The MarketGrader China A-Shares Exchange Indexes:

Tools for Strategic & Tactical Asset Allocation – Part 1

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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 two exchange-specific indexes covering the investment opportunity available in the A-shares equity markets of the Shanghai and Shenzhen stock exchanges. The indexes are named the MarketGrader Shanghai 80 Index (MG Shanghai 80) and the MarketGrader Shenzhen 80 Index (MG Shenzhen 80). The indexes are designed to satisfy two key objectives. First, the indexes provide investors long-term strategic tools to participate in the exchange-specific capital appreciation opportunities inherent in the mainland exchanges. Second, the indexes give investors the ability to act on their beliefs regarding the relative performance of the largest China exchanges and empowers them to tactically shift the relative exposures of their portfolios to the Shanghai and Shenzhen stock exchanges.

As the names suggest, the indexes are composed of 80 companies trading on their respective exchanges. The 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.[2] So while the indexes are selecting components from the specific exchange that they cover to ensure that they provide exposure to the returns and risks inherent in that exchange, they are concurrently focusing on the key investment objective of providing capital appreciation by selecting the best companies trading on the specific exchange. Put simply, the MG Shanghai 80 and the MG Shenzhen 80 indexes seek to provide investors with exchange-specific capital appreciation opportunities in the Shanghai and Shenzhen equity markets, respectively.

MarketGrader's primary reason for the introduction of exchange-specific indexes in Mainland China is to empower investors. The Shanghai and Shenzhen equity markets differ 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 their exchanges. So even though the country-specific risk factors may be common to both the exchanges, the size, style and sector risk factors differ by exchange.[3] Hence, indexes that target the risk factors inherent to each exchange can be very empowering to investors as they provide them the tools to control the exposure to these exchange-specific risk factors in their portfolios.

This paper is structured as follows: The next section of this paper presents the historical price performance of the MG Shanghai 80 and the MG Shenzhen 80 indexes and compares them to the broad exchange composites. This is followed by a discussion of the long-run total return strategic performance of the indexes. The section after that covers the use of these indexes in a tactical asset allocation (TAA) framework. This section also introduces an equally weighted index-of-indexes that can be used as a TAA strategies benchmark. The final section compares the size and sector exposures of the MarketGrader exchange indexes and of the TAA strategies benchmark.

This paper is the first in a three-part series that introduces two of the 12 recently launched indexes by MarketGrader as an expansion of its existing China-A Shares index family. Parts 2 and 3 of this series will cover the MarketGrader China A-Shares Size and Sector Indexes, respectively.

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. For more on the MarketGrader's proprietary GARP-based stock rankings using company fundamentals, go to Global.MarketGrader.com.

3. The country-specific risk factor may also differ by exchange if different policies and regulations are applicable to the two exchanges. This may affect not only the sorting of companies by exchange, but also impact the prices of companies on the two exchanges.

Historical Price Performance

Figure 1 presents the historical price performance of the MG Shanghai 80 and the MG Shenzhen 80 and compares them to the performance of the broad Shanghai and Shenzhen Exchange Composites (Shanghai Composite and the Shenzhen Composite). These broad composites serve as the benchmarks for the two MarketGrader exchange indexes. The time period covered starts at the base date of the indexes, December 31, 2007, and goes through August 31, 2015 – a span of 92 months, or seven years and eight months.

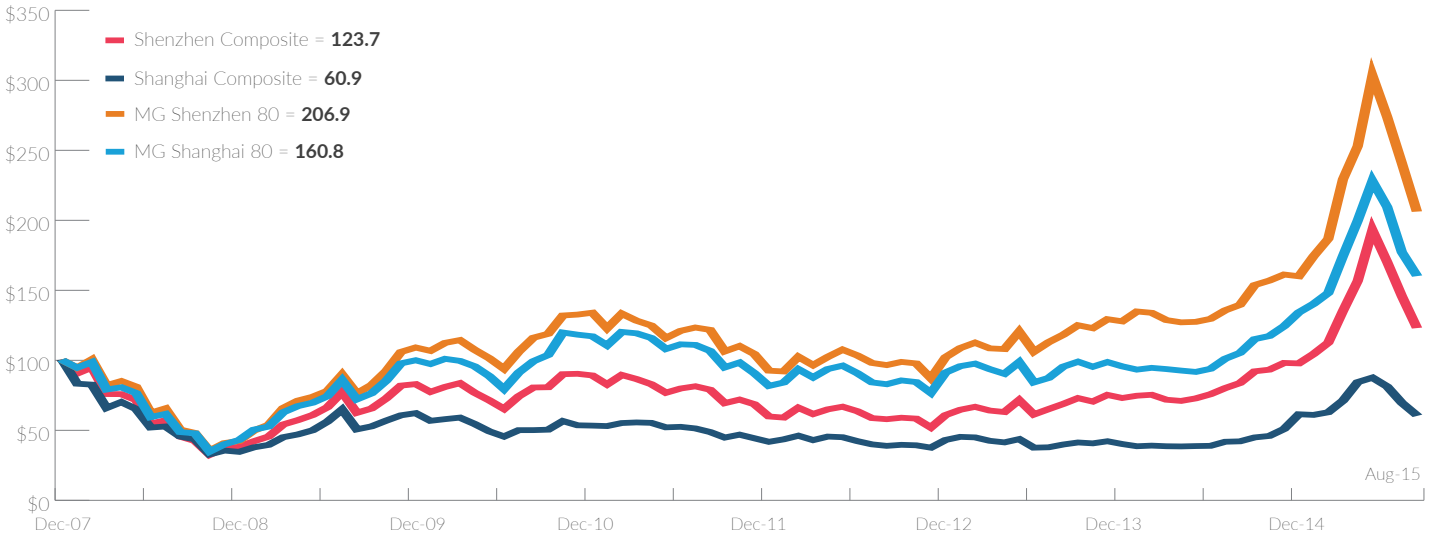
All of the indexes followed a similar trend, which can be broadly recognized as the trend of the Chinese equity market. But the magnitudes of the trend are quite different when comparing the MarketGrader indexes to their benchmarks. The MG Shenzhen 80 has been the consistent leader throughout the entire time period. It ended the period with a price gain of 106.9% versus its benchmark, which was up only 23.7% – a difference of 83.2 percentage points on a cumulative basis. Meanwhile, over the same time period, the MG Shanghai 80 gained 60.8% versus its benchmark, which was down 39.1% – a difference of 99.9 percentage points on a cumulative basis.

These differences indicate that both of the MarketGrader indexes outperformed their respective broad benchmarks by nearly 100 percentage points on a cumulative basis. This outperformance can be attributed to the GARP-based component selection from the two universes of stocks trading on the Shanghai and Shenzhen equity exchanges.

Another point worth noting is the differences in performance spreads: whereas the difference in annualized price return for the Shenzhen composite (2.8%) to the Shanghai composite (-6.3%) is 9.1%, the difference in the annualized price return of the MG Shenzhen 80 (10.0%) and the MG Shanghai 80 (6.4%) is only 3.6%. This is, again, a result of quality stock selection by the two MG indexes. Essentially,

Figure 1. The MarketGrader Exchange Indexes: Price Growth of 100 in CNY - December 31, 2007 Through August 31, 2015

	MG Shanghai 80	MG Shenzhen 80	Shanghai Composite	Shenzhen Composite
Annualized Return (Ret)	6.4%	10.0%	-6.3%	2.8%
Cumulative Return	60.8%	106.9%	-39.1%	23.7%
Standard Deviation (SD)	32.5%	33.0%	29.7%	33.7%
Ret/SD	0.20	0.30	-0.21	0.08



Source: MarketGrader Research. Go to Global.MarketGrader.com for more on these indexes, including methodology, exposure by sector and size, and fundamental characteristics. Data for the Shanghai and Shenzhen Composites is from FactSet. See Figure A1 in the Appendix for calendar year returns and correlations for these indexes.

MarketGrader's approach to selecting the best stocks from the two exchanges as components of the indexes used to represent the respective exchanges not only generates excess returns over and above the performance of the broad exchange benchmarks, but also decreases the difference (spread) in performance relative to the broad exchange benchmarks. Consequently, because the gains from tactically over/under-weighting a MG exchange index within a policy portfolio decline, it follows that strategic asset allocation would most likely play an even more important role in the performance of a policy portfolio and the role of tactical asset allocation would be slightly diminished.[4]

4. If the assets representing the two exchanges have distinct long-run risk-return profiles, then in this context, strategic asset allocation would be the composition, or asset weightings, of the policy portfolio that maximizes the long-run objective of the portfolio, namely, capital appreciation. Tactical asset allocation would then be defined as the short-run deviations of the weights of the two assets from those policy weights made with the specific goal of achieving a better outcome in the shorter-run. The main difference between the two is the length of the investment horizon and the period over which performance is evaluated.

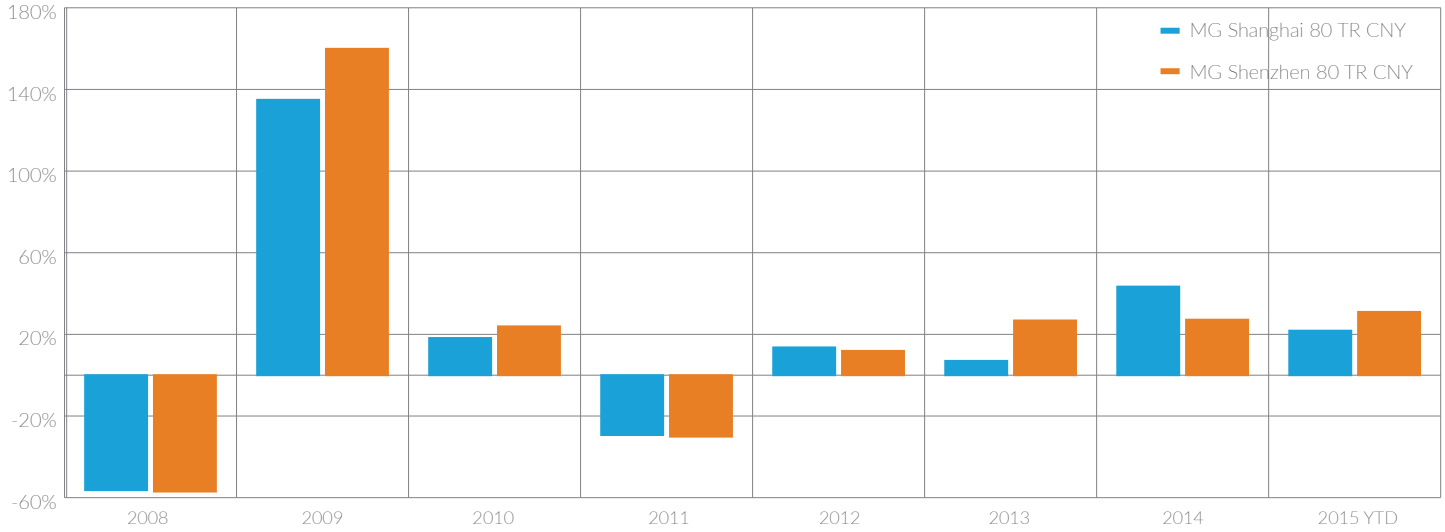
MarketGrader Exchange Indexes: Strategic Performance

As mentioned in the introduction, one of the objectives of these indexes is to provide investors tools to gain strategic exposure to the two Mainland China exchanges with the goal of capital appreciation. Figure 2 presents the total long-run total return of the two indexes since the start of their coverage in January 2008 through August 2015.

It is clear that in strategic terms, the MG Shenzhen 80 was the better investment. It generated an annualized total return of 11.4%, which means that the index more than doubled over this time period for a cumulative return of 128.9%. Given the annualized standard deviation of 32.9%, the reward/risk ratio for this investment opportunity was 35 basis points of return for every 100 basis points of volatility purchased.

Figure 2. The MarketGrader Exchange Indexes: Total Returns Performance in CNY - January 2008 Through August 2015

	MG Shanghai 80	MG Shenzhen 80
Annualized Return (Ret)	8.2%	11.4%
Cumulative Return	82.3%	128.9%
Standard Deviation (SD)	32.3%	32.9%
Ret/SD	0.25	0.35



Source: MarketGrader Research. Go to Global.MarketGrader.com for more on these indexes, including methodology, exposure by sector and size, and fundamental characteristics.

In the absence of the Shenzhen exchange, and therefore the MG Shenzhen 80, the Shanghai Composite would have been a terrible alternative as a strategic investment as it was down over this time period. But in spite of the dismal performance of the underlying equity market, as measured by the Shanghai exchange composite, the MG Shanghai 80 rewarded investors with a respectable annualized return of 8.2% – a return very much at par with some of the better performing asset classes over this time period. The implied return/risk ratio of this investment was 0.25. This is again an attestation of the ability of the index to select quality stocks, which as mentioned earlier, also resulted in bringing its performance more in line with its complementary index – the MG Shenzhen 80.

As a consequence of the GARP-based stock selection methodology used for both of the MarketGrader indexes, the annualized spread (difference in performance) over the entire time period shrank to 3.2% (11.4% - 8.2%). Though not a significant performance gap, this difference in return is relative. Some investors may seek to use their beliefs in the relative performance of the two exchanges to harness this spread. In that spirit, Figure 2 also presents the annual calendar year performance of the two MarketGrader exchange indexes.

First, notice that in each of the calendar years, the performance of both of the indexes is directionally the same, meaning that either both of the assets have a positive return, or both of them have a negative return. This means that the gains from a favorable tactical bet made on the outperforming index are probably not going to be very large. But it also means that the losses, as a result of an unfavorable tactical bet, will also not be very large.

Second, based on calendar years, the maximum annual spread was 25%, in 2009, followed by 19.8%, in 2013. In both those years, the MG Shenzhen 80 outperformed the MG Shanghai 80, meaning that tactically overweighting the MG Shenzhen 80 relative to the MG Shanghai 80 in those years would have rewarded the investor. In 2014, the MG Shanghai 80 outperformed the MG Shenzhen 80 by 16.2% (43.4% versus 27.2%). Therefore, tactically overweighting the MG Shanghai in that year would have paid off. The final year where a tactical bet would have made a significant difference is the current year. So far in 2015, on a year-to-date basis through August, the MG Shenzhen 80 has outperformed the Shanghai 80 by 9.3%, though the year is not over. These spreads seem to suggest that even though the spreads in overall performance over the entire time period are not so significant relative to the exchange composites, there might be a role for tactical asset allocation based on shorter periods, such as a year.

The MarketGrader 80-80 Balanced Exchange Composite: A Tactical Asset Allocation Benchmark

Figure 3 presents the performance of the MG Shanghai 80 and the MG Shenzhen 80 indexes and compares it to the performance of three tactical allocation portfolios. The one titled, "100% Allocation to Outperforming Index" is a portfolio that has perfect foresight, so to speak, and is able to perfectly forecast the outperforming index by calendar year and, therefore, allocates 100% of its capital to the outperforming asset. The portfolio titled, "100% Allocation to Underperforming Index" is a portfolio that allocates 100% of its capital to the index that it thinks is going to outperform, but unfortunately gets all of its calendar year tactical calls wrong and, therefore, is allocated 100% solely to the underperforming asset.

Assuming, (i) that portfolios use annual tactical rebalancing at the start of each calendar year, (ii) that portfolios are 100% invested, i.e., they are not allowed to hold cash, and (iii) that portfolios are long-only and are not allowed to short the underperforming asset, the two portfolios defined above are helpful in establishing the range of performance outcome for all portfolios using tactical asset allocation (TAA) strategies that satisfy the three assumptions outlined.

Figure 3 also presents the performance of a portfolio that allocates 50% of the portfolio to the MG Shanghai 80 and 50% of the portfolio to the MG Shenzhen 80 and is rebalanced annually to those weights at the start of each calendar year. Such a portfolio would be consistent with an in-

Figure 3. Tactical Asset Allocation Outcomes: Total Return Performance in CNY - January 2008 Through August 2015

	MG Shanghai 80 Index	MG Shenzhen 80 Index	100% Allocation to Outperforming Index	100% Allocation to Underperforming Index	MG 80-80 Balanced Exchange Composite
Calendar Year Returns:	%	%	%	%	%
2008	-56.3	-57.0	-56.3	-57.0	-56.6
2009	134.9	159.9	159.9	134.9	147.4
2010	18.2	23.9	23.9	18.2	21.1
2011	-29.3	-30.1	-29.3	-30.1	-29.7
2012	13.6	11.9	13.6	11.9	12.8
2013	7.0	26.8	26.8	7.0	16.9
2014	43.4	27.2	43.4	27.2	35.3
2015 YTD	21.8	31.0	31.0	21.8	26.4
Entire Period:					
Annualized Return (Ret)	8.2%	11.4%	13.8%	5.9%	9.9%
Cumulative Return	82.4%	128.9%	169.6%	54.8%	105.9%
Standard Deviation (SD)	32.3%	32.9%	32.9%	32.3%	32.3%
Ret/SD	0.25	0.35	0.42	0.18	0.31

Source: MarketGrader Research. Go to Global.MarketGrader.com for more on these indexes, including methodology, exposure by sector and size, and fundamental characteristics. The MG 80-80 Balanced Exchange Composite is made up of 50% of the MG Shanghai 80 Index and 50% of the MG Shenzhen 80 Index, rebalanced annually to those weights at the start of each calendar year.

vestment portfolio that has no prior beliefs, or has uniform prior beliefs, over the relative calendar-year performance of the two exchanges and is therefore looking to diversify risk. In addition, since this TAA portfolio has no prior beliefs (or has identical prior beliefs) as to the relative performance of the exchanges, it can also be considered as a simple, or naïve, benchmark for evaluating the performance of all other TAA strategies.

As expected, the perfect foresight portfolio, titled "100% Allocation to Outperforming Index", that gets all of its calendar year tactical calls right and therefore allocates 100% of its capital to the outperforming index, performs the best with an annualized total return of 13.8%. The perfect foresight outcome translates into a cumulative return of 169.6% over the entire period. Though this performance is significant, it is does not overwhelming outperform the "100% Allocation to Underperforming Index". The reason being that both of the indexes (including the underperforming index) performed relatively well on their own.

In spite of consistently getting all of its calendar year tactical calls wrong and therefore allocating 100% of it capital to the underperforming index, the portfolio, titled, "100% Allocation to Underperforming Index", results in a decent annualized return of 5.9%, which translates into a cumulative return of 54.8% over the time period.

The portfolio labeled the MG 80-80 Balanced Exchange Composite (MG 80-80 BEC) is the portfolio that is consistent with an investor having no prior beliefs (or having identical beliefs) over the calendar year relative performance of the indexes and is diversifying risks by smoothening out performance, results in an annualized return of 9.9%. Since this return is just shy of 10%, this means that the portfolio should have doubled over this 92-month, or 7 and 2/3 years, period. Indeed, as noted, the cumulative return of the MG 80-80 BEC over this period is 105.9% – an excellent capital appreciation outcome.

MarketGrader Exchange Indexes: Sector Exposures

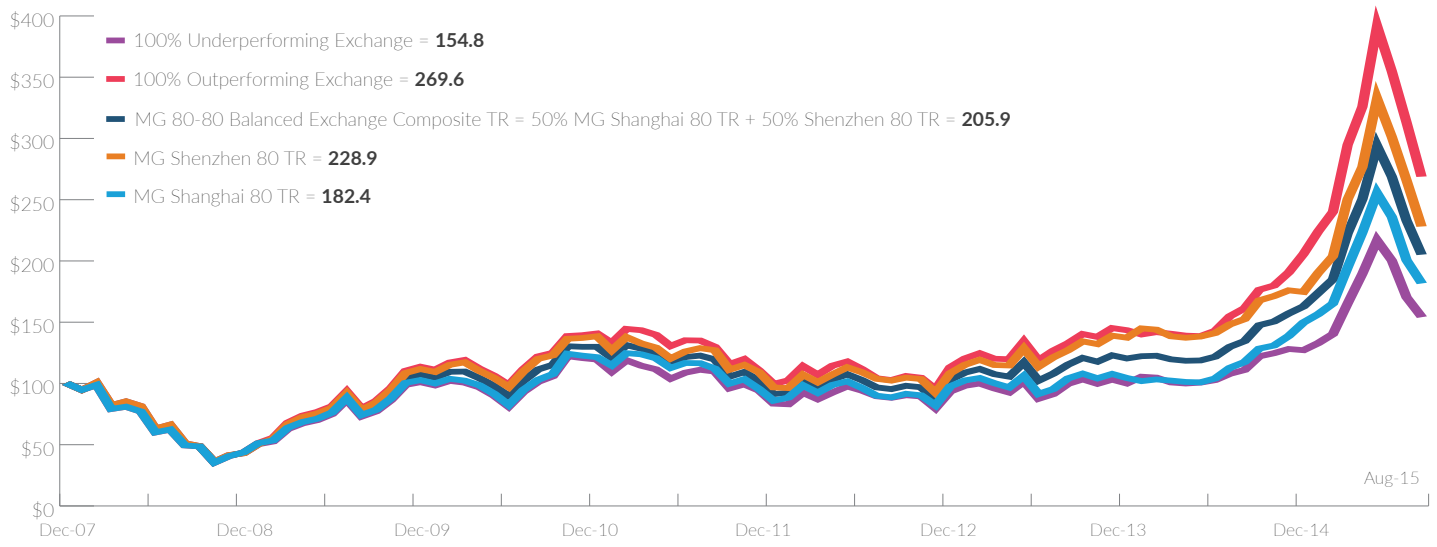
Since the MG 80-80 BEC is a portfolio made up of two indexes that seek to provide investors with exchange-specific capital appreciation opportunities in the Shanghai and Shenzhen equity markets, it follows that the derived MG 80-80 BEC should also provide investors with capital appreciation opportunities, and will do so while diversifying exchange-specific returns and risk. Figure 4, is a nice illustration of how the MG 80-80 BEC diversifies return. The performance of the MG 80-80 BEC is exactly in the middle of the MG exchange indexes and the best performing and worst performing TAA strategy portfolios.

Figure 5, on the other hand, is a nice illustration of how the MG 80-80 BEC diversifies exchange-specific risks – both size and sector risks. It presents the make up of the MG Shanghai 80 and the MG Shenzhen 80 indexes by size and sector as of the most recent reconstitution, conducted in September 2015. Since the MG 80-80 BEC is an index-of-indexes, its exposure is just a sum of the exposure of the component indexes, namely, the MG Shanghai 80 and the MG Shenzhen 80 indexes.

Of the total of 80 components, the MG Shanghai 80 is currently made up of 70 large capitalization stocks and 10 small capitalization stocks. By sector, with 16 components, Industrials contribute the largest number, followed by Consumer Discretionary, Financials and Healthcare, which each contributes 15 components. Thus the four sectors make up a total of 61 components. Leaving out the one component that is miscellaneous, the remaining 18 components are contributed by Materials (7), Technology (6), Utilities (3), and, Energy and Telecommunications, which contribute one component each. The Consumer Staples sector makes no contribution to the MG Shanghai 80.

The MG Shenzhen 80 has a very different size and sector exposures: First, because the Shenzhen exchange universe has many more smaller companies than the Shanghai exchange universe, the MG Shenzhen 80 has 14 small cap companies contributing to its performance (though this is still not close to the maximum allowed by the index methodology which allows for up to 25%, or 20 of its 80 components to be selected from the small cap size category). Second, like the MG Shanghai 80, the largest sector contributing to the MG Shenzhen 80 is Industrials, with

Figure 4. The MarketGrader 80-80 Balanced Exchange Composite: Total Growth of 100 in CNY - 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.

Figure 5. The MarketGrader Exchange Indexes: Component Counts by Sector and Size - As of the September 2015 Reconstitution

Sector	MG Shanghai 80		MG Shenzhen 80		MG 80-80 Balanced Exchange Composite	
	Large	Small	Large	Small	Large	Small
Consumer Discretionary	13	2	10	1	23	3
Consumer Staples	-	-	4	1	4	1
Energy	1	-	-	-	1	-
Financials	14	1	14	1	28	2
Health Care	14	1	9	-	23	1
Industrials	13	3	14	2	27	5
Materials	6	1	5	1	11	2
Technology	4	2	8	5	12	7
Telecommunications	1	-	1	-	2	-
Utilities	3	-	1	3	4	3
Miscellaneous	1	-	-	-	1	-
Totals	**70**	**10**	**66**	**14**	**136**	**24**

Source: MarketGrader Research. Go to Global.MarketGrader.com for more on these indexes, including historical counts by sector and size, and fundamental characteristics.

16 components also. In addition, the contribution of Financials, with 15 components, is also identical. But Healthcare, which contributes 15 components to the MG Shanghai 80, only contributes 9 components to the MG Shenzhen 80. Instead, given the tech-centric make up of the Shenzhen universe, the Technology sector contributes 13 components. Finally, Consumer Discretionary (11), Materials (6), Consumer Staples (5), Utilities (4) and Telecommunications (1) round out the 80 companies. Energy makes no contribution to the MG Shenzhen 80.

By its very construction, the MG 80-80 BEC is more diversified by size and sector. Since it is simply a weighted index-of-indexes of the two MG exchange indexes, it gains exposure to a total of 160 components. Of the 160 components, 24 (or 15%) are small capitalization. Industrials, with 32 companies (or 20%), of course, are the largest contributor by sector. This is followed by Financials (30), Consumer Discretionary (26), Healthcare (24), Technology (16), Materials (15), Utilities (7) and Materials (5). Telecommunications, with a contribution of two companies, and Energy, with a contribution of a single company, bring up the rear.
It is worth reiterating that, even though the MG Shanghai 80 has exposure to nine of the ten sectors (no Consumer Staples made the cut in the most recent, September 2015, reconstitution), and the MG Shenzhen 80 has exposure to nine of the ten sectors (no Energy companies made the cut in the most recent, September 2015, reconstitution), the MG 80-80 BEC has exposure to all ten sectors.

In conclusion, given the return and risk characteristics of the MG 80-80 BEC, it would not only serve as a simple benchmark to evaluate TAA investment strategies, but would also make for an excellent means of gaining diversified size and sector exposure to the mainland Chinese equity market using the MG Shanghai 80 and the MG Shenzhen 80 indexes, respectively, as investment tools.

Appendix

Figure A1. The MarketGrader Exchange Indexes: Price Performance - December 31, 2007 Through August 31, 2015

	MG Shanghai 80	MG Shenzhen 80	Shanghai Composite	Shenzhen Composite
Calendar Year Returns:	%	%	%	%
2008	-56.9	-57.6	-65.4	-61.8
2009	132.3	157.6	80.0	117.1
2010	17.1	22.8	-14.3	7.5
2011	-30.2	-30.9	-21.7	-32.9
2012	11.7	10.4	3.2	1.7
2013	4.8	25.0	-6.7	20.0
2014	40.3	25.2	52.9	33.8
2015 YTD	19.8	29.3	-0.9	26.5
Correlations:				
MG Shanghai 80	1.00	0.96	0.91	0.96
MG Shenzhen 80		1.00	0.84	0.98
Shanghai Composite			1.00	0.88
Shenzhen Composite				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. Data for the Shanghai and Shenzhen Composites is from FactSet.

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