The Case for a Quantitative Approach to China A-Shares

For global investors, China’s onshore A-shares market has simply grown too big to ignore. The question now is how to participate, not whether. Our research suggests that the market’s many unique attributes present an unparalleled opportunity for quantitative strategies to create alpha.
China’s A-shares market, in existence barely 30 years in its present form and open to foreign investors only for the past 18, has grown alongside the Chinese economy. We believe the A-shares market’s size and distinctive profile create a unique opportunity for quantitative strategies to generate excess returns over a cap-weighted index.

Whether measured by trading volume or number of listings, the market is vast (Exhibit 1). It was the world’s largest market by number of shares traded and second-largest market by trading volume in 2019. It boasts more listings than either the New York Stock Exchange or NASDAQ. It is also highly liquid currently and growing more so as foreign participation increases. This size and liquidity provide a way for investors to evaluate potential opportunities at scale and make A-shares well suited to quantitative strategies, which, in our view, have performed best in broadly diversified, deep markets with ample liquidity.

### Outlining the Opportunity Set

The China A-shares market is distinguished from other equity markets not only by its sheer size and diversity but also in the character of its market participants. Unlike more developed markets in the US and most of Europe, institutional presence and trading is a minor component of overall trading. The arrival of global investors has brought with it increased analyst coverage, but the retail character of the A-shares market is unparalleled on any major exchange. Retail transactions amounted to 82% of the A-shares total in 2018, compared to only 15% in US equities.

This retail dominance may well account for the market’s extremely high annual turnover ratio. A-shares finished 2019 with a turnover ratio of 224%, the blue-chip New York Stock Exchange closed at 100%, and the more speculative NASDAQ at 160%. The combination of high turnover and outsize retail share implies a market moved by headlines and routinely priced to short-term and short-lived considerations rather than long-

### Wide Angle vs. Close-up

We believe fundamentals-based quantitative analysis is especially effective in large, disparate markets with plentiful data and significant pricing inefficiencies. Analyzing and making relative comparisons among more than 3,000 companies is difficult, especially given the complexity and variability of the China A market. In addition to language barriers, fully understanding business opportunities and threats, management quality, and strategy can present particular challenges for investors. Systematically applying a set of fundamental measures provides an immediate ability to compare and evaluate relative attractiveness across large numbers of companies. Systematic processes do not need to restrict themselves to subsets of the market or to stocks that meet a set of pre-determined criteria. By their nature, such restrictions can introduce biases into the portfolio which may or may not be rewarded. Using a range of independent measures that have been shown to drive relative equity returns can improve consistency in relative results by minimizing style biases.

Using a quantitative approach can also allow for the construction of a broadly diversified portfolio that can capture the growth characteristics implicit in the China A market. The ability to spread the portfolio across a broad number of attractive stocks can help reduce stock-specific risk and preserves consistency in the pattern of returns relative to a chosen benchmark. A disappointing outcome in one or two stocks typically does not have the impact on relative performance that it would in a more concentrated fundamental approach. For investors looking to allocate to this market, we believe using a quantitative approach allows for both broad exposure to the market and the ability to exploit inefficiencies that present themselves.
term value and enduring performance—all the characteristics, in other words, of a market dominated by retail investors. The preponderant retail participation means that stock stories and the mood of the market can often override fundamental considerations with the potential to create pricing inefficiencies that a methodical quantitative process may be able to exploit.

Telltale Inefficiencies

Indicative of the inefficiencies in the China A market, A-share stock valuations tend to be widely dispersed. The pattern contrasts with other markets, where valuations typically converge in a more normal distribution pattern. The institutional investors that predominate in other markets tend to arbitrage away the outliers, and by making use of greater resources and expertise, provide for more consistent pricing across most stocks. A story-driven market with no clearly identified valuation discipline, by contrast, bespeaks consistent disparities between investor sentiment and corporate fundamentals that systematic strategies can methodically identify and exploit.

To illustrate the inefficiency, we compared the trailing price-to-cash flow valuations (P/CF) for the constituents in the MSCI China A Index, the MSCI World Index of developed markets, and the MSCI Emerging Markets Index. We chose price-to-cash flow as the most objective valuation measure, as it avoids forward-looking earnings estimates (P/E) and differing accounting practices that may distort book values (P/B). The distribution of the World and Emerging Markets are visually distinct from the China A curve, with the latter being flatter and more evenly distributed than the sharp peaks of the former two, an indicator of wider dispersion—and price inefficiency (Exhibit 2).

Looking at the interquartile spread between the bottom of the second quartile and the top of the third gives an idea of just how dispersed China A valuations are. The spread goes from 19.24x to 38.46x, a difference of 19.22. The comparable difference in the MSCI World Index is 8.19 and in the emerging markets index 12.16.

Comparing return patterns across global stock markets further highlights the pricing disparities that characterize China A-shares (Exhibit 3). The standard deviation of monthly returns in the A-shares market, including price movement attributable to currency effects, is somewhat higher than that in the broader emerging markets and much higher than in developed markets. The correlation of individual stock returns within the A-share market is significantly lower than either the developed or emerging markets, underscoring the stock-specific (idiosyncratic) return patterns that A-shares exhibit and the significant opportunity set that the market offers to investors with skills in stock selection.
Is There Power in Traditional Quant Factors?

With such clear-cut inefficiencies and apparent opportunity, we set out to test how effective fundamental criteria, including measures of value growth, sentiment, and financial quality, were in discriminating across the China A market. We tested the discriminatory power of 11 naïve factors between 2011 and 2018, using the pricing history and financial statements of 2,000 listed A-shares. We used analyst earnings estimates and price momentum as a proxy for market sentiment. Our findings suggest that even basic definitions of valuation, quality, growth, and sentiment provided meaningful levels of discrimination over the period (Exhibit 4).

The findings also testify to the market’s profound retail orientation. Twelve-month price momentum failed to generate any excess return as retail investors tend to be highly fickle and trade out of stocks indiscriminately as a newer and brighter story breaks. A more nuanced version of momentum investing that incorporated a multi-factor approach would likely be more effective for us in our view. Valuation measures—P/B and P/E ratios—added over 50 basis points of monthly excess return. Sentiment measures, expressed in sell-side analyst estimates, also proved effective. Quality measures, such as return on equity and operating margins, added modest incremental return, particularly in difficult markets, such as 2015, when enthusiasm for the opening of the Stock Connect link between the Hong Kong and onshore exchanges overshot, and 2018, when trade war hostilities first broke out.

Uncrowded Factors

Another method for analyzing the inefficiencies in the China A market measures factor crowding, the correlation in price movements among stocks with similar fundamental attributes. This is especially important for systematic approaches, as they seek to exploit mispricings across broad groups of stocks according to desired fundamental classifications. Ideally, we prefer to see that the return pattern of stocks, classified according to a given metric, that we believe are largely uncorrelated. This provides a better opportunity for a multi-factor approach.

To test the relative prevalence of factor crowding in the A-shares market, we looked first at the degree of co-correlation across discrete factors. We separated four major stock indices—the MSCI Emerging Markets and World Indices and the S&P 500, along with the MSCI China-A Index—by quintile rank and calculated the average pairwise correlation of stocks in the top and bottom quintiles across three valuation measures (P/B, P/CF, and P/E), a quality measure (return on equity—ROE), and a measure of earnings per share (EPS) growth. The results revealed a persistently lower correlation in returns in the A-shares market when broken into discrete generic factors and underscored the ability of a systematic approach to work effectively in the China A market. (Exhibit 5).

Exhibit 5
Lower Correlations Give Factor Strategies Room for Alpha

<table>
<thead>
<tr>
<th>P/E</th>
<th>P/CF</th>
<th>P/B</th>
<th>ROE</th>
<th>EPS Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>China A</td>
<td>0.41</td>
<td>0.37</td>
<td>0.34</td>
<td>0.25</td>
</tr>
<tr>
<td>MSCI EM</td>
<td>0.42</td>
<td>0.45</td>
<td>0.44</td>
<td>0.41</td>
</tr>
<tr>
<td>MSCI World*</td>
<td>0.51</td>
<td>0.52</td>
<td>0.59</td>
<td>0.49</td>
</tr>
<tr>
<td>S&amp;P 500</td>
<td>0.51</td>
<td>0.54</td>
<td>0.56</td>
<td>0.55</td>
</tr>
</tbody>
</table>

*Developed Markets
As of 30 June 2020
Source: MSCI

Exhibit 4
China A-Share Market Generic Factor Performance, 2011–2018²

As of 31 December 2019
Source: Lazard
As a manager of primarily long-only strategies, we also wanted to test for crowding within the most attractive quintile of stocks by each measure—that is, stocks with the lowest valuations according to each of our quality measures and the highest profitability, as measured by ROE and EPS growth. Even in the investment cohorts that would be expected to draw the most investors, we see significantly less evidence of co-momentum in the China A universe, implying further opportunity to discriminate in a headline-focused market using a multi-factor approach (Exhibit 6). Because it is difficult to short stocks in China, the lack of crowding is likely to persist for some time.

Putting Our Multi-Factor Methodology to the Test

We went further to gauge how the factors we employ in our methodology would fare in the China A-shares’ market. We evaluated our value, growth, sentiment, and quality measures both individually and in combination. Applying the same balanced approach that we employ across global markets confirmed our belief that a systematic process applied to this market offers the potential for meaningful alpha. The performance of the individual factor families was strong and, equally important, exhibited low correlation to one another. Using a multi-factor approach, the simulation generated a high degree of consistency in its excess return through different market environments and a highly favorable information ratio (Exhibit 7).

Closer analysis suggested to us that a multi-factor approach may provide a consistent source of excess return during periods in which a particular style falls out of favor. While we expect that it will evolve over time, the proprietary ranking process that we have developed throughout emerging markets appeared to be every bit as effective in China. Our factors all appear capable of generating alpha, and a balanced approach holds the potential for consistent alpha generation throughout the market’s cycles.

Addressing Risks Specific to A-Shares

Chinese financial regulation and disclosure have improved significantly, as A-shares’ inclusion in the MSCI Emerging Markets Index attests, but they still call for extra scrutiny and data verification, as has been true in many emerging markets. Building safeguards into data comparisons and a human review of the financial information are critical to identifying data anomalies and avoiding unnecessary transactions. The A-shares market also lists a number of state-owned enterprises (SOEs). While they do not constitute a large percentage of the listed companies, their weight in the index is meaningful. Our research shows that they tend to experience slower growth than privately held companies and cash

<table>
<thead>
<tr>
<th>Exhibit 6</th>
<th>Less Crowded Even in the Most Crowd-Prone Stocks</th>
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<tbody>
<tr>
<td></td>
<td>P/E</td>
</tr>
<tr>
<td>China A</td>
<td>0.51</td>
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</tr>
</tbody>
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*Developed Markets
As of 30 June 2020
Source: MSCI

<table>
<thead>
<tr>
<th>Exhibit 7</th>
<th>Wide Variation in Simulated Factor Performance Underscores the Virtues of a Multi-Factor Strategy³</th>
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<tbody>
<tr>
<td>Monthly Average Q1–Q5 Spread of Factor Families (%)</td>
<td></td>
</tr>
<tr>
<td>Alpha</td>
<td>Value</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

As of 30 June 2020
Source: MSCI
utilization may be less optimal than in privately held concerns (Exhibit 8). By conditioning a quantitative approach to reflect this tendency toward slower growth, it is possible to systematically adjust the relative attractiveness of an SOE in our analyses, allowing for valid comparisons across the investment universe.

In addition, while the implementation of a systematic factor approach offers the potential to deliver meaningful sources of alpha, local knowledge and insight can help to condition the approach to the market’s nuances and risks. For example, the practice of pledging shares, in which one company uses another company’s stock as collateral against a loan to buy additional shares of the targeted company, is an unquantifiable source of risk in the China A market. We have developed a system designed to coordinate checks from portfolio managers and fundamental analysts on the ground to flag the stocks where trading patterns and anecdotal evidence suggest pledging may be occurring. When we determine the likelihood of this activity is high, we exclude the stocks from our universe.

**Today’s Top Quant Opportunity**

To conclude, we think investors should consider finding a place for China A-shares in their asset allocation policy. As the emerging markets indices incorporate the full free float available to A-shares investors, they are expected to end with a China allocation of over 50%. Whether investors opt to take tactical advantage of this projected change or simply allow their exposure to increase alongside that of the indices, we believe the China market is exciting from many perspectives. The transformation of China from a manufacturing-based economy into a consumer-led, high-tech services-oriented one along with the rise of a new domestic middle class, has the potential to create investment opportunities in the locally focused mid-size and smaller companies that make up much of the A-shares market.

We note also that the pricing inefficiencies in the China A-shares market lend themselves particularly well to a fundamentals-based, risk-controlled quantitative strategy. The market brings together a rare combination of elements that can favor systematic processes—vast and liquid with significant pricing inefficiencies. We believe quantitative strategies can realize a more consistent level of return patterns in these kinds of conditions by profiting from the excesses triggered by the emotional investing and overreactions to news and events that tend to bedevil retail investors.

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**Exhibit 8**

State-Owned Enterprises Less Enterprising than Private Firms

<table>
<thead>
<tr>
<th>Sales Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China A</td>
</tr>
</tbody>
</table>

As of 30 June 2020
Source: MSCI

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**About the Team**

The Lazard Equity Advantage team uses a proprietary investment process to select companies that it believes offer attractive fundamentals and high-quality financial characteristics. The team joined Lazard in 2008, and today it manages a range of benchmark-aware global and regional systematic equity strategies and low-risk global equity strategies. The team consists of nine investment professionals with 21 years of industry experience, on average. As part of their process, they draw upon Lazard’s global research platform and they benefit from the firm’s infrastructure, which includes risk management and operations support.
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Notes
1 Total value of shares traded divided by the market’s capitalization weight at year end.
2 Factor performance is based on a universe of developed markets and emerging markets stocks with a market capitalization of $200mm or greater (approximately 6,000 companies). Factor returns reflect the return differential, computed monthly, for an equal-weighted composite of stocks ranked in the top and bottom 20% (quintile) for each measure shown. For example, each month the aggregate return for stocks ranking in the bottom 20% in terms of operating margins is subtracted from the aggregate return for stocks ranking in the top 20%. The difference in the return is displayed. The monthly differences are averaged for longer time periods. The calculation for P/B, P/E, and leverage reflects the performance difference between the lowest quintile less the highest quintile. For all other measures, the difference reflects the difference between the highest quintile less the lowest quintile. P/B is calculated as current market price divided by book value per share. Price to earnings (P/E) is calculated as current market price divided by 1-year trailing earnings. Yield is calculated as most recent dividend divided by the current market price. Historic EPS Growth is calculated as a 5-year trailing earnings per share growth. Projected EPS growth is calculated as IBES analyst forecasted 3-5-year growth in earnings per share. Historic Sales Growth is calculated on 5-year trailing growth in sales revenue. Price momentum is calculated as the 12-month change in USD price. 3 Mo. Analyst Up/Down is calculated as the change in the number of analysts that have upgraded or downgraded the security over the past three months. Operating margin is calculated as net operating income divided by total revenue. ROE is calculated as the net income divided by shareholder’s equity. Leverage is calculated as outstanding debt divided by shareholder’s equity. Beta is calculated against local market indices for periods up to 36 months. Volatility is calculated on a trailing 270-day average of USD-based price returns. Size is market capitalization as calculated according to MSCI.
3 The return (alpha) represents the average monthly return from a synthetic portfolio constructed using equal weights of the top 20% minus the bottom 20% of securities in the Lazard China A stock universe (on average 840 companies). The top and bottom 20% stocks are selected using the Lazard Quantitative Equity model comprising the strategy’s four proprietary quantitative factors (trend, value, growth, and quality). Factor returns shown in USD, gross of management fees and other costs for a synthetic and unconstrained universe. It does not represent any actual portfolio managed by Lazard. Past synthetic 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.

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The MSCI World Index is a free-float-adjusted market capitalization index that is designed to measure global developed market equity performance comprised of developed market country indices. The MSCI China A Large Cap Provisional Index is a free-float-adjusted market capitalization index designed to measure performance of A-shares marked for inclusion in the MSCI China Large Cap Index.

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