (%)	Market Cap (USD Bil)	Forward Dividend Yield (%)
Morningstar Coverage Universe	1503	21.8	21.8	5.4	4.0	14.6	2.6
Wide	209	22.6	25.5	5.7	3.6	46.6	2.3
Narrow	643	21.8	22.3	6.0	3.9	14.6	2.6
None	651	21.1	18.7	4.5	4.5	9.7	3.0
Switching Cost	314	21.7	23.5	6.3	3.9	17.7	2.3
Network Effect	112	26.0	27.4	8.3	4.4	15.9	2.2
Intangible Assets	491	22.3	24.6	6.0	3.6	19.7	2.2
Cost Advantage	358	21.9	21.4	5.7	3.6	27.1	2.5
Efficient Scale	200	22.4	20.7	4.6	4.6	15.9	3.8

Highest **Lowest**

Data as of May 16, 2017

Source: Morningstar

From the backward-looking data in Exhibit 17, we observe that wide-moat firms trade at the highest price/earnings ratios, are the least shorted, have the highest market caps, and offer the lowest dividend yields. Narrow-moat firms offer the highest growth. No-moat firms trade at the lowest P/E, offer the lowest growth, are the most shorted, have the lowest market caps, and offer the highest dividend yields.

Switching cost firms trade at the lowest trailing five-year P/E. Network effect firms trade at the highest trailing and current P/E (by far), exhibit the highest growth, and have the lowest dividend yields. Intangible assets firms do not finish first or last on any metric. Cost advantage firms have the highest market caps and are the least shorted. Efficient scale firms trade at the lowest current P/E, have the lowest growth, are the most shorted, have the lowest market caps, and offer the highest dividend yields.

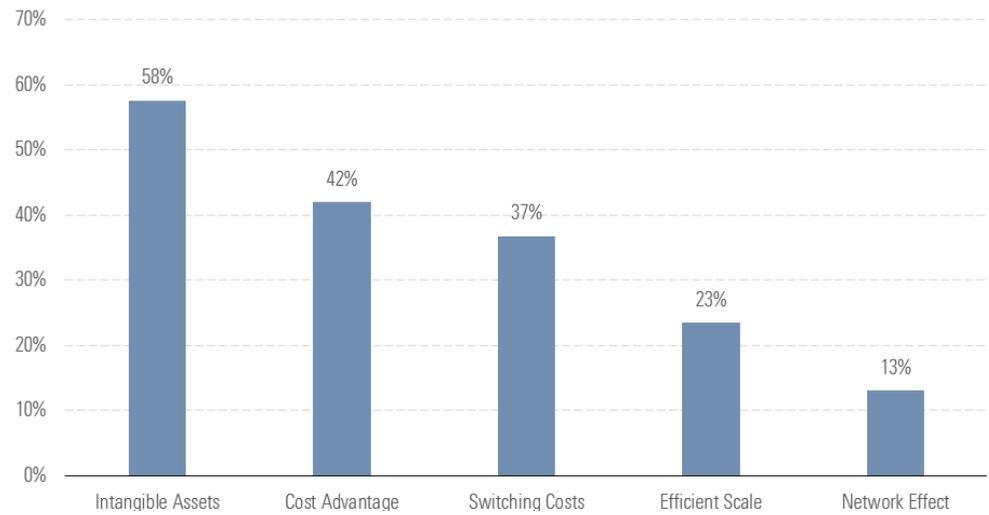
Appendix A

This report serves as a follow-up to a similar report from June 2012, "[Moats: Sources and Outcomes](#)." The following exhibits compare our updated 2017 data with the data published in the 2012 iteration in order to show how our ratings, moat source usage, and the fundamental performance of our coverage universe have changed over time.

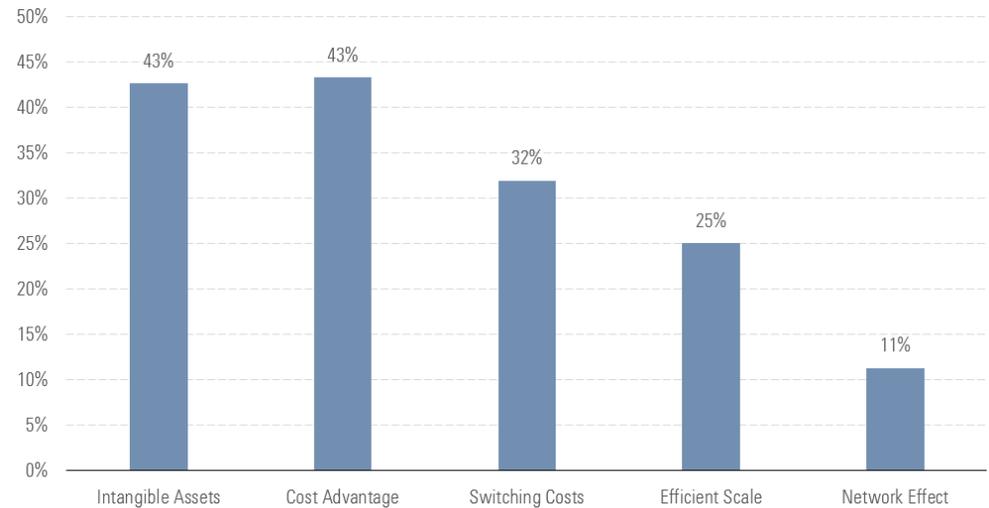
2017 exhibits reflect data as of May 16, 2017, and 2012 exhibits reflect data as of April 16, 2012.

Exhibit 1A Moat Source Incidence Across Wide- and Narrow-Moat Companies

May 2017



June 2012



Source: Morningstar Direct

Exhibit 2A Fundamental Performance by Moat Rating Cohort**May 2017**

All Figures Are Medians	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE Trailing 10 Yr (%)	Op. Margin Trailing 10 Yr (%)	Net Margin Trailing 10 Yr (%)
Wide	209	12.5	13.5	19.0	21.1	14.1
Narrow	643	9.0	9.7	14.8	14.7	9.0

June 2012

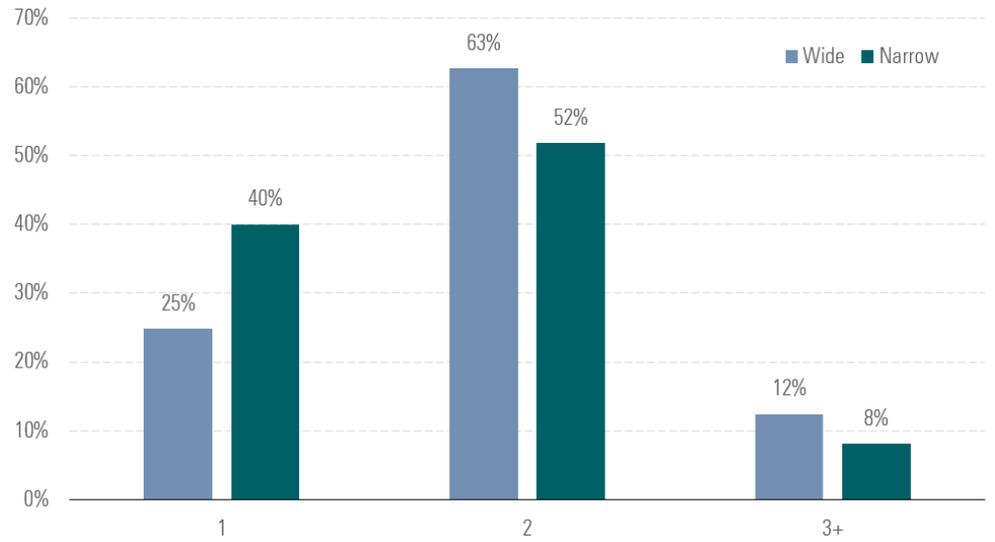
All Figures Are Medians	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE Trailing 10 Yr (%)	Op. Margin Trailing 10 Yr (%)	Net Margin Trailing 10 Yr (%)
Wide	151	13.6	13.3	20.1	21.2	14.4
Narrow	745	8.3	7.6	13.5	14.6	9.1

Top Performer **Bottom Performer**

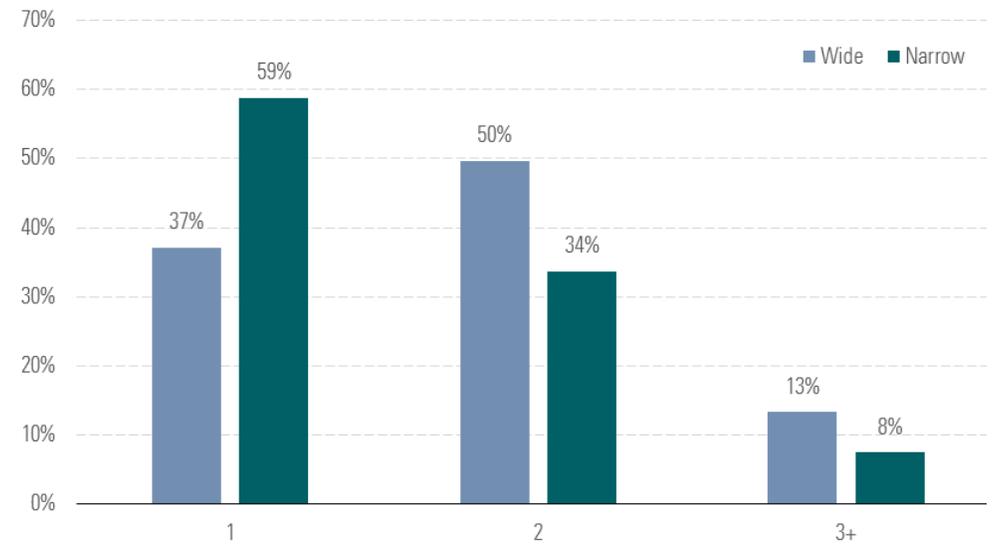
Source: Morningstar Direct

Exhibit 3A Number of Moat Sources by Moat Rating Cohort

May 2017



June 2012



Source: Morningstar Direct

Exhibit 4A Moat Source Combination Frequency**May 2017**

	Network Effect	Efficient Scale	Switching Costs	Cost Advantage
Intangible Assets	49	41	179	167
Cost Advantage	38	70	94	
Switching Costs	24	29		
Efficient Scale	19			

Most Common **Least Common**

June 2012

	Network Effect	Efficient Scale	Switching Costs	Cost Advantage
Intangible Assets	35	44	121	105
Cost Advantage	42	59	61	
Switching Costs	28	74		
Efficient Scale	6			

Most Common **Least Common**

Source: Morningstar Direct

Exhibit 5A Fundamental Performance by Number of Moat Sources (All Wide- and Narrow-Moat Firms)**May 2017**

<small>All Figures Are Medians</small>	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE TTM (%)	ROE Trailing 10 Yr (%)
1 Moat Source	309	9.5	9.9	14.7	16.0
2+ Moat Sources	543	10.1	10.8	15.4	16.0

Top Performer

June 2012

<small>All Figures Are Medians</small>	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE TTM (%)	ROE Trailing 10 Yr (%)
1 Moat Source	494	8.3	7.7	13.5	15.0
2+ Moat Sources	402	10.0	9.1	16.4	15.7

Top Performer

Source: Morningstar Direct

Exhibit 6A Wide-Moat Firms: Fundamental Performance by Number of Moat Sources**May 2017**

All Figures Are Medians	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE TTM (%)	ROE Trailing 10 Yr (%)
1 Advantage	52	12.2	13.1	24.3	20.6
2+ Advantages	157	12.6	13.6	17.9	18.8

Top Performer**June 2012**

All Figures Are Medians	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE TTM (%)	ROE Trailing 10 Yr (%)
1 Advantage	56	13.5	12.7	19.7	19.7
2+ Advantages	95	13.9	13.3	20.2	20.2

Top Performer

Source: Morningstar Direct

Exhibit 7A Narrow-Moat Firms: Fundamental Performance by Number of Moat Sources**May 2017**

All Figures Are Medians	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE TTM (%)	ROE Trailing 10 Yr (%)
1 Advantage	258	8.8	9.6	13.6	14.6
2+ Advantages	385	9.2	9.8	14.9	14.8

Top Performer**June 2012**

All Figures Are Medians	n	ROIC TTM (%)	ROIC Trailing 3 Yr (%)	ROE TTM (%)	ROE Trailing 10 Yr (%)
1 Advantage	438	7.9	7.2	12.8	14.3
2+ Advantages	307	8.6	8.2	15.5	14.5

Top Performer

Source: Morningstar Direct

Exhibit 8A Fundamental Performance by Moat Source**May 2017**

All Figures Are Medians	n	ROIC Trailing 3 Yr			ROE Trailing	Op. Margin	Net Margin
		ROIC TTM (%)	(%)	ROE TTM (%)	10 Yr (%)	Trailing 10 Yr (%)	Trailing 10 Yr (%)
Network Effect	112	10.9	11.3	17.9	18.0	18.0	12.7
Intangible Assets	491	10.9	11.9	17.4	17.0	17.0	9.7
Switching Cost	314	10.4	10.8	15.1	16.0	16.0	10.8
Cost Advantage	358	9.8	11.1	14.7	16.2	16.2	9.9
Efficient Scale	200	7.4	7.3	11.9	12.5	12.5	10.4

Top Performer **Bottom Performer**

June 2012

All Figures Are Medians	n	ROIC Trailing 3 Yr			ROE Trailing	Op. Margin	Net Margin
		ROIC TTM (%)	(%)	ROE TTM (%)	10 Yr (%)	Trailing 10 Yr (%)	Trailing 10 Yr (%)
Network Effect	101	10.2	9.0	17.1	15.6	13.4	8.7
Intangible Assets	382	11.4	10.5	17.8	16.2	15.5	9.9
Switching Cost	286	9.7	9.2	15.4	15.2	15.5	10.3
Cost Advantage	388	8.6	8.0	14.1	15.9	15.4	10.3
Efficient Scale	224	6.7	6.4	13.5	13.1	17.1	9.5

Top Performer **Bottom Performer**

Source: Morningstar Direct

Exhibit 9A Fundamental Performance by Combination of Moat Sources**May 2017**

<i>All figures are Medians</i>	n	ROIC Trailing 3 Yr (%)	ROA Trailing 5 Yr (%)	ROE Trailing 10 Yr (%)
Intangible Assets/Cost Advantage	167	12.4	7.1	17.8
Network Effect/Intangible Assets	49	12.2	4.9	18.0
Switching Cost/Cost Advantage	94	12.0	1.4	14.3
Network Effect/Cost Advantage	38	11.3	4.7	17.8
Switching Cost/Intangible Assets	179	11.2	6.8	17.3
Network Effect/Efficient Scale	19	9.7	6.0	18.2
Switching Cost/Network Effect	24	9.6	6.5	19.1
Cost Advantage/Efficient Scale	70	9.0	5.8	14.8
Intangible Assets/Efficient Scale	41	8.4	5.1	12.7
Switching Cost/Efficient Scale	29	6.6	3.5	13.6

Top Performer**Bottom Performer****June 2012**

<i>All figures are Medians</i>	n	ROIC Trailing 3 Yr (%)	ROA Trailing 10 Yr (%)	ROE Trailing 10 Yr (%)
Intangible Assets/Cost Advantage	105	11.8	8.0	19.1
Network Effect/Intangible Assets	35	7.8	5.9	17.6
Switching Cost/Cost Advantage	61	9.3	5.9	16.8
Network Effect/Cost Advantage	42	10.0	7.2	17.0
Switching Cost/Intangible Assets	121	10.1	6.5	14.7
Network Effect/Efficient Scale	6	5.6	4.3	10.1
Switching Cost/Network Effect	28	8.8	5.9	15.3
Cost Advantage/Efficient Scale	59	7.0	5.1	14.8
Intangible Assets/Efficient Scale	44	9.2	5.6	12.7
Switching Cost/Efficient Scale	74	7.3	4.2	13.8

Source: Morningstar Direct

Exhibit 10A Market Performance by Combination of Moat Sources**May 2017**

	n	Median Annualized 5 Yr Total Return (%)	Mean Annualized 5 Yr Total Return (%)	Median Annualized 10 Yr Total Return (%)	Mean Annualized 10 Yr Total Return (%)
Intangible Assets/Efficient Scale	41	19.1	17.9	10.6	10.5
Network Effect/Intangible Assets	49	18.8	20.7	10.5	12.5
Switching Cost/Network Effect	24	17.5	18.2	11.1	12.4
Network Effect/Cost Advantage	38	17.1	17.7	10.1	10.5
Switching Cost/Cost Advantage	94	16.5	16.3	7.3	6.9
Intangible Assets/Cost Advantage	167	16.4	17.1	9.8	10.3
Switching Cost/Intangible Assets	179	15.8	16.4	9.0	8.9
Switching Cost/Efficient Scale	29	14.3	14.8	11.5	10.8
Network Effect/Efficient Scale	19	14.0	14.8	7.8	6.9
Cost Advantage/Efficient Scale	70	12.2	12.2	7.0	7.3

Top Performer

Bottom Performer

June 2012

	n	Median Annualized 5 Yr Total Return (%)	Mean Annualized 5 Yr Total Return (%)	Median Annualized 10 Yr Total Return (%)	Mean Annualized 10 Yr Total Return (%)
Intangible Assets/Efficient Scale	44	4.0	4.6	10.5	9.1
Network Effect/Intangible Assets	35	0.9	3.1	7.4	9.8
Switching Cost/Network Effect	28	3.6	9.6	6.0	9.9
Network Effect/Cost Advantage	42	1.2	1.5	7.3	7.9
Switching Cost/Cost Advantage	61	3.6	3.7	7.1	8.8
Intangible Assets/Cost Advantage	105	4.0	3.6	8.1	9.1
Switching Cost/Intangible Assets	121	2.1	2.8	6.8	8.2
Switching Cost/Efficient Scale	74	4.0	3.1	9.1	8.8
Network Effect/Efficient Scale	6	3.6	5.1	7.3	6.7
Cost Advantage/Efficient Scale	59	3.9	2.9	8.9	9.2

Top Performer

Bottom Performer

Source: Morningstar Direct

Exhibit 11A Market Performance by Moat Rating and Moat Source**May 2017**

All figures are Medians	n	Median Annualized 5 Yr Total Return (%)	Mean Annualized 5 Yr Total Return (%)	Median Annualized 10 Yr Total Return (%)	Mean Annualized 10 Yr Total Return (%)
Switching Cost	314	16.4	16.5	9.3	8.9
Network Effect	112	17.1	18.0	10.0	11.7
Intangible Assets	491	15.9	16.8	9.6	10.1
Cost Advantage	358	15.9	15.7	8.9	8.9
Efficient Scale	200	13.2	13.3	9.0	8.5

Top Performer

Bottom Performer

June 2012

All figures are Medians	n	Median Annualized 5 Yr Total Return (%)	Mean Annualized 5 Yr Total Return (%)	Median Annualized 10 Yr Total Return (%)	Mean Annualized 10 Yr Total Return (%)
Switching Cost	286	2.7	2.7	7.0	7.9
Network Effect	101	2.2	3.6	7.5	8.4
Intangible Assets	382	2.9	2.9	7.1	8.8
Cost Advantage	388	2.0	1.2	7.9	8.5
Efficient Scale	224	3.6	2.8	8.5	9.1

Top Performer

Bottom Performer

Source: Morningstar Direct

Appendix B

Exhibit 1B: Moat Ratings and Moat Sources by Company: Wide-Moat-Rated Firms

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
3M Co	MMM	Industrials	Wide	•		•		•
ABB Ltd	ABBN	Industrials	Wide	•		•		•
Accenture PLC A	ACN	Technology	Wide			•		•
Adobe Systems Inc	ADBE	Technology	Wide				•	•
Alfa Laval AB	ALFA	Industrials	Wide	•		•		•
Alibaba Group Holding Ltd ADR	BABA	Consumer Cyclical	Wide	•		•	•	
Allergan PLC	AGN	Healthcare	Wide			•		
Alphabet Inc A	GOOGL	Technology	Wide			•	•	
Altria Group Inc	MO	Consumer Defensive	Wide	•		•		
Amazon.com Inc	AMZN	Consumer Cyclical	Wide	•		•	•	
Ambev SA	ABEV3	Consumer Defensive	Wide	•		•		
American Express Co	AXP	Financial Services	Wide			•	•	
AmerisourceBergen Corp	ABC	Healthcare	Wide	•			•	
Amgen Inc	AMGN	Healthcare	Wide			•		
Analog Devices Inc	ADI	Technology	Wide			•		•
Anheuser-Busch InBev SA/NV	ABE	Consumer Defensive	Wide	•		•		
Applied Materials Inc	AMAT	Technology	Wide	•		•		
Assa Abloy AB B	ASSA B	Industrials	Wide			•		•
AstraZeneca PLC	AZN	Healthcare	Wide			•		
ASX Ltd	ASX	Financial Services	Wide	•		•	•	
Auckland International Airport Ltd	AIA	Industrials	Wide		•			
Australia and New Zealand Banking Group Ltd	ANZ	Financial Services	Wide	•				•
Autodesk Inc	ADSK	Technology	Wide				•	•
Automatic Data Processing Inc	ADP	Industrials	Wide	•				•
Baidu Inc ADR	BIDU	Technology	Wide			•	•	
Bank of New York Mellon Corp	BK	Financial Services	Wide	•				•
Bank of Nova Scotia	BNS	Financial Services	Wide	•				•
Berkshire Hathaway Inc B	BRK.B	Financial Services	Wide	•		•		
Biogen Inc	BIIB	Healthcare	Wide			•		
Blackbaud Inc	BLKB	Technology	Wide			•		•
BlackRock Inc	BLK	Financial Services	Wide			•		•
Blackstone Group LP	BX	Financial Services	Wide			•		•
Boeing Co	BA	Industrials	Wide			•		•
Brambles Ltd	BXB	Industrials	Wide	•	•		•	
Bristol-Myers Squibb Company	BMJ	Healthcare	Wide			•		
British American Tobacco PLC	BATS	Consumer Defensive	Wide	•		•		
Brown-Forman Corp Class B	BF.B	Consumer Defensive	Wide	•		•		
C.H. Robinson Worldwide Inc	CHRW	Industrials	Wide				•	
Campbell Soup Co	CPB	Consumer Defensive	Wide	•		•		
Canadian National Railway Co	CNR	Industrials	Wide	•	•			
Canadian Pacific Railway Ltd	CP	Industrials	Wide	•	•			
Cardinal Health Inc	CAH	Healthcare	Wide	•			•	
Caterpillar Inc	CAT	Industrials	Wide			•	•	
CBRE Group Inc	CBG	Real Estate	Wide			•		•
Cerner Corp	CERN	Technology	Wide			•		•
Charles Schwab Corp	SCHW	Financial Services	Wide	•				
Cie Financiere Richemont SA	CFR	Consumer Cyclical	Wide			•		
Cintas Corp	CTAS	Industrials	Wide	•				
Clorox Co	CLX	Consumer Defensive	Wide	•		•		

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
CME Group Inc Class A	CME	Financial Services	Wide	•		•	•	
Coca-Cola Co	KO	Consumer Defensive	Wide	•		•		
Colgate-Palmolive Co	CL	Consumer Defensive	Wide	•		•		
Comcast Corp Class A	CMCSA	Communication Services	Wide	•	•			
Commonwealth Bank of Australia	CBA	Financial Services	Wide	•				•
Compass Minerals International Inc	CMP	Basic Materials	Wide	•				
Core Laboratories NV	CLB	Energy	Wide		•	•	•	
CoStar Group Inc	CSGP	Real Estate	Wide			•	•	•
Costco Wholesale Corp	COST	Consumer Defensive	Wide	•		•		
CSX Corp	CSX	Industrials	Wide	•	•			
CVS Health Corp	CVS	Healthcare	Wide	•				•
Dassault Systemes SE	DSY	Technology	Wide				•	•
Deere & Co	DE	Industrials	Wide			•	•	
Diageo PLC	DGE	Consumer Defensive	Wide	•		•		
Dominion Energy Inc	D	Utilities	Wide		•			
Dr Pepper Snapple Group Inc	DPS	Consumer Defensive	Wide	•		•		
Dun & Bradstreet Corp	DNB	Industrials	Wide			•		
Eaton Vance Corp	EV	Financial Services	Wide			•		•
Edenred SA	EDEN	Financial Services	Wide				•	
Elekta AB B	EKTA B	Healthcare	Wide			•		•
Eli Lilly and Co	LLY	Healthcare	Wide	•		•		
Emerson Electric Co	EMR	Industrials	Wide	•		•		•
Enbridge Inc	ENB	Energy	Wide		•	•		
Enterprise Products Partners LP	EPD	Energy	Wide		•			
Equifax Inc	EFX	Industrials	Wide			•		
Essilor International SA	EI	Healthcare	Wide	•		•		
Expeditors International of Washington Inc	EXPD	Industrials	Wide				•	
Experian PLC	EXPN	Industrials	Wide			•		
Express Scripts Holding Co	ESRX	Healthcare	Wide	•				•
Facebook Inc A	FB	Technology	Wide			•	•	
FactSet Research Systems Inc	FDS	Financial Services	Wide			•		•
Fanuc Corp	6954	Industrials	Wide	•				•
Fastenal Co	FAST	Industrials	Wide	•			•	
Ferrari NV	RACE	Consumer Cyclical	Wide			•		
Fiserv Inc	FISV	Industrials	Wide					•
Franklin Resources Inc	BEN	Financial Services	Wide			•		•
GEA Group AG	G1A	Industrials	Wide			•		•
General Dynamics Corp	GD	Industrials	Wide		•	•		•
General Electric Co	GE	Industrials	Wide	•		•		•
Gilead Sciences Inc	GILD	Healthcare	Wide			•		
GlaxoSmithKline PLC	GSK	Healthcare	Wide			•		
Grupo Aeroportuario del Centro Norte SAB de CV ADR	OMAB	Industrials	Wide		•	•		
Grupo Aeroportuario del Pacifico SAB de CV ADR	PAC	Industrials	Wide		•	•		
Grupo Aeroportuario del Sureste SAB de CV ADR	ASR	Industrials	Wide		•	•		
Grupo Televisa SAB ADR	TV	Consumer Cyclical	Wide			•		
Guidewire Software Inc	GWRE	Technology	Wide			•		•
Harley-Davidson Inc	HOG	Consumer Cyclical	Wide			•		
Henry Schein Inc	HSIC	Healthcare	Wide	•				•
Hermes International SA	RMS	Consumer Cyclical	Wide			•		
Honeywell International Inc	HON	Industrials	Wide	•		•		•
Hong Kong Exchanges and Clearing Ltd	00388	Financial Services	Wide	•		•	•	
IHS Markit Ltd A	INFO	Industrials	Wide			•		•
Imperial Brands PLC	IMB	Consumer Defensive	Wide	•		•		
Intel Corp	INTC	Technology	Wide	•		•		
Intercontinental Exchange Inc	ICE	Financial Services	Wide	•		•	•	
Intuit Inc	INTU	Technology	Wide					•
Intuitive Surgical Inc	ISRG	Healthcare	Wide			•	•	•
Jack Henry & Associates Inc	JKHY	Industrials	Wide					•
Japan Exchange Group Inc	8697	Financial Services	Wide	•		•	•	
John Wiley & Sons Inc Class A	JW.A	Consumer Cyclical	Wide			•	•	•

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Johnson & Johnson	JNJ	Healthcare	Wide			•		
Jones Lang LaSalle Inc	JLL	Real Estate	Wide			•		•
Julius Baer Gruppe AG	BAER	Financial Services	Wide			•		•
Kansas City Southern	KSU	Industrials	Wide	•	•			
Kao Corp	4452	Consumer Defensive	Wide	•		•		
Kering SA	KER	Consumer Cyclical	Wide			•		
KLA-Tencor Corp	KLAC	Technology	Wide	•		•	•	
KONE Oyj B	KNEBV	Industrials	Wide	•		•		
Kweichow Moutai Co Ltd	600519	Consumer Defensive	Wide			•		
L Brands Inc	LB	Consumer Cyclical	Wide			•		
Landstar System Inc	LSTR	Industrials	Wide				•	
Lockheed Martin Corp	LMT	Industrials	Wide			•		•
L'Oreal SA	OR	Consumer Defensive	Wide	•		•		
Lowe's Companies Inc	LOW	Consumer Cyclical	Wide	•		•		
LVMH Moet Hennessy Louis Vuitton SE	MC	Consumer Cyclical	Wide			•		
Magellan Midstream Partners LP	MMP	Energy	Wide		•			
Mastercard Inc A	MA	Financial Services	Wide			•	•	
Maxim Integrated Products Inc	MXIM	Technology	Wide			•		•
McCormick & Co Inc Non-Voting	MKC	Consumer Defensive	Wide	•		•		
McDonald's Corp	MCD	Consumer Cyclical	Wide	•		•		
McKesson Corp	MCK	Healthcare	Wide	•			•	
Mead Johnson Nutrition Co	MJN	Consumer Defensive	Wide	•		•		
Medtronic PLC	MDT	Healthcare	Wide			•		
MercadoLibre Inc	MELI	Consumer Cyclical	Wide				•	
Merck & Co Inc	MRK	Healthcare	Wide			•		
Microchip Technology Inc	MCHP	Technology	Wide			•		•
Microsoft Corp	MSFT	Technology	Wide				•	•
Mondelez International Inc Class A	MDLZ	Consumer Defensive	Wide	•		•		
Monsanto Co	MON	Basic Materials	Wide			•		
National Australia Bank Ltd	NAB	Financial Services	Wide	•				•
NAVER Corp	035420	Technology	Wide			•	•	
Nestle SA	NESN	Consumer Defensive	Wide	•		•		
Nike Inc B	NKE	Consumer Cyclical	Wide	•		•		
Norfolk Southern Corp	NSC	Industrials	Wide	•	•			
Northern Trust Corp	NTRS	Financial Services	Wide	•		•		•
Novartis AG	NOVN	Healthcare	Wide			•		
Novo Nordisk A/S B	NOVO B	Healthcare	Wide	•		•		
Novozymes A/S B	NZYM B	Healthcare	Wide			•		•
Oracle Corp	ORCL	Technology	Wide			•		•
Patterson Companies Inc	PDCO	Healthcare	Wide	•				•
Paychex Inc	PAYX	Industrials	Wide	•				•
PepsiCo Inc	PEP	Consumer Defensive	Wide	•		•		
Pfizer Inc	PFE	Healthcare	Wide			•		
Philip Morris International Inc	PM	Consumer Defensive	Wide	•		•		
Polaris Industries Inc	PII	Consumer Cyclical	Wide	•		•		
Port of Tauranga Ltd	POT	Industrials	Wide	•	•			
Prada SpA	01913	Consumer Cyclical	Wide			•		
Praxair Inc	PX	Basic Materials	Wide					•
Procter & Gamble Co	PG	Consumer Defensive	Wide	•		•		
Quintiles IMS Holdings Inc	Q	Healthcare	Wide			•		•
Reynolds American Inc	RAI	Consumer Defensive	Wide			•		
Ritchie Bros Auctioneers Inc	RBA	Industrials	Wide				•	
Roche Holding AG Dividend Right Cert.	ROG	Healthcare	Wide			•		
Rockwell Automation Inc	ROK	Industrials	Wide			•		•
Royal Bank of Canada	RY	Financial Services	Wide	•		•		•
Safran SA	SAF	Industrials	Wide			•		•
Salesforce.com Inc	CRM	Technology	Wide				•	•
Sanofi SA	SAN	Healthcare	Wide	•		•		
Schindler Holding AG	SCHN	Industrials	Wide	•		•		
Schneider Electric SE	SU	Industrials	Wide			•		•

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Shanghai International Port (Group) Co Ltd	600018	Industrials	Wide		•	•		
Spectra Energy Partners LP	SEP	Energy	Wide		•			
Starbucks Corp	SBUX	Consumer Cyclical	Wide	•		•		
State Street Corporation	STT	Financial Services	Wide	•				•
Stericycle Inc	SRCL	Industrials	Wide	•		•		•
Stryker Corp	SYK	Healthcare	Wide			•		•
Svenska Handelsbanken A	SHB A	Financial Services	Wide	•				•
T. Rowe Price Group Inc	TROW	Financial Services	Wide			•		•
Texas Instruments Inc	TXN	Technology	Wide			•		•
The Hershey Co	HSY	Consumer Defensive	Wide	•		•		
The Home Depot Inc	HD	Consumer Cyclical	Wide	•		•		
The Toronto-Dominion Bank	TD	Financial Services	Wide	•				•
The Western Union Co	WU	Financial Services	Wide	•			•	
Tiffany & Co	TIF	Consumer Cyclical	Wide			•		
Time Warner Inc	TWX	Consumer Cyclical	Wide			•		
TransDigm Group Inc	TDG	Industrials	Wide			•		•
Transurban Group	TCL	Industrials	Wide		•	•	•	
Twenty-First Century Fox Inc Class B	FOX	Consumer Cyclical	Wide			•		
Unilever PLC	ULVR	Consumer Defensive	Wide	•		•		
Union Pacific Corp	UNP	Industrials	Wide	•	•			
United Parcel Service Inc Class B	UPS	Industrials	Wide	•	•		•	
United Technologies Corp	UTX	Industrials	Wide			•		•
US Bancorp	USB	Financial Services	Wide	•				•
US Ecology Inc	ECOL	Industrials	Wide		•	•		•
Valero Energy Partners LP	VLP	Energy	Wide		•			
Varian Medical Systems Inc	VAR	Healthcare	Wide			•		•
Veeva Systems Inc Class A	VEEV	Technology	Wide			•		•
VF Corp	VFC	Consumer Cyclical	Wide	•		•		
Visa Inc Class A	V	Financial Services	Wide			•	•	
W.W. Grainger Inc	GWW	Industrials	Wide	•			•	
Wal-Mart Stores Inc	WMT	Consumer Defensive	Wide	•		•		
Walt Disney Co	DIS	Consumer Cyclical	Wide			•		
Waters Corp	WAT	Healthcare	Wide			•		•
Wells Fargo & Co	WFC	Financial Services	Wide	•				•
Westpac Banking Corp	WBC	Financial Services	Wide	•				•
Wuliangye Yibin Co Ltd	000858	Consumer Defensive	Wide			•		
Yum Brands Inc	YUM	Consumer Cyclical	Wide	•		•		
Yum China Holdings Inc	YUMC	Consumer Cyclical	Wide	•		•		
Zimmer Biomet Holdings Inc	ZBH	Healthcare	Wide			•		•
Zoetis Inc	ZTS	Healthcare	Wide	•		•		

Appendix C

Exhibit 1C Moat Ratings and Moat Sources by Company: Narrow-Moat-Rated Firms

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Abbott Laboratories	ABT	Healthcare	Narrow			•		
AbbVie Inc	ABBV	Healthcare	Narrow			•		
Accor SA	AC	Consumer Cyclical	Narrow				•	•
Activision Blizzard Inc	ATVI	Technology	Narrow			•		
Adelaide Brighton Ltd	ABC	Basic Materials	Narrow	•				
adidas AG	ADS	Consumer Cyclical	Narrow			•		
Adient PLC	ADNT	Consumer Cyclical	Narrow	•	•	•		•
Advance Auto Parts Inc	AAP	Consumer Cyclical	Narrow	•		•		
Aetna Inc	AET	Healthcare	Narrow	•				
Agilent Technologies Inc	A	Healthcare	Narrow			•		•
AGL Energy Ltd	AGL	Utilities	Narrow	•				
Agricultural Bank of China Ltd	601288	Financial Services	Narrow	•		•	•	•
Ainsworth Game Technology Ltd	AGI	Consumer Cyclical	Narrow			•		
Air Liquide SA	AI	Basic Materials	Narrow					•
Air Products & Chemicals Inc	APD	Basic Materials	Narrow					•
Airbus SE	AIR	Industrials	Narrow			•		•
Albemarle Corp	ALB	Basic Materials	Narrow	•				•
ALE Property Group	LEP	Real Estate	Narrow			•		
Alexion Pharmaceuticals Inc	ALXN	Healthcare	Narrow			•		
Allegheny Technologies Inc	ATI	Industrials	Narrow			•		•
Alliance Data Systems Corp	ADS	Financial Services	Narrow				•	•
AllianceBernstein Holding LP	AB	Financial Services	Narrow			•		•
Alliant Energy Corp	LNT	Utilities	Narrow		•			
Amadeus IT Group SA A	AMS	Technology	Narrow		•		•	•
AMC Networks Inc A	AMCX	Consumer Cyclical	Narrow			•		
Amcor Ltd	AMC	Consumer Cyclical	Narrow		•			
Amdocs Ltd	DOX	Technology	Narrow					•
America Movil SAB de CV ADR	AMOV	Communication Services	Narrow	•	•			
American Electric Power Co Inc	AEP	Utilities	Narrow		•			
American Tower Corp	AMT	Communication Services	Narrow	•				•
American Water Works Co Inc	AWK	Utilities	Narrow		•			
AmeriGas Partners LP	APU	Utilities	Narrow		•			•
Ameriprise Financial Inc	AMP	Financial Services	Narrow	•		•		
AMETEK Inc	AME	Industrials	Narrow		•	•		•
AMN Healthcare Services Inc	AMN	Healthcare	Narrow			•	•	
AMP Ltd	AMP	Financial Services	Narrow	•				•
Amphenol Corp Class A	APH	Technology	Narrow					•
Anhui Conch Cement Co Ltd	600585	Basic Materials	Narrow	•		•		
Anixter International Inc	AXE	Industrials	Narrow	•			•	
Ansell Ltd	ANN	Healthcare	Narrow	•		•		
Ansys Inc	ANSS	Technology	Narrow			•		•
ANTA Sports Products Ltd	02020	Consumer Cyclical	Narrow			•		
Anthem Inc	ANTM	Healthcare	Narrow	•			•	
Aon PLC	AON	Financial Services	Narrow	•				•
APA Group	APA	Utilities	Narrow		•	•		
Apollo Global Management LLC Class A	APO	Financial Services	Narrow			•		•
Apple Inc	AAPL	Technology	Narrow					•
AptarGroup Inc	ATR	Consumer Cyclical	Narrow			•		•
ARB Corp Ltd	ARB	Consumer Cyclical	Narrow			•		
Aristocrat Leisure Ltd	ALL	Technology	Narrow			•		

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Asbury Automotive Group Inc	ABG	Consumer Cyclical	Narrow	•		•		
ASML Holding NV	ASML	Technology	Narrow	•		•		
AT&T Inc	T	Communication Services	Narrow	•	•			
Atlas Copco AB A	ATCO A	Industrials	Narrow			•		•
Atmos Energy Corp	ATO	Utilities	Narrow		•			
Atos SE	ATO	Technology	Narrow					•
Aurizon Holdings Ltd	AZJ	Industrials	Narrow	•	•			
Australian Pharmaceutical Industries Ltd	API	Healthcare	Narrow		•			
Autoliv Inc	ALV	Consumer Cyclical	Narrow	•		•		•
Automotive Holdings Group Ltd	AHG	Consumer Cyclical	Narrow	•		•		
AutoNation Inc	AN	Consumer Cyclical	Narrow	•		•		
AutoZone Inc	AZO	Consumer Cyclical	Narrow	•		•		
Babcock International Group PLC	BAB	Industrials	Narrow			•		•
BAE Systems PLC	BA.	Industrials	Narrow			•		•
Balchem Corp	BCPC	Basic Materials	Narrow		•	•		•
Ball Corp	BLL	Consumer Cyclical	Narrow		•			
Banco Bilbao Vizcaya Argentaria SA	BBVA	Financial Services	Narrow	•				•
Banco De Chile ADR	BCH	Financial Services	Narrow	•				•
Banco Santander Chile ADR	BSAC	Financial Services	Narrow	•				•
Banco Santander SA	SAN	Financial Services	Narrow	•				•
Bank Bradesco SA ADR	BBD	Financial Services	Narrow	•				•
Bank of America Corporation	BAC	Financial Services	Narrow	•		•		•
Bank Of China Ltd	601988	Financial Services	Narrow	•		•		•
Bank of Montreal	BMO	Financial Services	Narrow	•				•
Basf SE	BAS	Basic Materials	Narrow	•				
Baxter International Inc	BAX	Healthcare	Narrow	•				•
Bayer AG	BAYN	Healthcare	Narrow			•		
Bayerische Motoren Werke AG	BMW	Consumer Cyclical	Narrow			•		
BB&T Corp	BBT	Financial Services	Narrow	•				•
BCE Inc	BCE	Communication Services	Narrow	•	•			
Becton, Dickinson and Co	BDX	Healthcare	Narrow	•				•
Beiersdorf AG	BEI	Consumer Defensive	Narrow	•				
Beijing Capital International Airport Co Ltd H	00694	Industrials	Narrow		•			
Beijing Enterprises Holdings Ltd	00392	Industrials	Narrow		•	•		
Bemis Co Inc	BMS	Consumer Cyclical	Narrow			•		
Biomarin Pharmaceutical Inc	BMRN	Healthcare	Narrow		•	•		
BioMerieux SA	BIM	Healthcare	Narrow	•		•		
Blackmores Ltd	BKL	Consumer Defensive	Narrow			•		
Blue Buffalo Pet Products Inc	BUFF	Consumer Defensive	Narrow			•		
BNP Paribas	BNP	Financial Services	Narrow	•				•
BOC Hong Kong Holdings Ltd	02388	Financial Services	Narrow	•				•
BorgWarner Inc	BWA	Consumer Cyclical	Narrow	•		•		•
Boston Beer Co Inc Class A	SAM	Consumer Defensive	Narrow			•		
Boston Scientific Corp	BSX	Healthcare	Narrow			•		
Breville Group Ltd	BRG	Technology	Narrow			•		
Broadcom Ltd	AVGO	Technology	Narrow			•		
BRP Inc	DOO	Consumer Cyclical	Narrow			•		
BT Group PLC	BT.A	Communication Services	Narrow	•	•			
BT Investment Management Ltd	BTT	Financial Services	Narrow			•		•
Bunzl PLC	BNZL	Consumer Defensive	Narrow	•				
Burberry Group PLC	BRBY	Consumer Cyclical	Narrow			•		
Bureau Veritas SA	BVI	Industrials	Narrow			•		•
BWP Trust	BWP	Real Estate	Narrow			•		
C.R. Bard Inc	BCR	Healthcare	Narrow	•		•		
CA Inc	CA	Technology	Narrow					•
Cameco Corp	CCO	Basic Materials	Narrow	•				
Canadian Imperial Bank of Commerce	CM	Financial Services	Narrow	•				•
Cappgemini SA	CAP	Technology	Narrow			•		•
Capital One Financial Corp	COF	Financial Services	Narrow	•				•
CapitalLand Commercial Trust	C61U	Real Estate	Narrow		•	•		

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
CapitaLand Ltd	C31	Real Estate	Narrow		•	•	•	
CapitaLand Mall Trust	C38U	Real Estate	Narrow		•		•	
CarMax Inc	KMX	Consumer Cyclical	Narrow	•		•	•	
Carnival Corp	CCL	Consumer Cyclical	Narrow	•	•	•		
Carpenter Technology Corp	CRS	Industrials	Narrow			•		•
Carsales.com Ltd	CAR	Technology	Narrow				•	
CBS Corp Class B	CBS	Consumer Cyclical	Narrow			•		
Celanese Corp	CE	Basic Materials	Narrow	•		•		
Celgene Corp	CELG	Healthcare	Narrow			•		
Cemex SAB de CV ADR	CX	Basic Materials	Narrow	•		•		
CenterPoint Energy Inc	CNP	Utilities	Narrow		•			
Central Japan Railway Co	9022	Industrials	Narrow		•	•		
Centrica PLC	CNA	Utilities	Narrow		•			
CenturyLink Inc	CTL	Communication Services	Narrow	•	•			
CGI Group Inc A	GIB.A	Technology	Narrow					•
Charles River Laboratories International Inc	CRL	Healthcare	Narrow			•		
Charter Hall Group	CHC	Real Estate	Narrow			•		•
Check Point Software Technologies Ltd	CHKP	Technology	Narrow			•		•
Cheung Kong Infrastructure Holdings Ltd	01038	Industrials	Narrow		•	•		
Cheung Kong Property Holdings Ltd	01113	Real Estate	Narrow	•	•			
Chevron Corp	CVX	Energy	Narrow	•				
China Construction Bank Corp	601939	Financial Services	Narrow	•		•		•
China Gas Holdings Ltd	00384	Utilities	Narrow		•	•		
China Merchants Bank Co Ltd	600036	Financial Services	Narrow	•		•		•
China Mobile Ltd	00941	Communication Services	Narrow	•	•			
China Resources Gas Group Ltd	01193	Utilities	Narrow		•	•		
China Shenhua Energy Co Ltd	601088	Basic Materials	Narrow	•				
China Telecom Corp Ltd H Shares	00728	Communication Services	Narrow	•	•			
China Unicom (Hong Kong) Ltd	00762	Communication Services	Narrow	•	•			
Chipotle Mexican Grill Inc Class A	CMG	Consumer Cyclical	Narrow			•		
Choice Hotels International Inc	CHH	Consumer Cyclical	Narrow			•		•
Chubb Ltd	CB	Financial Services	Narrow	•				
Chugai Pharmaceutical Co Ltd	4519	Healthcare	Narrow			•		
CI Financial Corp	CIX	Financial Services	Narrow			•		•
Cisco Systems Inc	CSCO	Technology	Narrow			•		•
Citigroup Inc	C	Financial Services	Narrow	•				•
Citrix Systems Inc	CTXS	Technology	Narrow			•		•
Clean Harbors Inc	CLH	Industrials	Narrow			•		
CLP Holdings Ltd	00002	Utilities	Narrow		•	•		
CMS Energy Corp	CMS	Utilities	Narrow		•			
Coach Inc	COH	Consumer Cyclical	Narrow			•		
Coca-Cola Amatil Ltd	CCL	Consumer Defensive	Narrow			•		
Coca-Cola Femsa SAB de CV ADR	KOF	Consumer Defensive	Narrow			•		
Cochlear Ltd	COH	Healthcare	Narrow			•		•
Cognizant Technology Solutions Corp A	CTSH	Technology	Narrow					•
Cohen & Steers Inc	CNS	Financial Services	Narrow			•		•
Coloplast A/S B	COLO B	Healthcare	Narrow	•				•
Comerica Inc	CMA	Financial Services	Narrow	•				•
Compass Group PLC	CPG	Consumer Cyclical	Narrow	•				•
Computershare Ltd	CPU	Technology	Narrow	•				•
Conagra Brands Inc	CAG	Consumer Defensive	Narrow			•		
Constellation Brands Inc A	STZ	Consumer Defensive	Narrow			•		
Contact Energy Ltd	CEN	Utilities	Narrow		•			
Continental AG	CON	Consumer Cyclical	Narrow	•		•		•
Corning Inc	GLW	Technology	Narrow	•		•		
CPFL Energia SA ADR	CPL	Utilities	Narrow		•			
Credit Agricole SA	ACA	Financial Services	Narrow	•				•
Credit Suisse Group AG	CSGN	Financial Services	Narrow			•		•
Criteo SA ADR	CRTO	Technology	Narrow			•	•	
Croda International PLC	CRDA	Basic Materials	Narrow			•		•

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Crown Castle International Corp	CCI	Communication Services	Narrow		•			•
Crown Holdings Inc	CCK	Consumer Cyclical	Narrow		•			
Crown Resorts Ltd	CWN	Consumer Cyclical	Narrow			•		
CSL Ltd	CSL	Healthcare	Narrow	•		•		
CSRA Inc	CSRA	Technology	Narrow					•
Ctrip.com International Ltd ADR	CTRP	Consumer Cyclical	Narrow				•	
Cullen/Frost Bankers Inc	CFR	Financial Services	Narrow	•				•
Cummins Inc	CMI	Industrials	Narrow	•				
Danaher Corp	DHR	Healthcare	Narrow	•		•		•
Danone SA	BN	Consumer Defensive	Narrow	•		•		
Danske Bank A/S	DANSKE	Financial Services	Narrow	•				•
Dassault Aviation SA	AM	Industrials	Narrow			•		•
DaVita Inc	DVA	Healthcare	Narrow	•				
DBS Group Holdings Ltd	D05	Financial Services	Narrow	•				•
Delphi Automotive PLC	DLPH	Consumer Cyclical	Narrow	•		•		•
Deutsche Boerse AG	DB1	Financial Services	Narrow	•		•	•	
Deutsche Post AG	DPW	Industrials	Narrow	•			•	
Dexus	DXS	Real Estate	Narrow		•			
Discover Financial Services	DFS	Financial Services	Narrow	•		•	•	
Discovery Communications Inc Class A	DISCA	Consumer Cyclical	Narrow			•		
DISH Network Corp	DISH	Communication Services	Narrow	•				
Dollar General Corp	DG	Consumer Defensive	Narrow	•		•		
Dollar Tree Inc	DLTR	Consumer Defensive	Narrow	•		•		
Domino's Pizza Enterprises Ltd	DMP	Consumer Cyclical	Narrow			•		
Dover Corp	DOV	Industrials	Narrow			•		•
DTE Energy Co	DTE	Utilities	Narrow		•			
Duke Energy Corp	DUK	Utilities	Narrow		•			
DuluxGroup Ltd	DLX	Basic Materials	Narrow			•		
Dunkin' Brands Group Inc	DNKN	Consumer Cyclical	Narrow			•		
E.I. du Pont de Nemours & Co	DD	Basic Materials	Narrow	•		•		
East Japan Railway Co	9020	Industrials	Narrow		•	•		
Eaton Corp PLC	ETN	Industrials	Narrow			•		•
eBay Inc	EBAY	Consumer Cyclical	Narrow				•	
Ebos Group Ltd	EBO	Healthcare	Narrow		•			
Echo Global Logistics Inc	ECHO	Industrials	Narrow				•	
Ecolab Inc	ECL	Basic Materials	Narrow			•		•
Edison International	EIX	Utilities	Narrow		•			
Edwards Lifesciences Corp	EW	Healthcare	Narrow			•		
Electronic Arts Inc	EA	Technology	Narrow			•		
Embraer SA ADR	ERJ	Industrials	Narrow			•		•
Enbridge Energy Partners LP	EEP	Energy	Narrow		•			
Enel Americas SA ADR	ENIA	Utilities	Narrow		•			
Enel Generacion Chile SA ADR	EOCC	Utilities	Narrow		•			
Energy Transfer Equity LP	ETE	Energy	Narrow		•			•
Energy Transfer Partners LP	ETP	Energy	Narrow		•			•
ENN Energy Holdings Ltd	02688	Utilities	Narrow		•	•		
Equinix Inc	EQIX	Real Estate	Narrow		•			•
Evercore Partners Inc A	EVR	Financial Services	Narrow			•		
Exelon Corp	EXC	Utilities	Narrow	•	•			
Expedia Inc	EXPE	Consumer Cyclical	Narrow			•	•	
Exxon Mobil Corp	XOM	Energy	Narrow	•		•		
F5 Networks Inc	FFIV	Technology	Narrow			•		•
Federated Investors Inc Class B	FII	Financial Services	Narrow			•		•
FedEx Corp	FDX	Industrials	Narrow	•	•		•	
Fidelity National Information Services Inc	FIS	Industrials	Narrow					•
Fifth Third Bancorp	FITB	Financial Services	Narrow	•				•
First Republic Bank	FRC	Financial Services	Narrow	•				•
Fisher & Paykel Healthcare Corp Ltd	FPH	Healthcare	Narrow			•		•
Fluor Corp	FLR	Industrials	Narrow			•		•
FMC Corp	FMC	Basic Materials	Narrow			•		•

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Folkestone Education Trust	FET	Real Estate	Narrow					•
Fomento Economico Mexicano SAB de CV ADR	FMX	Consumer Defensive	Narrow	•		•		
Fortis Inc	FTS	Utilities	Narrow		•			
Fortune Brands Home & Security Inc	FBHS	Consumer Cyclical	Narrow			•		
Forward Air Corp	FWRD	Industrials	Narrow	•				
Freightways Ltd	FRE	Industrials	Narrow	•	•			
Fresenius Medical Care AG & Co. KGaA	FME	Healthcare	Narrow	•				
Fresenius SE & Co KGaA	FRE	Healthcare	Narrow	•				•
Frontier Communications Corp Class B	FTR	Communication Services	Narrow		•			
Galaxy Entertainment Group Ltd	00027	Consumer Cyclical	Narrow			•		
Garmin Ltd	GRMN	Technology	Narrow			•		•
Geberit AG	GEBN	Basic Materials	Narrow			•		
General Mills Inc	GIS	Consumer Defensive	Narrow	•		•		
Genesee & Wyoming Inc Class A	GWR	Industrials	Narrow	•				
Genesis Energy Ltd	GNE	Utilities	Narrow		•			
Gentex Corp	GNTX	Consumer Cyclical	Narrow	•	•			•
Genting Singapore PLC	G13	Consumer Cyclical	Narrow			•		
Genuine Parts Co	GPC	Consumer Cyclical	Narrow	•		•		
GGP Inc	GGP	Real Estate	Narrow		•		•	
Givaudan SA	GIVN	Basic Materials	Narrow					•
GKN PLC	GKN	Consumer Cyclical	Narrow			•		•
Global Payments Inc	GPN	Industrials	Narrow	•				•
Goldman Sachs Group Inc	GS	Financial Services	Narrow			•	•	
Goodman Group	GMG	Real Estate	Narrow		•			•
GPT Group	GPT	Real Estate	Narrow		•			
Greenhill & Co Inc	GHL	Financial Services	Narrow			•		
Grifols SA B	GRF.P	Healthcare	Narrow	•		•		
Group 1 Automotive Inc	GPI	Consumer Cyclical	Narrow	•		•		
GWA Group Ltd	GWA	Consumer Cyclical	Narrow			•		
H. Lundbeck A/S	LUN	Healthcare	Narrow			•		
Halliburton Co	HAL	Energy	Narrow	•		•		
Hanesbrands Inc	HBI	Consumer Cyclical	Narrow			•		
Hang Seng Bank Ltd	00011	Financial Services	Narrow	•				•
Hannover Rueck SE	HNR1	Financial Services	Narrow	•				
Hasbro Inc	HAS	Consumer Cyclical	Narrow			•		
Hawaiian Electric Industries Inc	HE	Utilities	Narrow		•			
HCP Inc	HCP	Real Estate	Narrow		•			•
HD Supply Holdings Inc	HDS	Industrials	Narrow	•			•	
Healthscope Ltd	HSO	Healthcare	Narrow	•				
HeidelbergCement AG	HEI	Basic Materials	Narrow	•		•		
Heineken NV	HEIA	Consumer Defensive	Narrow	•		•		
Henderson Group PLC	HGG	Financial Services	Narrow	•		•		•
Henkel AG & Co KGaA Pfd Shs - Non-voting	HEN3	Consumer Defensive	Narrow	•		•		•
Hennes & Mauritz AB B	HM B	Consumer Cyclical	Narrow	•		•		
Hi-Crush Partners LP	HCLP	Basic Materials	Narrow	•				
Hilton Worldwide Holdings Inc	HLT	Consumer Cyclical	Narrow			•		•
HollyFrontier Corp	HFC	Energy	Narrow	•				
Hologic Inc	HOLX	Healthcare	Narrow			•		•
Hong Kong and China Gas Co Ltd	00003	Utilities	Narrow		•			
Hormel Foods Corp	HRL	Consumer Defensive	Narrow			•		
Hotel Property Investments	HPI	Real Estate	Narrow			•		
HSBC Holdings PLC	HSBA	Financial Services	Narrow	•				•
Hub Group Inc Class A	HUBG	Industrials	Narrow	•			•	
Huntington Bancshares Inc	HBAN	Financial Services	Narrow	•				•
Icon PLC	ICLR	Healthcare	Narrow			•		•
IDEXX Laboratories Inc	IDXX	Healthcare	Narrow	•		•		
IGM Financial Inc	IGM	Financial Services	Narrow			•		•
Illinois Tool Works Inc	ITW	Industrials	Narrow	•		•		
Illumina Inc	ILMN	Healthcare	Narrow			•		•
Imax Corp	IMAX	Consumer Cyclical	Narrow			•	•	•

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Industria De Diseno Textil SA	ITX	Consumer Cyclical	Narrow	•		•		
Industrial And Commercial Bank Of China Ltd	601398	Financial Services	Narrow	•		•		•
Infineon Technologies AG	IFX	Technology	Narrow	•		•		•
Infosys Ltd	500209	Technology	Narrow					•
Infratil Ltd	IFT	Utilities	Narrow		•			
Ingersoll-Rand PLC	IR	Industrials	Narrow			•		•
Inner Mongolia Yili Industrial Group Co Ltd	600887	Consumer Defensive	Narrow	•		•		
InterContinental Hotels Group PLC	IHG	Consumer Cyclical	Narrow			•		•
International Business Machines Corp	IBM	Technology	Narrow			•		•
International Flavors & Fragrances Inc	IFF	Basic Materials	Narrow			•		•
International Speedway Corp Class A	ISCA	Consumer Cyclical	Narrow		•	•		
Intertek Group PLC	ITRK	Industrials	Narrow			•		•
Invesco Ltd	IVZ	Financial Services	Narrow			•		•
Investa Office Fund	IOF	Real Estate	Narrow		•	•		
InvoCare Ltd	IVC	Consumer Cyclical	Narrow	•		•		
IOOF Holdings Ltd	IFL	Financial Services	Narrow			•		•
IRESS Ltd	IRE	Technology	Narrow				•	•
iRobot Corp	IRBT	Technology	Narrow			•		
Iron Mountain Inc	IRM	Industrials	Narrow	•				•
Itau Unibanco Holding SA ADR	ITUB	Financial Services	Narrow					
James Hardie Industries PLC DR	JHX	Basic Materials	Narrow	•		•		
Janus Capital Group Inc	JNS	Financial Services	Narrow			•		•
JB Hunt Transport Services Inc	JBHT	Industrials	Narrow	•			•	
Jiangsu Expressway Co Ltd	600377	Industrials	Narrow		•			
JM Smucker Co	SJM	Consumer Defensive	Narrow			•		
Johnson Controls International PLC	JCI	Basic Materials	Narrow	•		•		•
Johnson Matthey PLC	JMAT	Basic Materials	Narrow			•		
JPMorgan Chase & Co	JPM	Financial Services	Narrow	•		•		•
Juniper Networks Inc	JNPR	Technology	Narrow			•		•
KBC Group SA/NV	KBC	Financial Services	Narrow	•				•
KDDI Corp	9433	Communication Services	Narrow	•	•			
Kellogg Co	K	Consumer Defensive	Narrow	•		•		
Kimberly-Clark Corp	KMB	Consumer Defensive	Narrow			•		
Kingfisher PLC	KGF	Consumer Cyclical	Narrow	•		•		
KION GROUP AG	KGX	Industrials	Narrow			•		•
Kirby Corp	KEX	Industrials	Narrow	•		•		
Kiwi Property Group Ltd	KPG	Real Estate	Narrow		•			
KKR & Co LP	KKR	Financial Services	Narrow			•		•
Koninklijke KPN NV	KPN	Communication Services	Narrow	•	•			
KT Corp ADR	KT	Communication Services	Narrow		•			
Kubota Corp	6326	Industrials	Narrow			•		
Kuehne + Nagel International AG	KNIN	Industrials	Narrow				•	
L3 Technologies Inc	LLL	Industrials	Narrow			•		•
Laboratory Corp of America Holdings	LH	Healthcare	Narrow	•				
LafargeHolcim Ltd	LHN	Basic Materials	Narrow	•		•		
Lam Research Corp	LRCX	Technology	Narrow	•		•		
Las Vegas Sands Corp	LVS	Consumer Cyclical	Narrow			•		
Lazard Ltd Shs A	LAZ	Financial Services	Narrow			•	•	•
Lear Corp	LEA	Consumer Cyclical	Narrow	•	•	•		•
Legg Mason Inc	LM	Financial Services	Narrow			•		•
Legrand SA	LR	Industrials	Narrow			•		•
Liberty Global PLC Class A	LBTYA	Communication Services	Narrow		•			•
Linde AG	LIN	Basic Materials	Narrow			•		•
Link Administration Holdings Ltd	LNK	Financial Services	Narrow	•				•
Link Real Estate Investment Trust	00823	Real Estate	Narrow		•			
Lithia Motors Inc Class A	LAD	Consumer Cyclical	Narrow	•	•	•		
LKQ Corp	LKQ	Consumer Cyclical	Narrow	•			•	
Lloyds Banking Group PLC	LLOY	Financial Services	Narrow	•				•
Loen Entertainment Inc	016170	Consumer Cyclical	Narrow			•	•	
London Stock Exchange Group PLC	LSE	Financial Services	Narrow	•		•	•	

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Luxtistica Group SpA	LUX	Consumer Cyclical	Narrow	•				
LyondellBasell Industries NV	LYB	Basic Materials	Narrow	•				
M&T Bank Corp	MTB	Financial Services	Narrow	•				•
M1 Ltd	B2F	Communication Services	Narrow	•	•			
Macerich Co	MAC	Real Estate	Narrow		•		•	
Magellan Financial Group Ltd	MFG	Financial Services	Narrow			•		•
Marathon Petroleum Corp	MPC	Energy	Narrow	•				
MarketAxess Holdings Inc	MKTX	Financial Services	Narrow	•			•	
Marriott International Inc Class A	MAR	Consumer Cyclical	Narrow			•		•
Marsh & McLennan Companies Inc	MMC	Financial Services	Narrow	•				•
Martin Marietta Materials Inc	MLM	Basic Materials	Narrow	•		•		
Masco Corp	MAS	Basic Materials	Narrow	•		•		
Match Group Inc	MTCH	Technology	Narrow				•	
Mattel Inc	MAT	Consumer Cyclical	Narrow			•		
Medibank Private Ltd	MPL	Financial Services	Narrow	•				
Meggitt PLC	MGMT	Industrials	Narrow			•		•
Meiji Holdings Co Ltd	2269	Consumer Defensive	Narrow			•		
Melco Resorts and Entertainment Ltd ADR	MLCO	Consumer Cyclical	Narrow			•		
Merck KGaA	MRK	Healthcare	Narrow			•		
Mercury NZ Ltd	MCY	Utilities	Narrow	•	•			
Meridian Energy Ltd	MEL	Utilities	Narrow	•	•			
Mettler-Toledo International Inc	MTD	Healthcare	Narrow	•	•	•		
Millicom International Cellular SA	MIICF	Communication Services	Narrow	•	•			
Mobile TeleSystems PJSC ADR	MBT	Communication Services	Narrow	•	•			
Mobileye NV	MBLY	Technology	Narrow			•		•
Molson Coors Brewing Co B	TAP	Consumer Defensive	Narrow	•		•		
Monster Beverage Corp	MNST	Consumer Defensive	Narrow			•		
Morgan Stanley	MS	Financial Services	Narrow			•	•	
Motorola Solutions Inc	MSI	Technology	Narrow			•		•
MSC Industrial Direct Co Inc	MSM	Industrials	Narrow	•			•	
MSCI Inc	MSCI	Financial Services	Narrow			•		•
MTR Corp Ltd	00066	Industrials	Narrow	•	•			
Murata Manufacturing Co Ltd	6981	Technology	Narrow			•		
MYOB Group Ltd	MYO	Technology	Narrow					•
Myriad Genetics Inc	MYGN	Healthcare	Narrow			•		
Nasdaq Inc	NDAQ	Financial Services	Narrow	•			•	
National Bank of Canada	NA	Financial Services	Narrow	•		•		•
National Grid PLC	NG.	Utilities	Narrow		•			
Netflix Inc	NFLX	Consumer Cyclical	Narrow			•	•	
New Jersey Resources Corp	NJR	Utilities	Narrow		•			
New York Community Bancorp Inc	NYCB	Financial Services	Narrow	•				•
NextEra Energy Inc	NEE	Utilities	Narrow		•			
NIB Holdings Ltd	NHF	Financial Services	Narrow	•				
Nidec Corp	6594	Industrials	Narrow			•		•
Nippon Telegraph & Telephone Corp	9432	Communication Services	Narrow		•			
NiSource Inc	NI	Utilities	Narrow		•			
Nordea Bank AB	NDA SEK	Financial Services	Narrow	•				•
Nordstrom Inc	JWN	Consumer Cyclical	Narrow			•		
Northrop Grumman Corp	NOC	Industrials	Narrow			•		•
Norwegian Cruise Line Holdings Ltd	NCLH	Consumer Cyclical	Narrow	•	•	•		
NTT DOCOMO Inc	9437	Communication Services	Narrow	•	•			
Oaktree Capital Group LLC	OAK	Financial Services	Narrow			•		•
Omnicom Group Inc	OMC	Consumer Cyclical	Narrow			•		•
ONEOK Inc	OKE	Energy	Narrow		•			•
ONEOK Partners LP	OKS	Energy	Narrow		•			•
Orange SA	ORA	Communication Services	Narrow	•	•			
O'Reilly Automotive Inc	ORLY	Consumer Cyclical	Narrow	•		•		
Ormat Technologies Inc	ORA	Utilities	Narrow	•				
Oversea-Chinese Banking Corp Ltd	O39	Financial Services	Narrow	•				•
Owens-Illinois Inc	OI	Consumer Cyclical	Narrow	•	•			

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
PACCAR Inc	PCAR	Industrials	Narrow	•		•		
Panera Bread Co Class A	PNRA	Consumer Cyclical	Narrow			•		
Parexel International Corp	PRXL	Healthcare	Narrow			•		•
Parker Hannifin Corp	PH	Industrials	Narrow	•				•
PayPal Holdings Inc	PYPL	Financial Services	Narrow			•	•	
Pearson PLC	PSO	Consumer Cyclical	Narrow			•		•
Pembina Pipeline Corp	PPL	Energy	Narrow		•			
Penske Automotive Group Inc	PAG	Consumer Cyclical	Narrow	•		•		
Pentair PLC	PNR	Industrials	Narrow			•		•
Pernod Ricard SA	RI	Consumer Defensive	Narrow	•		•		
Perpetual Ltd	PPT	Financial Services	Narrow			•		•
Petrofac Ltd	PFC	Energy	Narrow			•		
Peyto Exploration & Development Corp	PEY	Energy	Narrow	•				
Phillips 66	PSX	Energy	Narrow	•				
Phillips 66 Partners LP	PSXP	Energy	Narrow		•			
Pinnacle West Capital Corp	PNW	Utilities	Narrow		•			
Plains All American Pipeline LP	PAA	Energy	Narrow		•			
Plains GP Holdings LP Class A	PAGP	Energy	Narrow		•			
Platinum Asset Management Ltd	PTM	Financial Services	Narrow			•		•
Portland General Electric Co	POR	Utilities	Narrow		•			
Potash Corp of Saskatchewan Inc	POT	Basic Materials	Narrow	•				
Power Assets Holdings Ltd	00006	Utilities	Narrow		•	•		
PPG Industries Inc	PPG	Basic Materials	Narrow					•
PPL Corp	PPL	Utilities	Narrow		•			
Precinct Properties New Zealand Ltd	PCT	Real Estate	Narrow		•			
Progressive Corp	PGR	Financial Services	Narrow	•				
Prosegur Compania De Seguridad SA	PSG	Industrials	Narrow					•
Proximus SA	PROX	Communication Services	Narrow	•	•			
Public Service Enterprise Group Inc	PEG	Utilities	Narrow		•			
Publicis Groupe SA	PUB	Consumer Cyclical	Narrow			•		•
PVH Corp	PVH	Consumer Cyclical	Narrow			•		
QBE Insurance Group Ltd	QBE	Financial Services	Narrow	•				
Qualcomm Inc	QCOM	Technology	Narrow			•		
Qube Holdings Ltd	QUB	Industrials	Narrow	•			•	
Quest Diagnostics Inc	DGX	Healthcare	Narrow	•				
Radware Ltd	RDWR	Technology	Narrow					•
Rakuten Inc	4755	Consumer Cyclical	Narrow			•	•	
Ralph Lauren Corp Class A	RL	Consumer Cyclical	Narrow			•		
Ramsay Health Care Ltd	RHC	Healthcare	Narrow	•				
Raytheon Co	RTN	Industrials	Narrow			•		•
REA Group Ltd	REA	Technology	Narrow				•	
Reckitt Benckiser Group PLC	RB	Consumer Defensive	Narrow	•		•		
Red Electrica Corporacion SA	REE	Utilities	Narrow		•			
Red Hat Inc	RHT	Technology	Narrow	•			•	
Regeneron Pharmaceuticals Inc	REGN	Healthcare	Narrow			•		
RELX NV	REN	Consumer Cyclical	Narrow			•		•
RELX PLC ADR	RELX	Consumer Cyclical	Narrow			•		•
Republic Services Inc Class A	RSG	Industrials	Narrow	•		•		
ResMed Inc	RMD	Healthcare	Narrow			•		•
Restaurant Brands International Inc	QSR	Consumer Cyclical	Narrow			•		
Robert Half International Inc	RHI	Industrials	Narrow			•	•	
Rockwell Collins Inc	COL	Industrials	Narrow	•		•		•
Rogers Communications Inc Class B	RCI.B	Communication Services	Narrow	•	•			
Rolls-Royce Holdings PLC	RR	Industrials	Narrow			•		•
Roper Technologies Inc	ROP	Industrials	Narrow		•		•	•
Ross Stores Inc	ROST	Consumer Cyclical	Narrow	•		•		
Royal Caribbean Cruises Ltd	RCL	Consumer Cyclical	Narrow	•	•	•		
Royal Philips NV	PHIA	Industrials	Narrow			•		•
Ryman Healthcare Ltd	RYM	Healthcare	Narrow	•		•		
Sabre Corp	SABR	Technology	Narrow		•		•	•

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Sage Group (The) PLC	SGE	Technology	Narrow					•
Samsonite International SA	01910	Consumer Cyclical	Narrow			•		
Sands China Ltd	01928	Consumer Cyclical	Narrow			•		
SAP SE	SAP	Technology	Narrow					•
SBA Communications Corp	SBAC	Communication Services	Narrow		•			•
SCANA Corp	SCG	Utilities	Narrow		•			
Scentre Group	SCG	Real Estate	Narrow		•		•	
Schlumberger Ltd	SLB	Energy	Narrow	•		•		
SCOR SE	SCR	Financial Services	Narrow	•				
Scripps Networks Interactive Inc A	SNI	Consumer Cyclical	Narrow			•		
Sealed Air Corp	SEE	Consumer Cyclical	Narrow			•		•
Seek Ltd	SEK	Technology	Narrow				•	
Sempra Energy	SRE	Utilities	Narrow		•			
Sensient Technologies Corp	SXT	Basic Materials	Narrow			•		•
ServiceNow Inc	NOW	Technology	Narrow					•
Seven & i Holdings Co Ltd	3382	Consumer Defensive	Narrow	•		•		
SFR Group SA	SFR	Communication Services	Narrow	•	•			
SGS Ltd	SGSN	Industrials	Narrow			•		•
Shaw Communications Inc Class B	SJR.B	Communication Services	Narrow	•	•			
Sherwin-Williams Co	SHW	Basic Materials	Narrow			•		
Shire PLC	SHP	Healthcare	Narrow	•		•		
Shiseido Co Ltd	4911	Consumer Defensive	Narrow			•		
Siemens AG	SIE	Industrials	Narrow			•		•
Sigma Healthcare Ltd	SIG	Healthcare	Narrow		•			
Signature Bank	SBNY	Financial Services	Narrow	•				•
Silgan Holdings Inc	SLGN	Consumer Cyclical	Narrow	•				•
Simon Property Group Inc	SPG	Real Estate	Narrow		•		•	
SINA Corp	SINA	Technology	Narrow				•	
Singapore Exchange Ltd	S68	Financial Services	Narrow	•			•	
Singapore Technologies Engineering Ltd	S63	Industrials	Narrow			•		•
Singapore Telecommunications Ltd	Z74	Communication Services	Narrow	•	•			
SJM Holdings Ltd	00880	Consumer Cyclical	Narrow			•		
SK Telecom Co Ltd ADR	SKM	Communication Services	Narrow	•	•			
Sky Network Television Ltd	SKT	Communication Services	Narrow	•	•			
Sky PLC	SKY	Communication Services	Narrow		•			•
SkyCity Entertainment Group Ltd	SKC	Consumer Cyclical	Narrow			•		
Skyworks Solutions Inc	SWKS	Technology	Narrow			•		
Smith & Nephew PLC	SN.	Healthcare	Narrow			•		•
Smiths Group PLC	SMIN	Industrials	Narrow			•		•
Snap-on Inc	SNA	Industrials	Narrow			•	•	
Sodexo	SW	Industrials	Narrow					•
SoftBank Group Corp	9984	Communication Services	Narrow	•	•	•	•	
Sonic Automotive Inc	SAH	Consumer Cyclical	Narrow	•		•		
Sonic Healthcare Ltd	SHL	Healthcare	Narrow	•				
Sonova Holding AG	SOON	Healthcare	Narrow			•	•	•
Southern Co	SO	Utilities	Narrow		•			
Spark New Zealand Ltd	SPK	Communication Services	Narrow	•	•			
Spotless Group Holdings Ltd	SPO	Industrials	Narrow	•		•		
SSE PLC	SSE	Utilities	Narrow		•			
StarHub Ltd	CC3	Communication Services	Narrow	•	•			
Stockland Corp Ltd	SGP	Real Estate	Narrow	•	•			
Suburban Propane Partners LP	SPH	Utilities	Narrow		•			•
Summit Materials Inc A	SUM	Basic Materials	Narrow	•		•		
Sun Hung Kai Properties Ltd	00016	Real Estate	Narrow	•	•			
Swire Properties Ltd	01972	Real Estate	Narrow		•			
Swisscom AG	SCMN	Communication Services	Narrow	•	•			
Sydney Airport	SYD	Industrials	Narrow		•	•		
Symrise AG	SY1	Basic Materials	Narrow					•
Synchrony Financial	SYF	Financial Services	Narrow					•
Syngenta AG	SYNN	Basic Materials	Narrow			•		

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Sysco Corp	SY	Consumer Defensive	Narrow	•				
Tabcorp Holdings Ltd	TAH	Consumer Cyclical	Narrow			•	•	•
Taiwan Semiconductor Manufacturing Co Ltd	2330	Technology	Narrow	•		•		
Tallgrass Energy Partners LP	TEP	Energy	Narrow		•			
Tanger Factory Outlet Centers Inc	SKT	Real Estate	Narrow		•		•	
Tata Consultancy Services Ltd	532540	Technology	Narrow					•
Tata Motors Ltd	500570	Consumer Cyclical	Narrow	•		•		
Tatts Group Ltd	TTS	Consumer Cyclical	Narrow			•	•	•
Taubman Centers Inc	TCO	Real Estate	Narrow		•		•	
TD Ameritrade Holding Corp	AMTD	Financial Services	Narrow	•				
TechnipFMC PLC	FTI	Energy	Narrow		•	•		
Technology One Ltd	TNE	Technology	Narrow					•
Telecom Italia SpA	TIT	Communication Services	Narrow	•	•			
Telefonica Brasil SA ADR	VIV	Communication Services	Narrow	•	•			
Telefonica SA	TEF	Communication Services	Narrow	•	•			
Telenor ASA	TEL	Communication Services	Narrow	•	•			
Telia Company AB	TELIA	Communication Services	Narrow	•	•			
Telstra Corp Ltd	TLS	Communication Services	Narrow	•	•			
TELUS Corp	T	Communication Services	Narrow	•	•			
Tencent Holdings Ltd	00700	Technology	Narrow			•	•	•
Tenneco Inc	TEN	Consumer Cyclical	Narrow	•		•		•
Tesoro Corp	TSO	Energy	Narrow	•				
Tesoro Logistics LP	TLLP	Energy	Narrow		•			
Thales	HO	Industrials	Narrow			•		•
The Carlyle Group LP	CG	Financial Services	Narrow			•		•
The Cooper Companies Inc	COO	Healthcare	Narrow	•		•		
The Estee Lauder Companies Inc Class A	EL	Consumer Defensive	Narrow	•		•		
The Interpublic Group of Companies Inc	IPG	Consumer Cyclical	Narrow			•		•
The Kraft Heinz Co	KHC	Consumer Defensive	Narrow	•		•		
The Kroger Co	KR	Consumer Defensive	Narrow	•		•		
The Priceline Group Inc	PCLN	Consumer Cyclical	Narrow				•	
The Swatch Group AG Bearer Shares	UHR	Consumer Cyclical	Narrow	•		•		
The Travelers Companies Inc	TRV	Financial Services	Narrow	•				
The Valspar Corp	VAL	Basic Materials	Narrow					•
The Wharf (Holdings) Ltd	00004	Real Estate	Narrow		•			
Thermo Fisher Scientific Inc	TMO	Healthcare	Narrow	•		•		•
Thomson Reuters Corp	TRI	Financial Services	Narrow			•		•
TiVo Corp	TIVO	Technology	Narrow			•		
TJX Companies Inc	TJX	Consumer Cyclical	Narrow	•		•		
Tokyo Electron Ltd	8035	Technology	Narrow	•		•		
TPG Telecom Ltd	TPM	Communication Services	Narrow	•	•			
Tractor Supply Co	TSCO	Consumer Cyclical	Narrow			•		
Trade Me Group Ltd	TME	Technology	Narrow				•	
TransCanada Corp	TRP	Energy	Narrow	•	•			
Travelport Worldwide Ltd	TVPT	Consumer Cyclical	Narrow		•		•	
TripAdvisor Inc	TRIP	Consumer Cyclical	Narrow				•	
Trustpower Ltd	TPW	Utilities	Narrow		•			
Tsingtao Brewery Co Ltd	600600	Consumer Defensive	Narrow			•		
Ubisoft Entertainment	UBI	Technology	Narrow			•		
UBS Group AG	UBSG	Financial Services	Narrow			•		•
Under Armour Inc C	UA	Consumer Cyclical	Narrow			•		
United Breweries Co Inc ADR	CCU	Consumer Defensive	Narrow			•		
United Overseas Bank Ltd	U11	Financial Services	Narrow	•				•
United Therapeutics Corp	UTHR	Healthcare	Narrow			•		
United Utilities Group PLC	UU.	Utilities	Narrow		•			
UnitedHealth Group Inc	UNH	Healthcare	Narrow	•			•	
US Silica Holdings Inc	SLCA	Basic Materials	Narrow	•				
Valero Energy Corp	VLO	Energy	Narrow	•				
Vantiv Inc	VNTV	Industrials	Narrow					•
VCA Inc	WOOF	Healthcare	Narrow	•		•		

Name	Ticker	Sector	Economic Moat	Cost Advantage	Efficient Scale	Intangible Assets	Network Effect	Switching Costs
Ventas Inc	VTR	Real Estate	Narrow		•			•
Verint Systems Inc	VRNT	Technology	Narrow					•
VeriSign Inc	VRSN	Technology	Narrow		•			•
Verizon Communications Inc	VZ	Communication Services	Narrow	•	•			
Versum Materials Inc	VSM	Basic Materials	Narrow			•		•
Vertex Pharmaceuticals Inc	VRTX	Healthcare	Narrow			•		
Viacom Inc B	VIAB	Consumer Cyclical	Narrow			•		
Victrex PLC	VCT	Basic Materials	Narrow					•
Vinci SA	DG	Industrials	Narrow		•	•		
VMware Inc	VMW	Technology	Narrow					•
Vocus Group Ltd	VOC	Technology	Narrow	•	•			
Vodafone Group PLC	VOD	Communication Services	Narrow	•	•			
Vulcan Materials Co	VMC	Basic Materials	Narrow	•		•		
Waddell & Reed Financial Inc A	WDR	Financial Services	Narrow			•		•
Want Want China Holdings Ltd	00151	Consumer Defensive	Narrow	•		•		
Waste Connections Inc	WCN	Industrials	Narrow	•	•	•		
Waste Management Inc	WM	Industrials	Narrow	•	•	•		
WEC Energy Group Inc	WEC	Utilities	Narrow		•			
Weibo Corp ADR Class A	WB	Technology	Narrow				•	
Welltower Inc	HCN	Real Estate	Narrow		•			•
WESCO International Inc	WCC	Industrials	Narrow	•			•	
Wesfarmers Ltd	WES	Consumer Defensive	Narrow	•		•		
Westar Energy Inc	WR	Utilities	Narrow		•			
Western Refining Inc	WNR	Energy	Narrow	•				
Westfield Corp	WFD	Real Estate	Narrow		•		•	•
Westlake Chemical Corp	WLK	Basic Materials	Narrow	•				
WGL Holdings Inc	WGL	Utilities	Narrow		•			
Whole Foods Market Inc	WFM	Consumer Defensive	Narrow			•		
William Demant Holding A/S	WDH	Healthcare	Narrow			•	•	•
Williams Companies Inc	WMB	Energy	Narrow		•			•
Williams Partners LP	WPZ	Energy	Narrow		•			
Williams-Sonoma Inc	WSM	Consumer Cyclical	Narrow			•		
Willis Towers Watson PLC	WLTW	Financial Services	Narrow					•
Windstream Holdings Inc	WIN	Communication Services	Narrow		•			
Winnebago Industries Inc	WGO	Consumer Cyclical	Narrow	•	•	•		
Wipro Ltd	507685	Technology	Narrow					•
WiseTech Global Ltd	WTC	Technology	Narrow					•
Wolters Kluwer NV	WKL	Consumer Cyclical	Narrow			•		•
Woolworths Ltd	WOW	Consumer Defensive	Narrow	•		•		
Workday Inc Class A	WDAY	Technology	Narrow					•
WPP PLC	WPP	Consumer Cyclical	Narrow			•		•
WR Berkley Corp	WRB	Financial Services	Narrow	•				
Wyndham Worldwide Corp	WYN	Consumer Cyclical	Narrow			•	•	•
Wynn Macau Ltd	01128	Consumer Cyclical	Narrow			•		
Wynn Resorts Ltd	WYNN	Consumer Cyclical	Narrow			•		
Xcel Energy Inc	XEL	Utilities	Narrow		•			
Xero Ltd	XRO	Technology	Narrow					•
Xilinx Inc	XLNX	Technology	Narrow			•		•
Xylem Inc	XYL	Industrials	Narrow			•		•
Yahoo Japan Corp	4689	Technology	Narrow			•	•	
Zebra Technologies Corp	ZBRA	Industrials	Narrow					•
Zodiac Aerospace	ZC	Industrials	Narrow			•		•
Zurich Insurance Group AG	ZURN	Financial Services	Narrow	•		•		

Research Methodology for Valuing Companies

Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, in-depth competitive advantage analysis, and a variety of other analytical tools to augment this process. Moreover, we think analyzing valuation through discounted cash flows presents a better lens for viewing cyclical companies, high-growth firms, businesses with finite lives (e.g., mines), or companies expected to generate negative earnings over the next few years. That said, we don't dismiss multiples altogether but rather use them as supporting cross-checks for our DCF-based fair value estimates. We also acknowledge that DCF models offer their own challenges (including a potential proliferation of estimated inputs and the possibility that the method may miss short-term market price movements), but we believe these negatives are mitigated by deep analysis and our long-term approach.

Morningstar's equity research group ("we," "our") believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stocks identifies stocks trading at a discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk-adjusted discount to their fair values, whereas 1-star stocks trade at premiums to their intrinsic worth.

Four key components drive the Morningstar rating: (1) our assessment of the firm's economic moat, (2) our estimate of the stock's fair value, (3) our uncertainty around that fair value estimate, and (4) the current market price. This process ultimately culminates in our single-point star rating.

Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define economic profits as returns on invested capital (ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to remain for at least 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe low-quality, no-moat companies will see their normalized returns gravitate toward their cost of capital more quickly than companies with moats.

To assess the sustainability of excess profits, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger, stable where we don't anticipate changes to competitive advantages over the next several years, or negative where we see signs of deterioration.

Estimated Fair Value

Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than the returns of narrow-moat firms, and both will fade slower than no-moat firms, increasing our estimate of their intrinsic value.

Our model is divided into three distinct stages:

Stage I: Explicit Forecast

In this stage, which can last 5 to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in working capital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes (EBI) and net new investment (NNI) to derive our annual free cash flow forecast.

Stage II: Fade

The second stage of our model is the period it will take the company's return on new invested capital—the return on capital of the next dollar invested (RONIC)—to decline (or rise) to its cost of capital. During the Stage II period, we use a formula to approximate cash flows in lieu of explicitly modeling the income statement, balance sheet, and cash flow statement as we do in Stage I. The length of the second stage depends on the strength of the company's economic moat. We forecast this period to last anywhere from one year (for companies with no economic moat) to 10–15 years or more (for wide-moat companies). During this period, cash flows are forecast using four assumptions: an average growth rate for EBI over the period, a normalized investment rate, average return on new invested capital (RONIC), and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until a perpetuity value is calculated. In the case of firms that do not earn their cost of capital, we assume marginal ROICs rise to the firm's cost of capital (usually attributable to less reinvestment), and we may truncate the second stage.

Stage III: Perpetuity

Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with estimated WACC.

Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows.

Because we are modeling free cash flow to the firm—representing cash available to provide a return to all capital providers—we discount future cash flows using the WACC, which is a weighted average of the costs of equity, debt, and preferred stock (and any other funding sources), using expected future proportionate long-term, market value weights.

Uncertainty Around That Fair Value Estimate

Morningstar's uncertainty rating captures a range of likely potential intrinsic values for a company and uses it to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The uncertainty rating represents the analysts' ability to bound the estimated value of the shares in a company around the fair value estimate, based on the characteristics of the business underlying the stock, including operating and financial leverage, sales sensitivity to the overall economy, product concentration, pricing power, and other company-specific factors.

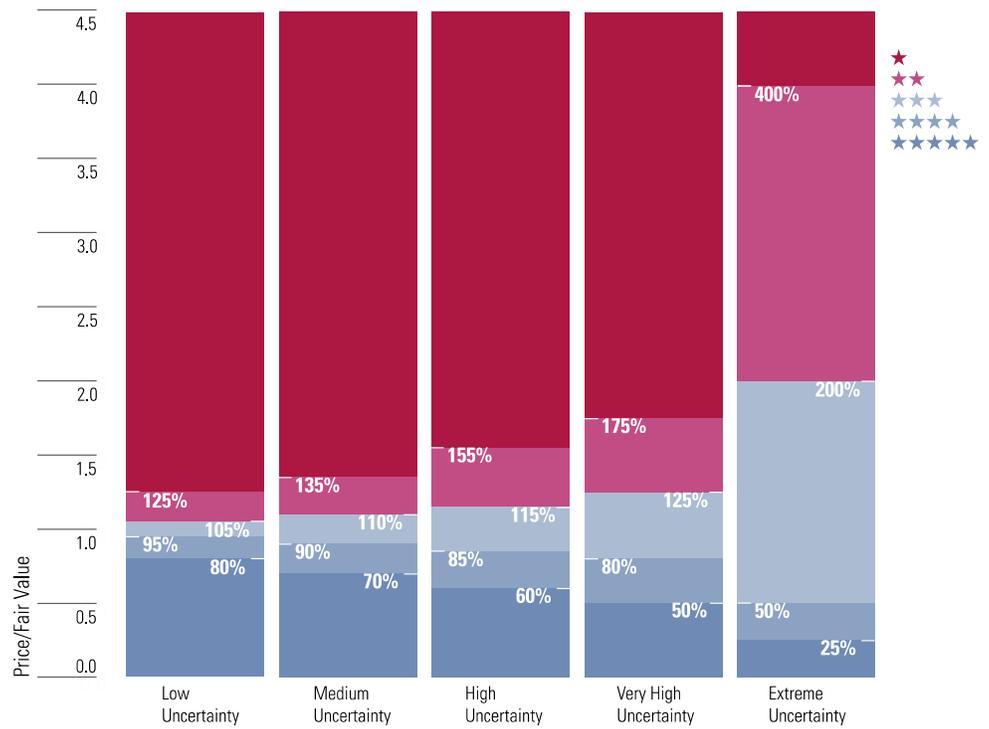
Analysts consider at least two scenarios in addition to their base case: a bull case and a bear case. Assumptions are chosen such that the analyst believes there is a 25% probability that the company will perform better than the bull case and a 25% probability that the company will perform worse than the bear case. The distance between the bull and bear cases is an important indicator of the uncertainty underlying the fair value estimate.

Our recommended margin of safety widens as our uncertainty regarding the estimated value of the equity increases. The more uncertain we are about the estimated value of the equity, the greater the discount we require relative to our estimate of the value of the firm before we would recommend the purchase of the shares. In addition, the uncertainty rating provides guidance in portfolio construction based on risk tolerance.

Our uncertainty ratings for our qualitative analysis are low, medium, high, very high, and extreme.

- ▶ Low: Margin of safety for 5-star rating is a 20% discount and for 1-star rating is a 25% premium.
- ▶ Medium: Margin of safety for 5-star rating is a 30% discount and for 1-star rating is a 35% premium.
- ▶ High: Margin of safety for 5-star rating is a 40% discount and for 1-star rating is a 55% premium.
- ▶ Very high: Margin of safety for 5-star rating is a 50% discount and for 1-star rating is a 75% premium.
- ▶ Extreme: Margin of safety for 5-star rating is a 75% discount and for 1-star rating is a 300% premium.

Morningstar Equity Research Star Rating Methodology



Market Price

The market prices used in this analysis and noted in the report come from the exchange on which the stock is listed, which we believe is a reliable source.

For more details about our methodology, please go to <http://global.morningstar.com/equitydisclosures>.

Morningstar Star Rating for Stocks

Once we determine the fair value estimate of a stock, we compare it with the stock's current market price on a daily basis, and the star rating is automatically recalculated at the market close on every day the market on which the stock is listed is open. Our analysts keep close tabs on the companies they follow and, based on thorough and ongoing analysis, raise or lower their fair value estimates as warranted.

Please note, there is no predefined distribution of stars. That is, the percentage of stocks that earn 5 stars can fluctuate daily, so the star ratings, in the aggregate, can serve as a gauge of the broader market's valuation. When there are many 5-star stocks, the stock market as a whole is more undervalued, in our opinion, than when very few companies garner our highest rating.

We expect that if our base-case assumptions are true, the market price will converge on our fair value estimate over time, generally within three years (although it is impossible to predict the exact time frame in which market prices may adjust).

Our star ratings are guideposts to a broad audience, and individuals must consider their own specific investment goals, risk tolerance, tax situation, time horizon, income needs, and complete investment portfolio, among other factors.

The Morningstar Star Ratings for stocks are defined below:

★★★★★ We believe appreciation beyond a fair risk-adjusted return is highly likely over a multiyear time frame. Scenario analysis developed by our analysts indicates that the current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

★★★★ We believe appreciation beyond a fair risk-adjusted return is likely.

★★★ Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

★★ We believe investors are likely to receive a less than fair risk-adjusted return.

★ Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multiyear time frame, based on our analysis. Scenario analysis by our analysts indicates that the market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to capital loss.

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