The Case for **Growth**

Lazard Quantitative Equity Team

Companies that generate meaningful earnings growth through their product mix and focus, business strategies, market opportunity, and/or superior execution can provide investors with substantial long-term rewards. The ability to discern these companies can provide investors with a long-term return advantage. Yet developing consistent and effective models for growth has long been a challenge for quantitative investors. The Lazard Quantitative Equity Team has undertaken a research project with inputs from Lazard's fundamental analysts to unlock more consistent alpha.

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Does Growth Matter?

Investors have long invested in publicly traded equities with the expectation that they will realize the ownership benefits of growth in a company's earnings through increased dividends and capital appreciation. Companies that generate meaningful earnings growth through their product mix and focus, business strategies, market opportunity, and/or superior execution will provide investors with the greatest long-term reward. The ability to discern which companies are in a position to realize a superior rate of growth can provide investors with a long-term return advantage.

Many quantitative managers employ a series of factors to identify excess returns over time. Growth, however, is not typically one of them. As supported by academic work and our research, the factors typically include momentum, valuation, and quality measures that have demonstrated discriminatory power through extended periods.

We measured the effectiveness of four naively constructed factor families—value, growth, quality, and sentiment (momentum)—in the MSCI World Index on a monthly basis from 1999 through 2016 (Exhibit 1). We took naïve measures of each factor[1] and colored that family according to the factor that provided the greatest discrimination for the month.

As can be observed, there are clear drivers of sustained outperformance: growth in the late 1990s, value in 2002–2005, quality after the global financial crisis in 2008, and sentiment in 2010–2014.

Over the 18-year period, value and sentiment each dominated the rankings about one-third of the time, growth led about 19% of the time, and quality led around 14% (Exhibit 2). Thus, while growth was not as large a contributor in an absolute sense as either value or momentum, it dominated market preferences enough of the time to merit consideration.

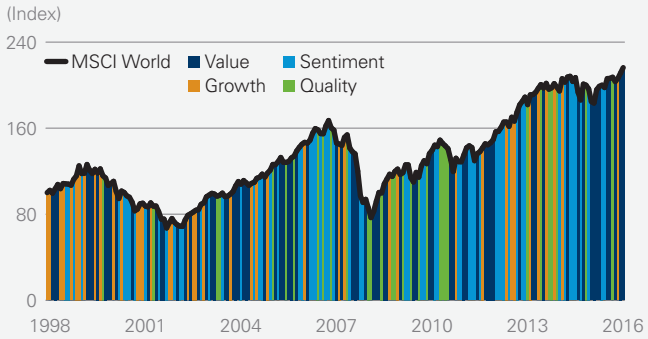
Growth's effectiveness also exhibited low correlation with other factor measures (Exhibit 3). This low correlation argues for growth's incorporation as a factor if only to achieve greater consistency in terms of excess return, especially during times when both sentiment and value are out of favor.

Challenges to Identifying Growth

Quantitative managers have developed many methodologies for measuring value, momentum, and quality—but not as many successful approaches for growth. Value, momentum, and quality tend to dominate multi-factor approaches because they easily lend themselves to a systematic approach.

They are a measurement exercise of readily observable data. Is a stock less expensive than its peers? Does it benefit from favoritism of sell-side analysts? Does it have a better balance sheet and higher quality earnings?

Exhibit 1
Which Style Was the Biggest Contributor to Return?

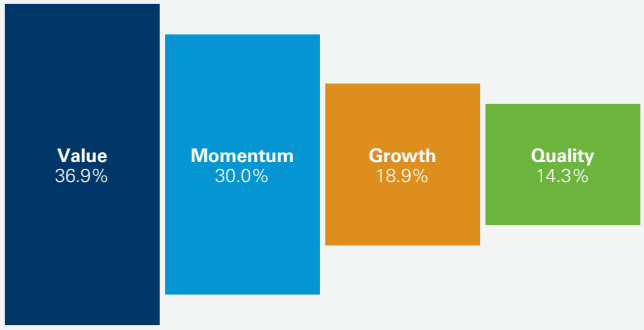


As of 31 December 2016

For illustrative purposes only. The information is not representative of any product or strategy managed by Lazard. The indices are unmanaged and have no fees. One cannot invest directly in an index. Performance is based on rolling 24-month differences in price index returns. The performance quoted represents past performance. Past performance is not a reliable indicator of future results.

Source Lazard, Bernstein, MSCI

Exhibit 2
The Largest Factor Contribution to Returns



Data from the MSCI World Index from 1999–2016

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The performance quoted represents past performance. Past performance is not a reliable indicator of future results.

Source: Lazard, MSCI

Exhibit 3
Growth Exhibits Low Correlation to Other Factors

	Growth	Value	Sentiment	Quality
Growth	1			
Value	-0.37755	1		
Sentiment	-0.59913	-0.05915	1	
Quality	-0.15296	0.17482	0.48514	1

Data from the MSCI World Index from 1999–2016

The correlation matrix reflects the correlation of a blended mix of monthly returns expressed in terms of quintile spreads. Value measures: 50% P/E and 50% P/B; growth measures: Growth: 50% 5-year EPS Growth and 50% 5-year sales growth; sentiment: 50% 12-month momentum and 50% EPS analyst revisions; and quality measures: 33% operating margins, 33% return on equity, and 33% leverage.

Source: Lazard, MSCI

Projecting a company's growth prospects, however, is difficult for systematic processes because it typically requires considerable judgment about a company's strategy and products as well as an awareness of current market dynamics.

Like many other quantitative managers, we have extensively researched value, momentum, and quality, and we have constructed proprietary models to identify and capture the discriminatory powers of each factor.

We have also long believed that incorporating a growth measure was important for providing consistency in our returns and rewarding clients when growth was favored. We recognized that naïve measures such as historic sales and earnings growth did little to predict future growth. Likewise taking growth estimates from sell-side analysts was limited in scope and in most cases mirrored the upgrade/downgrade information—a component included in our sentiment measures.

In fact, our research shows that an equal-weighted combination of historic EPS and sales growth along with projected EPS growth has been a drag on performance since 2008 (Exhibit 4).

Still the naïve measures of growth suggest that growth measures drive investor preferences during discreet market regimes. In order to capture market preferences in such periods, we felt it was important to attempt to measure prospective growth within our investment process. The inclusion of growth would add consistency to the ranking process over time and likely diversify the sources of return (alpha).

Identifying Growth Companies

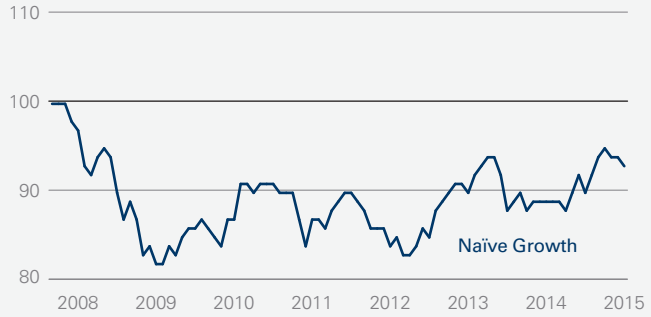
Our research into growth commenced over a decade ago. We aimed to identify measures that indicated growth, investments in future growth, as well as how the growth was financed. For example, if management spent more on R&D and sales expenses than its industry peers, this was a positive indicator of management's commitment to growth. Other measures included accelerating revenue and free cash flow, allowing a company to re-invest in its growth and providing indications of future success.

Through a lengthy research project, we identified fourteen individual measures that, taken collectively, distinguished companies with superior growth potential. Each measure was ranked in a binary fashion, indicating on any one metric whether a company was above/below average versus its peer group as well as its own history. A positive reading on a significant majority of these measures would signify that a company had the long-term potential to grow at a faster rate than peers.

This initial growth model successfully delivered alpha, particularly in favorable growth environments and, unlike many naïve growth models, it has also been able to perform consistently in non-growth environments (Exhibit 5). Most importantly, the growth model worked when value and sentiment measures failed to provide positive discrimination.

Exhibit 4
Naïve Growth Has Been a Drag on Performance[a]

(Index, 100=31 May 2008)



As at 30 September 2015

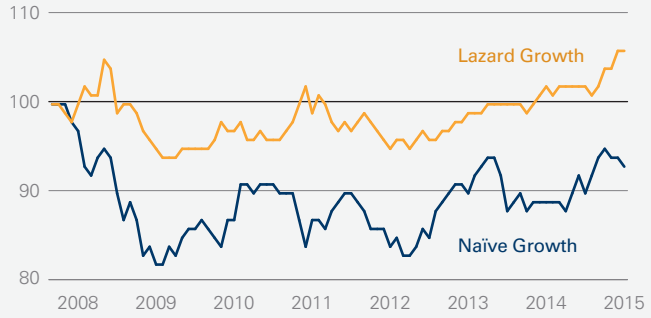
This chart is for illustrative purposes only.

a Naïve growth represents an equal-weighted combination of historic EPS and sales growth along with projected EPS growth applied to a capitalization-weighted universe of stocks with greater than $200 million market capitalization (6,000 developed markets companies). Returns are computed monthly and returns reflect the difference between stocks ranked in the highest 20% (most growth) less those in the highest 20% (least growth).

Source: Lazard

Exhibit 5
Performance of Lazard's Growth Factors Compared to Naïve Growth Factors[a]

(Index, 100=31 May 2008)



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The return of Lazard Growth represents the return constructed using equal weights of the top 20% minus the bottom 20% of securities in the Lazard Global stock universe. The top and bottom 20% stocks are selected using the Lazard Quantitative Equity model's proprietary quantitative growth factor. Factor returns shown in USD, gross of management fees and other costs for an unconstrained universe. It does not represent any actual portfolio managed by Lazard. Past performance is not a reliable indicator of future results. The value of investments can fall as well as rise. Investors' capital may be at risk.

Source: Lazard

To further test the effectiveness of our model, we divided our growth rankings into quintiles and measured each company's earnings per share over the next three years. This approach was effective in discriminating between companies with superior growth in earnings (Exhibit 6) and, to a lesser extent, sales (Exhibit 7), and provided positive discrimination in most time periods.

Fundamentally Revisiting Growth

In 2015, we initiated a research project to reexamine the underpinnings of our growth model. One motive for the project was a recognition that the metrics we used to measure growth required more nuance. For instance, some of the measures that defined superior growth in a biotech, media, or software company were likely different than those in a mining or energy company.

Academic journals and sell-side research offer many approaches to measuring value, but there is a dearth of research into factors that distinguish companies with strong growth potential. Through our association with Lazard's 250 investment professionals, we were able to tap into their experience and in-depth global knowledge of companies.

The research project began by meeting with individual analysts to better understand the criteria they employed to identify companies with superior growth prospects. We sought to identify central themes and metrics that we could then test to determine their discriminatory power.

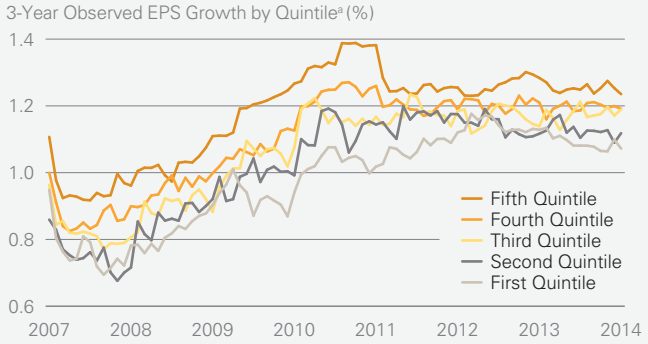
Our first observation was that traditional MSCI sector classifications were not optimal to develop nuanced growth measures. As most readers would be aware, there are eleven traditional sectors: consumer discretionary, consumer staples, energy, financials, health care, industrials, information technology, materials, real estate, telecom services, and utilities.

During conversations with Lazard fundamental analysts, we discovered that many companies shared common characteristics across different sector groups. It therefore made sense to re-define the universe away from these sectors and into new groups where there was commonality in the business subtleties that drive growth in the companies. For example, both retailers and capital goods companies needed to effectively manage inventory and production. We also learned that a biotech firm has much more in common with a software or media company than it does with a medical supply company or health care service provider.

This finding—that many companies have similar business models across sectors that share drivers of growth—led us to re-define our investment universe into five new business groups:

- Asset Heavy
- Asset Light
- Knowledge Based
- Financials
- Real Estate

Exhibit 6
Model Forecasting EPS Growth Rate

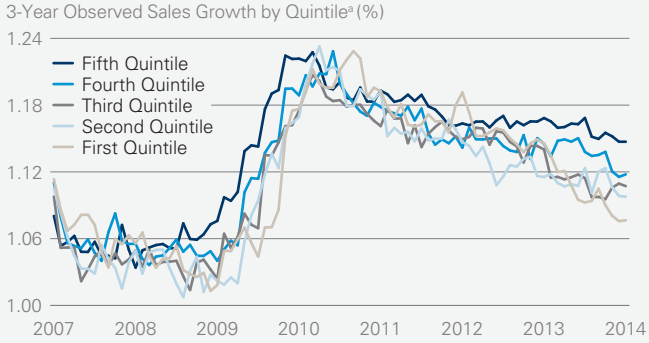


As of 31 March 2017

a The quintiles are selected using the Lazard Quantitative Equity model's proprietary quantitative growth factor. We measured each company's earnings per share over the next three years.

Source: Lazard

Exhibit 7
Model Forecasting Sales Alpha Rate



As of 31 March 2017

a The quintiles are selected using the Lazard Quantitative Equity model's proprietary quantitative growth factor. We measured each company's earnings per share over the next three years.

Source: Lazard

Our aim was to define distinct parameters for measuring growth according to the differing business models:

- **Asset Heavy** — Maintenance and renewal of asset base
- **Asset Light** — Operational efficiency and flexibility to meet demand patterns
- **Knowledge Based** — Multi-perspective growth, investment in people
- **Financials** — Operational efficiency, successful capital deployment
- **Real Estate** — Yield optimization and leasing growth

These five groups were defined according to "classification variables" that we used to help classify the appropriate business group. For example, large depreciation charges that come from heavy capital investments typically lead to a low gross margin; subsequently the gap between gross and net margins for these

capital-intensive industries are low. When looking at typical industry medians for the "gross-net margin gap," one can identify those industries that are what we deem to be "Asset Heavy." This was just one of seven variables we used.

With this exercise complete, we worked with the analysts to determine a list of appropriate investment metrics/management signals to test for each of the five different business groups. The insights from the fundamental analysts enabled us to create a unique set of growth variables for each group. These variables can be thought of as the key drivers needed to create the conditions for long-term growth potential in that business group.

For example, the success of a company in the knowledge-based business group largely depends on how management utilizes the intellectual capital of the firm. Knowledge-based companies are people based, in stark contrast to highly capital-intensive asset heavy companies, and therefore demand a set of growth signals that reflect that importance.

For a business to be classified as knowledge based, it must display certain characteristics and, to be considered a growth company in our final model, it should then score highly on a series of growth variables. For example, it should not only deliver sales, workforce, and earnings growth, but this growth must be achieved with tight inventory management, and the workforce growth must be commensurate with the growth in sales.

Findings and Implementation

Our research findings favor the approach of employing multiple (10 or greater) growth variables to assess a company's growth potential. One growth variable, in our view, is not enough to establish the strength of a growth outlook. Rather an aggregate approach is needed to identify what in effect are productivity improvements and deliberate management choices and their potential impact on future growth.

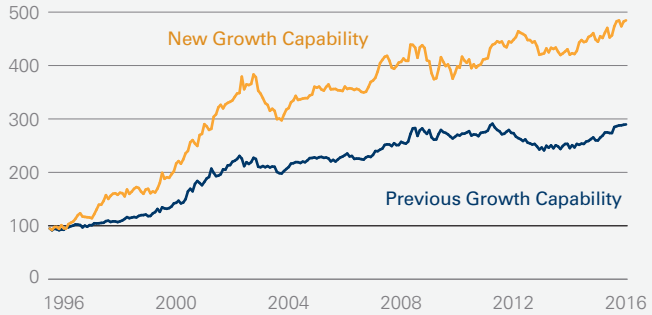
Following the project with our fundamental analysts, we also were able to customize the variables for each new business group, better capturing the growth dynamics of the individual businesses. We continued to rank companies through our binary system, favoring companies that received an above-average rating on a majority of our business group-specific metrics.

The impact from the new industry classification and measures appears to offer promise. In amending our growth model for knowledge-based industries for example, the model shows a 48% improvement on growth returns (Exhibit 8) and an 11% alpha level improvement (Exhibit 9).

We have implemented this work across our various strategies and portfolios with the hope that it will provide both incremental return and even greater consistency in the alpha process.

Exhibit 8
Knowledge Industries' New Growth Capability

(Index, 100=30 November 1995)



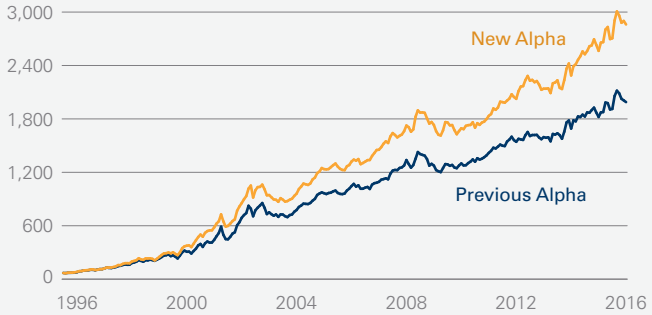
As of 31 May 2016

Growth Capability refers to our new and previous proprietary growth models in the Knowledge Based Business Group.

Source: Lazard

Exhibit 9
Knowledge Industries' New Alpha Capability

(Index, 100=30 November 1995)



As of 31 May 2016

Source: Lazard

Understanding Growth

We have long contended that growth is a quality that investors will seek at points in the economic cycle. Incorporating a growth factor in a quantitative process will provide the opportunity to realize a positive return in such periods and will provide a more consistent and diversified pattern of return. Gaining a better understanding of specific criteria and indicators of growth used by fundamental analysts has provided us with a number of insights that has enabled us to improve our forecasting abilities. It has also opened up several avenues for further research, which we will continue to pursue in the coming months.

This content represents the views of the author(s), and its conclusions may vary from those held elsewhere within Lazard Asset Management. Lazard is committed to giving our investment professionals the autonomy to develop their own investment views, which are informed by a robust exchange of ideas throughout the firm.

Notes

1 Factor performance is based on a universe of global developed markets stocks with a market capitalization of $200 million or greater (approximately 6,000 companies). Factor measures are sorted into four families: value, growth, sentiment, and quality. The returns between an equal-weighted average of the top and bottom quintiles of each factor are averaged and the factor with the highest monthly return is highlighted. The lowest P/B, P/E, and highest dividend stocks comprise the value family. Growth is defined by historic 5-year earnings-per-share (EPS) and sales growth together with projected EPS growth from I/B/E/S analysts. Sentiment is measured by 12-month price changes in US dollars and 3-month analyst upgrades and downgrades. Quality is defined by companies with the highest return on equity, operating margin, and lowest leverage.

Important Information

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