

Drexel University The Dragon Fund

**Annual Update for the Period Ended
December 31, 2016**



The Dragon Fund

The Dragon Fund, which has been managed by Drexel undergraduates since the fall of 2007, seeks capital appreciation by primarily investing in U.S. stocks with a market capitalization of between \$500 million and \$10 billion. The student analysts apply a combination of sector analysis and discounted cash flow as well as multiples valuation techniques to identify attractive investment opportunities. The fund was started with \$250,000 and received additional infusions of \$100,000 in March 2011, \$450,000 in June 2013, and \$200,000 in June 2016. As of the end of December 2016, the fund's total assets stood at \$1,889,409.

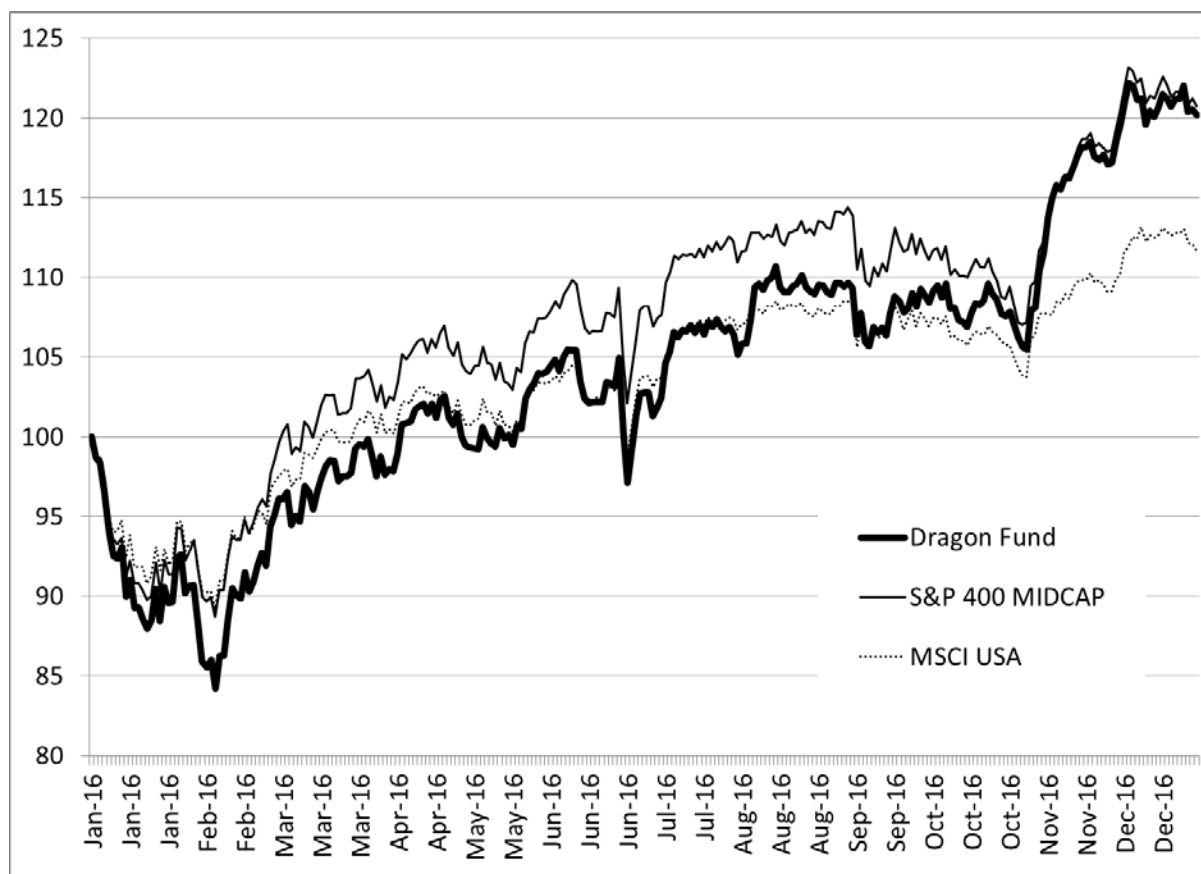
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1 Performance review

1.1 Fund performance

The Dragon Fund returned 20.2% in 2016, slightly lagging its benchmark, the S&P 400 Midcap, which yielded 20.7%. The overall market, proxied by the MSCI USA, only rose 11.6%. The good performance of small stocks, especially after the November election, made a big difference even for similar benchmarks. The Russell Midcap index, which is tilted towards larger stocks relative to the S&P 400 Midcap, only gained 13.8%. Despite its slight underperformance relative to the benchmark, the Dragon Fund's alpha relative to both the market and the Fama-French factors were positive for the year, indicating that the fund's risk-adjusted performance was positive. For details of this analysis, please see Section 5.



Sources: US Bank, Datastream

1.2 Attribution analysis

The main detractor from 2016 performance was stock selection in the Healthcare sector, which accounted for a 400 basis point drag relative to the benchmark. The Dragon Fund overweighted specialty pharmaceuticals stocks through positions in Akorn (AKRX), Endo (ENDP), and Mylan (MYL), which took several beatings in 2016. This affected performance negatively even though the overweight was actively reduced during the year. Early in the year, specialty pharma stocks were caught in the downdraft associated with Valeant. Later on, political campaign comments on drug pricing and a potential collusion lawsuit weighed on the industry.

Stock selection in Energy and Information Technology helped offset the poor performance in Healthcare. The fund benefitted from the rebound in oil prices both by being overweight the Energy sector and by overweighting exploration and production names. The performance of Carrizo (CRZO) and U.S. Silica (SLCA) stood out, in particular. The CRZO position was initiated in February to capitalize on the analysts' bullish oil price view and was sold in December.

Nvidia (NVDA), one of the fund's longer-term IT investments, was another stand-out performer for the fund. The stock more than tripled during 2016 because of its success in established businesses (video, gaming) and forays into new segments such as automotive. If left alone, the fund's position would have grown to 10% of assets under management. To ensure compliance with the fund's charter, which mandates a 5% limit on individual stock positions, Dragon Fund analysts cut back NVDA twice during the year.

Another notable event was the acquisition of Mattress Firm (MFRM) by the South African retailer Steinhoff. At the end of 2015, Dragon Fund analysts had voted MFRM into the portfolio. The MFRM position was subsequently increased in June 2016 based on the recommendation of the fund's Consumer Discretionary analyst team. On the day of the acquisition, which carried a 115% takeover premium, the value of the fund jumped more than 200 basis points – its largest one-day gain since inception!

The attribution table below is based on the ishares S&P 400 midcap as opposed to the actual S&P 400 index (which is not included in our FactSet subscription). Dragon Fund holdings are based on a FactSet model portfolio of the Dragon Fund which is updated on a quarterly basis. Therefore, the returns shown differ slightly from the actual fund and benchmark returns. "Weight" refers to the portfolio and benchmark allocation as of January 1, 2016.

**Attribution analysis relative to S&P 400 Midcap
January 2016-December 2016**

DF 2016	Dragon Fund		ishares S&P400		Performance effects [%]		
Sector	Weight	Return	Weight	Return	Allocation	Selection + Interaction	Total
Cash	0%	0%	0%	0%	-0.5	--	-0.5
Consumer Discretionary	14%	8%	13%	9%	0.1	-0.1	0.1
Consumer Staples	3%	10%	4%	11%	0.1	0.0	0.1
Energy	4%	84%	3%	22%	0.2	2.5	2.7
Financials	18%	20%	15%	25%	-0.1	-0.9	-0.9
Health Care	10%	-24%	9%	8%	-0.0	-3.7	-3.8
Industrials	15%	27%	14%	30%	0.2	-0.5	-0.3
Information Technology	16%	40%	15%	22%	0.1	2.7	2.8
Materials	6%	38%	6%	38%	-0.1	0.1	-0.1
Real Estate	7%	10%	11%	15%	0.4	-0.6	-0.2
Utilities	3%	29%	5%	27%	-0.1	0.1	-0.0
[Unassigned]	2%	-6%	6%	19%	0.4	-0.4	0.1
Total		20.3%		20.3%	0.75	-0.75	0.00

To judge the contribution of active fund management in 2016, we ran the fund's attribution analysis relative to its buy-and-hold benchmark from the beginning of the year; the results are reported in the table below. This analysis contrasts the performance of the actual fund portfolio with the performance of the fund's positions in place at the beginning of 2016, assuming that these positions were passively held during the year. We exclude NVDA, because the fund was forced to cut back the position for compliance reasons. The attribution table below reveals several insights:

1. NVDA contributed almost 5% to overall fund return (excluding NVDA, the fund's return for 2016 was 15.5% as opposed to the actual return of 20.2%)
2. Active management contributed 2.5% to overall fund return: the buy-and-hold benchmark returned 13% for the year, as opposed to 15.5% for the actual portfolio.
3. Active performance was broad: the selection effects were positive in 7 out of 10 sectors
4. Main contributors to active performance were, in order of magnitude: acquisition of MFRM, sale of DLTR, purchase of CRZO, purchase of GWB, sale of MYL, and sale of WOR.
5. Main detractors from active performance were, in order of magnitude: purchase of CALM purchase, sale of EVR, sale of PKG.

**Attribution analysis relative to December 2015 buy-and-hold benchmark
January 2016-December 2016**

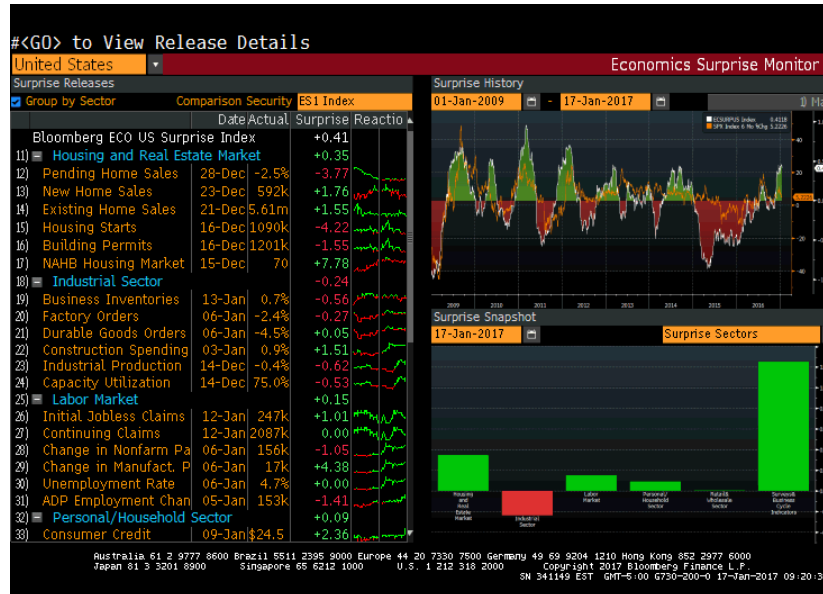
DF 2016	Dragon Fund		Dragon Fund B&H		Performance effects [%]		
Sector	Weight	Return	Weight	Return	Allocation	Selection + Interaction	Total
Cash	0%	0%	0%	0%	-0.6	--	-0.6
Consumer Discretionary	15%	8%	15%	3%	0.0	1.0	1.0
Consumer Staples	3%	10%	3%	14%	0.0	-0.2	-0.1
Energy	5%	84%	5%	59%	-0.1	1.0	0.9
Financials	19%	20%	19%	16%	-0.1	0.7	0.5
Health Care	11%	-24%	11%	-27%	0.0	0.4	0.4
Industrials	16%	27%	16%	25%	-0.2	0.3	0.1
Information Technology	13%	8%	13%	8%	0.1	-0.0	0.1
Materials	6%	38%	6%	35%	0.0	0.2	0.2
Real Estate	7%	10%	7%	11%	-0.1	-0.1	-0.2
Utilities	3%	29%	3%	22%	0.0	0.2	0.2
[Unassigned]	2%	-6%	2%	-1%	-0.1	0.0	-0.1
Total		15.5%		13.0%	-1.02	3.53	2.51

2 Market review and outlook

We have a neutral view on the stock market for the upcoming quarter. On the one hand, macroeconomic announcements during the fourth quarter of 2016 clearly justify optimism in the performance of the broader economy. However, this optimism has been reflected in increased stock market valuations since the election without accompanying upward revisions to long-term earnings growth. In some corners of the market, the stock price rally appears to have run solely on Trump campaign promises, such as increased infrastructure spending. Given that the administration will have many demands on resources and needs to work with Congress, we are concerned that the market may have gotten a bit ahead of itself. To balance this, we have detected a substantial uptick in aggregate insider purchases which presumably reflects increased optimism among America's C-suite – a positive signal for the stock market.

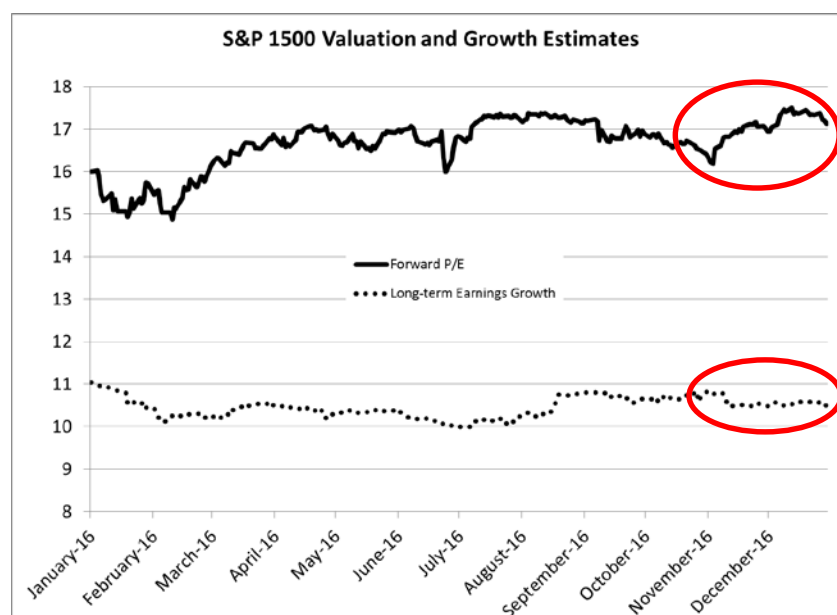
2.1 Macroeconomy

Based on macroeconomic announcements during the last quarter of 2016, our outlook for the U.S. economy is positive. On the demand side, the Conference Board's consumer confidence measure hit its highest level since 2001. This survey measure may reflect that wage growth has been accelerating – close to 4% year-over-year growth towards the end of 2016, the highest growth rate since 2008. The supply side indicators we track also indicate economic expansion. Especially the Philadelphia Fed business outlook surprised with a very positive reading in December.



2.2 Equity valuations and earnings growth expectations

At first glance, stock market valuations do not look attractive. The aggregate forward P/E has expanded from 16 to 17 since the November election. At the same time, long-term earnings growth estimates have been revised slightly downward.



Source: FactSet

However, analysts have revised their earnings growth expectations for 2017-2019 substantially upwards around the turn of the year, which may justify the increased valuations.

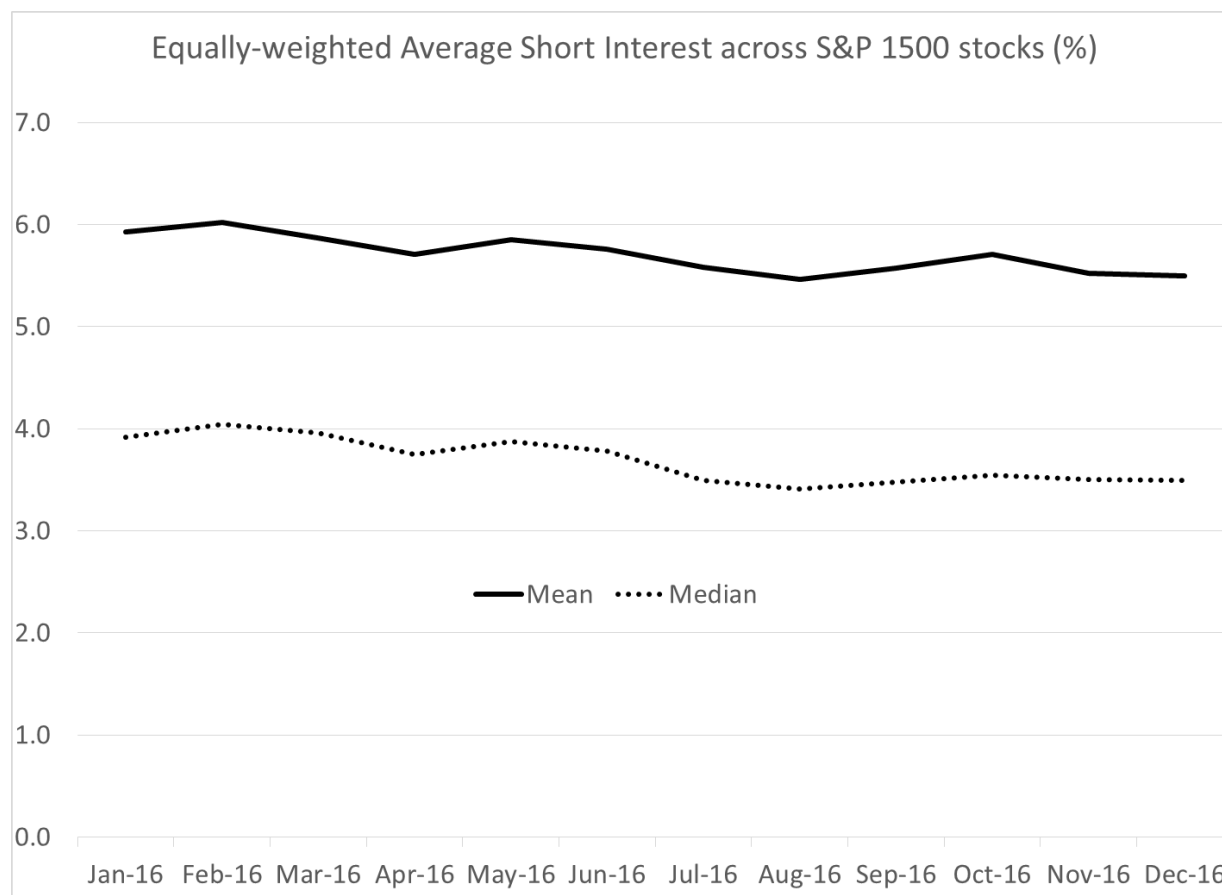
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Measure	Actual	Y Est	4Wk Chg%	Y+1 Est	4Wk Chg%	Y+2 Est	4Wk Chg%
1) Earnings Per Share	24.46	29.78	9.49%	33.38	9.40%	37.37	10.01%
2) EPS Positive	25.77	30.11	6.00%	33.58	8.85%	37.49	9.82%
3) Cash Flow Per Share	42.72	43.65	9.11%	48.53	8.18%	55.23	11.83%
4) Dividends Per Share	10.61	10.96	4.30%	11.70	5.21%	12.77	8.26%
5) Book Value Per Share	184.17	199.99	4.96%	212.97	4.30%	218.44	0.15%
6) Sales Per Share	277.86	297.64	4.63%	313.62	3.95%	320.20	1.42%
7) EBITDA Per Share	46.63	59.70	7.57%	64.49	5.99%	69.83	6.85%
8) Long Term Growth		9.45	10.52%				
9) Net Debt Per Share	84.98	103.69	-2.01%	96.79	-3.13%	47.32	-49.76%
10) Enterprise Value Per Share	625.66	644.32	-0.17%	637.48	-0.31%	584.24	-7.85%
Valuation Measure	Actual	Y Est	4Wk Chg%	Y+1 Est	4Wk Chg%	Y+2 Est	4Wk Chg%
11) Price/EPS	21.55	17.71	-8.91%	15.79	-8.84%	14.11	-9.34%
12) Price/EPS Positive	20.45	17.51	-5.92%	15.70	-8.38%	14.06	-9.18%
13) Price/Cash Flow	12.34	12.08	-8.60%	10.86	-7.81%	9.55	-10.82%
14) Dividend Yield	2.01	2.08	4.58%	2.22	5.49%	2.42	8.55%
15) Price/Book	2.86	2.64	-4.98%	2.48	-4.38%	2.41	-0.41%
16) Price/Sales	1.90	1.77	-4.68%	1.68	-4.06%	1.65	-1.67%
17) Price/EBITDA	11.31	8.83	-7.29%	8.18	-5.90%	7.55	-6.66%
18) EV/EBITDA	13.42	10.48	-7.05%	9.70	-5.66%	8.96	-6.41%
19) Net Debt/EBITDA	1.82	1.42	-7.31%	1.32	-5.93%	1.22	-6.68%

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2.3 Equity valuation indicators

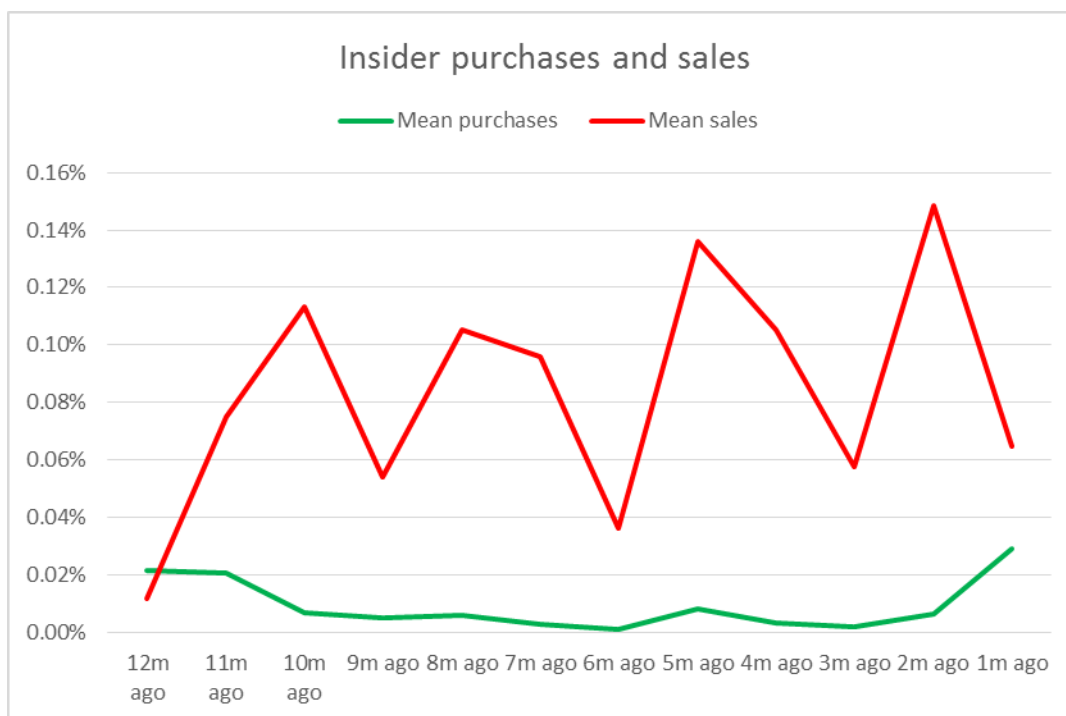
Short selling may be indicative of future returns because it presumably captures the actions of relatively sophisticated investors who may be better informed. During the last quarter of 2016, aggregate short interest as calculated as in Rapach et al (2015)¹ has remained largely flat, thus holding no clues about the future stock market direction.

¹ Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2474930



Source: FactSet, Dragon Fund calculations

Aggregate insider trading may also hold clues about the direction of the stock market, even though the relation is complicated by trading motives other than future performance, such as diversification and incentive alignment. Another issue is that insider purchases tend to be very infrequent and it may be thus unrealistic to expect a precise aggregate valuation signal from positive insider purchases across a handful of S&P 1500 firms. That said, equally-weighted average insider purchases (as a fraction of share float) have clearly increased during the past month, while insider sales have declined, pointing to optimistic insiders – a positive signal.



Source: FactSet, Dragon Fund calculations

Source: Federal Reserve

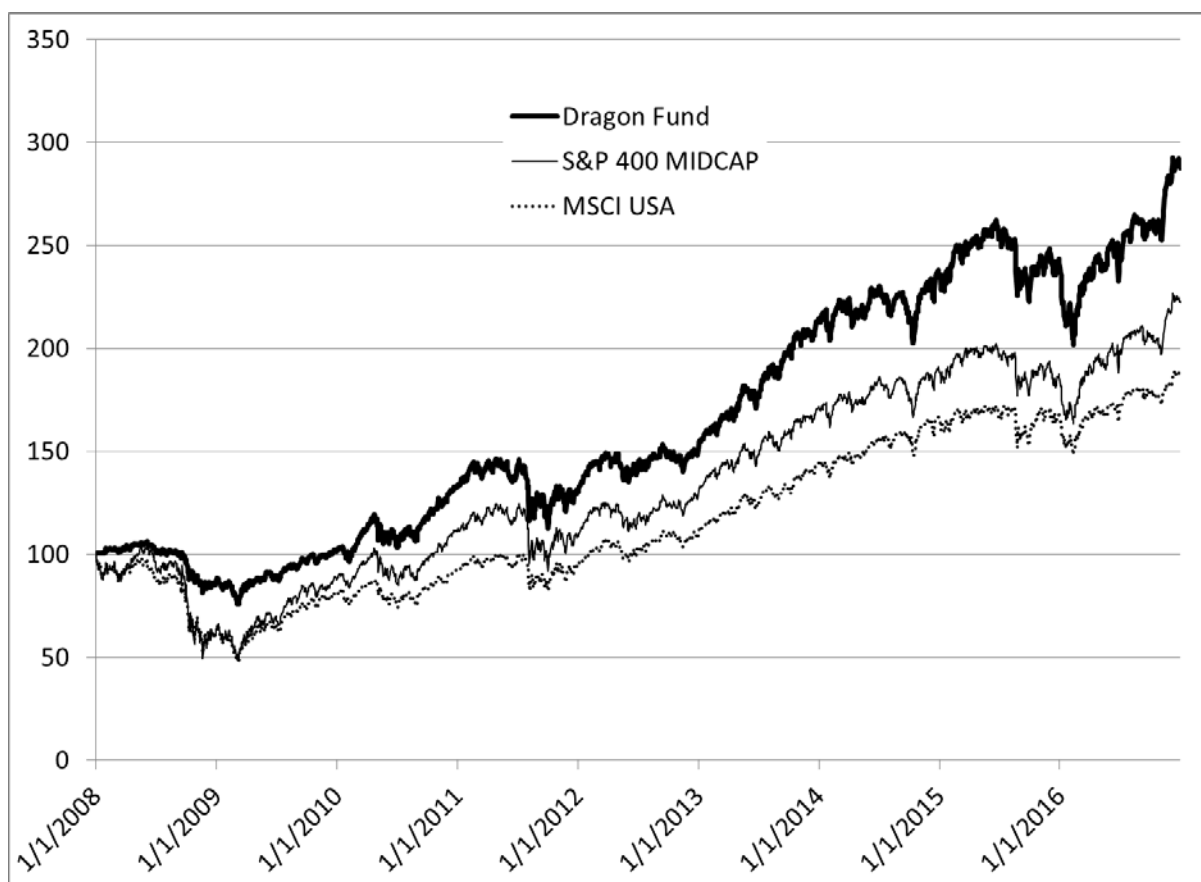
3 Historical risk and return profile

The fund's past return and risk profile during the past 3-year and 5-year periods as well as since inception continues to compare favorably to those of the S&P 400 benchmark as well as the broader U.S. market.

Portfolio returns	2012	2013	2014	2015	2016	3-yr avg	5-yr avg	Since inception
Dragon Fund	15.4%	42.7%	9.3%	2.0%	20.2%	10.2%	17.1%	12.5%
S&P 400	17.9%	33.5%	9.8%	-2.2%	20.7%	9.0%	15.3%	9.3%
MSCI USA	17.3%	34.8%	13.2%	-2.4%	11.6%	7.2%	14.3%	6.6%

Sources: Dragon Fund account reports provided by US Bank, Datastream, FactSet

\$100 invested at the fund's inception would have grown to \$288 by the end of 2016. An investment in the S&P 400 index of midcap stocks or the MSCI USA index of the broad-based U.S. stock market would have yielded \$222 and \$186, respectively.



Source: US Bank, Datastream

Portfolio risk	2012	2013	2014	2015	2016
Dragon Fund volatility	12%	12%	15%	14%	18%
S&P 400 volatility	13%	12%	13%	13%	16%
MSCI USA volatility	11%	10%	12%	14%	13%
Dragon Fund tracking error (relative to S&P 400)	3.7%	3.6%	3.1%	3.1%	5.4%
Dragon Fund beta	1.01	1.02	1.14	0.97	1.35
S&P 400 beta	1.12	1.11	1.04	0.91	1.20

Sources: Dragon Fund account reports provided by US Bank, Datastream, FactSet

The 2016 fund risk metrics, estimated based on weekly returns for 2016, indicate that fund risk has increased in terms of total risk (volatility), risk relative to the benchmark (tracking error), as well as risk relative to the market (beta). The risk increase can be attributed to several factors:

1. Midcap stocks have becoming riskier, in general, which can be seen from the higher volatility and beta of the S&P 400 in 2016 relative to 2015.

2. The fund has drifted towards larger cap non-benchmark stocks over time. In the upcoming year, we will use the rebalancing rounds to refocus the portfolio on the midcap space.
3. The fund has made larger individual off-benchmark bets; for example, four out the five top return contributors were not part of the S&P 400. The Dragon Fund is and will continue to be a high-conviction portfolio. However, we will carefully monitor large positions and adjust them, if necessary, as can be seen from the compliance-based selling of NVDA during the year.
4. The fund's sector weights have deviated more from the benchmark sector weights than usual. In particular, we underweighted Consumer Staples, Real Estate, and Utilities – three sectors we considered to have a poor risk-return profile – and overweighted higher-risk Financials. Within individual sectors, we also overweighted higher-risk industries such as semiconductors within IT, which contributed to risk. We will closely monitor these excess allocations and expect to adjust them as our view of the fundamentals changes. For the upcoming quarter, we expect to reduce the fund's systematic risk in accordance with our neutral outlook for the stock market.

4 Turnover and costs

Dragon Fund portfolio turnover (calculated as mandated by the SEC for public mutual funds) and the associated total costs have consistently been below those of actively managed mid-cap funds.

Turnover	2012	2013	2014	2015	2016
Dragon Fund	41%	33%	40%	30%	31%
Purchases	\$202,734	\$749,760	\$526,765	\$462,629	\$766,591
Sales	\$183,613	\$278,003	\$505,989	\$445,030	\$468,066
Average portfolio	\$445,451	\$845,938	\$1,268,732	\$1,470,060	\$1,523,632
Trading costs	\$363	\$718	\$707	\$568	\$817
Trading costs [%]	0.08%	0.08%	0.06%	0.04%	0.05%

Sources: Dragon Fund account reports provided by US Bank, FactSet

5 Factor analysis

One might be concerned that Dragon Fund returns are due to exposure to certain factors that are known to be associated with above-average returns in the cross section of stocks. To analyze the sources of the Dragon Fund's excess returns beyond the attribution and portfolio risk results presented above, we perform a factor analysis for 2015 and 2016, using weekly returns.

Specifically, we regress weekly Dragon Fund returns in excess of the 3-month T-Bill on the three factors frequently chosen by both academics and practitioners: a market factor (returns of the S&P 500 index in excess of the 3-month T-Bill), a size or small-minus-big (SMB) factor (the difference

between the returns of small stocks proxied by the Russell 2000 index and the returns of big stocks proxied by the S&P 500 index), and a value or high-minus-low (HML) factor (the difference between the returns of stocks with high book-to-market values proxied by the Russell 3000 Value index and the returns of stocks with low book-to-market values proxied by the Russell 3000 Growth index). The popularity of these factors goes back to the work of Nobel Laureate Eugene Fama and his colleague Ken French.²

As can be seen from the table below, the Dragon Fund's coefficient on the market factor increased from 0.98 in 2015 to 1.11 in 2016, which corresponds to the higher beta estimate reported earlier. The coefficient on the size factor is positive and highly significant during both years. This indicates that the Dragon Fund outperforms when small stocks outperform large stocks which is not surprising for a mid-cap fund. The coefficient on the value factor is positive and statistically significant at the 10% significance level, indicating a slight value tilt in 2016: the Dragon Fund tended to outperform when value stocks (stocks with high book-to-market values) outperformed growth stocks (stocks with low book-to-market values). This contrasts with a slight growth tilt reported in last year's annual report for the period 2011-2015.

Factor exposures	2015	2016
Market	0.98***	1.11***
Size (SMB)	0.39***	0.46***
Value (HML)	0.12	0.20*
Fama-French annualized alpha	3.9%	0.7%
R-squared	95%	94%

*/** indicate statistical significance at the 1%/5% level

Source: Datastream and Dragon Fund calculations based on weekly returns for 2015/6

Despite the higher risk of the fund noted in the previous section, both the fund's Jensen's alpha (from the market model) and its Fama-French alpha (from the three-factor model) were positive in 2016, indicating that the fund's risk-adjusted performance was positive, though not significantly so. The fund's Jensen's alpha was 4.2% on annual basis and the fund's Fama-French alpha was 0.7% on an annual basis. The fact that the fund's Fama-French alpha is smaller than Jensen's alpha reflects the fund's tilt towards smaller stocks and value stocks, which outperformed the market portfolio in 2016.

² Available at <http://www.sciencedirect.com/science/article/pii/S0304405X93900235>

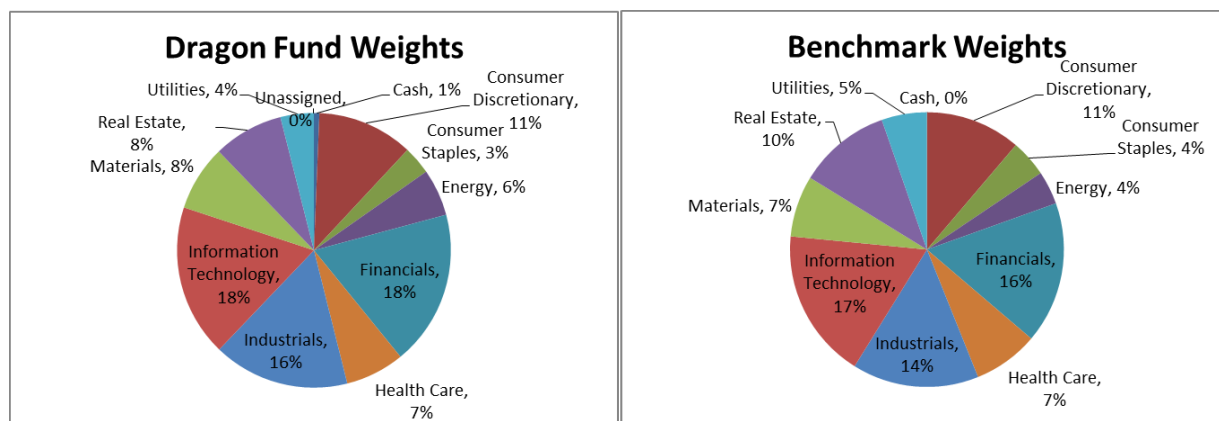
We construct the three factors following the methodology proposed by Cremers et al (2012, <http://cfr.ivo-welch.info/pub/cfr-007.pdf>) rather than using the factors provided by French in his data library (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html) since French's data library has an update lag.

Dragon Fund beta relative to MSCI USA for 2016						
<i>Regression Statistics</i>						
Multiple R	0.948816					
R Square	0.900					
Adjusted R Square	0.898					
Standard Error	0.008					
Observations	52					
<i>ANOVA</i>						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	1	0.028	0.028	451.258	0.000	
Residual	50	0.003	0.000			
Total	51	0.031				
<i>Coefficients</i>						
	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	
Jensen's alpha annualized	4.2%	0.001	0.738	0.464	-0.001	0.003
Beta	1.347	0.063	21.243	0.000	1.220	1.475

Source: Datastream and Dragon Fund calculations based on weekly returns for 2016.

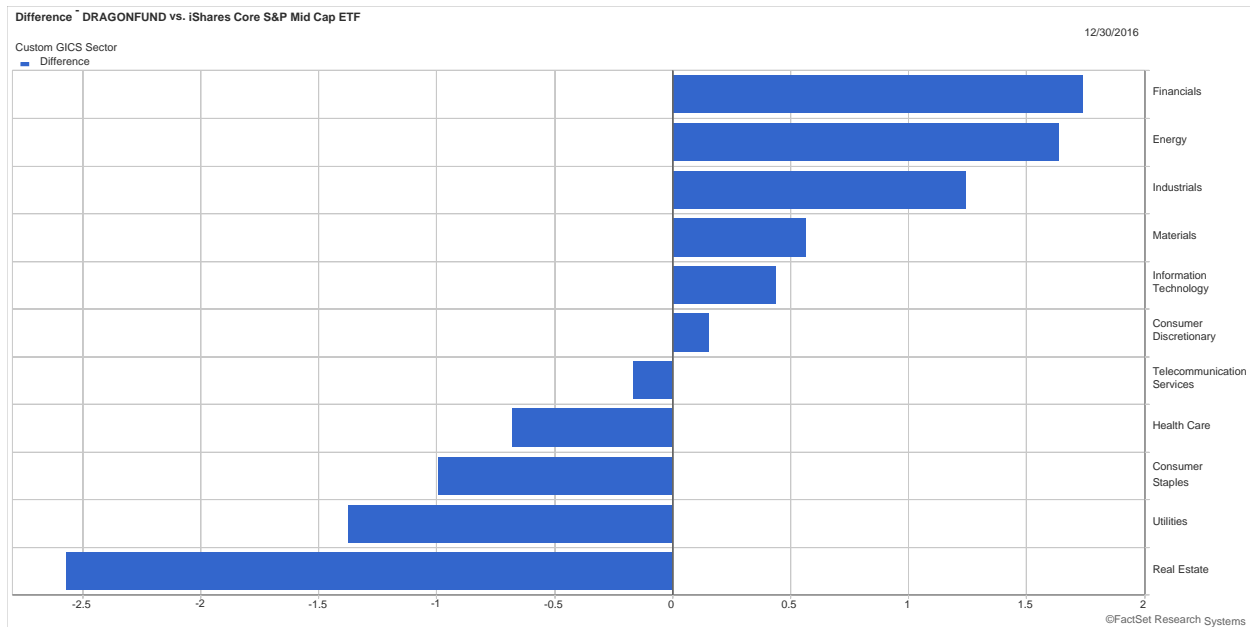
6 Current holdings profile as of December 31, 2016

6.1 Sector allocation



Source: Dragon Fund model portfolio in FactSet, FactSet, benchmark refers to the iShares S&P 400 ETF

6.2 Sector over-/underweights



Source: Dragon Fund model portfolio in FactSet

6.3 Top ten holdings

Ticker	Name	Weight [%]
VFH	Vanguard Financials Index Fund	4.0
NVDA	NVIDIA Corporation	3.4
LRCX	Lam Research Corporation	2.8
VCR	Vanguard Consumer Discretionary Index	2.7
WAL	Western Alliance Bancorporation	2.7
GWB	Great Western Bancorp, Inc.	2.3
ATVI	Activision Blizzard, Inc.	2.3
EA	Electronic Arts Inc.	2.3
PATK	Patrick Industries, Inc.	2.2
ALE	ALLETE, Inc.	2.0
Total		26.8

Source: Dragon Fund model portfolio in FactSet

6.4 Characteristics of Dragon Fund holdings

The forward price to earnings ratio is based on consensus estimates for the next fiscal year. The Dragon Fund statistics do not reflect the fund's ETF holdings.

Characteristics (medians)	Dragon Fund	S&P 400
Market Capitalization [\$ millions]	5,955	3,820
# of Securities	62	402
Dividend Yield [%]	1.2	1.2
P/E using FY1 Est	18.6	20.8
Price/Cash Flow	15.0	12.9
Price/Book	2.8	2.5
Price/Sales	2.3	2.0
Est 3-5 Yr EPS Growth [%]	9.9	9.8
ROA [%]	6.4	4.8
ROE [%]	14.1	10.4
Operating Margin [%]	14.7	12.5
Net Margin [%]	9.5	7.0
LT Debt/Capital [%]	39.0	37.2

Source: Dragon Fund model portfolio in FactSet, FactSet

7 Dragon Fund analyst team and contact information (Winter 2016/17)

Please feel free to contact us regarding more in-depth research reports, recruiting information, or other inquiries about the Dragon Fund.

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