Another DIYer's Turn

In response to our recent Worth Sharing, "Small Caps", we received the following email: "... over the long term probably be 50/50 between IJR and QQQ". While we have not done a Risk Profile, the starting point for any portfolio recommendations, we are aware that this individual is retired, and relies on returns from a taxable portfolio to meet expenses.

	Symbol	Name	Type	Description	Factors (1)	Yield	(2)	Exp.	M*	Risk (3)
				DIY						
50	IJR	iShares Core S&P Small-Cap ETF	ETF	US Small Blend	S, Q	1.4%	Q	0.79%	5G	1.3
50	QQQ	Invesco QQQ Trust	ETF	US Large Growth		0.8%	Q	0.20%	5N	1.0
									Weighted Average:	**1.2**
				HCM						
10	SFREX	Schwab Fundamental Global Real Estate Idx	OEF	Global Real Estate-Large Blend		3.7%	Q	0.39%	5	0.9
10	CTHRX	Columbia Global Technology Growth Inst2	OEF	Global Technology-Large Growth		0.0%		0.93%	5N	1.2
10	MTUM	iShares Edge MSCI USA Momentum Factor ETF	ETF	US Large Growth	M	1.3%	Q	0.15%	4S	1.0
30	SMLF	iShares Edge MSCI Mltfct USA SmCp ETF	ETF	US Small Blend	S, V, M, Q	1.1%	Q	0.30%	4	1.2
20	SMMV	iShares Edge MSCI Min Vol USA SmCp ETF	ETF	US Small Blend	S, LV	1.6%	Q	0.20%		0.8
20	ISCF	iShares Edge MSCI Mltfct Intl SmCp ETF	ETF	Foreign Small/Mid Blend	S, V, M, Q	1.9%	S	0.40%	4	1.3
									Weighted Average:	**1.1**
				Notes						
1	V=Value, M=Momentum, Q=Quality, S=Size, LV=Low Volatility									
2	Distribution Frequency: A=Annual, M=Monthly, S=Semi-Annual, Q=Quarterly									
3	Ratio of average historical Max. Drawdowns to S&P 500 declines greater than 10% since 2007									

In the above table we have provided the DIYer's, and our alternative portfolio (Which only contains Funds available without a RIA, like HCM.), with the **%** allocation to each Fund, whose **Symbol, Type** (OEF=Open End Fund, ETF=Exchange Traded Fund), and **Description** (based on Morningstar's Categories) are shown. Five of the **Factors** which we consider compelling, and are fully explained on our website, are shown in **Note** 1. **Yield** (SEC when available)**,** Distribution Frequency (**Note** 2), **Exp**ense, **M**orningstar rating, and **Risk** (**Note** 3) are also provided. Morningstar's performance rating system:

"Morningstar rates mutual funds and ETFs from 1 to 5 stars based on how well they've performed (after adjusting for risk and accounting for sales charges) in comparison to similar funds and ETFs. Within each Morningstar Category, the top 10% of funds and ETFs receive 5 stars and the bottom 10% receive 1 star. Funds and ETFs are rated for up to three time periods, three-, five-, and 10-years, and these ratings are combined to produce an overall rating. Funds and ETFs with less than three years of history are not rated." When followed by a Morningstar Analyst, their Rating (G=Gold, S=Silver, B=Bronze, N=Neutral) is also provided. " It "is a forward-looking analysis of a fund’s likelihood to outperform." They "focus on five key pillars — Process, Performance, People, Parent, and Price. A fund that receives a medalist rating of Gold, Silver, or Bronze, is expected to outperform similar funds over a full market cycle."

IJR - Although we consider a combination of SMLF and SMMV to be superior for domestic Small Cap exposure, IJR, which we have written about numerous times, is an excellent ETF. We have added the Russell 2000 (orange line), and the S&P 500 (green line) to Morningstar's chart:

iShares Core S&P Small-Cap ETF IJR | ★★★★★ | Gold

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Add to Portfolio · Get E-mail Alerts · ? Data Question

Quote | **Chart** | ETF Analysis | Distributions | Performance | Ratings & Risk | Portfolio | Fees & Expenses | Tax | Ownership | Filings

Last Price	Day Change
$75.48	↑0.75 | 1.00%

As of Fri 05/24/2019 7:59 PM EST |USD

NAV	Open Price	Day Range	52-Week Range	12-Mo. Yield	Total Assets	Expenses
75.48 USD	75.14	74.94-75.59	65.04-90.56	1.39%	42.59 bil USD	0.07%

Intraday Indicative Value

$75.47 ↑0.66 | 0.89%

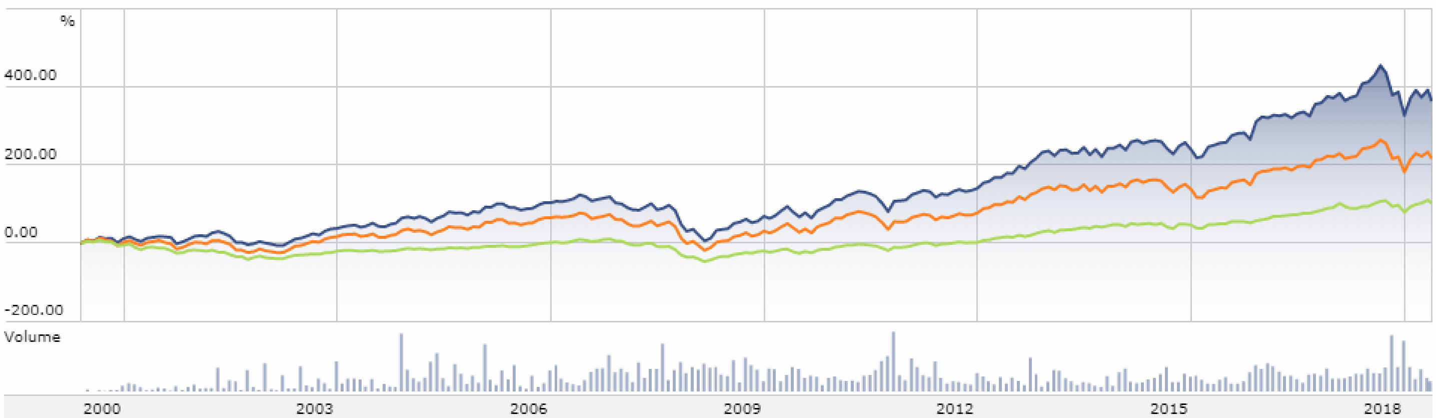
As of Fri 05/24/2019 4:29 PM EST |USD

Prem/Discount	Volume	Avg Vol.	SEC Yield%	Bid/Ask/Spread	Category
0.01%	1.9 mil	4.0 mil	—	75.30/ 75.76/ 0.61%	Small Blend

Benchmark ▾ Event ▾ Compare to Symbol Simple Moving Avg Reset

05/22/2000 - 05/26/2019 Zoom: 1D 5D 1M 3M YTD 1Y 3Y 5Y 10Y **Maximum** Custom

ARCX:IJR:+59.16|+362.36% IXUS:RUT:+2,569.28|+215.24% IXUS:SPX:+1,419.11|+100.86%



A great choice for low-cost exposure to small-cap U.S. stocks.

by Adam McCullough, CFA
7/23/2018

Suitability

IShares Core S&P Small-Cap ETF IJR is an excellent small-cap fund. This market-cap-weighted fund tracks a well-diversified small-cap index that accurately represents its peers' opportunity set. Its low fee and efficient portfolio construction keep costs down and support its Morningstar Analyst Rating of Gold.

The fund tracks the S&P SmallCap 600 Index, a market-cap-weighted index that targets small-cap U.S. stocks. A committee selects the final holdings of the index, so it doesn't follow mechanical rules or a strict reconstitution schedule like many of its index peers. This structure favors flexibility over transparency. The index also avoids recent IPOs and only considers adding profitable stocks, which gives the fund a stronger quality orientation than the broader Russell 2000 Index. Most small-cap stocks haven't established durable competitive advantages and tend to be riskier than their large-cap counterparts, but small-cap stocks may also offer higher returns. The fund's stringent inclusion criteria help it avoid the riskiest small-cap names, and its broad, market-cap-weighted portfolio effectively diversifies firm-specific risk.

On top of its efficient market-cap-weighted construction, the fund has several advantages that mitigate its transaction costs. First, it tracks a less popular index than the Russell 2000 Index, so there's less demand for liquidity when the index reconstitutes. Second, the index requires that at least 50% of a stock's shares trade in the market, which removes less liquid names. These liquidity hurdles help lower the fund's transaction costs. Its average 10-year turnover of 16% through 2017 measures less than a fourth of the category average.

During the past decade through June 2018, the fund beat the small-blend Morningstar Category average by 3.3 percentage points annually with similar risk. Much of this relative outperformance can be attributed to the fund's cost advantage. Because the fund is always fully invested, it suffered a larger drawdown than the category average during the financial crisis. But its smaller cash drag pays off during bull markets.

Fundamental View

Broadly diversified, market-cap-weighted index funds such as this one realize a sustainable advantage over most peers from efficient portfolio construction. The fund's broad, market-cap-weighted portfolio accurately represents its peers' opportunity set. Stock prices, which dictate the fund's weightings, quickly absorb new information and reflect the collective wisdom of the market (or madness of the crowd).

While market participants have done a good job of valuing stocks over the long term, the market has gone through episodes of mania and panic. But this risk is a small price to pay for the cost advantage gained from market-cap-weighting. Market-cap-weighted index funds are cheaper to run than most actively managed funds because they require fewer investment personnel. If the fund sponsor passes on the economies of scale to fundholders through lower fees (like this fund), then investors benefit from a low fee hurdle to clear each year.

The index this fund tracks, the S&P SmallCap 600 Index, enhances the efficiency of market-cap-weighting to keep ownership costs down. First, this isn't the most popular small-cap index, so there is less demand for liquidity in the market when it updates its constituents. Second, the index has more-stringent inclusion criteria than peer small-cap indexes. It requires new additions to be profitable and has higher free-float and trading volume requirements than its peers. These requirements help the index keep trading costs down by filtering out risky, thinly traded stocks that are expensive to trade. Finally, the index committee uses its discretion to avoid swapping out holdings when they don't significantly affect the portfolio's style characteristics.

Small-cap stocks tend to be riskier and less profitable than large-cap stocks because they have less established competitive advantages and they're more sensitive to the business cycle. But they offer diversification benefits and may compensate investors with higher returns. Over the very long term, small-cap stocks have generated higher returns than large-cap names, but they can experience decade-long stretches of underperformance.

The index's initial profitability screen may improve returns. In a paper titled "Size Matters, If You Control Your Junk", AQR's research team found that removing less profitable small-cap stocks increased the returns of small-cap stocks relative to large caps. The fund doesn't add unprofitable stocks or recent IPOs, but it can hold stocks that have become unprofitable. The fund's quality tilt helps performance in down markets. Its 10-year downside capture ratio measures 90.6 relative to the Russell 2000 Index. This means that during down markets, this fund's drawdowns measured about 10 percentage points less than the category index.

The fund's initial profitability screen shifts sector weightings away from the Russell 2000 Index. It has less exposure to financial and real estate sector stocks. Not surprisingly, the fund holds barely any biotech stocks. Conversely, its industrials sector weighting is higher than the category average. Market-cap-weighted index funds carry low cash balances that help performance during bull markets but detract during bear markets.

Portfolio Construction

This fund uses full replication to track the S&P SmallCap 600 Index. This index effectively diversifies risk, promotes low turnover, and accurately represents its target market segment. It earns a Positive Process rating. A committee selects the names for the S&P SmallCap 600 Index, which offers some discretion in its selection process compared with indexes that follow rigid selection criteria. New additions must have been profitable in the most recent quarter and over the prior four quarters to be added to the index, which tilts the portfolio toward more profitable companies. Stocks must also have a market cap between $450 million and $2.1 billion to be added. These ranges are updated as necessary to maintain a small-cap orientation. The S&P SmallCap 600 Index has higher free-float and trading volume requirements than its small-cap index peers, which help it avoid the least liquid stocks that tend to be expensive to trade. The index committee does not follow a set reconstitution schedule, so it can be difficult to anticipate changes ahead of time. The index rebalances quarterly on the third Friday in the last month of the quarter. The portfolio managers use dividend reinvesting and derivatives to keep pace with the benchmark. The fund has historically used securities lending to generate additional income to offset expenses.

Fees

The fund’s 0.07% annual fee is among the lowest in its category, supporting its Positive Price Pillar rating. The fund’s expense ratio is a fraction of the 1.03% median levy its Morningstar category peers charge. During the trailing three years through June 2018, the fund lagged its benchmark by 3 basis points per year. This implies the fund has been able to offset some of the drag created by its fee through a combination of savvy portfolio management techniques and securities lending. ...

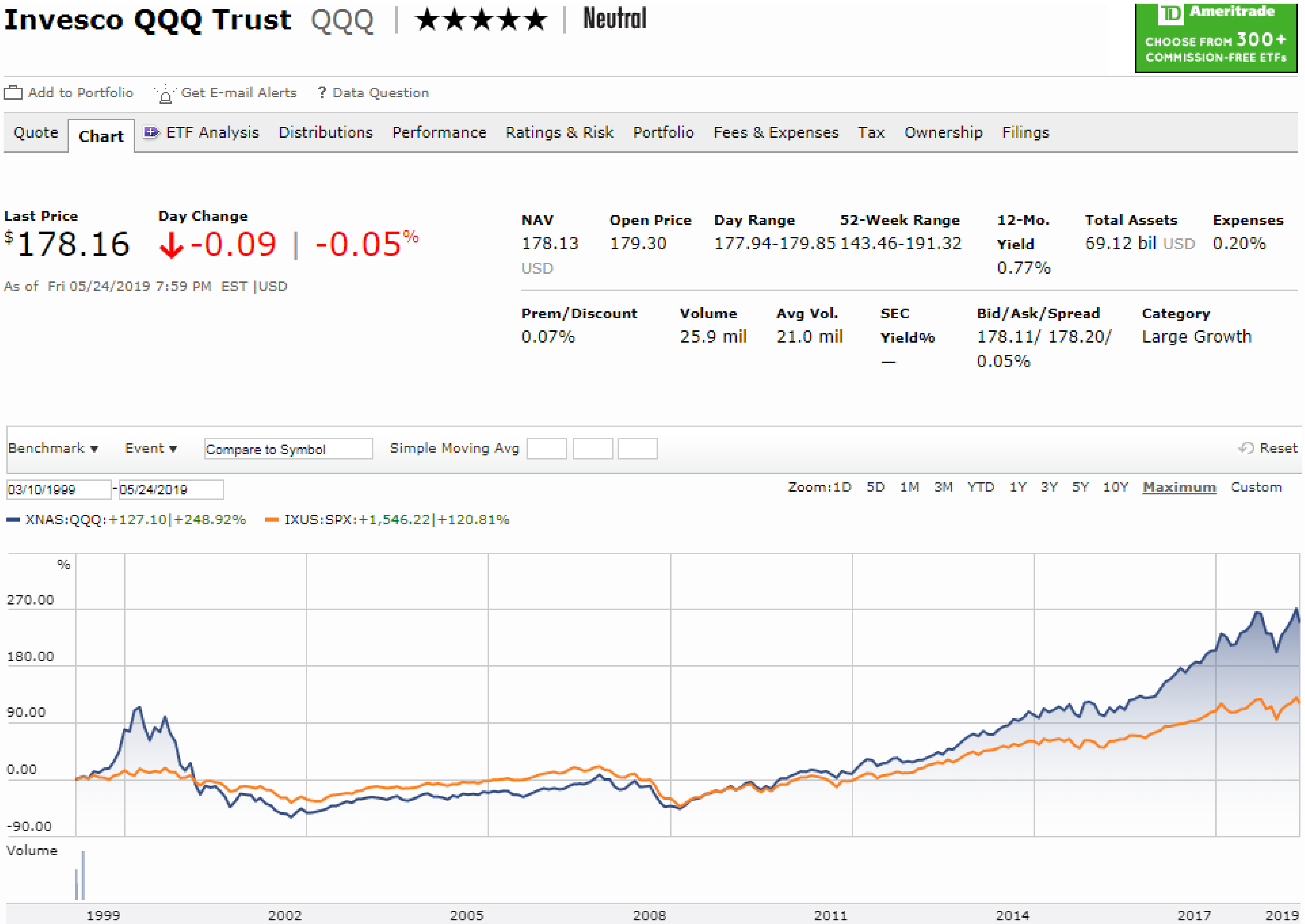
QQQ - Despite its 5- star rating, largely due to this ETF's heavy exposure to tech., we would avoid. We have added the S&P 500 (orange line) to Morningstar's chart.

This fund’s exchange focus and industry concentration limit its appeal.

by Alex Bryan, CFA
6/11/2018

Invesco QQQ ETF offers some benefits, but its single exchange focus and concentrated portfolio limit its appeal. The fund tracks an exchange benchmark with lopsided sector weightings, including a heavy stake in technology stocks, that it doesn't explicitly target. These unintentional tilts are a source of risk. And the fund's focus on a single exchange unnecessarily limits the stocks available to it. So, despite its modified market-cap-weighting approach, which promotes low turnover, and cost advantage against its actively managed peers, the fund earns a Morningstar Analyst Rating of Neutral.

The fund tracks the market-cap-weighted Nasdaq 100 Index, which includes the largest 100 nonfinancial stocks listed on the Nasdaq exchange. The Nasdaq is a tech-heavy exchange. Consequently, this sector soaks up more than half of the fund's assets and has a strong impact on performance. However, a pure tech-sector fund (CTHRX is our suggestion.) would offer more efficient exposure to the sector. Concentration risk extends beyond this heavy technology weighting. Its top 10 holdings represent more than half of the portfolio, exposing investors to some firm-specific risk.



This strategy falls in the large-growth Morningstar Category, but its portfolio looks quite different from the category norm. Its exposure to the technology sector is nearly twice as large as the Russell 1000 Growth Index's, and it has less exposure to industrial, healthcare, and financial-services stocks. And because it limits its holdings to the largest nonfinancial stocks on the Nasdaq, it tends to have a larger market-cap orientation than the Russell benchmark.

While the fund's technology orientation won't always pay off, it has worked out well over the trailing 10 years through April 2018. During that time, the fund's overweighting in the consumer cyclical sector and more-favorable exposure to technology stocks helped it beat the Russell 1000 Growth Index by 3.3 percentage points annualized. However, it also exhibited greater volatility, owing to its more-concentrated portfolio.

Fundamental View

The fund's focus on the largest nonfinancial stocks on the Nasdaq gives it considerable exposure to multinational industry leaders, such as Apple AAPL, Alphabet GOOG, Microsoft MSFT, Amazon.com AMZN, and Facebook FB. Most of its holdings generate attractive returns on invested capital and enjoy durable competitive advantages. However, there is no good rationale for limiting a portfolio to a single exchange like the Nasdaq. This unnecessary constraint limits the stocks available to the fund. For example, it keeps some large technology stocks, like IBM, Oracle, and Salesforce (which are all listed on the New York Stock Exchange) out of the portfolio.

Market-cap weighting further pulls the portfolio toward the largest names on the Nasdaq .... That said, the fund's index modifies its weightings to ensure the portfolio complies with IRS rules for diversified funds. This means that the cumulative weighting of holdings that exceed 4.5% of the portfolio can't exceed 48% .... But the modifications it makes are a bit arbitrary, scaling down the weightings of all stocks with weightings greater than 1% and scaling up the weightings of all stocks with weightings below 1%. As a result, the portfolio's weightings don't necessarily align with their market caps.

Even with these adjustments to improve diversification, the portfolio is not well-diversified. While the fund includes around 100 stocks, about half of its assets are concentrated in the top 10 holdings. Apple alone represents more than 10% of the portfolio, but this is actually less than Apple's market-cap weighting.

The fund's fortunes are inexorably linked to those of the technology sector. Technology companies are usually less indebted than the broader equity market because they require less physical capital to operate. And because the tech sector tends to evolve quickly, most technology companies reinvest most of their profits into research and development to fuel growth rather than paying them out as dividends. Most of these firms trade at higher valuations than the broad market, reflecting their greater growth potential. However, if these firms fall short of the growth expectations embedded in their prices, they could underperform. There is no limit on the valuations the fund will pay for its holdings.

Consumer cyclical and healthcare stocks represent the fund's next-largest sector weightings at 19% and 9%, respectively, as of this writing. Consumer cyclical stocks tend to be more sensitive to market fluctuations (higher beta) than most, while healthcare stocks tend to be more defensive. In aggregate, the fund has tended to be more volatile and sensitive to market fluctuations than the Russell 1000 Growth Index and most of its peers over the trailing 10 years through April 2018.

Portfolio Construction

Although it tracks a transparent index that weights its holdings by modified market capitalization, it limits its holdings to the Nasdaq exchange, which is an arbitrary constraint that excludes many strong stocks, and it has considerable exposure to technology stocks that it doesn’t explicitly target. This can be an unintended source of risk. Despite the adjustment it makes to its stock weightings to meet the IRS diversification requirements, the fund has concentrated exposure to individual stocks. It warrants a Process Pillar downgrade to Negative from Neutral. The fund fully replicates the Nasdaq 100 Index, which includes the 100 largest nonfinancial stocks listed on the Nasdaq by market capitalization. Both U.S. and international stocks listed on the exchange are eligible, provided that the latter have options listed in the U.S. That said, U.S. stocks currently account for about 99% of the portfolio. The index is reconstituted once a year in December. To reduce unnecessary turnover, the index allows existing constituents to stay in the index if they rank in the top 125 stocks by market capitalization and were in the top 100 at the previous review. Consequently, the fund may hold slightly more than 100 stocks. This is a tech-heavy index, as companies in this sector usually represent more than half of the portfolio. This fund is structured as a unit investment trust, which means it can't use derivatives to equitize cash, reinvest dividends, or engage in securities lending.

Fees

The fund charges a 0.20% expense ratio, which is lower than most of its actively managed peers in the category, supporting the Positive Price Pillar rating. Over the trailing three years through April 2018, the fund lagged its index by 25 basis points annually, slightly more than the amount of its expense ratio, likely because of transaction costs. Full index replication has kept tracking error to a minimum.

Alternatives

... A momentum fund, such as Silver-rated iShares Edge MSCI USA Momentum Factor MTUM (0.15% expense ratio), may also be a good alternative. (We use this ETF for all of our clients focused on Capital Appreciation.) Historically, relative performance has tended to persist in the short term. To take advantage of this effect, this fund targets stocks with the best recent risk-adjusted performance and weights its holdings according to both their relative momentum and market capitalization. However, it rebalances only twice a year.

While Tech. may not be in a bubble, we aren't finding any stocks in the Sector worth buying for clients:

There Is No Technology-Stock Bubble

John Rekenthaler 21 May 2019

Warning Signs

You can hear the whispers. Technology companies cost far too much. The five FAANG stocks drive the entire stock market (Facebook, Apple, Amazon.com, Netflix, [Alphabet] Google). Investors have become obsessed with “unicorns”--privately held technology firms that are valued at more than $1 billion. Some openly ask the question: Has the New Era returned?

This article’s headline reveals my belief. (No use being coy; as my former editor liked to say, “Tell them up front what you wish to say. You’re writing an investment article, not a suspense novel.”) I do not believe that the comparison between the current technology-stock marketplace and the overheated period of the late '90s is warranted.

To be sure, there are some similarities.

One is that many not-so-young technology firms, most notably Uber (UBER) and Lyft (LYFT), remain unprofitable. The equity speculation tree runs from 3) making money but not enough to justify the company’s stock market valuation (least speculative) to 2) generating revenues but not profits (dicey) to 1) splashy concept, but where are the revenues? (Oh, dear.) The leading e-hail companies place in the second group. Their services are required, but they are so deeply underpriced that, as Uber’s IPO filing confessed, the industry might never become profitable.

That is distressing--and no doubt a major reason that the initial public offerings for Uber and Lyft have struggled. But, while facing genuine concerns about their abilities to maintain their customers after raising their prices (which they must, at some point), those firms are islands of stability compared with most of the New Era’s IPOs. Consider, for example, drkoop.com, which raised $98 million in 1998 based solely on its namesake’s image and expired three years later. It never came close to graduating from the first stage.

Too Much Capital?

Also similar is the adulation garnered by those closest to the technology scene: private equity and venture capitalists. They are the investment industry's celebrities: those who attract an admiring crowd at cocktail parties by stating their professions. (Once, far back in the day, mutual fund researchers were so treated. Ah, good times.) Their popularity is not directly meaningful, but indirectly, it indicates how much money their industries are attracting. The answer is, "A lot."

That is a concern. As one would expect, future technology-stock returns are inversely related to the amount of capital activity. The fewer investment competitors, the better. Private-equity and venture-capital firms boomed during the New Era, which subsequently led to a bust. (In 2010, Harvard Business Review lamented that "the venture-capital business is bad, and there are few signs that it will improve anytime soon.") Their current success is therefore worrisome.

Sturdier Businesses

But there are significant differences between now and then. One, already touched upon, is that today's technology investments are one notch less speculative. Whereas the New Era's fringe consisted of businesses that lacked clients, most current technology firms have significant revenues when they go public. They may yet go bankrupt if they cannot convert the top line into bottom-line success, but at least they stand a puncher's chance.

The trend is similar among the industry leaders. The current portfolio of Invesco QQQ Trust (QQQ), which indexes the Nasdaq 100, is dominated by companies that are massively profitable. Perhaps those earnings cost too much--more on that topic in a bit--but there is no question about their ability to make billions of dollars per year. In late 1999, on the other hand, several Nasdaq 100 holdings were either money losers or eking out modest profits. Yahoo, for example, was among the 30 largest U.S. companies (of any stripe), with but $50 million in earnings.

Calmer Sentiment

Another factor in technology stocks' favor is that, while Silicon Valley is currently fashionable, its companies have not caught the public imagination as thoroughly as they did in the '90s. Brokerage firms are not blanketing the airwaves with day-trading advertisements; there are no best-sellers advocating that the trees can grow to the sky; and Morningstar analysts are not receiving death threats for assigning low star ratings to technology stocks.

Sentiment is an unreliable indicator. Its signals do not warrant much credence unless they are acute. Twenty years ago, the fervor for technology was extreme--the loudest for any segment of the U.S. stock market in at least 30 years (probably longer). That sign could not be ignored. Today's enthusiasm is worrisome for those of a contrarian bent, but it is not so overwhelming as to be flashing red.

Lower Prices

Price/earnings ratios offer more tangible evidence. A January 1999 article from thestreet.com carried this gem: "Our calculated price-to-earnings ratio for the Nasdaq Composite is 90.2. That is not a typo." That technology stocks headed almost straight up until March 2000 demonstrates that, as with sentiment, price/earnings ratios are imprecise barometers. That the Nasdaq 100 then plunged 78% over the following 30 months shows that, while imprecise, they can be highly useful!

Morningstar currently calculates the Nasdaq 100's price/earnings ratio to be 23--slightly below its 15-year average and (of course) far beneath its New Era levels. Today's technology leaders are more mature than those of 20 years ago, thereby warranting lower price multiples, but nevertheless, the difference in price/earnings ratios between then and now is striking. The two conditions would not seem to deserve the same "bubble" label.

Carnac the Magnificent
Technology stocks have enjoyed a powerful run. Morningstar calculates that they have gained 127% cumulatively over the past five years, making them easily the best-performing U.S. sector. Their fortunes certainly could reverse due to disappointing business results, decreasing investor optimism, and/or an overall stock market decline, but it strikes this author (at least) that they will not suffer anything like a repeat of their 2000-02 woes. This is not a second New Era.

(Be sure to email me in two years if this prediction--one of the few stock market forecasts that I have made--turns out to be wrong.)

John Rekenthaler has been researching the fund industry since 1988. He is now a columnist for Morningstar.com and a member of Morningstar's investment research department. John is quick to point out that while Morningstar typically agrees with the views of the Rekenthaler Report, his views are his own.

Diversification

Nobel Prize winning economist Harry Markowitz described diversification as the only "free lunch" in investing. Among Asset Classes, we strongly recommend adding commercial Real Estate to Equities. Among stocks we strongly advise diversifying across Factors (see "Factor Diversification - 8/25/18" on our website), and Internationally.

Asset Diversification in a Flat World

By Larry Swedroe November 1st, 2018

Diversification is a fundamental principle of prudent investing due to its ability to mitigate/minimize risks. ... done properly, it can reduce risk without reducing expected returns. This led to the conclusion that investors should diversify by including international equities, including emerging markets (here we disagree, as emphasized below), in their portfolios, preferably on a market-cap-weighted basis (and again here).

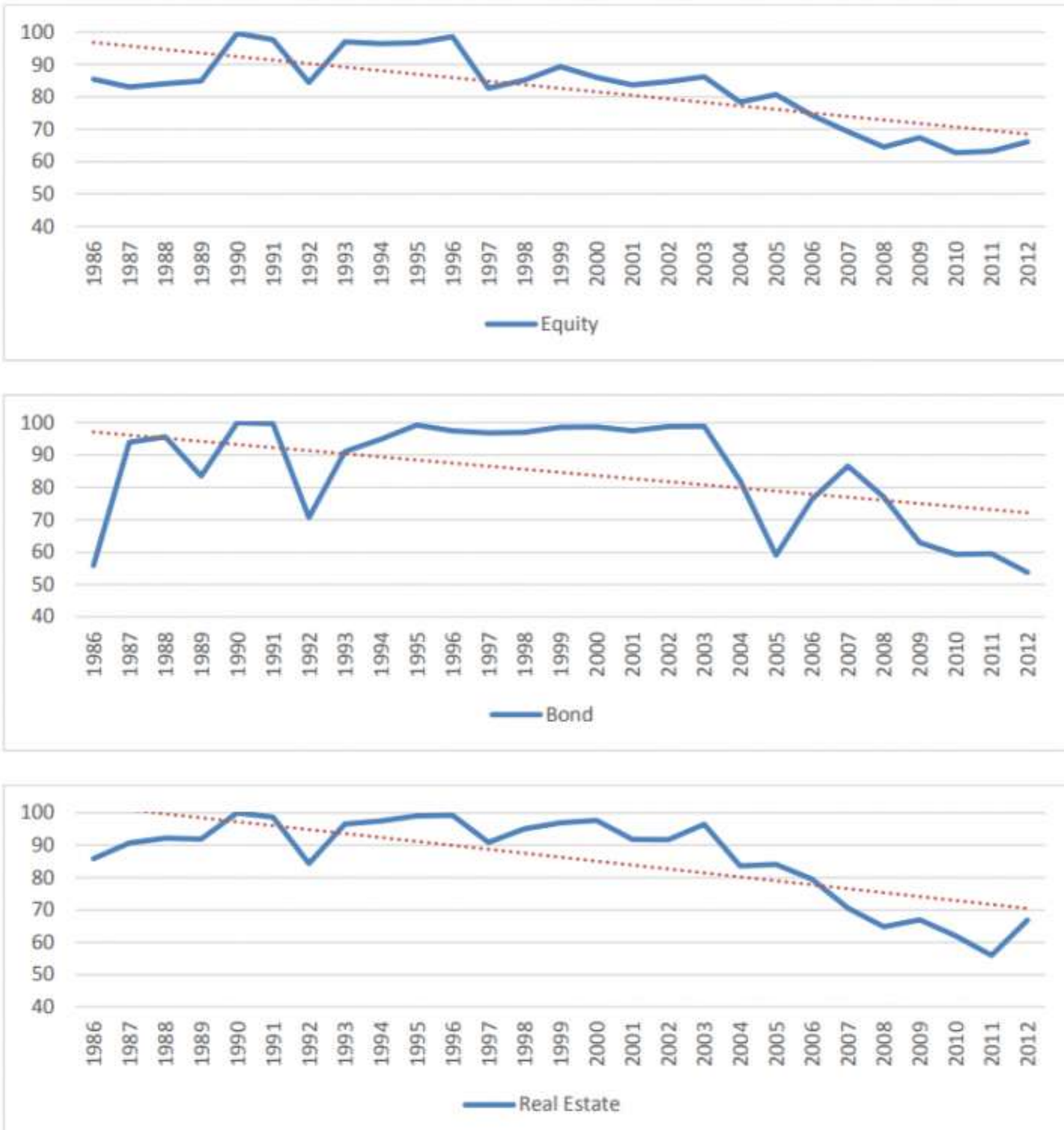
In his 2007 bestseller "The World Is Flat," Thomas Friedman depicted a globalized marketplace where geographical divisions were becoming less relevant — a more connected/integrated economy results in a reduction in investment diversification benefits. If geographic diversification is becoming less important, because international equities are becoming less unique sources of risk, there are important implications for portfolio construction.

John Cotter, Stuart Gabriel and Richard Roll, authors of the April 2018 study, "Nowhere to Run, Nowhere to Hide: Asset Diversification in a Flat World," sought to determine the level of economic integration based on the proportion of asset returns that can be explained by an identical set of global factors. They estimated the amount of return integration within and among equity, fixed income and real estate asset classes, as well as countries, defining their diversification index as 100 minus the level of integration (adjusted R-square).

For each available country, the authors' diversification index is computed from the average R-square in a multi-factor asset return model fitted using daily data within each year from 1986 through 2012. The global factors are 16 principal components (common factors from stock, bond and real estate markets) obtained from existing markets pre-1986 but updated each calendar year. The index takes on values between 0 and 100, where 0 indicates no diversification potential whereas 100 implies maximum diversification benefits. Figure 1, sourced from the original paper, highlights the key takeaway: The potential benefits of diversification are trending lower over time.

Figure 1

Trends in Global Diversification Indexes by Asset Class



Here is a formal summary of their findings:

- There has been a substantial decline in diversification indexes over the period of the financial crisis and beyond, revealing a pronounced uptrend in integration within and among asset classes and countries.

- The decline in diversification potential is widespread among country cohorts and has been precipitous in the post-2000 period.
- Internet diffusion is associated with significantly dampened diversification potential in both equity and REIT assets classes in both the pre- and post-2000 periods. The estimated internet effects are more pronounced in the more recent period, in the wake of increased internet diffusion.
- Diversification indexes for equity, sovereign debt, and REIT asset classes decline from a maximum level of 100 in the late 1990s to roughly half that level by 2012. A similar result is observed for a global index comprised of all three asset classes.
- The trend is downward with little evidence of differences in bull and bear markets, or during periods of high and low market volatility.
- Older and more established markets display a larger downtrend in the diversification indexes.
- The generalized downtrend in diversification potential is associated with higher levels of investment risk.
- Some countries, notably including many Middle Eastern and African nations, persistently display only weak integration with the global economy. While those areas may provide increments to portfolio diversification, they are often subject to substantial security, political and economic risks, along with higher transaction costs and lower liquidity.
- Consistent with the "world is flat" hypothesis, developmental factors, and, especially, internet technology and communications innovation, are associated with declines in diversification indexes among all asset classes.
- Global events also are associated with diminished investment diversification opportunity. These findings are robust to the inclusion of various factors, including credit risk as proxied by the TED (Treasury to euro) spread, the Malcolm Baker and Jeffrey Wurgler measure of investor sentiment, country-specific economic and political risk as computed from the International Country Risk Guide, equity market implied volatility (VIX), and market liquidity.(1)
- When global returns to an asset class are well integrated, the potential benefits of geographic diversification are meager. Diversification index levels and risk are strongly negatively correlated for each of the three asset classes, with correlation coefficients over the full sample period of -0.648 for equities, -0.462 for bonds and -0.735 for REITs.
- The strongest downtrend is for real estate, followed closely by equities.

The authors concluded that declines in diversification potential are associated with country economic development and internet diffusion. They added: "The results offer a cautionary note regarding asset class and geographic diversification of investment risk in an increasingly flat world."

The evidence presented seems to make a compelling case. However, before you jump to any conclusions, let's look at the issue and the evidence through a different lens.

Does it Really Matter If Correlations Are Rising?

It is certainly true that the recent financial crisis saw the correlation of all risky assets rise sharply. But, should that lead you to conclude the investment world is flat and the benefits of global diversification are mostly gone?

Let's suppose that for whatever reason global equity markets have become more closely correlated. Would that make global diversification unappealing? It's hard to see why that would be the case. Would it make sense for U.S. citizens to restrict their ownership of auto industry stocks to Ford and eliminate firms such as Toyota or

Porsche from consideration? And how you think Japanese investors, who experienced a multi-decade bear market in domestic stocks beginning in 1990, would answer this question about the benefits of global diversification? Do you think they believe international diversification doesn't make sense in this "new era"? And how do we know the U.S. market will not turn out to be the next Japan?(2)

Another important point is that even if correlations are rising, that doesn't mean there isn't a significant benefit from diversifying risks. What really matters is the size of the dispersion of returns. As the following table shows, since 2000, when correlations started to rise, there have been very wide dispersions of returns between the S&P 500 Index, the MSCI EAFE Index and the MSCI Emerging Markets Index. The wide dispersion of

	A	B	C	D	E
Year	S&P 500 (%)	MSCI EAFE (%)	MSCI Emerging Markets (%)	A-B (%)	A-C (%)
2000	-9.1	-14.2	-30.6	5.1	21.5
2001	-11.9	-21.4	-2.4	9.5	-9.5
2002	-22.1	-15.9	-6.0	-6.2	-16.1
2003	28.7	38.6	56.3	-9.9	-27.6
2004	10.9	20.2	26.0	-9.3	-15.1
2005	4.9	13.5	34.5	-8.6	-29.6
2006	15.8	26.3	32.6	-10.5	-16.8
2007	5.5	11.2	39.8	-5.7	-34.3
2008	-37.0	-43.4	-53.2	6.4	16.2
2009	26.5	31.8	79.0	-5.3	-53.5
2010	15.1	7.8	19.2	7.3	-4.2
2011	2.1	-12.1	-18.2	14.0	20.1
2012	16.0	17.3	18.6	-1.3	-2.6
2013	32.4	22.8	-2.3	9.6	34.7
2014	13.7	-4.9	-1.8	18.6	15.5
2015	1.4	-0.8	-14.6	2.2	16.0
2016	12.0	1.0	11.6	11.0	0.4
2017	21.8	25.0	37.3	-3.2	15.5

returns in almost every year demonstrates there are still large diversification benefits.

Note that there were only three years out of the 18 when the difference in returns between the S&P 500 Index and the MSCI EAFE Index was less than 5 percent. On the other hand, there were nine years when it was at least 8 percent. And the average difference was 8 percent. There were also only three years when the return on the S&P 500 Index was within 3 percent of the return on the MSCI Emerging Markets Index. On the other hand, there were 14 where the gap was in double digits, seven when it was at least 20 percent, three when it was at least 30 percent, and the largest gap was more than 53 percent. The average difference was more than 19 percent.

The following table, showing the returns of various asset classes over the five-year period from 2003 through 2007, provides further powerful examples demonstrating that the investment world isn't flat.

Asset Class	**2003-2007 Annualized Return (%)**
Russell 1000 Growth	12.1
Russell 1000 Value	14.6
MSCI EAFE Growth	19.9
MSCI EAFE Value	21.3
MSCI Emerging Markets	37.0
MSCI Emerging Markets Value	39.5

This period was followed by the 10-year period from 2008 through 2017, with similarly wide dispersions in returns, this time favoring U.S. equities.

The data presents pretty powerful evidence both that the investment world is far from flat, and that there are still significant benefits in international diversification. Clifford Asness, Roni Israelov and John Liew agree with that view. The trio authored the article "International Diversification Works (Eventually)," which appeared in the May/June 2011 edition of the Financial Analysts Journal. They note that while, "critics of international diversification observe that it does not protect investors against short-term market crashes because markets become more correlated during downturns … this observation misses the big picture. Over longer horizons, underlying economic growth matters more than short-lived panics with respect to returns, and international diversification does an excellent job of protecting investors."

Asset Class	2008-2017 Annualized Return (%)
Russell 1000 Growth	10.0
Russell 1000 Value	7.1
MSCI EAFE Growth	2.7
MSCI EAFE Value	0.6
MSCI Emerging Markets	1.7
MSCI Emerging Markets Value	0.9

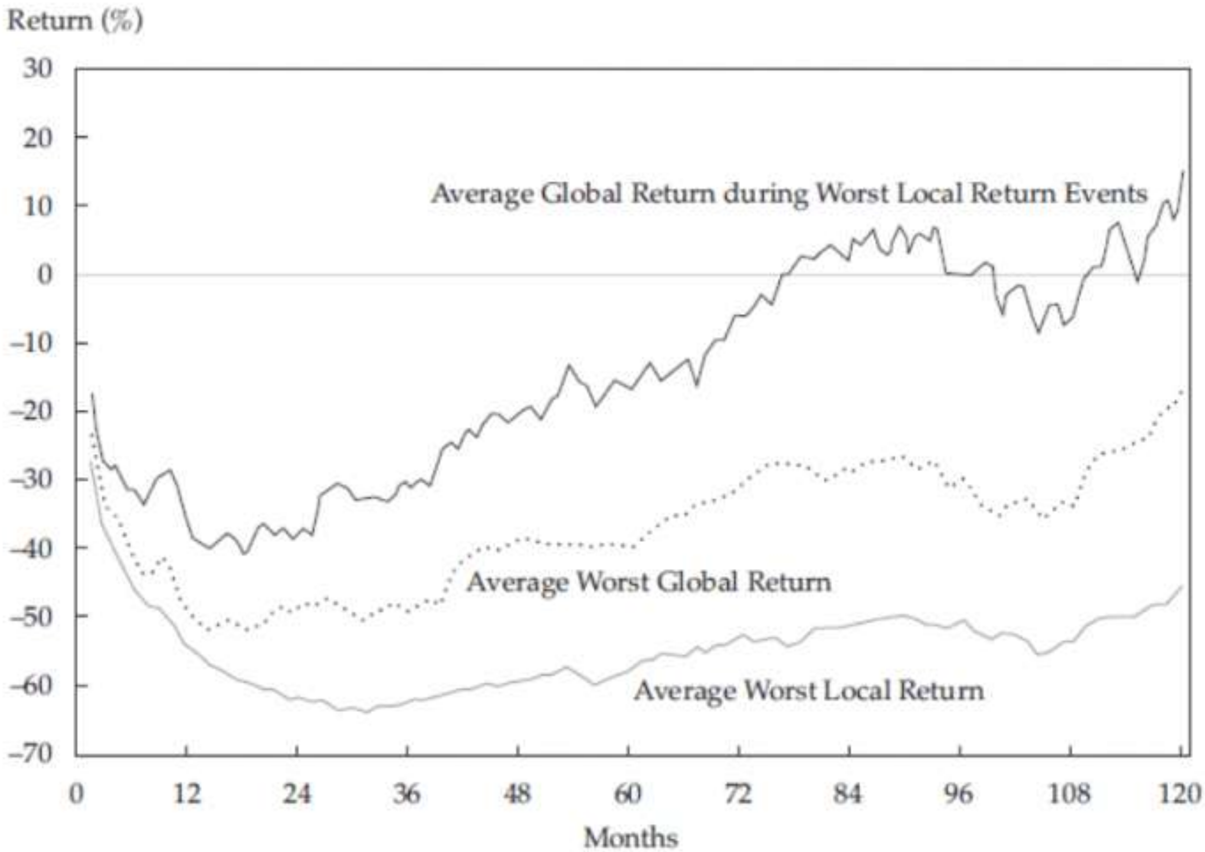
This is the same conclusion Marlena Lee of Dimensional Fund Advisors came to, as discussed in my post of November 1, 2010.

Asness and his co-authors analyzed diversification benefits from the perspectives of local investors in 22 countries for the period from 1950 through 2008. They looked at two portfolios, a local one as represented by the local stock market index and an unhedged (for currency risk) global portfolio, equally weighted for all 22 stock market indices.

The following is a summary of their findings:

- Simultaneous crashes can pose a problem for global diversification in the very short term by creating more severe tail events in global portfolios than in local portfolios. However, this difference is greatest at very short horizons and disappears after 3.5 years.
- Over periods as short as one month, the global portfolios' worst cases were not much different from the local portfolios.
- Over longer horizons, the global portfolios' worst cases were significantly better than those of the local portfolios, and the longer the horizon, the greater the diversification benefit (see the figure below from the paper).
- The average worst five-year return for the local portfolios was -57 percent (not all at the same time). When these local portfolios had their worst five-year losses, their global portfolio counterparts lost an average of 16 percent and the average worst five-year return for the global portfolios was -39 percent.

Figure 1. Average Worst Returns over Various Holding Periods for Local and Global Portfolios, January 1950–December 2008



Notes: This figure plots, across the dimension of return horizon, the cross-sectional average worst local returns, the cross-sectional average global returns during the concurrent period of the worst local returns, and the cross-sectional average worst global returns across 22 countries. Foreign investments within the global portfolios are not hedged against currency movements.

It is important that investors understand short-term returns tend to be more influenced by short-term changes in risk aversion (when systematic risks appear and investors all around the globe tend to panic and sell at the same time). On the other hand, long-term returns are driven more by economic performance. And long-term economic performance tends to be more variable across countries. Because we don't know in advance which countries will suffer from protracted economic underperformance, international diversification protects investors.

Conclusion

While short-term crashes are scary, painful and occur with greater frequency than most investors believe, ultimately investors should care about long-term wealth creation and preservation. Thus, they should care about protecting against the risk that their home country will experience a long, persistent bear market. And global diversification provides the benefit of protection against such risks.

The conclusion that investors should draw is that while the increase in global integration has somewhat reduced the benefits of global diversification, the benefits are still large. In other words, while it may not be a free, three-course lunch, it's still a hearty meal. And because this lunch doesn't come with any calories, the logical conclusion remains the same as it has always been: You should eat as much of it as you can. Remember, the greatest diversification benefits with equity investments come from the asset classes of international small-cap stocks and emerging market stocks. ...

Our long standing and often shared concerns about Emerging Markets was echoed last month in Morningstar:

Whatever Happened to Emerging-Markets Stock Funds?

John Rekenthaler 26 Apr 2019

Rookie Love
In the early 1990s, emerging-markets stock funds were the rage. Their subsequent results have been weaker than even the skeptics believed.

The appeal was obvious. Higher risk, according to conventional theory, meant higher returns--and there was no doubt that emerging markets carried higher risk. They also offered excellent growth prospects. The Asian Miracle was a catchphrase. South Korea, to name one example, had increased its per-capita gross domestic product from $158 (expressed in current terms) in 1960 to $6,516 in 1990. From behind Zambia to ahead of Turkey!

And, surely, those income gains would lead to investment success. Investors bought domestic emerging-growth stock funds--also named "emerging," also possessing higher risk--because eventually, their top-line expansion would lead to larger profits, which in turn would boost their share prices. The same logic applied to the institutional darlings, private equity and venture capital funds.

The argument made sense to many, your author included. The second fund I ever bought was Morgan Stanley Asia-Pacific, which, ahem, no longer exists, having been merged earlier this year into a sibling portfolio. (Haplessly, I still own those shares, despite a quarter century of failure.) I was not alone. Mutual fund companies rushed emerging-markets funds to the marketplace, where they were embraced by both financial advisors and ~~foolish~~ adventuresome direct investors.

Serious Business
This wasn't one of those gimmick launches, as with short-term multimarket income funds or the tactical-allocation funds that arose from Black Monday's ashes. (Two decades later, tactical-allocation funds would again be hatched, after yet another market meltdown, and the second generation fared no better than the first. Beware funds that are created to fight the previous year's war.) The top organizations started emerging-markets funds. Fidelity did. T. Rowe Price did. DFA did. Even stodgy Vanguard did.

That the serious companies gave their assent signaled that emerging-markets funds were not another flavor of sector fund, designed only for those with particular tastes. They were for every risk-seeking investor. They were an *asset class*. The materials accompanying emerging-markets funds explained how they not only could be expected to outgain their developed-markets rivals over time but would also offer diversification. The economic cycles for emerging countries would not necessarily match those of the developed world.

Hmmm.

Help Wanted
The latter claim was partially correct. I charted the 25-year performance for Vanguard Emerging Markets Stock

Index (VEIEX) against the S&P 500; over the full time period, the correlation between the two was 0.57. That's fairly low. FPA U.S. Value (FPPFX), a concentrated stock fund that places more than 30% of its assets into its top five positions, and which therefore would be expected to deviate significantly from the overall U.S. stock market, had a much higher correlation. On paper, emerging-markets stock funds did do some zigging while U.S. equities zagged.

Unfortunately, it was useless diversification. The only two times during the GREAT BULL MARKET (the results warrant the capitalization) in which U.S. equity investors needed protection was the New Era technology-stock meltdown and, of course, 2008. Emerging-markets stocks dropped 25% during the first instance--better than the S&P 500 but roughly in line with Vanguard Value Index (VIVAX)--and crashed even harder during the second. There was no zigging; only zagging.

The main reason that the correlation statistic is modest was because emerging-markets stocks nosedived during the mid-90s, when U.S. equities were booming. Great. If you seek diversification with something that heads south when the rest of your portfolio is thriving, and that goes down along with everything else when the bear market arrives, then emerging-markets stock funds are the asset class for you.

Emerging markets did have one stretch, during the aughts, when they behaved according to plan. Developed-markets stocks rose moderately, while emerging-markets stocks soared. That was the idea--to turbocharge portfolios during the good times. Finally, the original promise was realized.

Lagging Far Behind

One five-year stretch does not a quarter century make, though. A $10,000 investment in Vanguard's emerging-markets stock fund at its 1994 launch would now be worth $47,000. Buying an S&P 500 index fund instead would have yielded just over $100,000. Emerging-markets funds were intended to bring greater rewards, over the long haul, and they have not done that.

The problem has not been GDP growth, nor changes in per-capita income. At last report, South Korea's citizens earned just under $30,000 per year--higher than the Spanish. The giant emerging countries of China and India have progressed even more dramatically. By and large, the emerging markets have prospered, just as the fund marketers said they would.

However, national growth does not neatly translate into corporate profitability. Emerging-markets countries are making more things, delivering more services, consuming more wares. Monies are being spent. But much of that cash does not make it to shareholders. It is squandered on profitless corporate expansions (empire building); or placed into government officials' pockets; or siphoned off to a CEO's friends and family.

The lesson of emerging-markets stock funds: Corporate governance matters, greatly. That topic received little attention when the funds were begun, but it ultimately proved to be the most important aspect of their future performance. (A point HCM has repeatedly hammered on.)

Moving Forward

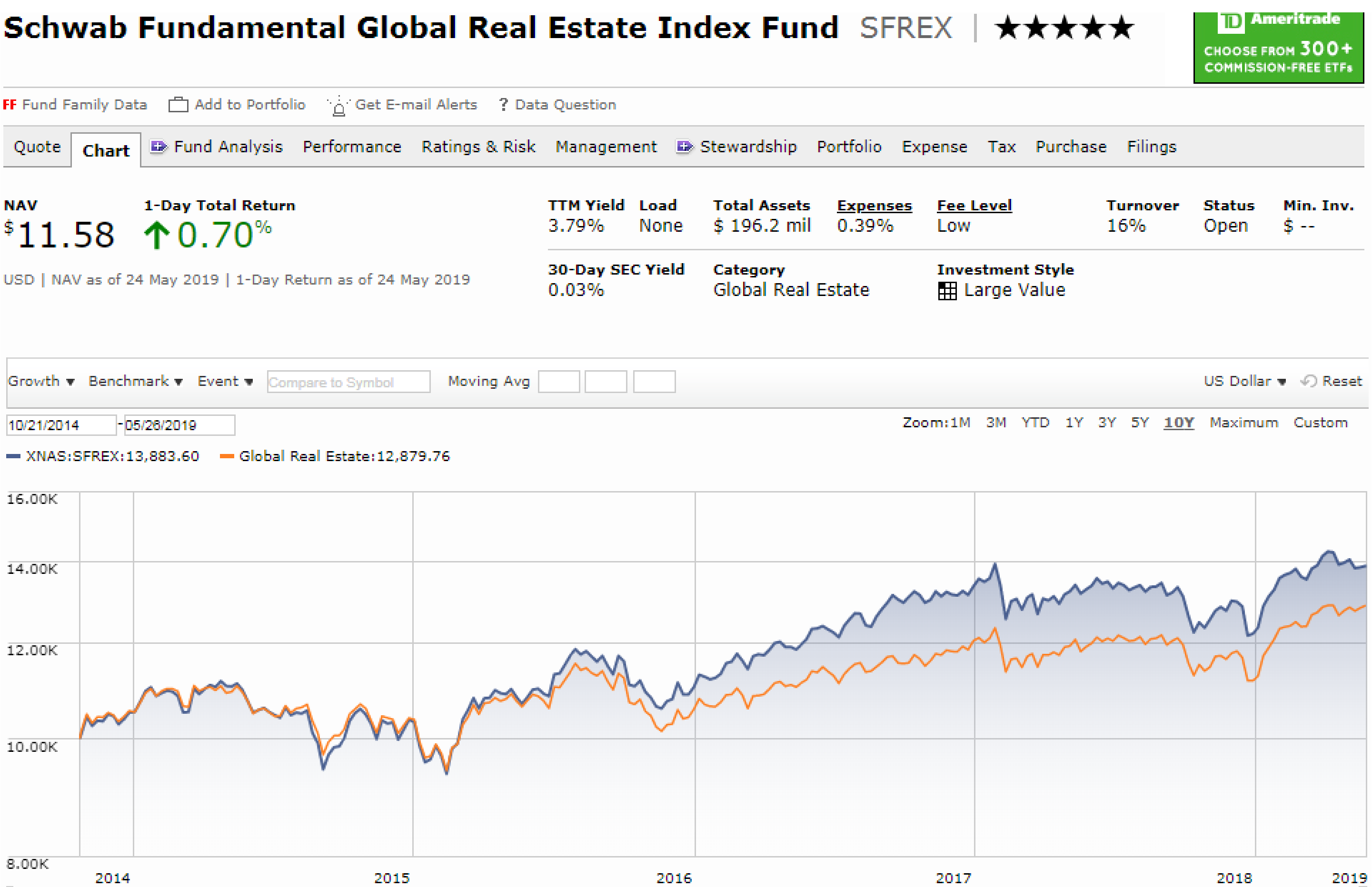
What's next? While emerging-markets stocks certainly could outperform over the next few years--always the danger when writing such a column--they do not merit being treated as an asset class. Their diversification benefits appear to be dwindling, as the emerging countries become larger and ever-more entwined with the global economy, and their expected returns are suspect. It is not clear that buying a package of stocks from countries labeled as "emerging" makes more sense than, say, buying one from countries whose names begin with the letter B.

Best to let the professional managers make the decisions. They can incorporate companies from emerging markets as they see fit--greatly, modestly, or not at all, depending upon how their funds are defined and (for actively managed portfolios) their views on the trade-off between 1) higher-growth opportunities and 2) stronger corporate governance.

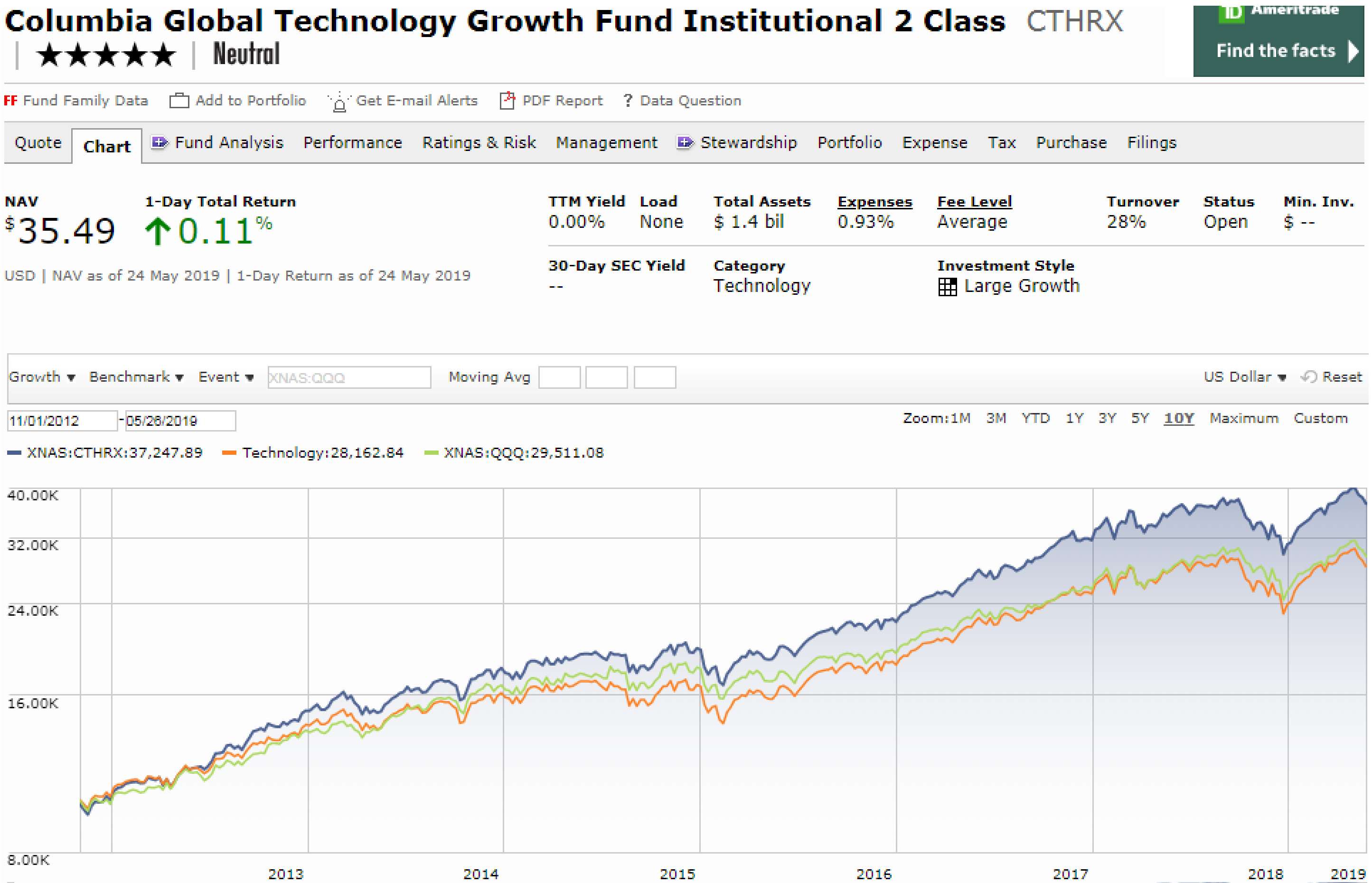
The experiment was tried, and it failed. It's time for a different approach.

John Rekenthaler has been researching the fund industry since 1988. He is now a columnist for Morningstar.com and a member of Morningstar's investment research department. John is quick to point out that while Morningstar typically agrees with the views of the Rekenthaler Report, his views are his own.

SFREX - This passively managed OEF primarily invests in stocks that are included in the Russell RAFI Global Select Real Estate Index developed by Rob Arnott's Research Affiliates. The index measures the performance of real estate companies, including real estate investment trusts (REITs), in U.S. and non-U.S. markets, including both developed and emerging. It ranks and weights global real estate securities by three fundamental measures of company size, adjusted sales, retained operating cash flow, and dividends plus buybacks rather than by market capitalization.



CTHRX - Outperforms its Peers (orange line), and QQQ (green line), which clearly tracks techs as noted above.



This fund has ridden the wave, but it's unclear whether it will stick the landing.

by Kevin McDevitt, CFA
11/15/2018

Columbia Global Technology Growth has gotten a lot of mileage out of this bull market and it may not be as prepared for a bear market as it appears. Given that it arguably hasn't gone through a full market cycle, the fund retains its Morningstar Analyst Rating of Neutral.

This technology fund's record under Rahul Narang is pristine. Since he took over in July 2012, the fund's 22.7% annualized return crushes the 16.9% of the average technology Morningstar Category offering. ... It also did so with reasonable volatility, which is one of Narang's goals. He attempts to control volatility by spreading the portfolio across more than 100 companies.

However, the fund may not be as protected from volatility as one might think. While the fund isn't overly concentrated, its top-10 holdings are a who's-who of market darlings from the current bull market: Apple AAPL, Amazon AMZN, Alphabet GOOG, and Visa V. To Narang's credit, he has owned almost all of them since 2012. But, this arguably leaves the fund exposed should the market reverse course in a big way.

Furthermore, Narang has recently favored software, capital-light tech firms over hardware-related names. Again, this is in keeping with market tastes. Meanwhile, the fund isn't as diversified as one might expect given its name. Narang has added some foreign stocks, but only 13.7% of the portfolio is outside of the U.S. This is well below its benchmark's 20.4% weighting and isn't that much more than the 10.9% category average.

Plus, the fund hasn't been tested by a bear market during Narang's tenure, so its low downside capture (just 83.6% versus its benchmark) should be taken with a grain of salt. Also, in keeping with a portfolio heavy on market darlings, the September 2018 portfolio's average price multiples were well above both the index's and the category averages, deep into a bull market.

All this is to say that while the fund has been quite successful, it hasn't shown that it can be so in a variety of market environments.

Process Pillar: Neutral

A balanced investment approach governs this portfolio, but it is heavily reliant on Rahul Narang's ability to forecast secular trends in technology. While past calls like mobile gaming have been good, this theme-led process has not been executed over a full market cycle, earning the fund a Neutral Process rating. Narang's investment themes, representing perceived growth trends in the sector, are present throughout the portfolio. They include cloud beneficiaries, artificial intelligence, and OLED screens.

Approximately 50% of assets are allocated to highly liquid large- or mega-cap technology stocks with strong business models and reasonable valuations. A portion of assets are also invested across the market-capitalization spectrum in companies with attractive themes and catalysts. Finally, an "opportunistic value" prong accounts for roughly 25% of assets, made up of stocks with low relative valuations. The team uses relatively standard equity valuation, but sizing ultimately is determined by the perceived moat quality of a given company.

This balanced approach leads to a target range of 100-135 stocks. Turnover has trended down under Narang's leadership and is lower than most peers'. Narang is also making increasing use of the group's global resources. The fund's exposure to non-U.S. stocks has oscillated between roughly 10% and 20% during his tenure.

This portfolio is well diversified relative to its benchmark. As of September 2018, its top 10 holdings accounted for about 40% of assets versus 55% for the S&P Global 1200 Information Technology Index. The portfolio also has a long tail of around 100 stocks accounting for less than 1% of assets each. The first pillar of Narang's multiprong approach, which focuses on highly liquid companies, results in a bias toward larger companies. Giant and large caps made up 85% of assets compared with 69% for the typical fund in the technology category.

The fund's global emphasis is somewhat muted. While Narang has added some foreign stocks, only 13.7% of the portfolio was outside of the U.S. This was well below its benchmark's 20.4% weighting and isn't much more than the 10.9% category average. To be sure, Narang defines international exposure according to both revenue and domicile, aiming to have at least 40% exposure to foreign markets. Given this broader definition, U.S. companies with extensive overseas sales can be categorized as offering international exposure.

Turnover among the fund's top holdings is rare. Most of them have been in the portfolio since Narang took over in 2012, including top-five holdings Microsoft, Apple, Amazon, Alphabet, and Visa.

Performance Pillar: Positive

This fund's strong record under its current manager supports a Positive Performance rating. Since Rahul Narang took over in July 2012, the fund returned 22.7% annualized through October 2018. That far outpaced the typical technology fund's 16.9% annualized return. In September 2017, the fund's index changed to the S&P Global 1200 Information Tech Index as its previous benchmark, the ICE BofAML Technology 100 Index, was discontinued. Narang has handily beaten both references since taking over.

This outperformance has come with slightly higher volatility than the typical technology fund and the index. (During Narang’s tenure, the fund’s 13.6% standard deviation is a bit greater than the index’s 12.6%.) Yet, the fund has done well on a risk-adjusted basis, posting a Sharpe ratio of 1.58 during Narang's tenure versus the index’s 1.33. That period has not encompassed a major drawdown among technology stocks. During the three-month correction from December 2015 to February 2016, the fund lost 10.7% compared with a loss of 10.9% for the typical technology fund and 8.3% for the S&P Global 1200 Information Tech Index. During the October 2018 sell-off, the fund dropped 10.6% versus the index’s 8.5% decline.

Performance attribution shows that industry allocation has been the fund's main performance driver over the past five years, although stock selection has also added value.

People Pillar: Neutral

The fund is run by a capable manager, but it has few other dedicated resources. The fund earns a People rating of Neutral.

Rahul Narang assumed the lead manager role on July 17, 2012. Over that time, the fund has put some serious distance on most of the technology category. Prior to joining Columbia, Narang was a senior vice president at Robeco Boston Partners, working in the long-short equity group.

He is based out of San Francisco, but his support team hails primarily from Boston and New York. He is assisted directly by Brendan Erhard, who is the fund's only other dedicated resource and he conducts mostly maintenance research. Narang works with five subsector analysts from Columbia’s central research team.

Most of them are experienced and have worked with Narang since he took over the fund, with the exception of the new Fintech and software analyst, Chris Vandergrift, who was promoted to his current role in 2017 from associate following the departure of Scott McCabe after three years with the team. Narang is also able to use Columbia Threadneedle's additional resources, including Seligman's technology team and the group's regional teams in Europe and Asia.

Narang doesn't invest in his fund directly, but he says he has notional investments between $100,000 and $500,000 through deferred compensation.

Parent Pillar: Neutral | 04/11/2018

Columbia Threadneedle's lineup covers a lot of ground. The equity fund roster includes both fundamental and quantitative funds. Boutique teams still dominate the equity lineup globally, but the firm has also renewed its efforts to capitalize on its central research team. ... Fund launches have slowed, but so have fund closures. Redundant offerings remain, and the firm's lineup is among the industry's largest. Broadly, fees and manager ownership levels are disappointing. Overall, standard fundholder practices support a Neutral Parent rating.

Columbia Threadneedle's culture has some strengths. Global CIO Colin Moore allows portfolio managers significant independence, and particularly strong strategies continue to succeed. ...

Price Pillar: Neutral

The fund's asset-weighted fees are middling. They rank in the third quintile overall, earning the fund a Price rating of Neutral. Nevertheless, this fund's institutional share class, which accounts for 46% of its total assets, carries a Morningstar Fee Level of Above Average relative to similarly distributed funds. ... Columbia earns credit for reducing expenses as the fund's size has grown during Rahul Narang's tenure.

Despite its average fees overall, the fund still has a big price headwind compared with technology-oriented passive funds. IShares Global Tech ETF IXN, which tracks this fund's index, only costs 47 basis points. (CTHRX has outperformed its benchmark.)

MTUM - In an interview, Eugene Fama (the father of the Efficient Market Hypothesis) admitted that "…the one thing that causes lots of trouble is the evidence that there's some short-term momentum in returns…. in my view that's the biggest challenge to market efficiency." We have added QQQ (orange line), and the S&P 500 (green line) to Morningstar's chart:

This is a cost-efficient momentum strategy.

by Alex Bryan, CFA
3/27/2019

Suitability

IShares Edge MSCI USA Momentum Factor MTUM is one of the best momentum funds available. It offers cost-efficient exposure to stocks with strong recent performance, which should allow it to post strong peer-relative performance over the long run. It earns a Morningstar Analyst Rating of Silver.

Momentum investing is based on the well-documented observation that recent performance tends to persist in the short run. However, this strategy doesn’t just go after the highest returning stocks, instead it targets large- and mid-cap stocks with strong recent risk-adjusted performance. This focus on risk-adjusted performance should reduce volatility and improve performance when market volatility picks up, as riskier stocks with strong momentum tend to struggle in those environments.

Stocks that make the cut are weighted according to both their market capitalization and momentum. This can lead to some large positions in individual names, but the fund caps these weightings at 5%. The resulting portfolio lands squarely in the large-growth Morningstar Category. It should effectively complement value-oriented holdings because momentum tends to work well when value doesn't, and vice versa.

To mitigate turnover, this strategy reconstitutes only twice a year and applies a wide buffer around the stocks it targets. These adjustments reduce the portfolio's style purity, as momentum can shift from month to month. But they also improve cost efficiency. This is still a high-turnover strategy: Turnover here exceeded 100% in each of the past five years. However, it has not yet distributed a capital gain. The exchange-traded-fund structure allows the managers to transfer holdings out of the portfolio through a nontaxable in-kind transaction with the fund's authorized participants.

The fund's approach has worked well so far. From its inception in April 2013 through February 2019, it outpaced the Russell 1000 Growth Index by 140 basis points annually, with comparable volatility. This was largely driven by its overweighting in the healthcare sector and more-favorable stock exposure within the technology, industrial, and consumer cyclical sectors.

Fundamental View

Momentum is one of the most pervasive effects in financial markets. In the short-term, relative performance tends to persist, not only among stocks, but also across indexes and asset classes. One plausible explanation is that investors under-react to new information, causing prices to adjust more slowly than they should. For instance, event studies have demonstrated that stocks beating earnings expectations have historically tended to offer excess returns for many weeks after the announcement. Similarly, stocks that miss expectations have tended to continue to underperform.

Investors may also be reluctant to sell losers in the hopes of breaking even and quick to sell winners in order to lock in gains (disposition effect). This behavior could also prevent stock prices from quickly adjusting to new information. Once a trend is established, investors may pile into a trade or extrapolate recent results too far into the future, pushing prices away from their fair values, which may contribute to the long-term reversals underlying the value effect (the tendency for stocks trading at low valuations to outperform).

While momentum strategies have a good long-term record, they may struggle during periods of high volatility or market reversals, as relative performance is less likely to persist during those periods. As a result, the fund can underperform when it is most painful. For instance, its benchmark lagged the MSCI USA Index by 3.8 percentage points during 2008. Heading into a bear market, momentum strategies tend to have an overweighting in riskier stocks, which may underperform during a correction. After a market downturn, they tend to load up on defensive stocks, and they may miss out on some of the upside during a sharp recovery.

To improve performance when volatility spikes, the fund's benchmark rebalances in between the scheduled reconstitution dates if market volatility significantly increases. When this rebalancing is triggered, the index focuses on more-recent momentum to construct the portfolio. This adjustment may help, but the fund will likely still struggle during periods of high market volatility. There is also a risk that momentum may become less profitable as more investors attempt to take advantage of it. That said, the momentum effect hasn't gone away even though it was first published in the academic literature in 1993. Like any strategy, momentum can underperform for years. This risk may limit arbitrage and allow momentum to persist.

The fund's moderate style tilt takes some juice out of the strategy. However, it still captures the essence of the style at a lower cost than if it pursued a more aggressive rebalancing approach. It has a good chance of beating the market if momentum continues to pay off. But even if momentum doesn't pan out, the fund's low expense ratio doesn't hurt performance much.

The portfolio includes around 120 names, including Microsoft MSFT, Pfizer PFE, and Starbucks SBUX. The composition of the portfolio and its sector weightings can change dramatically over time. Relative to the Russell 1000 Growth Index, the fund has greater exposure to the healthcare sector and less exposure to tech stocks. There are no limits on the fund's sector tilts.

Portfolio Construction

The fund tracks the MSCI USA Momentum Index, which draws stocks from the large- and mid-cap-oriented MSCI USA Index. This strategy captures momentum in a cost-efficient way, supporting the Positive Process Pillar rating. In May and November, MSCI calculates the ratio of each stock's price returns over the past 13 and seven months (excluding the most recent one) to its volatility over the past three years. The one-month exclusion addresses the tendency for performance to reverse over that horizon. The index averages these two scores and selects the highest-scoring stocks until it reaches a fixed target number of stocks. To reduce turnover, new constituents must rank in the top half of the index's target number of securities to get priority over stocks that were previously in the index. Stocks already in the index have to rank only within 1.5 times the target number of securities to remain in the index. Holdings are weighted according to both the strength of their risk-adjusted momentum and their market cap, subject to a 5% cap. In addition to the scheduled semiannual reconstitution, MSCI may do an off-cycle rebalance of the index when the month-over-month change in the trailing three-month volatility of the market is larger than the 95th percentile of such monthly changes historically. When this occurs, the index uses each stock's seven-month risk-adjusted momentum score.

Fees

The fund's 0.15% expense ratio makes it a bargain, giving it a very low cost hurdle to overcome. Therefore, it earns a Positive Price Pillar rating. However, the strategy's high turnover can create high transaction costs. As a result, the fund lagged its benchmark by 31 basis points annually over the trailing three years through February 2019. ...

SMLF - From "For Factor Investors, It Pays to Go Small" by Morningstar's Alex Bryan, CFA on 12-6-17: "For those who do want to profit from momentum in the small-cap arena, it would probably be best to get that exposure through a multifactor fund, like iShares Edge MSCI Multifactor USA Small-Cap ETF (SMLF) (0.30% expense ratio). This is because 1) it will have lower turnover than a stand-alone momentum fund, and 2) it should better diversify risk. This fund targets small-cap stocks with strong value, momentum, quality, and small size characteristics under constraints that mitigate sector bets and turnover. Its holistic approach and demanding selection criteria should give it potent exposure to the factors it targets."

We have added IJR (orange line) to Morningstar's chart for comparison:

SMMV - captures the Low Volatility Factor among Domestic Small-Cap Stocks. We have again added IJR (orange line) to Morningstar's chart. SMMV has not only outperformed, but with significantly less risk, having a **Risk** ratio of 0.8 compared to IJR's 1.3.

ISCF - The iShares Edge MSCI Multifactor Intl Small-Cap ETF seeks to track the investment results of an index composed of global developed market small-capitalization stocks, excluding the U.S., that have favorable exposure to the Value, Quality, and Momentum Factors. We have added SCZ (orange line), iShares MSCI EAFE Small-Cap ETF, which at 9.62 billion in Total Assets, and with more than 1,600 stocks is the largest non-U.S. developed market Small-Cap ETF, to Morningstar's chart for comparison:

To summarize:

- International Diversification is important. As I teach in my Advanced Topics in Investments class, international exposure anywhere between 20-40% is advantageous and provides significant risk mitigation benefits without necessarily harming returns. Diversification is the closest thing to a free lunch in the Investment world, and is critical for anybody who isn't correct 100% of the time.
- Factor Diversification is important, and Large Growth (QQQ) is the opposite of two Factors. Your current proposed portfolio only has direct exposure to two factors: Size and Quality, both of which are from IJR. However, QQQ washes out the beneficial exposure to Size, leaving you with remaining exposure to Quality and Growth. Growth is the opposite of the academically proven Value Factor. Quality is an excellent Factor, but tends to work best when it isn't a stand-alone.
- Technology is not a Factor, but Momentum is. To my knowledge, there is no academic research that suggests that over long time horizons (20+ years) the Technology sector provides superior risk-adjusted returns to the broader market. There is substantial evidence that Momentum does. Given that technology has performed very well over the past five years, Momentum has had substantial exposure to this sector. Going forward however, Momentum does not rely on the continued outperformance of Tech to provide its superior returns. If stocks in a different sector go on a tear, Momentum will be able to capture those returns. Investing in Tech won't. Which brings us to the next point.

- Placing a 50% bet on any one sector (or even factor) is incredibly risky. As seen in QQQ's chart, investors who jumped in at the beginning of 1999 would have seen their fortunes reverse over the next two years, and then would have had to wait till 2007 to get back to even, at which time they would have been plunged back underwater during the Great Recession. From 1999 to 2010, an investor's return in QQQ would have been roughly 0. That is a very long time to wait, especially for 50% of a portfolio. While I can't predict what the next decade has in store for the Tech sector (or any aspect of the Market for that matter), there is substantial evidence that chasing performance is dangerous and rarely ends well.
- There are better funds not only for Tech exposure, but also for the Size/Quality Factors. CTHRX provides a clearer play on Technology, and MTUM provides important exposure to Momentum. Between them, SMLF, SMMV, and ISCF provide exposure to Size, Low Volatility, Value, Quality, and Momentum, as well as offering much needed international diversification.