The MarketGrader China A-Shares Sector Indexes:

Tools for Strategic & Tactical Asset Allocation – Part 3

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Francis Gupta joined MarketGrader Capital in 2015 as Senior Advisor to lead intellectual property initiatives, identify applications of MarketGrader's company fundamentals-based Global Research for the benefit of the investment community and assist with development and commercialization of new MarketGrader Indexes. Prior, he was a Director with Dow Jones Indexes and served on the Index Oversight Committee. In this capacity, he built the firm's research group, was integral to new index development and lead landmark projects for institutional clients across equity, multi-asset class and other specialty indexes, such as income and hedge fund indexing. Francis also held strategic advisory positions in institutional investment management for Credit Suisse Asset Management and J.P. Morgan Investment Management. His work has been published in numerous journals including *The Journal of Portfolio Management*, *Journal of Indexes* and *The Journal of Investing*. He earned his B.Sc. in Mathematics from the University of Mumbai and his Ph.D. in Economics from New York University.

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Introduction

MarketGrader recently announced an expansion of its family of Mainland China indexes by launching 12 new indexes.[1] As part of this launch, MarketGrader introduced eight sector indexes covering the investment opportunity available in the economic sectors of the A-shares equity markets of the Shanghai and Shenzhen stock exchanges. The indexes are named the MarketGrader China A-Shares Sector 30 Indexes. The economic sectors covered are Consumer Discretionary, Consumer Staples, Energy, Financials, Health Care, Industrials, Materials and Technology.[2] Each of the indexes is designed to satisfy two key objectives. First, the indexes provide investors long-term strategic tools to participate in the sector-specific capital appreciation opportunities inherent in the China-A shares equity market. Second, the indexes provide investors the ability to act on their beliefs regarding the relative performance of a specific sector versus other sectors by empowering them to tactically shift the sector exposures of their portfolios accordingly. In addition, sector indexes also give investors the ability to build and access major themes that might be playing a critical role in the economy.

As the index names suggest, each of the sector indexes is made up of 30 components, respectively. In addition to their sector classification, companies are selected to be components of the indexes using MarketGrader's proprietary stock ratings that are constructed based on a growth at a reasonable price (GARP) methodology that uses company fundamentals.[3] So while the indexes are selecting components from the China-A shares equity market to ensure that they provide exposure to the returns and risks inherent in the specific economic sector, they are concurrently focusing on the key investment objective of providing capital appreciation by selecting the best companies to be components of the index. Put simply, the MarketGrader China A-Shares Sector Indexes seek to provide investors with sector-specific capital appreciation opportunities in the China-A shares equity markets, respectively.

MarketGrader's primary reason for the introduction of sector-specific indexes in Mainland China is to empower investors. The composition of the Mainland China equity market differs significantly in terms of size (large capitalization versus small capitalization stocks), style (growth versus value stocks) and the sector composition of the universe of companies that trade on the (Shanghai and Shenzhen) exchanges. So even though the country-specific risk factors may be common to all the companies trading on the Mainland China equity market, the size, style and sector risk factors differ. In addition, given that the economic sector of a company is one of the most significant drivers of its stock performance, indexes that target the risk factors inherent to specific sectors can be very empowering to investors as they provide them the tools to control the exposure to the sector-specific risk factors in their portfolios.

This paper is structured as follows: The next section presents the historical total return performance of the eight MG China A Sector 30 indexes and compares them to the MG China A-Shares 200 core benchmark index (MG China A 200).[4] This will be followed by a discussion on thesis-driven and thematic investing in the context of sector portfolios. The section after that will construct a sector composite, the MG China A-Shares Equally Weighted Sector Composite, using the eight MG China A Sector 30 indexes. This composite can serve as a performance benchmark for thematic

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1. Prior to this launch, the MarketGrader Mainland China Indexes family consisted of the MarketGrader China A-Shares 100 Index and the MarketGrader China A-Shares 200 Index. MarketGrader started calculating these indexes in 2014 and introduced them to the marketplace in April 2015. Go to Global.MarketGrader.com for more on these indexes.

2. The Telecommunications and Utilities sectors are not represented as indexes due to a small universe of companies in those sectors.

3. MarketGrader uses a classification system based on FactSet to classify companies into sectors. For more on MarketGrader's proprietary GARP-based stock rankings using company fundamentals, go to Global.MarketGrader.com.

4. The MG China A 200 index is a core portfolio composed of the 200 best companies trading on the Mainland China equity exchanges selected based on MarketGrader's proprietary GARP-based ratings using company fundamentals. For more on the methodology of the MG China A 200 index, go to Global.MarketGrader.com. Also see, "The MarketGrader China A-Shares 200 Index: An eGARP Lens to the Mainland Equity Markets of the World's Largest Economy," published by MarketGrader Capital in July 2015.

and tactical strategies that use a core-satellite asset allocation approach to over and under weight sectors. Using the performance of the sector composite, this section will illustrate the importance of choosing an optimal rebalancing scheme when building thematic portfolios. The final section will compare the sector and size exposures of the sector composite to the MG China A 200 core index.

This final paper in a three-part series, introduces eight of the recently launched 12 indexes by MarketGrader as an expansion of its existing China-A Shares index family. Parts 1 and 2 of this series introduced the MarketGrader Mainland China Exchange Indexes and the MarketGrader China A-Shares Size Indexes, respectively.

Historical Total Return Sector Performance

Figure 1 presents the historical total return performance of the eight MG China A Sector 30 indexes and compares them to the performance of the MG China A 200 core index. The performance is presented as a table, and in a risk-return chart.

Please note that since capital appreciation is the key objective of all the MarketGrader China A-Shares indexes, all the indexes use exactly the same GARP-based approach to select the index components. Therefore, using the MG China A 200 core index as a benchmark to evaluate the performance of the MG China A Sector indexes is not only a fair comparison in that it raises the bar for the performance of the sectors, but will also prove to be more insightful. The time period for the analysis starts at the base date of the indexes of December 31, 2007 and goes through August 31, 2015 – a span of 92 months, or seven years and eight months.

The risk-return chart is always a good place to start. Remember, conventional wisdom states that there is a positive relationship between risk and return. Which means that the more risky assets should have a higher return. A curso-

ry look at the risk-return chart indicates that conventional wisdom doesn't apply to the performance of these assets. In the case of these eight assets that represent the performance of the underlying economic sectors, the relationship between risk and return seems to have reversed. In other words, the less risky assets have a higher return, and the more risky assets have a lower (zero to negative) return. There could be two explanations for this empirical outcome, and both the explanations are linked with the defining attributes of emerging equity markets.

First, it is possible that the conventional relationship between risk and return at such high levels of volatility (30% and more) breaks down. Emerging markets, generally are more volatile than developed markets, and these are the markets generally where the risk-return relationship does not hold. In developed markets, diversified assets (such as sectors) have a much lower level of volatility (unless they are leveraged). It is in these markets, over the longer run, that the positive relationship between risk and return tends to hold – hence the conventional wisdom.

The second reason has to do with the efficiency of equity markets in terms of pricing equities. In a purely competitive market, operating transparently and under full information, the bid and the ask prices of a stock will concisely encapsulate the underlying demand and supply for that stock. Since the Mainland China equity market is still developing, it is possible that the equity markets for companies belonging to certain sectors (lines of business) are more efficient than for companies belonging to other sectors. If that is the case, the more efficient sector markets will be able to aptly communicate the risks associated within the sector and use the equity markets to translate them into efficient prices and therefore, into optimal returns. The less efficient sectors (which in this case happen to be Materials, Financials and Energy) will have a more difficult time capturing, communicating and translating the underlying risks into efficient prices. Consequently, the risks for these sectors are going to be estimated incorrectly (perhaps exaggerated), and the returns for these sectors are going to be suboptimal.

MarketGrader China A-Shares Sector Index	Annualized Return (Ret) %	Annualized Standard Deviation (SD) %	Ret/SD	Cumulative Return %
Consumer Discretionary	7.1	30.7	0.23	68.8
Consumer Staples	6.7	30.3	0.22	64.6
Energy	-1.9	42.6	-0.04	-13.7
Financials	-0.2	38.6	-0.00	-1.2
Health Care	16.0	32.1	0.50	212.1
Industrials	7.7	34.8	0.22	77.1
Materials	2.5	37.4	0.07	20.5
Technology	13.2	36.6	0.36	159.3
MG China A 200 Index	6.3%	32.5%	0.19	60.0%
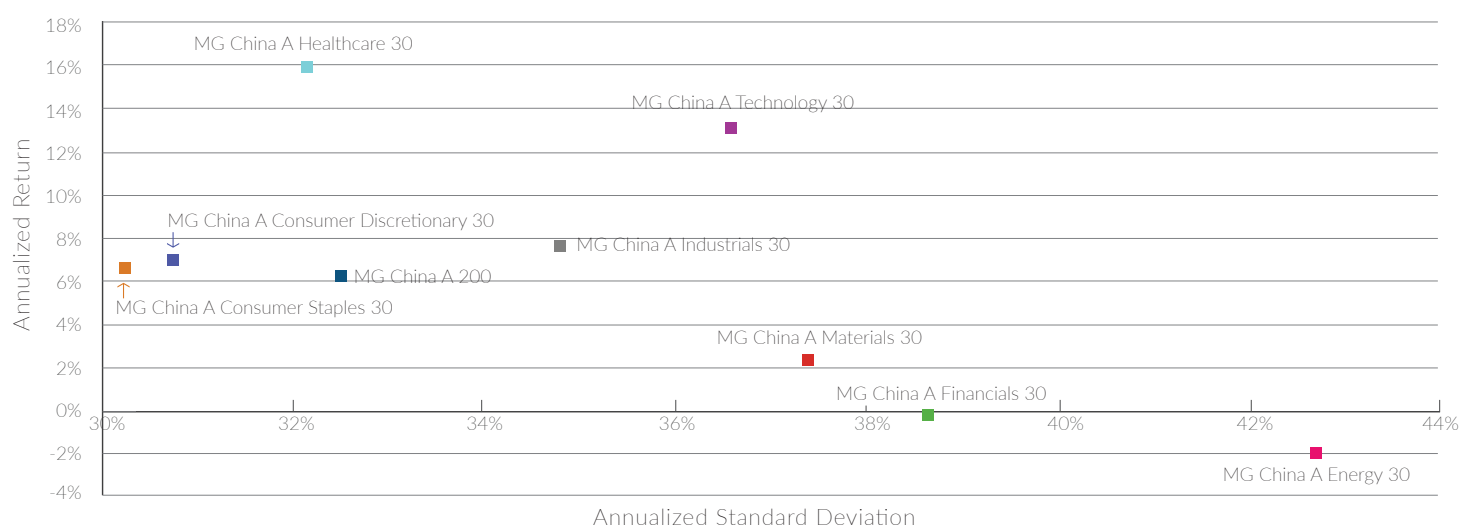
Source: MarketGrader Research. Go to Global.MarketGrader.com for more on these indexes, including methodology and fundamental characteristics. See Figure A1 in the Appendix for correlations across the sector indexes, and with the benchmark.

In many cases, depending on the line of business, sectors might need specialized markets (such as futures, options, various swap markets, etc.) to adequately price the risks and translate them into the appropriate rewards associated with the economic sector.

Coming back to sector performance, only two of the eight economic sectors as measured by the MarketGrader sector indexes have returns similar to the MG China A 200 core index. These are Consumer Discretionary and Consumer Staples. However, as can be seen from the table, both have returns that are marginally, though statistically, higher. Three sectors -– Industrials, Technology and Health Care –

have returns that are significantly higher than the MG China A 200 core index. Lastly, three sectors – Materials, Financials and Energy – have returns that are significantly lower. In terms of risk as measured by the volatility of the sector indexes, Consumer Discretionary, Consumer Staples and Health Care have a lower volatility than the China A 200 core index, and Industrials, Technology, Industrials, Materials, Financials and Energy have a higher volatility than the MG China A 200 core index.

On a risk-adjusted basis, the benchmark MG China A 200 core index returned 19 basis points (bps) for every percent of volatility. This means that five of the eight sectors

outperformed the benchmark on a risk-adjusted basis. The Health Care sector returned 50 bps (which is more than 2.5 times greater than the benchmark) while Technology returned 36 bps (which is nearly two times greater than the benchmark). Consumer Discretionary returned 23 bps, and Consumer Stapes and Industrials returned 22 basis points each.

Materials, Financials and Energy underperformed the benchmark on a risk-adjusted basis. Materials returned only 7 bps for every percent of risk. Financials was flat over this time period and yielded zero to negative return for the risk incurred (so in that sense it underperformed cash). The Energy sector actually cost investors 4 bps annually for every unit of risk. With an extremely high volatility of 42.6%, that sector cost investors 190 basis points annually (annualized return of -1.9%).

Finally, it might be worth noting that over the time period under consideration, the performance of the economic sectors is very varied. The range of annualized return outcomes varies from a high of 16.0% (Health Care) to a low of -1.9% (Energy). That is a range of nearly 18%. This variability in sector outcomes suggests that in addition to a strategic asset allocation, as implemented by a core portfolio such as the MG China A 200, there is a solid role for tactical sector asset allocation using the sector indexes.[5]

Thesis-Driven and Thematic Investing

At this stage, a brief discussion of thesis-driven investment and thematic investing will be useful in providing context to what follows. As the name suggests, thesis-driven investing is based on a thesis generally founded in economic theory. In many cases the thesis is a structural shift and/or a permanent change in the drivers of a particular asset's performance, and therefore, implies a long-run impact on the performance of the asset. If the asset under consideration

happens to be a major asset class that is part of the policy portfolio, then this would also imply a permanent alteration to the policy portfolio.

A recent paper by Carlos Diez, President & CEO of MarketGrader, is a good example of a thesis-driven investment idea that argues for a strategic asset allocation to Mainland China in the policy portfolio.[6] The thesis presented states that the next stage of development in the capital markets of Mainland China will focus on converting China's abundant savers into investors, thereby driving capital into companies and making the workers, who were previously just consumers of goods and services produced by those companies, into shareholders of those companies. The workers, through their ownership in public-traded equities will thus share in the economy's prosperity and partake in the wealth creation opportunities. The completion of this production-consumption-ownership loop for the Chinese economy will be the engine of growth in the 21st century. This is the main reason that China can be considered as the premier capital appreciation opportunity. The result is that believers of this thesis should seek to implement a strategic allocation to Mainland China in their policy portfolios.

It is clear that a strategic allocation to a specific asset class in a portfolio is very likely to be driven by a thesis. However, economic sectors, which are considered sub asset classes, can play an active role in implementing both thesis-driven and thematic investing. As compared to a thesis, themes are more tactical versus strategic. They could be based on a thesis, and play a significant role in the outcome of the thesis (for instance, if the Chinese economy grows, certainly some, if not all of the economic sectors are going to grow) and though themes are generally more relevant in the short run (topical), they could also be applicable in the longer run (especially as part of a thesis).

In addition, due to various factors (such as seasonality in demand and economies of scale in production activities), economic sectors tend to be cyclical in nature (see, Figure

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5. The wide outcome of returns for the sectors is also evident on an annual basis. Go to Global.MarketGrader.com to download a copy of the periodic table for the Mainland China economic sectors.

6. MarketGrader Corp. "China – The Best Capital Appreciation Opportunity of the 21st Century." Carlos Diez, December 2015.

A2 in the Appendix). Consequently, in addition to thematic investing, economic sectors lend themselves nicely to tactical asset allocation strategies in general, and momentum based portfolios, in particular. Irrespective of the objective, the end goal is to gain exposure to the thematic sectors and/or to the tactically outperforming sectors in the portfolio. In practice, this is implemented using one of two approaches:

A. Sector Overlay
In this approach exposure to the thematic sectors and/or tactically outperforming sectors is gained as an overlay to a core strategic portfolio.

B. Core-Satellite Portfolio
This approach, either builds a portfolio that includes all of the sectors in the targeted theme, or directly incorporates tactical beliefs to over and under weight sectors in a basket of sectors. The resulting portfolio then becomes a satellite to a core portfolio. This approach is also referred to by other names, such as, hub-and-spoke investing

The MarketGrader China A Equally Weighted Sector Composite

One of the biggest challenges to building a thematic portfolio is selecting the appropriate economic sectors that best reflect the investment theme. Having decided on the sectors, the next challenge is determining the optimal rebalancing frequency. This is important because it is one of the more important determinants of performance of the thematic portfolio. To illustrate this point, instead of constructing a hypothetical thematic portfolio, or building a tactical asset allocation strategy, this section will calculate an equally weighted sector composite portfolio of all of the eight MG China A sector indexes to analyze the influence of various rebalancing frequencies on its performance. This sector composite portfolio will be equally weighted and can be thought of as a benchmark for other portfolios that use a subset of the eight sectors to build a thematic index.

Figure 2 presents the performance of an equally weighted sector composite portfolio made up of the eight MarketGrader China A sector indexes using different rebalancing frequencies. This portfolio is calculated as an index-of-indexes, with the indexes being the eight MarketGrader China A sector indexes, and is labeled the MG China A EW Sector

▌Figure 2. The MarketGrader China A-Shares Equal Weighted Sector Composite in CNY - January 2007 through August 2015

MG China A EW Sector Composite	Rebalance Frequency			
Performance Statistics	Monthly	Quarterly	Semi-Annually	Annually
Annualized Return (Ret)	7.4%	7.5%	7.8%	7.4%
Cumulative Return	72.5%	73.8%	77.3%	73.0%
Annualized Standard Deviation (SD)	32.5%	32.5%	32.5%	32.6%
Ret / SD	0.23	0.23	0.24	0.23
Annualized Portfolio Turnover	37.5%	22.4%	17.9%	11.3%

Source: MarketGrader Research. See Figure 1 for the MarketGrader China A Sector Indexes used to calculate the MG China A EW Sector Composite. The "Annualized Turnover" is the turnover as a result of rebalancing the composite portfolio at the specified frequency so as to hold each sector index in the same proportion of the portfolio value. It does not capture the turnover within each of the sector indexes as a result of the semi-annual reconstitution and rebalancing that MarketGrader performs to ensure that all of the components selected are most consistent with the objective of the index. Though this turnover will impact each of the versions identically. Go to Global.MarketGrader.com for more on the sector indexes, including methodology, exposure by sector and size, and fundamental characteristics.

Composite. The MG China A EW Sector Composite is calculated using monthly, quarterly, semi-annual and annual rebalancing, respectively. This means that these are the frequencies at which the sector composite rebalances the eight sector indexes to equal weights.

The first observation worth noting from the table is that in this case the rebalancing frequency does not significantly impact the performance of the composite. The reason for this is straightforward. This composite is made up of eight sectors. Consequently, each sector is only weighted 12.5% in the portfolio. Therefore, the impact of the performance of each sector is small. A composite made up of fewer sectors, where each sector played more of a role in the overall performance of the portfolio, would be more sensitive to the rebalancing frequency.

Nonetheless, the composite picks up 10 basis points on an annualized basis going from a monthly rebalance to a quarterly rebalance, and another 30 basis points going from a quarterly rebalance to a semi-annual rebalance. It gives up 40 basis points going from a semi-annual rebalance to an annual rebalancing frequency.

Even though the performance is not so sensitive to the rebalancing frequency, what is sensitive is the annualized portfolio turnover. The annualized portfolio turnover in Figure 2 suggests that rebalancing the composite either semi-annually, or annually, results in the best outcome. The semi-annually rebalanced version results in an annualized return of 7.8% (1.5% more than the MG China A 200 core benchmark) with an annual portfolio turnover of 17.9%. In comparison, the annually rebalanced version results in an annualized return of 7.4% (1.1% more than the MG China

▌Figure 3. The MarketGrader Size Composites: Total Return Performance in CNY December 31, 2007 through August 31, 2015

	MG EW Sector Composite	MG China A 200 Index
Annualized Return (Ret)	7.4%	6.3%
Cumulative Return	73.0%	60.0%
Standard Deviation (SD)	32.6%	32.5%
Ret/SD	0.23	0.19
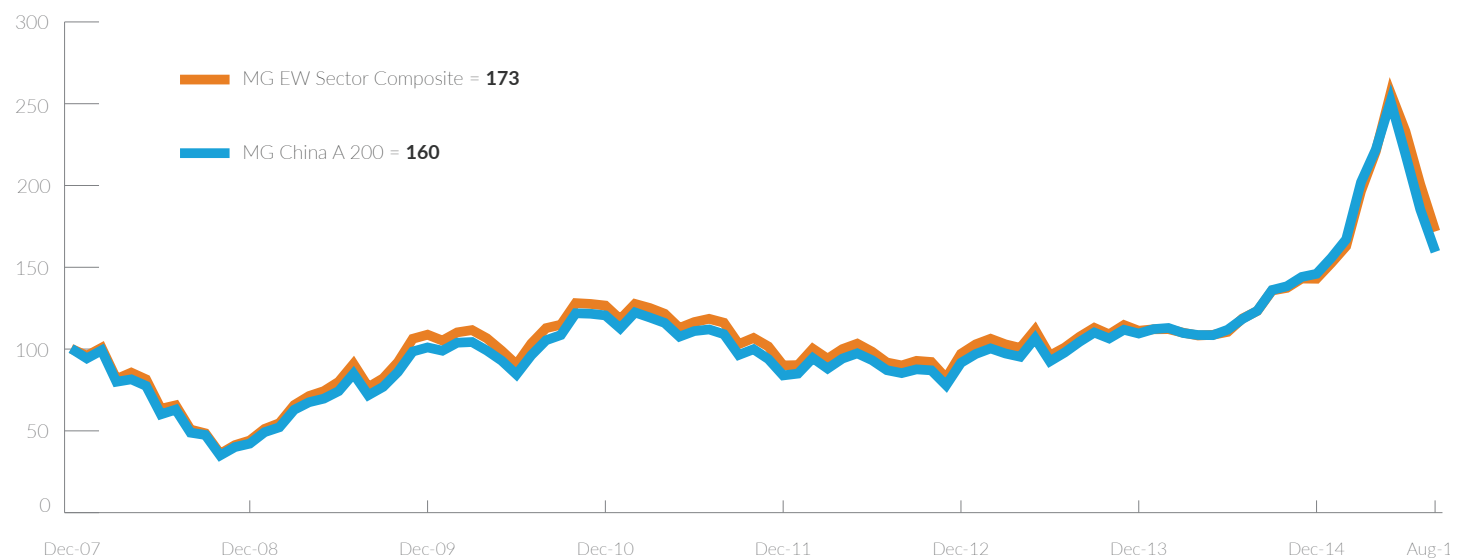
Source: MarketGrader Research. See Figure 1 for the eight MarketGrader China A Sector Indexes used to calculate the annually rebalanced MG China A EW Sector Composite. Go to Global.MarketGrader.com for more on the sector indexes, including methodology, exposure by sector and size, and fundamental characteristics

A 200 core benchmark) with an annual portfolio turnover of 11.3% (6.6% lower than the semi-annualized rebalanced version). Therefore, the choice of the rebalancing frequency will depend on the magnitude of the transaction costs associated with trading the underlying sector indexes.

The remainder of this article will use the annually rebalanced MG China A EW Sector Composite. Figure 3 presents the growth of a 100 in CNY for the MG China A EW Sector Composite and the MG China A 200 core index. If the transaction cost of rebalancing 11.3% of the portfolio value annually is less than 1.1% of the portfolio value, then the MG China A EW Sector Composite will outperform the MG China A 200 core index. However, if the transaction cost is greater than 1.1% of the portfolio value annually, the MG China A 200 core index will outperform the sector composite. Either way, since there is no free lunch, the performance of the two ends up looking very similar.

MarketGrader China A EW Sector Composite: Sector & Size Exposures

As presented in Figure 3, ignoring transaction costs, the MG China A EW sector composite outperforms the China A 200 core benchmark portfolio by 1.1% on an annualized basis. The difference in the performance of the two portfolios can be attributed to the differences in the following two (size and sector) factors explained in more detail below.

Recall that the sector composite has no allocation to Telecommunications and to Utilities while the MG China A 200 core benchmark portfolio has exposure to all 10 sectors.[7]

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7. This is not by design, but as a result of stock selection. The methodology for the MG China A 200 index imposes only a maximum (40 companies) per sector, but does on specify any minimum. So technically the index could be made up of only five sectors. It so happens that as of the last reconstitution, selecting the top 200 companies by MarketGrader rankings gave the MG China A 200 index exposure to all 10 economic sectors. Go to Global.MarketGrader.com for more on the methodology of the MG China A 200 index.

■ Figure 4. The MarketGrader China A-Shares Sector Indexes: Counts by Size Classification - September 2015 Reconstitution

Sector	MG China A EW Sector Composite				MG China A 200			
	Large Count	Small Count	Sector Total	Sector Weight %	Large Count	Small Count	Sector Total	Sector Weight %
Consumer Discretionary	24	6	30	12.5	17	4	21	11.5
Consumer Staples	21	9	30	12.5	12	1	13	6.5
Energy	20	10	30	12.5	1	-	1	0.5
Financials	28	2	30	12.5	37	2	39	19.5
Health Care	27	3	30	12.5	24	3	27	13.5
Industrials	24	6	30	12.5	31	9	40	20.0
Materials	20	10	30	12.5	14	4	18	9.0
Technology	20	10	30	12.5	19	10	29	14.5
Telecommunications	-	-	-	-	2	-	2	1.0
Utilities	-	-	-	-	5	4	9	4.5
Miscellaneous	-	-	-	-	1	-	1	0.5
Column Totals	184	56	240	100%	163	37	200	100%
(Size Weight)	(76.7%)	(23.3%)			(81.5%)	(18.5%)		

Source: MarketGrader Research. See Figure 1 for the eight MarketGrader China A Sector Indexes used to calculate the annually rebalanced MG China A EW Sector Composite. Go to Global.MarketGrader.com for more on these sector indexes and the size classification methodology used by MarketGrader. "Sector Weights" are calculated as the "Sector Total" divided by the total count of the portfolio and is rounded to the nearest decimal. For example, in the case of the MG China A EW Sector Composite, Consumer Discretionary has a total of 30 stocks. This is divided by 240, which is the total number of components in the composite portfolio, for a "Sector Weight" of 12.5% for Consumer Discretionary in the portfolio. "Size Weights" are calculated as the total counts by size, divided by the total count of the portfolio and is rounded to the nearest decimal. For example, in the case of the MG China A EW Sector Composite, the total number of large components is 184. This is divided by 240, which is the total number of components in the composite portfolio, for a "Size Weight" of 76.7% to large cap stocks in the portfolio.

However, this is not the only difference in sector exposures. In fact, the sector weights presented in Figure 4 indicate that relative to the MG China A 200 index sector weights, the MG China A EW Sector Composite is overweight Consumer Discretionary (by 0.8%), Consumer Staples (5.8%), Energy (11.8%) and Materials (3.3%). It is underweight Financials (by 7.2%), Health Care (1.2%), Industrials (7.7%), Telecommunications (1%) and Utilities (4.5%). This difference in the sector weights is the first major factor that explains the difference between the performances of the two portfolios.

Although this difference in sector weights is a contributing factor to the performance differences, to understand the impact directly requires more analysis. Since Consumer Discretionary and Consumer Staples outperformed the MG China A 200 index by a small but significant amount, overweighting those sectors in the MG China A EW Sector Composite helped the composite. But since Materials and Energy underperformed dramatically, the respective 3.3% and 11.8% overweight in those two sectors, hurt the performance significantly. Financials underperformed, so underweighting that sector, enhanced performance. But Health Care and Industrials outperformed, so underweighting those sectors, probably hurt performance. Since the relative performance of Telecommunications and Utilities to the benchmark is not known, it is not clear what the impact of underweighting those sectors was on the MG China A EW Sector Composite.

The second major factor that explains the difference between the performances of the two portfolios is the size exposure. Notice, relative to the size exposures of the MG China A 200 index, the MG China A EW Sector Composite is short large caps (by 4.8%) and long small caps (by 4.8%). Recall from Part 2 of this series of papers that small caps significantly outperformed large caps during the period under consideration.[8] So, unambiguously, the long/short exposure to small/large caps, relative to the MG China A 200 benchmark index enhanced the performance MG China A

EW Sector Composite.

Besides the sector and size differences, there is a third factor that plays a role in the performance attribution of the sector composite relative to the MG China A 200 benchmark. This is the performance difference due to the number and names of the components in the sector composite as compared to the benchmark. This performance difference is also referred to as the stock selection effect, and is generally the factor that has the smallest impact on explaining the difference in the performance of a portfolio relative to a benchmark.[9]

Finally, it might be helpful to clarify that the sector composite presented in this paper can be thought of as a simple, or naïve, thematic index that makes no tactical call (or an identical tactical call) on the eight sectors. In reality, a thematic index would choose a subset of the sectors (which essentially implies a zero weight to the sectors not chosen) and use the attributes of the chosen sectors (such as momentum) to over/under weight the sectors selected. However, the performance attribution of such a thematic index would be performed in exactly the same manner as the performance attribution presented above for the equally weighted sector composite. This means that choosing an appropriate benchmark, such as the MG China A 200 index that was selected in the analysis above, is critical to objectively evaluating and attributing the performance of a thematic index since the returns of the benchmark are easily achievable using a simple buy-and-hold investment strategy. This also means that the purpose of a thematic index (the satellite investment) is to outperform, or add alpha to, the core investment of the portfolio.

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9. Keeping in mind that MarketGrader uses a bottoms-up approach based on company fundamentals to select components for its indexes, the differences in size and sector compositions between the two portfolios is also a result of the stock selection implemented according to the methodology of the indexes.

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8. See, "The MarketGrader China A-Shares Size Indexes: Tools for Strategic and Tactical Asset Allocation – Part 2," published by MarketGrader Capital.

Appendix

▌ Figure A1. The MarketGrader China A-Shares Sector Indexes: Correlations December 31, 2007 through August 31, 2015

MarketGrader China A Sector Index		1	2	3	4	5	6	7	8	9
Consumer Discretionary	1	1.00	0.89	0.79	0.82	0.84	0.92	0.93	0.89	0.96
Consumer Staples	2		1.00	0.76	0.75	0.84	0.86	0.89	0.87	0.92
Energy	3			1.00	0.83	0.63	0.83	0.84	0.71	0.86
Financials	4				1.00	0.60	0.83	0.82	0.67	0.86
Health Care	5					1.00	0.82	0.79	0.85	0.86
Industrials	6						1.00	0.94	0.90	0.97
Materials	7							1.00	0.87	0.96
Technology	8								1.00	0.92
MG China A 200 Index	9									1.00

Source: MarketGrader Research. Go to Global.MarketGrader.com for more on these indexes, including methodology, exposure by sector and size, and fundamental characteristics. Correlations are calculated using monthly total return data. See Figure 1 in the paper for index and benchmark performance.

▌ Figure A2. The MarketGrader China A-Shares Sector Indexes: Three-Year Annualized Rolling Returns - December 31, 2007 through August 31, 2015
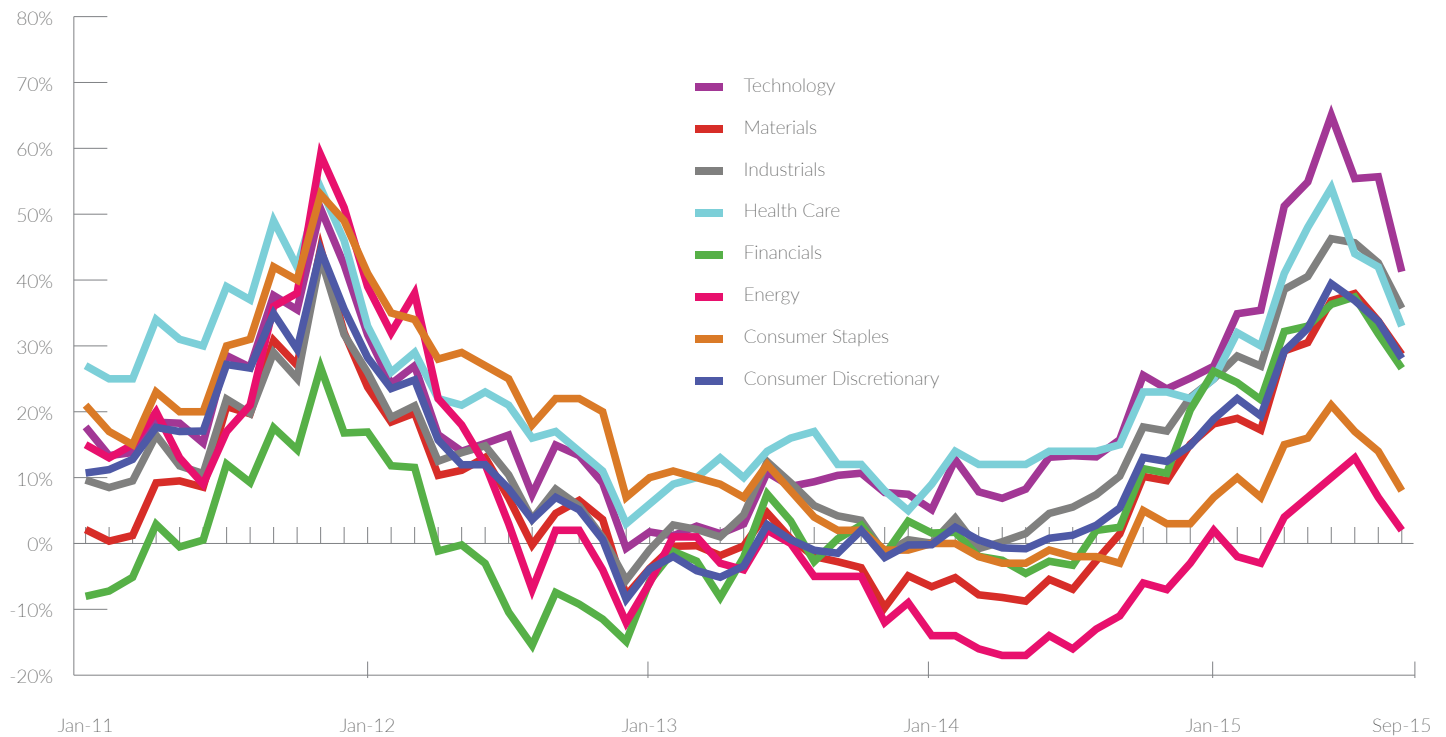
Source: MarketGrader Research. Go to Global.MarketGrader.com for more on these indexes, including methodology, exposure by sector and size, and fundamental characteristics. See Figure 1 in the paper for index and benchmark performance. See Figure A1 for the correlation across these indexes.

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