

# Accessing Stock Buybacks through Nasdaq Indexes

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In this research piece we will explore the concept of stock buybacks, which is one of the methods companies use to return capital to shareholders. Stock buybacks started to gain more publicity in the early 1990s. In most cases they were viewed in a positive light as share prices generally increased after the announcements, with many continuing to outperform for several more years. Recent research has tried to contradict this theory, citing that more efficient markets have limited the effect that stock buybacks will have on share prices after they are announced. However, most are still of the opinion that implementing a stock buyback program can provide additional benefit to shareholders in the long run.

We will begin this paper with a brief explanation of how buyback programs work as well as how they can benefit shareholders. Next, we will provide a thorough example explaining the concept of total shares outstanding and how it relates to stock price. In addition, we will discuss the Nasdaq US Buyback Achievers Index, its methodology, and some details about its performance history. We will also give some allocation details regarding some of the top positions at the end of December 2017. We will conclude our research paper by reviewing the concepts and introducing the corresponding ETF which tracks the Index.

## The Mechanics Of A Buyback Program

A stock buyback (or share repurchase) occurs when a company purchases shares of its own stock, often in the open market, thereby reducing the number of shares outstanding. A company typically uses cash to fund the purchase, though some companies finance the purchase. The decision on whether to finance the purchase or to use cash is based on numerous factors, such as the amount of cash the company has in reserve as well as the state of the lending environment, including current interest rates.

## How Buybacks Effect Shareholders

There are a number of ways stock buybacks have been known to benefit shareholders. When a company announces or executes a share buyback, excess returns to the stock price can be attributed to a combination of fundamental and psychological factors. A share buyback reduces the number of shares outstanding, while increasing the earnings per share growth rate among other fundamental ratios for a company. In its simplest form, a reduction in shares outstanding has a direct inverse relationship to earnings per share and at a constant price/earnings ratio will drive the stock price higher. Share repurchases at prices below a company's book value per share will have the effect of increasing that valuation measure.

## Understanding Total Shares Outstanding

To explore the relationship between net reduction in total shares outstanding and stock price performance, we worked closely with Ford Equity Research to compile a 15-year time series of U.S. companies and total shares outstanding information using their equity universe database. This is a database of around 4,000 U.S. securities, all of which are measured for changes in total shares outstanding (TSO) from various sources including original filings. Ford has performed this research since 1971. For each year, we split the companies into buckets according to their change in TSO. The results are summarized in Table 1.

Table 1: Number of Stocks by Change in Total Shares Outstanding

YEAR END	TOTAL	SECURITIES WITH NET INCREASE IN TSO	SECURITIES WITH NET DECREASE IN TSO	SECURITIES WITH $\Delta$ TSO $\leq$ X%				
	UNIVERSE	$\geq 0\%$	$< 0\%$	$< -1\%$	$< -2\%$	$< -3\%$	$< -4\%$	$< -5\%$
2003	4,564	3,622	942	719	517	376	282	210
2004	4,590	3,854	736	569	415	300	213	160
2005	4,624	3,792	832	668	515	364	279	205
2006	4,543	3,512	1,031	850	644	495	376	290
2007	4,425	3,261	1,164	994	790	646	526	402
2008	4,421	3,025	1,396	1,162	952	750	592	482
2009	4,336	3,478	858	655	481	334	235	186
2010	4,147	3,385	762	595	438	323	250	191
2011	4,148	3,175	973	790	627	493	399	318
2012	4,021	3,030	991	779	601	480	386	303
2013	4,098	3,162	936	716	549	421	320	255
2014	4,164	3,127	1,037	824	650	490	362	262
2015	4,133	2,938	1,195	962	738	552	405	310
2016	4,011	2,836	1,175	930	708	532	395	304
2017	3,955	3,109	846	659	484	345	249	184

For each year, we can see the total number of securities in the universe. We then split this universe into those securities that have either no change or a net increase in TSO ( $\geq 0\%$ ) and those that have a net decrease in TSO ( $< 0\%$ ).

Changes in TSO are measured versus the prior year. Using 2017 as an example, we had Ford compare the December 29th, 2017, TSO figure for any given security to its TSO figure from that date in the prior year, which would be December 30, 2016. The database is adjusted for splits and other corporate actions so that the comparison is apples-to-apples.

Those securities with a net decrease in TSO are further segmented according to the magnitude of the TSO decrease. Here, the figures are a subset of the  $< 0\%$  segment. For example, on December 29, 2017, there were 846 securities identified as having  $\Delta$ TSO  $< 0\%$ . Of these, 659 securities were identified as having  $\Delta$ TSO  $< -1\%$ ; of these, 484 securities were identified as having  $\Delta$ TSO  $< -2\%$ ; and so on. This segmentation was carried out in 1% increments to  $< -5\%$ .

We can make two important observations from the collective data set. First, there are vastly more positive changes in TSO than negative changes, with a ratio of roughly 79%/21%. Second, of the securities with a decrease in TSO, only about 22% have a  $\Delta$ TSO  $< -5\%$ . This means that the set of securities with  $\Delta$ TSO  $< -5\%$  is about 5% of the universe.

On a year-by-year basis, the number of securities varies as does the number of securities with a net increase or net decrease. However, we can clearly see the largest number of securities with net decreases in TSO during the 2008 financial crisis and the two years leading up to it. Due to unfavorable economic conditions, many companies shied away from investment-for-growth opportunities. This, coupled with depressed share prices, provided a friendly environment for share repurchases.

Overall, 2017 saw the fourth fewest securities with a net decrease in TSO of any year after 2004, 2005, and 2010. This is a lower amount than what was seen in the previous few years, perhaps due to better economic data as well as the strong year equity markets had in 2017. Should the economy continue this recovery while the market maintains a strong valuation, it is possible that companies will start to shift their attention from buybacks to an investment-for-growth strategy. However, it is possible that uncertainties over diverging monetary policy, emerging market duress, and low aggregate demand will continue to weigh on the investment landscape and thus push companies to further their efforts in returning capital to shareholders.

## Linking Total Shares Outstanding & Excess Returns

Next, we calculated the total return performance for each segment, or portfolio, for each year: all securities in the universe, those with  $\Delta TSO \geq 0\%$ , those with  $\Delta TSO < 0\%$ , and those with  $\Delta TSO$  meeting each of the incremental  $\Delta TSO$  thresholds. The results are summarized in Table 2.

Table 2: Annual Performance of Stocks by Change in Total Shares Outstanding

	TOTAL	NET INCREASE	NET DECREASE	LEVEL OF NET DECREASE				
YEAR END	UNIVERSE	$\geq 0\%$	$< 0\%$	$< -1\%$	$< -2\%$	$< -3\%$	$< -4\%$	$< -5\%$
2004	20.6%	20.1%	21.4%	20.9%	21.1%	21.8%	22.8%	23.1%
2005	4.3%	3.4%	7.3%	7.7%	8.5%	8.3%	10.1%	9.7%
2006	17.6%	17.6%	16.9%	16.3%	16.7%	17.4%	18.0%	19.2%
2007	-5.8%	-5.8%	-5.4%	-5.3%	-5.3%	-5.3%	-5.6%	-5.1%
2008	-44.2%	-45.9%	-38.0%	-37.6%	-37.5%	-38.1%	-39.0%	-39.2%
2009	66.8%	76.0%	50.8%	48.5%	51.8%	52.0%	55.4%	56.1%
2010	28.8%	28.3%	30.6%	29.9%	27.7%	30.5%	33.0%	34.1%
2011	-7.5%	-9.2%	2.8%	2.6%	2.8%	4.1%	4.2%	5.7%
2012	20.2%	21.1%	18.3%	18.2%	18.7%	18.6%	17.1%	17.1%
2013	42.8%	42.9%	43.8%	43.4%	44.6%	44.7%	45.7%	48.1%
2014	3.7%	2.0%	10.1%	9.5%	9.5%	10.8%	8.9%	8.6%
2015	-6.9%	-8.4%	-3.1%	-1.7%	-2.9%	-3.4%	-3.7%	-3.7%
2016	19.8%	18.1%	24.7%	22.5%	22.7%	23.2%	23.7%	23.8%
2017	15.3%	14.4%	15.9%	16.0%	16.4%	16.6%	16.5%	15.1%
Annual	9.4%	9.0%	11.8%	11.5%	11.7%	12.1%	12.3%	12.7%
Ann. Volatility	18.4%	19.1%	16.7%	16.4%	16.4%	16.4%	16.7%	16.9%

For the purposes of this study, at each observation date, we assigned an equal weight to all securities in the respective portfolios. We then calculated the total return of each portfolio for the following month. At the end of the month, we rebalanced the portfolio back to an equal weight across all securities. The same set of securities was carried forward each month for the entire year until the next observation date when the new qualifying securities replaced the prior year's securities. The process was repeated each year.

We can make several immediate observations. First, it is generally the case that the  $\Delta TSO < 0\%$  portfolio outperforms the  $\Delta TSO > 0\%$  portfolio; this lends credibility to the assertion that there are excess returns to be found in securities that execute buyback programs. Second, it is generally the case that  $\Delta TSO < -5\%$  portfolio outperforms the  $\Delta TSO < 0\%$  portfolio; this evidences the positive relationship between the magnitude of the executed buyback program and the magnitude of the excess returns.

We further analyzed the performance of the stocks whose TSO reductions exceeded 5%. In particular, we assessed whether the observed difference in performance of these stocks compared to those with no buybacks was large enough to be deemed "statistically significant." Using a variety of statistical methods, and data from all 14 years in the sample, we do in fact find that the performance differential of about 3% is statistically significant. (Table 2 shows, a 14-year average performance of 9.0% for the non-buyback stocks and 12.7% for the  $< -5\%$  group.)

Finally, the  $\Delta TSO < 0\%$  portfolio showed lower average annual volatility than the  $\Delta TSO > 0\%$ , an indication that the excess returns of the group of stocks that lowered their TSO came at a lower historical risk than the group of stocks that increased their TSO.

Now that we have a deeper understanding of the historical benefits of stock buybacks let's review some of the details and performance history surrounding the Nasdaq US Buyback Achievers Index.

## Index Description

- The Nasdaq US Buyback Achievers Index is comprised of United States (US) securities issued by corporations that have effected a net reduction in shares outstanding of 5% or more in the trailing 12 months.
- The Nasdaq US Buyback Achievers Index is a modified market capitalization weighted index.
- The Index began on December 20, 2006, at a base value of 4694.05.
- Corresponding ETF: Invesco BuyBack Achievers ETF (PKW)

## Eligibility Requirements

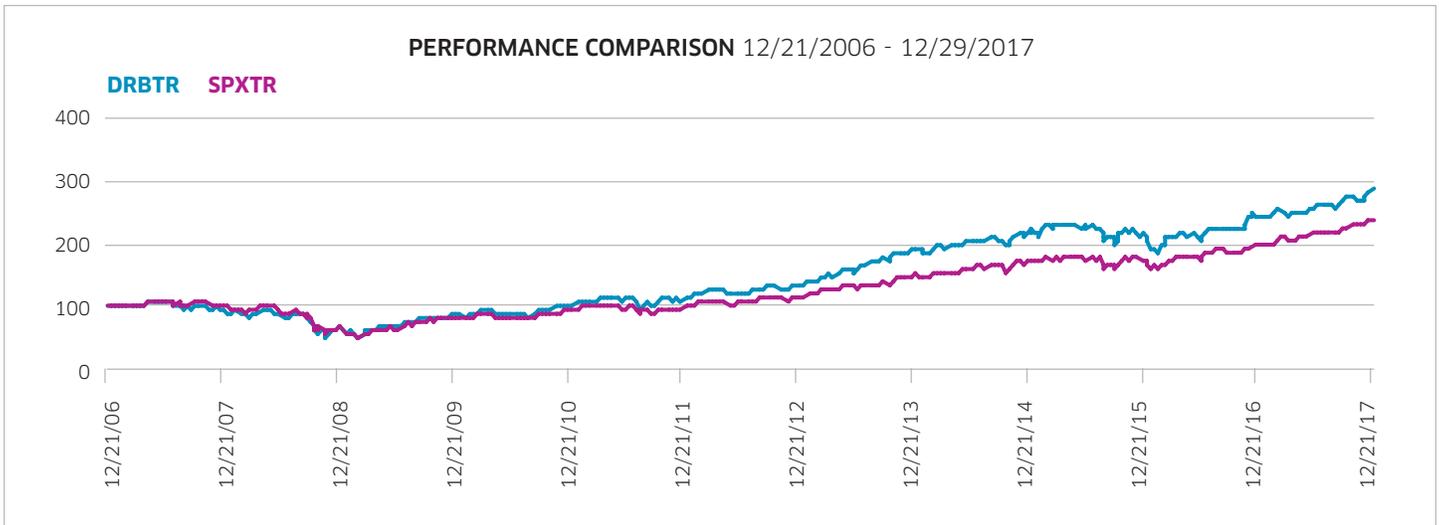
Index eligibility is limited to specific security types only. The security types eligible for the Index include common stocks, limited partnership interests, shares or units of beneficial interest and shares of limited liability companies. In addition they must meet several other criteria:

- The security must be listed on The Nasdaq Stock Market® (Nasdaq®), the New York Stock Exchange or NYSE MKT
- The issuer of the security must be incorporated in the United States or certain benefit driven countries
- The security must have a minimum average daily cash volume of \$500 thousand in October, November and December
- The issuer of the security must have effected a net reduction in shares outstanding of 5% or more in the trailing 12 months
- Only one security per issuer is permitted in the case of companies with multiple share classes

## Performance Comparison

Over our time period studied, The Nasdaq US Buyback Achievers Total Return Index (DRBTR) outperformed the S&P 500 Total Return Index (SPXTR) by a sizeable amount, 185.73% vs 138.55% respectively. Up until the end of 2011 the indexes were pretty tightly correlated, but DRBTR began to separate itself during 2012. The index reached a new all-time high on 1/29/18 of 14,385.28.

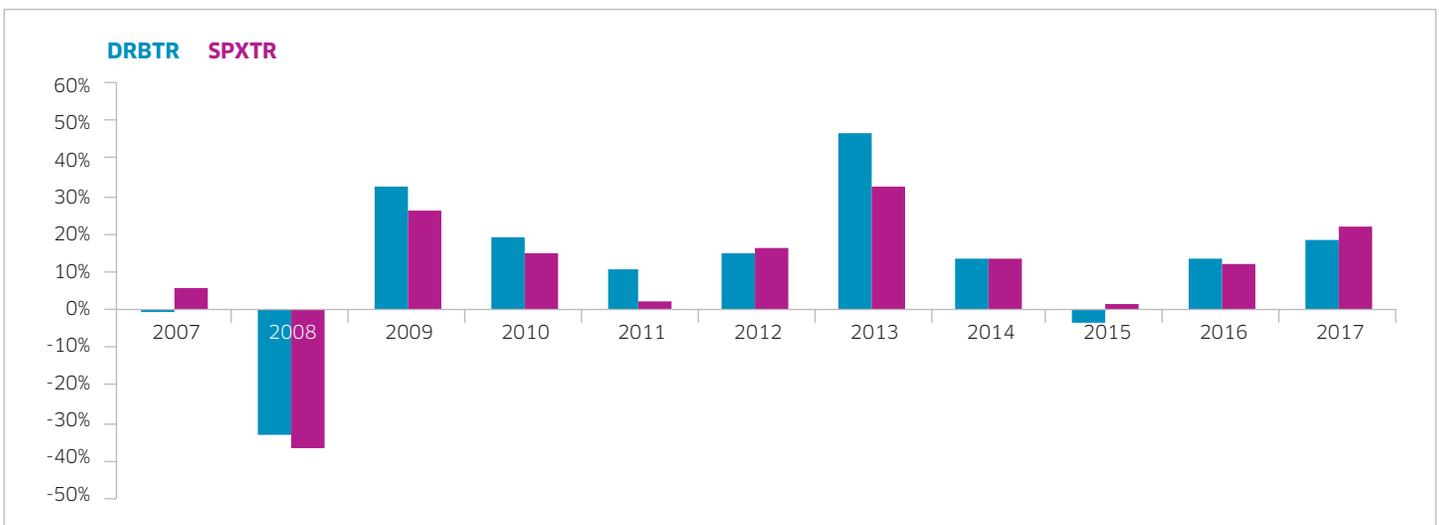
	DRBTR	SPXTR
Cumulative Return	185.73%	138.55%
Annualized Return	9.99%	8.20%
Annualized Vol	19.74%	20.03%



### Annual Returns

Annual returns for both indexes are listed below. We can see the largest gain for each index was in 2013, in which DRBTR notched a gain of 46.63%, while SPXTR produced a 32.39% return.

YEAR	DRBTR	SPXTR
2007	-0.76%	5.49%
2008	-33.23%	-37.00%
2009	32.43%	26.46%
2010	18.74%	15.06%
2011	10.79%	2.11%
2012	14.59%	16.00%
2013	46.63%	32.39%
2014	13.52%	13.69%
2015	-3.73%	1.38%
2016	13.57%	11.96%
2017	18.56%	21.83%



## Excess Return Statistics

This below provides readers with a year by year summary of excess returns DRBTR had over SPXTR. Out of the 11 years studied, DRBTR outperformed 6 of those years. The largest outperformance came in 2013 at 14%, followed by 2011 at 9%. The only year which it underperformed by more than 5% was in 2007 at -6%.



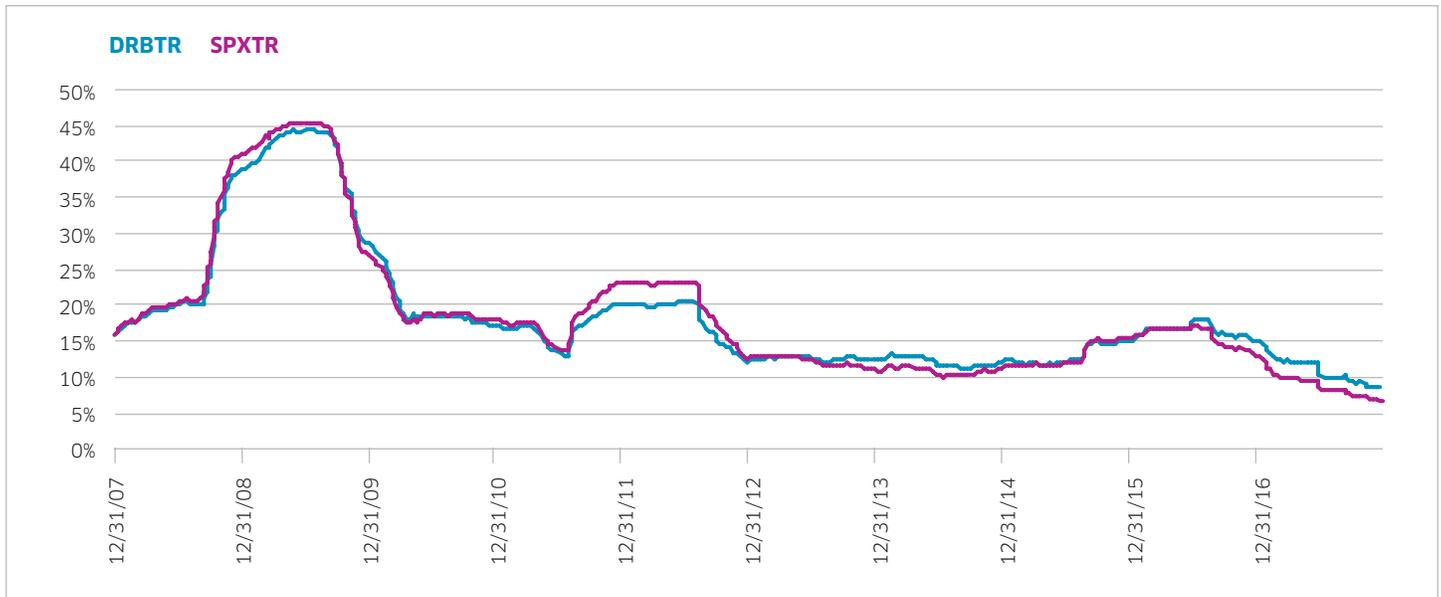
## Volatility Statistics

Below is summary of annualized volatility statistics for each index. Not surprisingly, the Index had its highest annualized volatility during the financial crisis of 2008. Most recently during 2017, the each index experienced its lowest annualized volatility (during our time frame studied).

Year	DRBTR	SPXT
2007	16.00%	15.93%
2008	38.66%	40.88%
2009	28.74%	27.22%
2010	17.28%	18.02%
2011	20.33%	23.24%
2012	12.29%	12.73%
2013	12.43%	11.05%
2014	12.02%	11.36%
2015	15.07%	15.46%
2016	15.19%	13.07%
2017	8.65%	6.67%

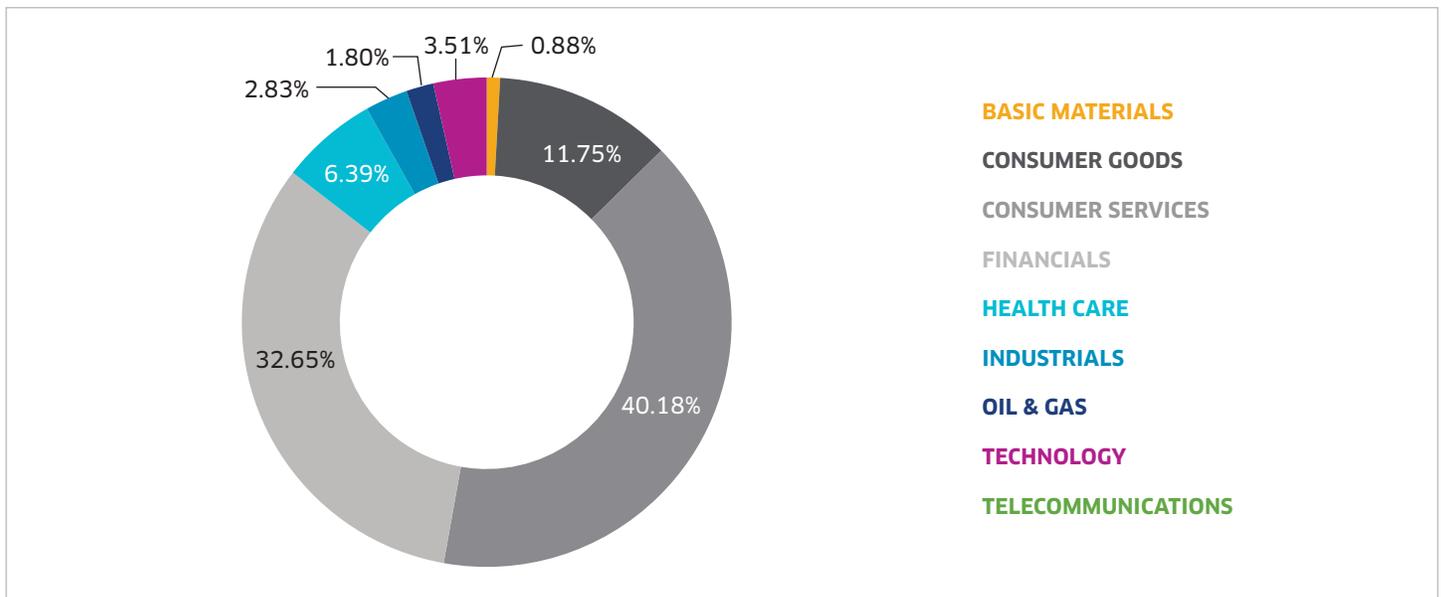
## 12 Month Rolling Volatility (Daily)

For additional analysis, the 12 month rolling volatility (on a daily basis) is listed below. We can see there are only a few select periods when it differed by a noticeable amount for a substantial amount of time.



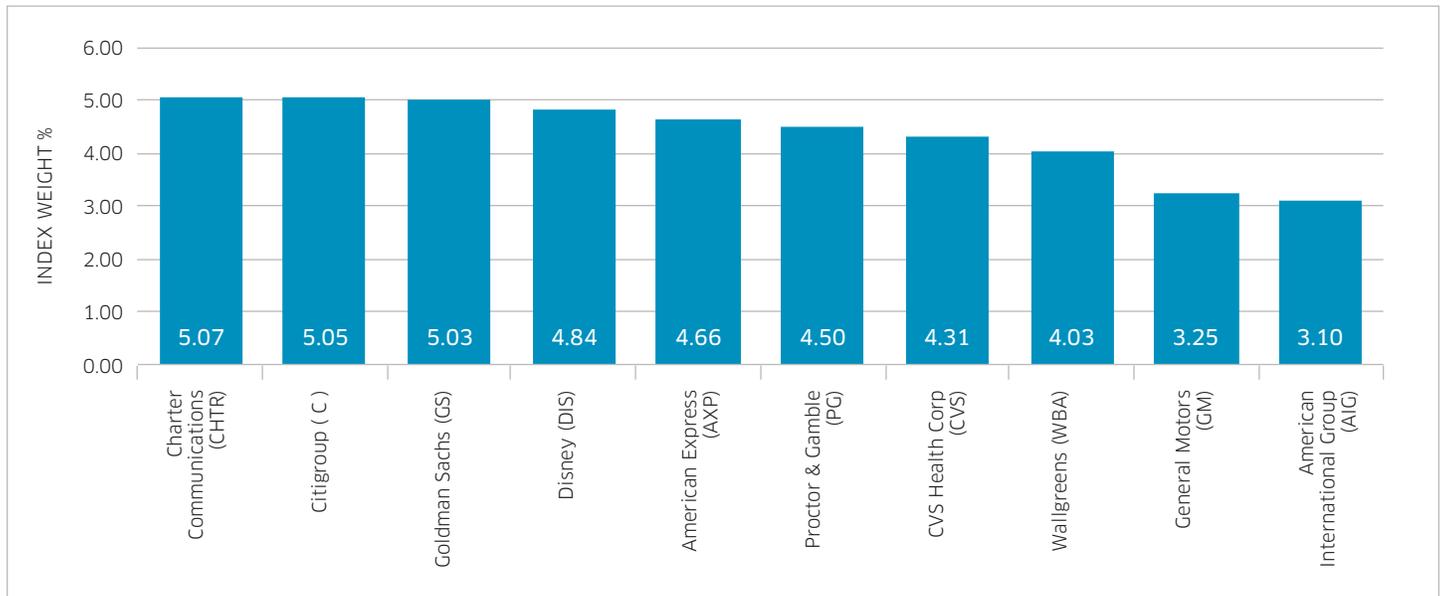
## Industry Breakdown As of Annual Rebalance Effective Date (as of 2/1/2018 Start of Day)

The index currently has exposure to nine ICB industries. The Industry with the largest exposure is Consumer Services at 40.18%, followed by Financials at 32.65%. The smallest exposures are in Industrials (2.83%), Oil & Gas (1.80%), and Basic Materials (0.88%). As we will see in the next section, the index's allocation is largely driven by the largest holdings.



## Top Ten Holdings As of Annual Rebalance Effective Date (as of 2/1/2018 Start of Day)

The index is currently comprised of 131 companies, with the largest 10 holdings representing 43.84% of the total allocation. The individual weights of the top 10 holdings are shown below, the largest allocations including: Charter Communications (5.07%), followed by Citigroup (5.05%) and Goldman Sachs (5.03%).



## DRBTR: New Components from Most Recent Rebalance on 2/1/18

To help provide readers with some perspective on the most recent additions to the DRBTR Index (as of the most recent rebalance that occurred on 2/1/18), below we've provided the list of 70 new additions to the index. In addition, we included the date of the most recent buyback for each company, and the corresponding amount (if available). We've listed the buyback amounts in order from largest to smallest, with the top largest buybacks being at or just over \$15 billion. The other amounts in the below table on the list are between \$10 million and \$500 million.

ISSUE SYMBOL	COMPANY NAME	MOST RECENT BUYBACK DATE	AMOUNT (\$M)
C	Citigroup Inc.	6/28/2017	15,600.00
PG	Procter & Gamble Company (The)	8/2/2016	15,000.00
CVS	CVS Health Corporation	11/8/2016	15,000.00
GM	General Motors Company	1/10/2017	5,000.00
MCK	McKesson Corporation	10/27/2016	4,000.00
MPC	Marathon Petroleum Corporation	5/31/2017	3,000.00
SYF	Synchrony Financial	5/18/2017	1,640.00
SEE	Sealed Air Corporation	3/27/2017	1,500.00
CE	Celanese Corporation	7/17/2017	1,500.00
WU	Western Union Company (The)	2/9/2017	1,200.00
FL	Foot Locker, Inc.	2/15/2017	1,200.00
WBA	Walgreens Boots Alliance, Inc.	10/25/2017	1,000.00
SBH	Sally Beauty Holdings, Inc.	8/31/2017	1,000.00
SBAC	SBA Communications Corporation	1/12/2017	1,000.00
ORLY	O'Reilly Automotive, Inc.	2/7/2018	1,000.00

ISSUE SYMBOL	COMPANY NAME	MOST RECENT BUYBACK DATE	AMOUNT (\$M)
KR	Kroger Company (The)	6/22/2017	1,000.00
IQV	IQVIA Holdings, Inc.	5/24/2017	1,000.00
INFO	IHS Markit Ltd.	10/1/2017	1,000.00
GT	The Goodyear Tire & Rubber Company	2/2/2017	1,000.00
CAG	ConAgra Brands, Inc.	6/29/2017	1,000.00
ALLY	Ally Financial Inc.	6/28/2017	760.00
RH	RH	5/4/2017	700.00
HLF	Herbalife LTD.	8/21/2017	600.00
SIX	Six Flags Entertainment Corporation New	3/30/2017	500.00
MIK	The Michaels Companies, Inc.	6/15/2017	500.00
HDS	HD Supply Holdings, Inc.	8/29/2017	500.00
AMCX	AMC Networks Inc.	6/7/2017	500.00
ALSN	Allison Transmission Holdings, Inc.	11/8/2017	500.00
TEN	Tenneco Inc.	2/1/2017	400.00
CROX	Crocs, Inc.	12/29/2013	350.00
TEX	Terex Corporation	2/7/2018	325.00
TDC	Teradata Corporation	2/5/2018	310.00
RLGY	Realogy Holdings Corp.	2/24/2017	300.00
HIBB	Hibbett Sports, Inc.	11/19/2015	300.00
WP	Worldpay, Inc.	10/26/2016	250.00
SRC	Spirit Realty Capital, Inc.	8/15/2017	250.00
LAD	Lithia Motors, Inc.	3/3/2016	250.00
CIT	CIT Group Inc (DEL)	7/17/2017	225.00
GHL	Greenhill & Co., Inc.	9/27/2017	207.00
BLD	TopBuild Corp.	2/28/2017	200.00
AVT	Avnet, Inc.	11/10/2017	200.00
SAM	Boston Beer Company, Inc. (The)	10/5/2017	150.00
TILE	Interface, Inc.	4/26/2017	100.00
KALU	Kaiser Aluminum Corporation	4/17/2017	100.00
FCN	FTI Consulting, Inc.	12/4/2017	100.00
RGR	Sturm, Ruger & Company, Inc.	5/5/2017	94.50
RECN	Resources Connection, Inc.	10/18/2016	88.50
JOE	St. Joe Company (The)	9/18/2017	66.00
UBNT	Ubiquiti Networks, Inc.	11/8/2017	50.00
TPH	TRI Pointe Group, Inc.	7/25/2017	50.00
NCS	NCI Building Systems, Inc.	10/10/2017	50.00
MEDP	Medpace Holdings, Inc.	5/1/2017	50.00
ILG	ILG, Inc	11/8/2016	50.00
HRTG	Heritage Insurance Holdings, Inc.	5/4/2016	50.00
WINA	Winmark Corporation	7/19/2017	49.79
GCAP	GAIN Capital Holdings, Inc.	5/17/2017	35.00
TRNC	tronc, Inc.	8/18/2015	30.00
PDLI	PDL BioPharma, Inc.	9/25/2017	25.00

ISSUE SYMBOL	COMPANY NAME	MOST RECENT BUYBACK DATE	AMOUNT (\$M)
DFRG	Del Frisco's Restaurant Group, Inc.	2/15/2017	25.00
CTRN	Citi Trends, Inc.	4/10/2017	25.00
BPI	Bridgepoint Education, Inc.	11/17/2017	20.00
BABY	Natus Medical Incorporated	6/3/2016	20.00
FNHC	Federated National Holding Company	12/19/2017	10.00
URBN	Urban Outfitters, Inc.	8/22/2017	-
MAR	Marriott International	11/9/2017	-
FITB	Fifth Third Bancorp	3/16/2016	-
DIS	Walt Disney Company (The)	1/30/2015	-
CATO	Cato Corporation (The)	11/18/2016	-
CACC	Credit Acceptance Corporation	2/13/2017	-
CHTR	Charter Communications, Inc.	12/31/2017	-

Source: Bloomberg

## Conclusion

Buybacks have long been a very popular method for companies to help increase the price of their stock, which adds value for shareholders. While buybacks have been on the decline in recent years, companies that are still partaking in them are even more positive on the prospect of success for their business going forward. The corresponding ETF to the Nasdaq US Buyback Achievers Index is the Invesco BuyBack Achievers ETF (PKW). The impressive outperformance since inception over the SPXTR (while doing so with low volatility) speaks to the outstanding and robust methodology the index follows.

## More Information

For more information on the Nasdaq International Buyback Achievers Index, please visit [BUSINESS.NASDAQ.COM/INDEXES](https://business.nasdaq.com/indexes).

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