

**A possible
pathway to low
correlation and
low volatility:
isolating
dividend growth**

May 31, 2017

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Dividends as an asset class—an attractive proposition

In the pursuit of diversification, investors historically sought after assets classes uncorrelated to the traditional securities of stocks and bonds, such as commodities, real estate products and currencies. Investors looking for a new diversification option can take advantage of a recently developed nontraditional asset class addition to the investment universe: isolated dividend growth. Although dividends have been a staple strategy among equity investors, only recently have dividends emerged as a separate and distinct asset class with distinct advantages. Dividends as a distinct asset class has emerged due to a better understanding of the mechanisms behind isolating dividends as well as the development of institutional dividend markets. Investors can now invest in securities isolating the dividend growth rate. These markets are robust and have active participation from investment banks, pension funds, hedge funds and other parties trading in dividend swaps and dividend futures.

In this whitepaper we will look at isolated dividend growth, seeking to better understand its mechanism and advantages. In the overview, we look at the various aspects of isolated dividend growth including characteristics, rationale and investment avenues. In the performance analysis, we look at the historical performance in absolute terms as well as performance relative to other asset classes – equity, fixed income and commodities. We proceed by analyzing the Dividend Risk Premium (DRP) and looking at the sustainability of DRP, showing that the fear about extreme movements in dividends compared to equities is not backed by historical data. Finally, we compare the S&P 500 dividend growth to other major indexes: the FTSE 100, Euro Stoxx 50 and Nikkei 225.

Only recently have dividends emerged as a separate and distinct asset class with distinct advantages.

What is isolated dividend growth?

Isolated dividend growth provides investors an exposure to dividends independent of their underlying stock prices by utilizing instruments such as dividend swaps, futures, forwards, and options. One of the earliest research pieces on isolating dividends was done by Michael Brennan, in which he proposed stripping the S&P 500 index into claims on dividends in a set period, similar to the stripping of bonds into coupons and zero-coupon bonds (Brennan, 1998). Van Binsbergen, Brandt, & Kojien (2011) extended this research in their paper titled “On the Pricing and Timing of Dividends”, demonstrating how dividend strip strategies can outperform the S&P 500 index and its fundamental components.

What are the avenues to invest in isolated dividend growth?

Investors can currently use the following avenues to invest in isolated dividend growth:

- › Index Dividend Swaps
- › Index Dividend Futures
- › ETFs and Funds focusing on isolated dividends
- › Strategies using Index futures
- › Strategies using Index options

A research paper by Goldman Sachs (Manley and Mueller-Glissman, 2008) explores the underlying motivations of the institutional dividend markets. Large banks dealing in the structured product market issue significant volumes of derivative products and create long derivative positions resulting from the directional flow of their clients. This flow leaves the banks heavily exposed to dividend risk – the risk between anticipated and actual dividends. In an effort to mitigate this risk in the early 2000s, banks started creating dividend swaps to offset these risks. Other participants like hedge funds and pension funds, interested in the benefits of the dividend growth rate, became active participants in this market.

As dividend swaps became more standardized, index dividend futures were introduced to the markets. These futures were first offered on Eurex in 2008 for the Euro Stoxx 50 Index. The volume of dividend futures on the Eurex has increased over time, and as of this writing up to EUR 52.3 billion worth of dividend products are traded annually. Other than dividend swaps, dividend futures and isolated dividend funds, combinations of index futures and options can also be used to trade dividends. Index dividend futures have been introduced in and are now also traded in the Asian and American markets.

As of this writing, there exists only one ETF focused on isolating the dividend growth rate: the Reality Shares DIVS ETF (Ticker: DIVY). DIVY uses S&P 500 dividend swaps in order to isolate the dividend growth rate of the S&P 500, and can be an effective tool in providing investors easy access to the isolated dividend growth rate.

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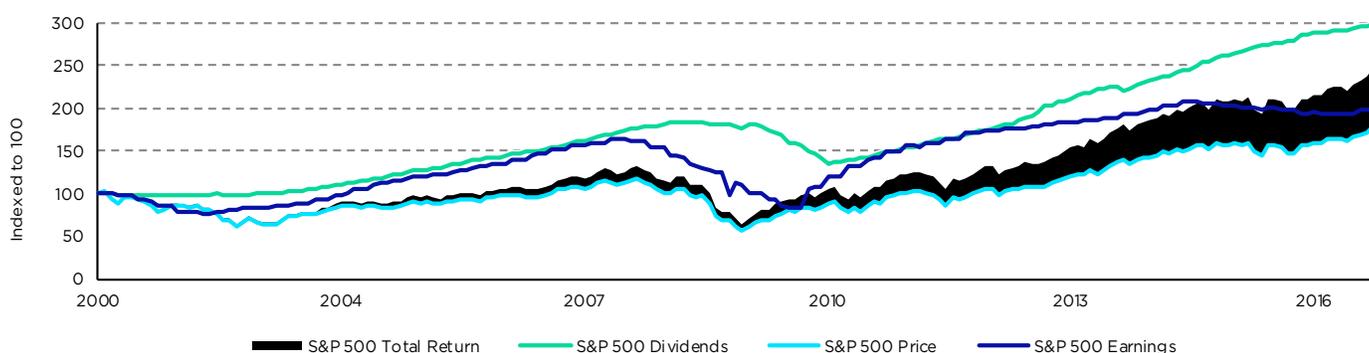
Why are dividends attractive to investors?

1. Recently dividends have outperformed equities and earnings

During the period from Jan. 2000 - May. 2017, dividends grew 201% compared to a 83% growth of the S&P 500 price, 153% growth of the S&P 500 total return, and 106% growth of S&P 500 earnings.

GROWTH IN S&P 500 DIVIDENDS HAVE OUTPACED EARNINGS, SHARE PRICE GROWTH & TOTAL RETURN

(Jan. 3, 2000 - May. 31, 2017)*

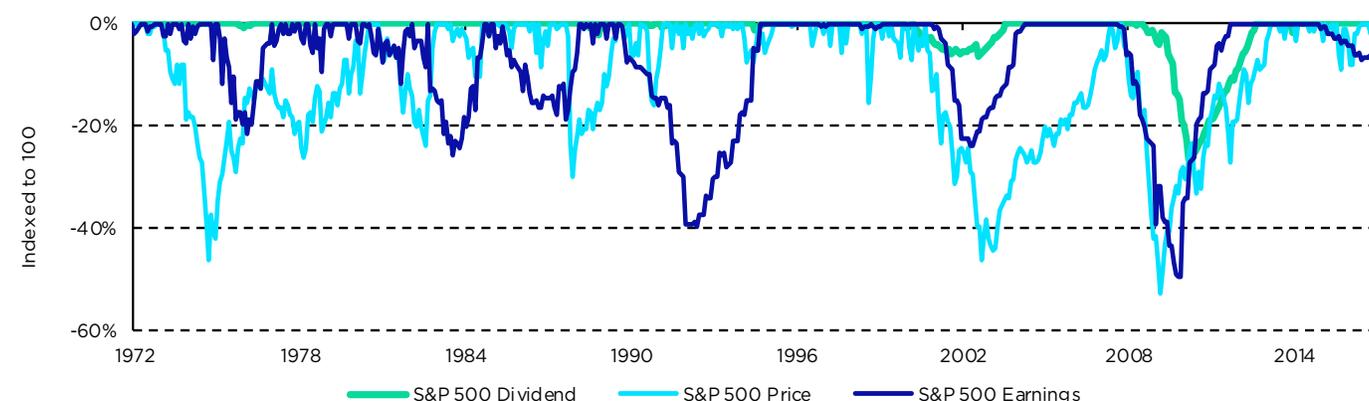


2. Dividends have greater persistence and lower drawdowns than earnings, cash flow, share price

The below chart compares the drawdown of S&P 500 dividends, price and earnings for the period of Jan. 1972 - May. 2017. During this time, the maximum drawdown for dividends was just -26.5%, or nearly half the drawdowns of the S&P 500 price (-52.6%) and S&P 500 earnings (-50.1%). Similarly, the average drawdown of S&P 500 dividends for the entire period of -1.4% was lower compared to that of S&P 500 price (-10.9%) and S&P 500 earnings (-7.7%).

S&P 500 DIVIDEND GROWTH DRAWDOWN HAS BEEN LOWER THAN S&P 500 PRICE GROWTH AND S&P 500 EARNINGS GROWTH DRAWDOWN

(Dec. 31, 1971 - May. 31, 2017)*



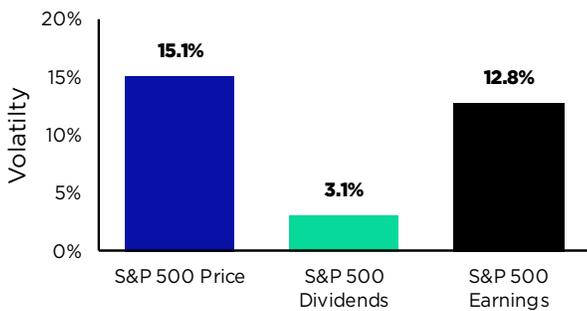
* Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

3. The dividend growth rate has lower volatility than equities and a favorable risk/return profile

The volatility of dividends is much lower than the volatility of price and earnings. Dividends have a better risk/return profile compared to equities, earnings and asset classes like bonds and hedge funds. They have additionally delivered stronger returns than bonds and hedge funds, despite the similar levels of volatility.

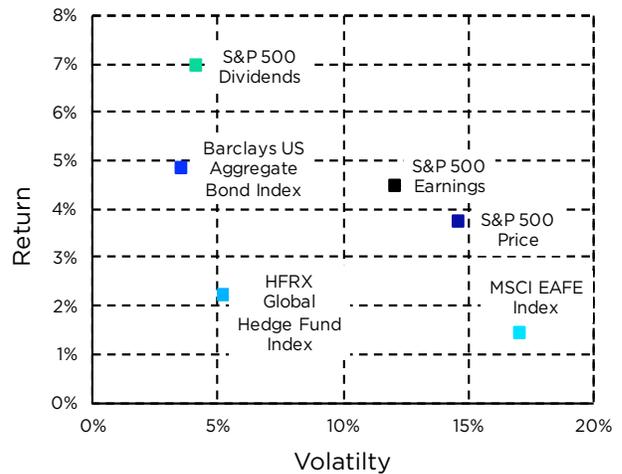
DIVIDENDS HAVE LOWER VOLATILITY COMPARED TO EARNINGS AND PRICE

12/31/1971-5/31/2017*



RISK - RETURN PROFILE

12/29/2000-5/31/2017*

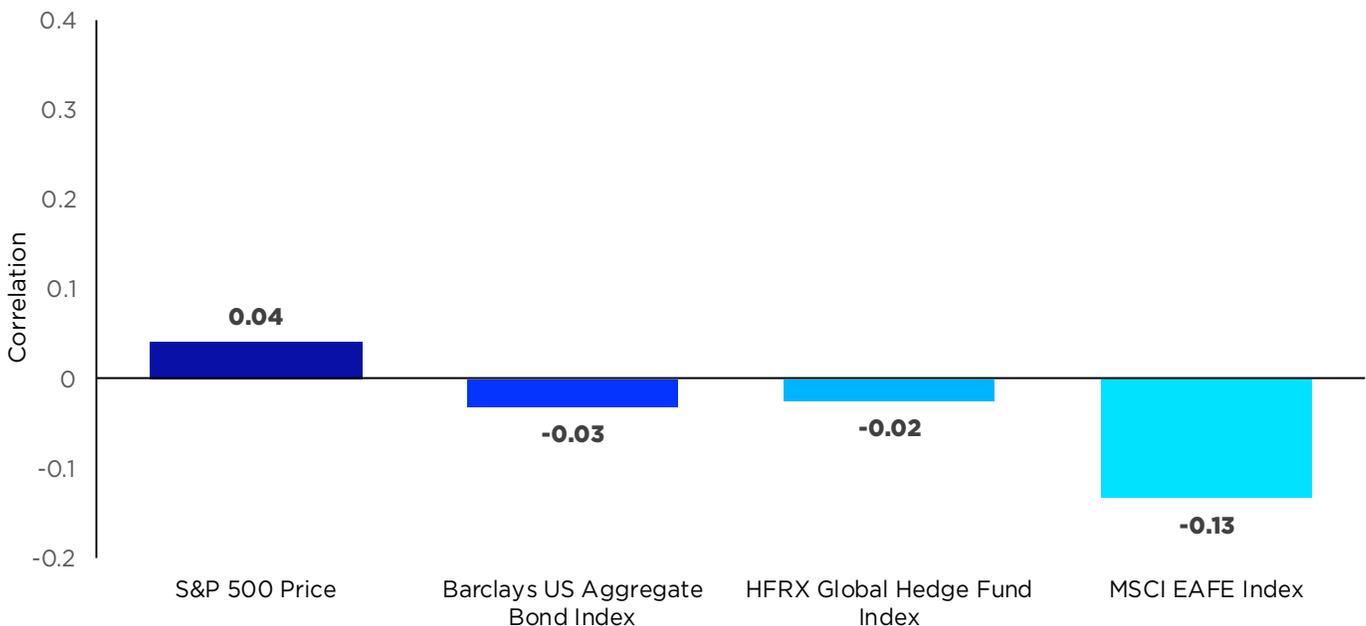


4. Lower correlation to equities and other assets

S&P 500 dividends have a low correlation to equities, international equities and hedge funds. Dividends exhibited a near zero correlation to bonds while maintaining a low volatility.

CORRELATION TO S&P 500 DIVIDENDS

12/29/2000-5/31/2017*



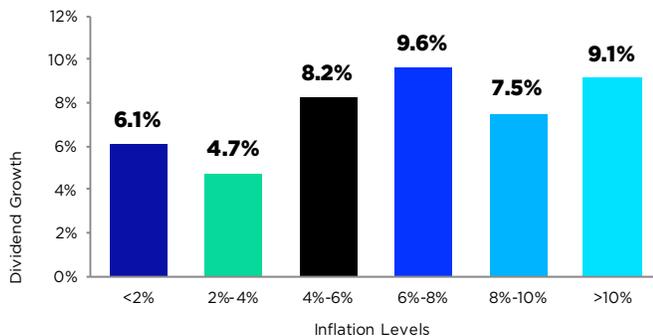
* Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

5. Dividends act as an inflation hedge

Dividend growth serves as a hedge against inflation. Dividend growth has outpaced the rate of inflation from Jan. 1972 – Apr. 2017 and has delivered cumulative return of 1,422% compared to inflation returns of 495%. The outperformance is more pronounced during low and medium inflation levels. Overall, dividend growth has been positive under different inflation levels, mitigating the loss of purchasing power over time.

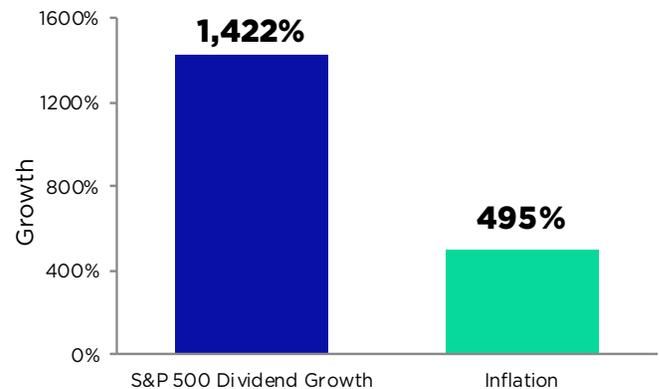
S&P 500 DIVIDEND GROWTH RATES AT DIFFERENT INFLATION LEVELS

(Jan. 3, 1972 - Apr. 30, 2017)¹



CUMULATIVE S&P 500 DIVIDEND GROWTH VS. INFLATION RETURNS

(Jan. 3, 1972 - Apr. 30, 2017)¹

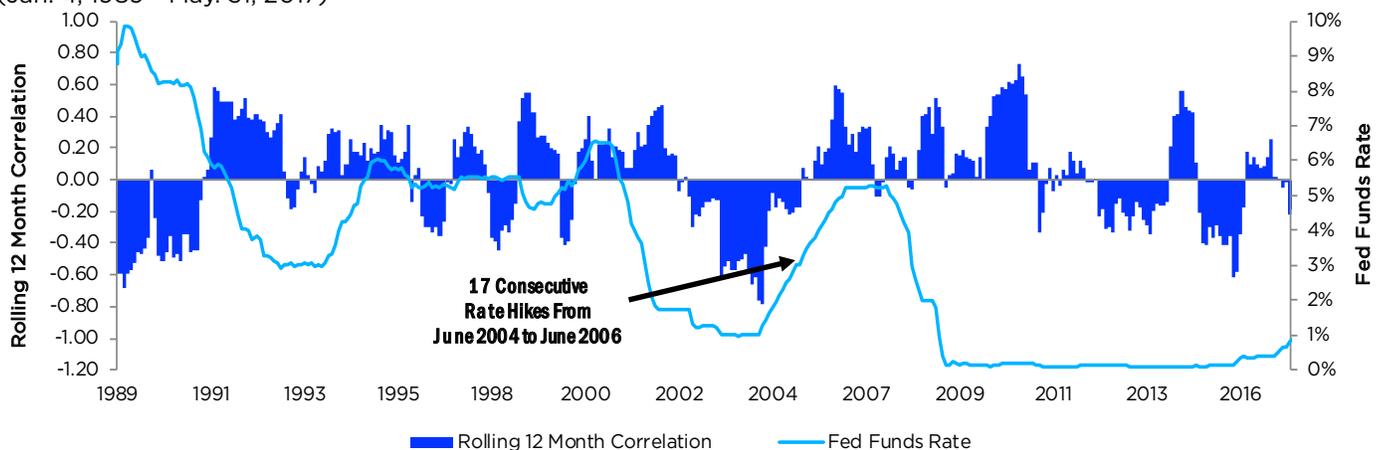


6. Historically S&P 500 dividend growth offered diversification during rising rate environments

During periods of declining interest rates from Jan. 1989 through May. 2017, S&P 500 dividend growth was highly correlated with U.S. bond returns, during which the two asset classes exhibited similar risk profiles. However, we found that during rising rate environments dividend returns historically showed negative correlation with U.S. bond returns. This was the case during the 300 basis point rate hike in 2004. This correlation distinction could lead to dividend growth rates acting as a potential diversifier against other fixed income asset classes, bringing the possibility of positive risk-adjusted returns for investors while also acting as a potential hedge when interest rates rise.

CORRELATION OF S&P DIVIDEND GROWTH AND US BONDS RELATIVE TO INTEREST RATES

(Jan. 4, 1989 - May. 31, 2017)²



¹ Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

² Source: Bloomberg, Reality Shares Research, Federal Reserve. Past performance does not guarantee future results.

How isolated dividend growth is different from existing dividend products

The popularity of dividend paying equities as an investment avenue resulted in a number of dividend based investment product options. Within the equity dividend space, the following products currently hold the majority share:

- › Mutual funds - To equity investors looking for regular income in addition to the capital appreciation, mutual funds focusing on dividend income provide an attractive option.
- › ETFs - The search for yield and the importance of dividends in the overall investment return led to the proliferation of dividend ETFs, the first of which was introduced in 2003 in the US. There are currently around 120 dividend ETFs in the U.S. with more than USD 135 billion under management.

ETFs and mutual funds focusing on dividends primarily invest in stocks based on dividend yield as a stock selection factor. In addition, they may use parameters including dividend consistency, historical dividend growth, dividend payout ratio and cash flows in their investment strategy. Some funds also weight assets based on dividends rather than traditional market weights.

Many of these dividend-focused mutual funds and ETFs however do not offer meaningful diversification as they remain highly correlated to the S&P 500 while exhibiting a low correlation to S&P 500 dividend growth.

	S&P 500 Div Growth	S&P 500 TR	Dow Jones US Select Div	S&P High Yield Div Aristocrats	NASDAQ US Div Achievers Select	WisdomTree LargeCap Div
S&P 500 Index Dividend Growth	1.00					
S&P 500 Total Return Index	-0.03	1.00				
Dow Jones US Select Dividend Index	-0.08	0.84	1.00			
S&P High Yield Dividend Aristocrats Index	-0.05	0.87	0.97	1.00		
NASDAQ US Dividend Achievers Select Index	0.00	0.97	0.86	0.89	1.00	
WisdomTree LargeCap Dividend Index	-0.01	0.97	0.92	0.92	0.96	1.00

Correlation based on monthly returns for the period Jan. 2, 2007 - May. 31, 2017. Past performance does not guarantee future results.

Source: Bloomberg, Reality Shares Research

The RSDIVS index is an index developed by Reality Shares using S&P 500 dividend swaps as the index constituents. The index invests equal amounts in the three nearest year dividend swaps, T0, T1 & T2. The index rebalances annually on August 31.

	DIVIDEND INDEXES	RSDIVS INDEX
OBJECTIVE	Aims to outperform the total return of the market by investing based in dividend screens	Isolates dividends from stock prices and offers dividends as an asset class
ASSET CLASS	Equities	Market dividend growth rate
CONSTITUENTS	Stocks	Dividend swaps and other derivatives
RISK PROFILE	Risk profile comparable to the S&P 500	About half the volatility of the S&P 500
DIVERSIFICATION	Highly correlated with equities	Low correlation with traditional asset classes

Correlation based on monthly returns for the period Jan. 2, 2007 - May 31, 2017. Past performance does not guarantee future results.
Source: Bloomberg, Reality Shares Research

Isolated dividend growth performance analysis

In analyzing the performance of the RSDIVS index, which isolates dividend growth using S&P 500 dividend swaps, we seek to compare the performance of isolated dividend growth on an absolute and relative basis to alternative funds and other major asset classes.

We perform the following analysis:

1. Performance analysis of the RSDIVS index versus other asset classes and alternative funds: the S&P 500, Bloomberg Barclays Global Aggregate Bond Index, HFRX Global Hedge Fund Index, and HFRX Global Macro Commodity Trading Advisors (CTA) indexes. These represent equity, fixed Income, hedge fund and CTA respectively.
2. The risk involved in investing in dividends, compared to equities
3. Dividend risk premium - its definition, sources and sustainability
4. A comparison of S&P 500 index dividends to other major indexes
5. Other studies related to isolated dividend growth

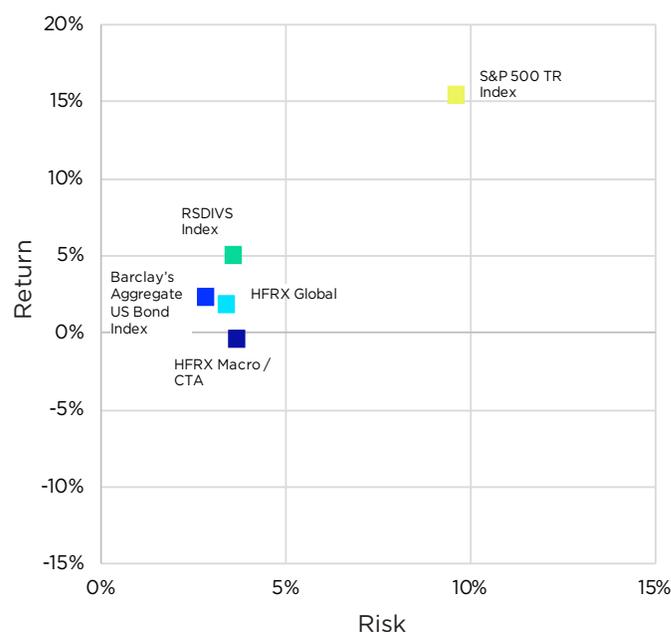
Risk/return profile of the RSDIVS Index

The chart below shows the risk/return profile of the RSDIVS index compared to other major benchmarks in the recent 5-year period (May 31, 2012 - May 31, 2017).

Index	Risk	Return
RSDIVS Index	3.64%	4.93%
S&P 500 Index	9.64%	15.40%
Barclays US Aggregate Bond Index	2.86%	2.24%
HFRX Global Hedge Fund Index	3.41%	1.80%
HFRX Macro CTA Index	3.70%	-0.50%

5Y ANNUALIZED RISK & RETURN ANALYSIS FOR ALTERNATIVE INDEXES

(May 31, 2012 - May 31, 2017)



We see here that the RSDIVS index has an attractive risk/return profile and exhibits less than half the volatility of the S&P 500 index. Relative to other comparable listed U.S.-focused alternative indices excluding some long/short equity hedge indices, the RSDIVS index has the best risk/return profile. This is significant for investors in the current market environment where many assets are plagued by a high degree of uncertainty. In the case of fixed income, we are in an unprecedentedly long period of very low interest rates.

Relative to other comparable listed U.S.-focused alternative indices excluding some long/short equity hedge indices, the RSDIVS index has the best risk/return profile.

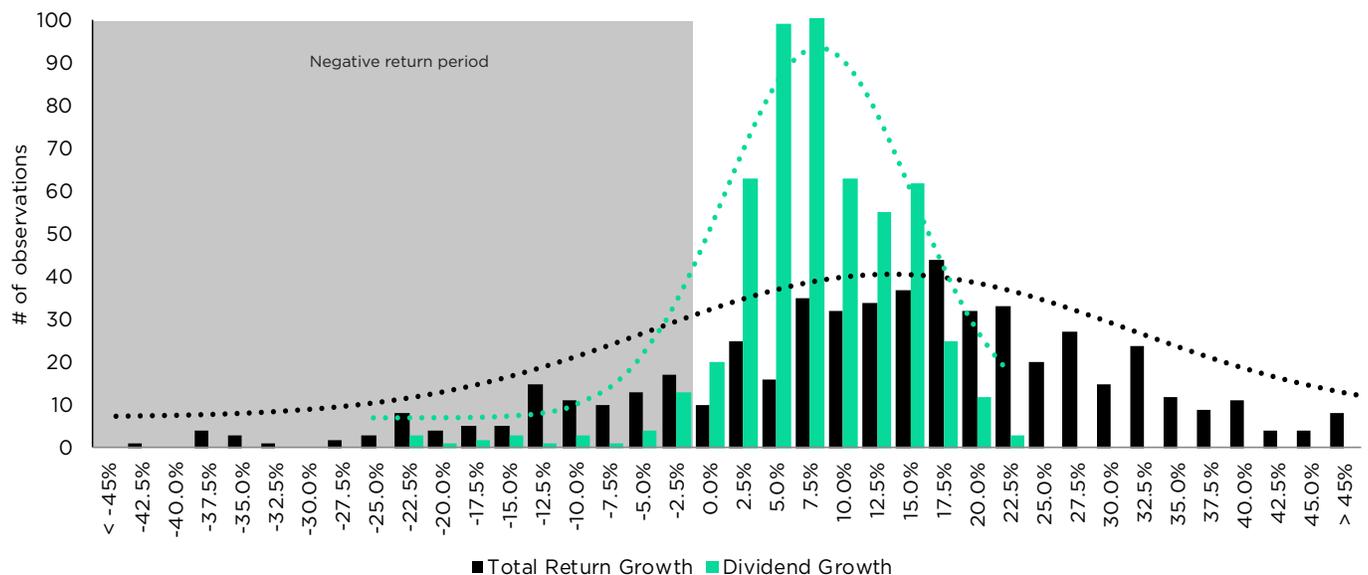
The European Central Bank, the Bank of Japan and some smaller European authorities have started charging a negative interest rates on commercial bank funds deposited with central bank. In Sweden, the repo rate had been negative since Feb. 2015 and currently is at -0.5%. These low interest rates complicate the plans of long term investors including pension funds and retirees, who as a result are unable to meet their return requirements. In addition, Fed rate hikes might negatively impact bond prices. Commodities are plagued by multiyear bear markets and supply overhang coupled with a slowdown in emerging economies such as China. Hedge funds unfortunately consistently underperformed since 2008 in the aftermath of credit crisis.*

Dividend risk versus equity risk

The lower volatility of dividend swaps compared to the S&P 500 can be attributed to the relative stability of dividend growth. Dividend growth is decided by corporate executives and board members. Management teams base their decisions primarily on fundamental factors such as retained earnings, cash on hand and future earnings growth. Companies generally cut dividends only as a last resort, as dividends are viewed by investors as a proxy to management efficacy and as an indicator of corporate financial health and stability. In comparison, stock prices are often impacted by market forces tied to non-fundamental factors like macro, investor sentiment and news.

ROLLING 1-YEAR DIVIDEND GROWTH VS TOTAL RETURN GROWTH

(Jan. 3, 1972 - May. 31, 2017)*

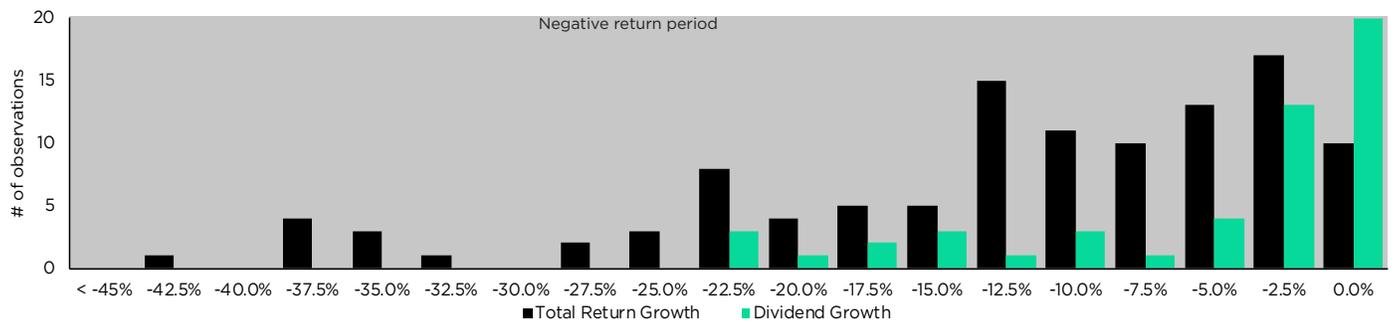


* Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

We looked at the distribution of annual dividend growth and compared it to the total return on a monthly basis. The average 1Y rolling S&P 500 dividend growth rate from Jan. 1972 to May, 2017 is 6.51%. While this is lower than the average 1Y rolling S&P 500 total return growth rate of 11.71%, the standard deviation of the annual total return was 17.1%, compared to just 6.6% for dividend growth, and the possibility of a negative 1Y total return growth rate is 21.3%, compared to the possibility of a negative 1Y dividend growth rate of only 9.7%. As shown in the chart below, the probability of negative 1Y dividend growth is only 9.6%, compared to a 21.0% probability of negative 1Y total return growth.

NEGATIVE RETURN PERIODS

(Jan. 3, 1972 - May, 31, 2017)*

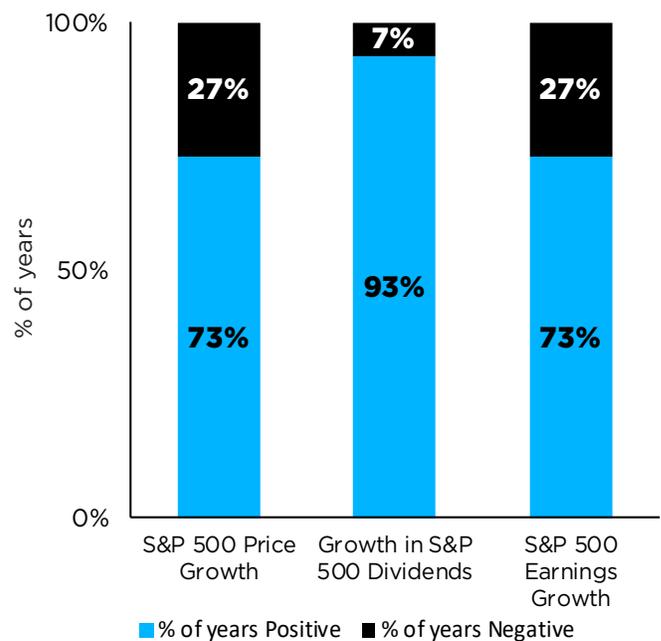


Similarly, we compared the annual growth numbers for S&P 500 price, dividends and earnings. There were only 3 years (7%) of negative growth in dividends during the 45-year period spanning Jan. 1972 - Dec. 2016, compared to 12 years (27%) of negative price growth. Additionally, dividend growth was in the range of 0-10% for 31 years total (69%), compared to 9 years (20%) for price growth. Only during one year, the credit crisis of 2009, did dividends fall more than 15%. Some apprehension has been expressed by investors about the existence of fat tails in dividend growth, but the charts show a different reality: the extreme changes in index dividends are very low when compared to index price.

While dividends did fall during the credit crisis, it was certainly an exception. During several other equity market crisis periods, dividend growth did not experience the significant declines that equities did. After the crisis of 2008 for example, dividends bounced back relatively quickly compared to S&P 500 total return. As a result, investors open to investing in equities, with higher risk, should not be averse to investing in dividends, with a comparatively lower risk.

POSITIVE VS. NEGATIVE PERIODS

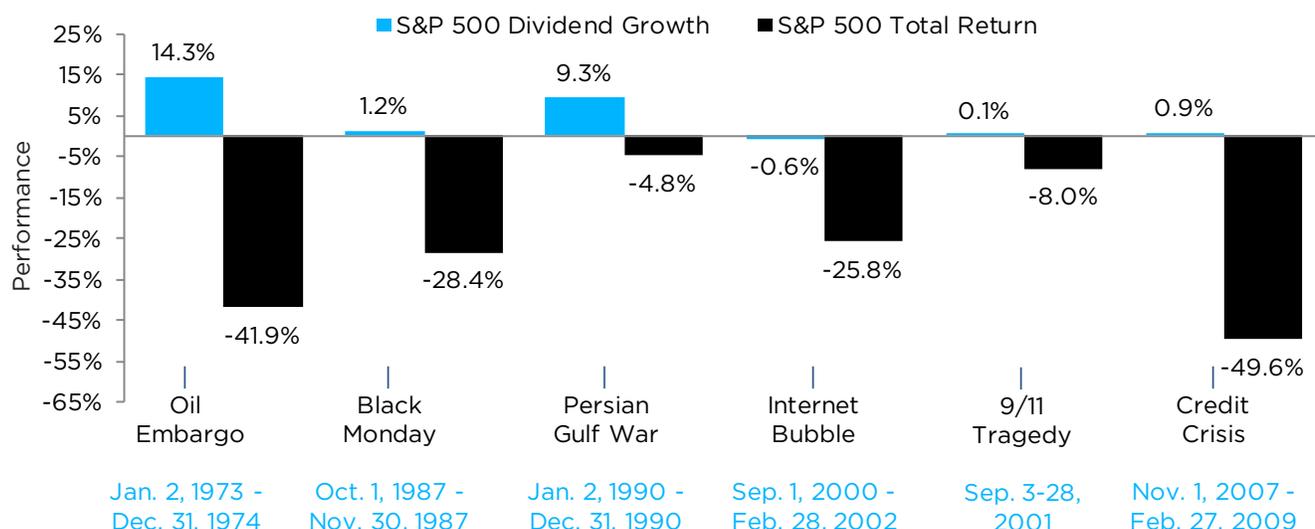
(1972 - 2016)



Some apprehension has been expressed by investors about the existence of fat tails in dividend growth, but the charts show a different reality: the extreme changes in index dividends are very low when compared to index price.

* Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

S&P 500 DIVIDEND GROWTH VS. TOTAL RETURN* CRISIS PERIOD PERFORMANCE



Dividend risk premium—definition, sources and sustainability of dividend risk premium

The dividend risk premium (DRP) is the return demanded by investors for the fundamental risks taken and the liquidity or mark-to-market risks resulting from supply-demand imbalances during the holding period (Manley and Mueller-Glissman, 2008). This premium expectation is over and above the risk-free rate. In dividend swaps, the difference between the expected dividends and implied dividends, based on dividend swap prices, can be considered the DRP. This is based on the assumption that swap notional is invested in risk free assets. The DRP is calculated as follows:

$$\frac{ID_{Y,t}}{(1+r_{Y,t})^T} = \frac{ED_{Y,t}}{(1+r_{Y,t}+DRP_{Y,t})^T}$$

Where

$ID_{Y,t}$ = implied dividends for year Y, at time t

$ED_{Y,t}$ = expected dividends for year Y, at time t

$r_{Y,t}$ = risk-free rate for year y, at time t

$DRP_{Y,t}$ = dividend risk premium for year y, at time t

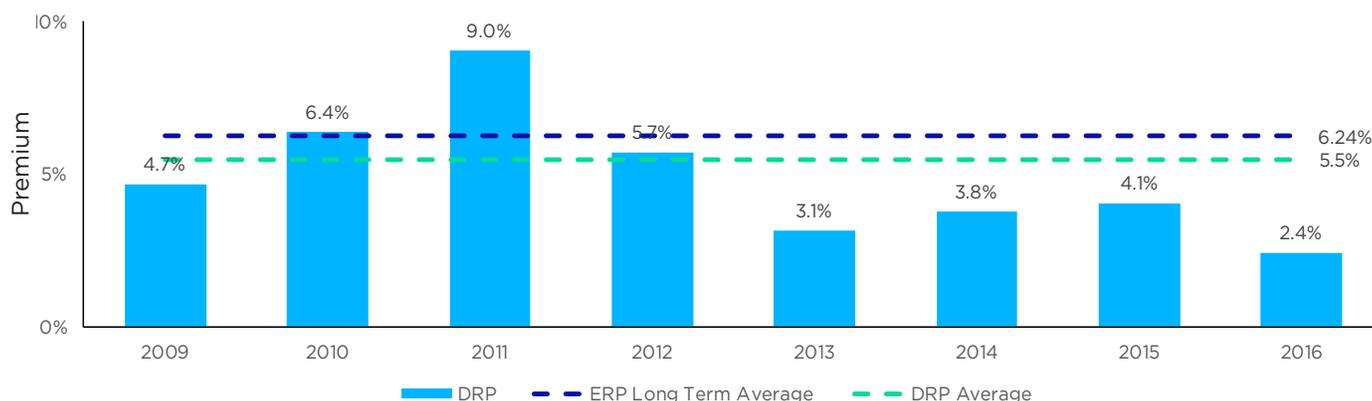
$$DRP_{Y,t} = \sqrt[t]{\frac{ED_{Y,t}}{ID_{Y,t}}} (1+r_{Y,t}) - r_{Y,t} - 1$$

Based on this lower volatility, the low instance of negative growth rates in dividends and high availability of information, one would expect the DRP to be significantly lower than the equity risk premium (ERP), and perhaps slightly above the risk premium for an aggregate bond portfolio. However, from Jan. 2008 to Dec. 2016, the DRP was very similar to the ERP.

* S&P 500 Price Index data prior to 1998 and Total Return thereafter

Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

ANNUAL DIVIDEND RISK PREMIUM (DRP) TO EQUITY RISK PREMIUM (ERP) 2009-2016¹



Sources and sustainability of dividend risk premium

In an ideal scenario, the dividend risk premium should be higher than the respective credit risk premium (or credit default spread) since creditors have superior claims. This should be lower than the equity risk premium because dividends tend to grow more steadily and are less volatile than equity prices² (Manley and Mueller-Glissman, 2008). Some analysts have tried to explain the reasons for the existence of a rich DRP. Credit Suisse for example, in their 2013 equity derivatives strategy commentary², proposed the following reasons:

1. Dividend investors may systematically overestimate the risk of single stock dividend cuts
2. Dividend investors may systematically underestimate the benefit of diversification in dividend indexes
3. Dividend investors may require a premium for liquidity risk
4. The extensive long dividend overhang of banks' trading desks creates a systematic mispricing of dividends

Dividends at the corporate level are determined by corporate policy on the distribution of profits when compared to retention and reinvestment. Companies need to decide on the level of retained earnings

versus what is to be distributed to shareholders in the form dividends. A company's dividend payment policy is determined based on factors including retained earnings, cash on hand, long term earning power, capital structure, interest payments and future investment avenues. While the current year dividends can be estimated with reasonable accuracy, further dated dividend estimates are more volatile and difficult to determine.

Some reasons for the existence and sustainability of the S&P 500 dividend risk premium may include:

1. The systematic underestimation of index level dividends by analysts
2. A high level of cash per share as a multiple of dividends in the S&P 500
3. Sector diversification benefits of index dividends
4. Cushioning provided by buybacks at times of crises
5. A recalibration of buybacks versus dividends
6. The emergence of new cash rich sectors
7. Increased regulation on banks to reduce balance sheet leverage, resulting in banks systematically selling dividends to maintain optimal balance sheet risk.

¹ Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results. DRP calculated as of end of year using dividend swap values and actual realized dividends for near 3 years (using realized dividends as proxy for expected dividends). DPS estimates used for 2017-2019. Long term ERP is based on historical data (1928-2016). http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html

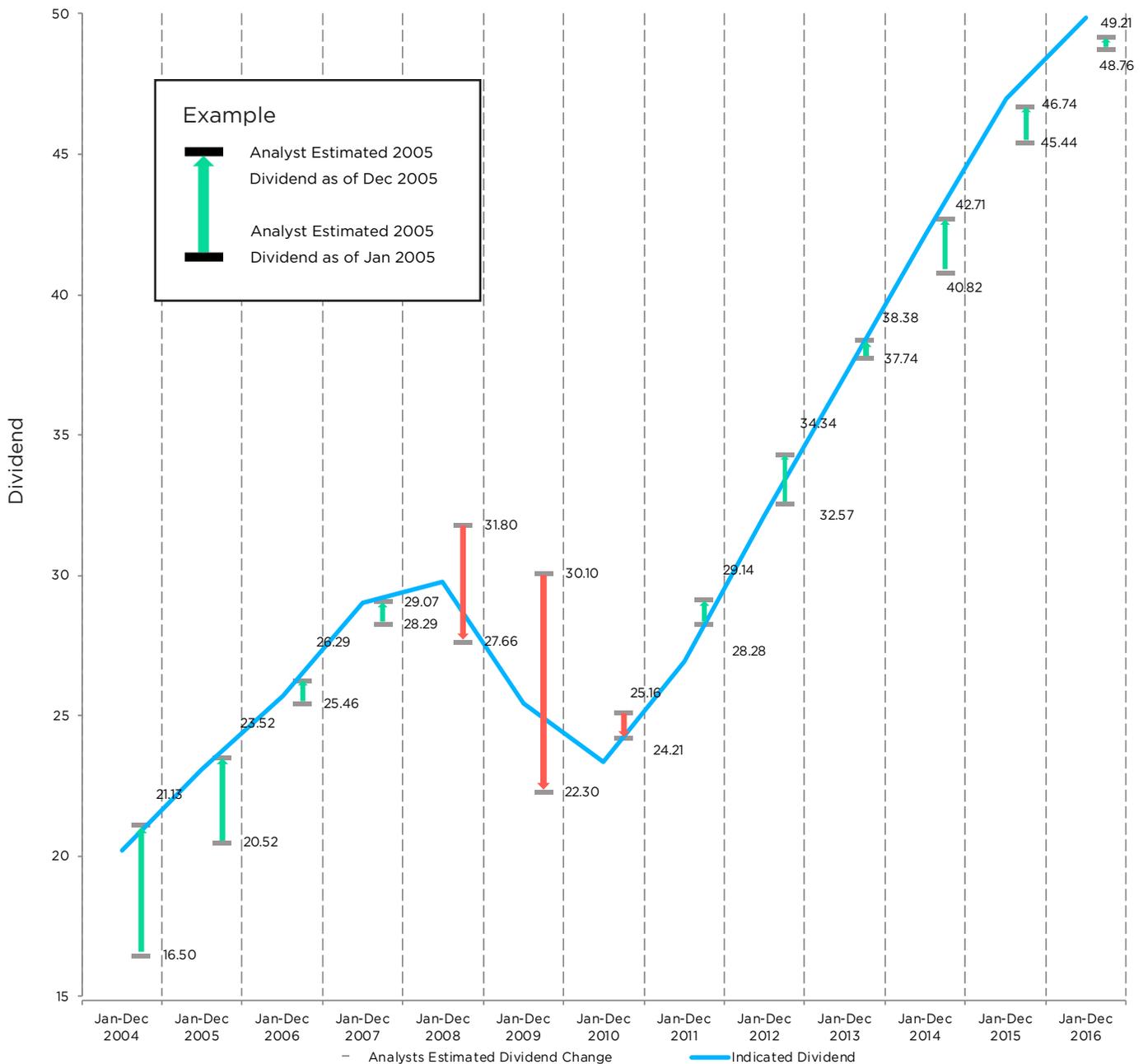
² <https://edge.credit-suisse.com/Edge/public/bulletin/ServeFile.aspx?FileID=24848&m=-187350540>

We break down each of these factors in detail below.

1. Systematic underestimation of index level dividends by analysts

At the index level, the potential changes in the composition of the index further add to its complexity. At an index level, we believe analysts tend to underestimate dividends. For example, during the period from Jan. 2004 – Dec. 2016, analysts have upgraded the 1-year forward dividend estimates in 10 of 13 years.

ANALYSTS ESTIMATED 1Y FORWARD DIVIDEND AT THE BEGINNING AND THE END OF THE YEAR*



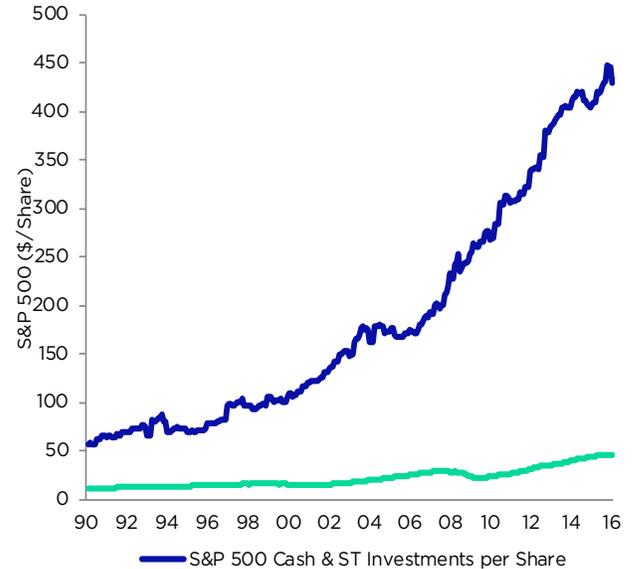
* Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

2. High level of cash per share as a multiple of dividends in S&P 500 Index

Dividends are the end result of a company's willingness to pay dividends, measured by payout ratio, and the ability to pay dividends, measured by earnings, cash flow and cash levels. In the S&P 500, while the ability to pay dividends as measured by cash per share has increased over time, the willingness to pay dividends, measured by payout and cash level to dividends ratio, has decreased over time. Though cash levels and dividends of the S&P 500 are at all-time highs, the cash level to dividends multiple is higher than the historical average, indicating a possibility of above average dividend growth rates in the future. The cash level per share for the S&P 500 index is 9.2x 2016 dividends compared 4.5x dividends in 1990.

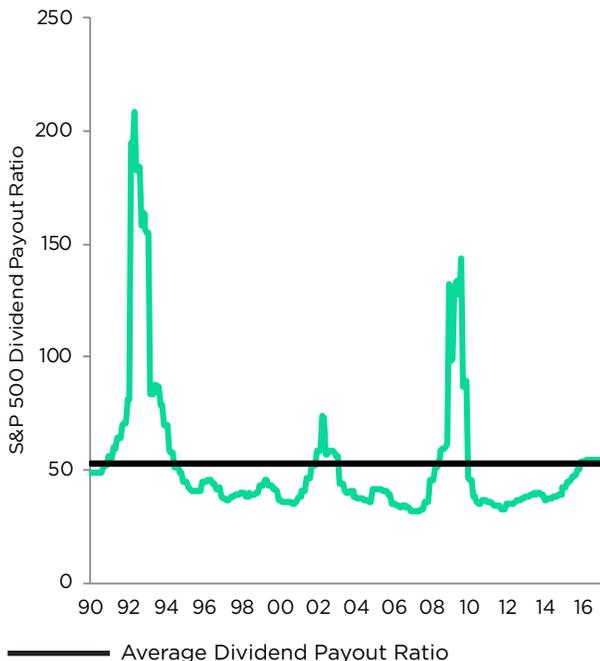
CASH & SHORT TERM INVESTMENTS/SHARE GROWTH

(1990 - 2016)*



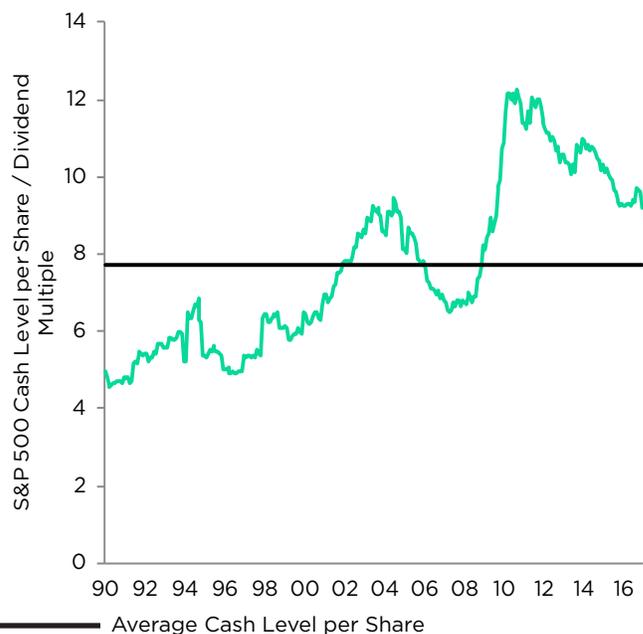
S&P 500 DIVIDEND PAYOUT RATIO

(1990 - 2016)*



S&P 500 CASH LEVEL PER SHARE / DIVIDEND MULTIPLE

(1990 - 2016)*



* Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

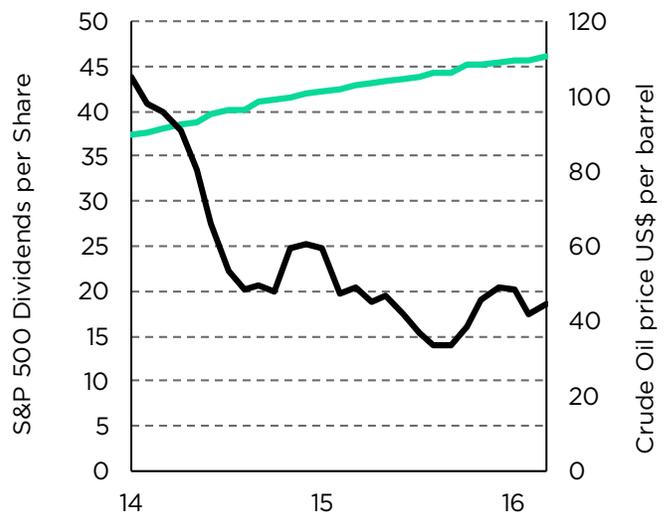
3. Sector diversification benefits of index dividends

Index dividends offer the benefit of diversification. The recent fall in crude oil prices illustrates this point, as crude has fallen 57% as of Aug. 2016 against its Jun. 2014 peak. The Energy sector, once one of the major contributors to S&P 500 index dividends, has had its dividend share of the S&P 500 drop from 12.04% in Dec. 2014 to 9.58% in Jun. 2016. This is largely due to dividend cuts coming from oil companies. The recent fall in oil prices however did not impact the S&P 500 dividend per share, which increased 23% during the period from Jun. 2014 – Aug. 2016.

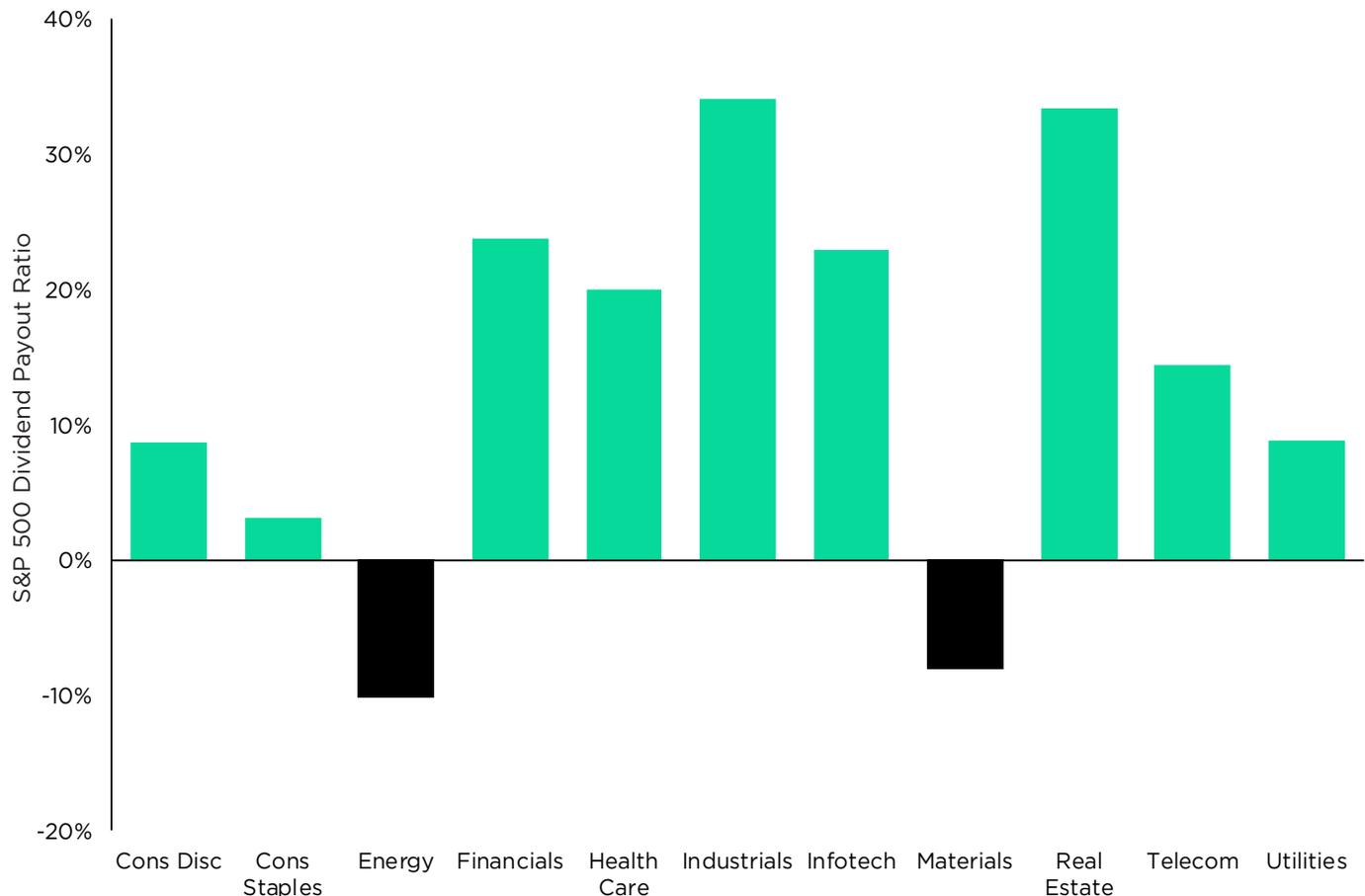
Energy sector dividends fell by 10% from Q2 2014 to Q2 2016. This fall in Energy sector dividends however was more than compensated by a rise in other sector dividends. The top three sectors growing their dividend during this period were Industrials (34.2%), Real Estate (33.4%) and Financials (23.8%).

S&P 500 DIVIDENDS VS OIL PRICE

(June 2014 - Aug 2016)*



S&P 500 SECTOR DIVIDEND GROWTH (Q2 2016 VS Q2 2014)*



* Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

4. Cushion provided by buybacks at times of crises

Another factor providing stability for dividends is the cushioning buybacks provide. During crisis periods, companies might decide to try and maintain dividends by cutting back on buybacks, as investors do not view the reduction in buybacks as negatively as they do dividend cuts. This phenomenon of the reducing buybacks in favor of dividends has been confirmed by in studies by Lintner (1956) and by Brav, Graham, Harvey, and Michaely (2005). In a recent example, S&P 500 Energy firms during the credit crisis of 2008 increased dividends payments by 3.8% from USD 23.35 billion in 2008 to USD 24.23 billion in 2009. During the same period, they reduced buybacks by 70%, cutting them from USD 61.22 billion in 2008 to USD 21.79 billion in 2009, helping Energy companies weather the crisis.

In a recent example, S&P 500 Energy firms during the credit crisis of 2008 increased dividends payments by 3.8% from USD 23.35 billion in 2008 to USD 24.23 billion in 2009. During the same period, they reduced buybacks by 70%, cutting them from USD 61.22 billion in 2008 to USD 21.79 billion in 2009, helping Energy companies weather the crisis.

5. Recalibration of buybacks vs dividends

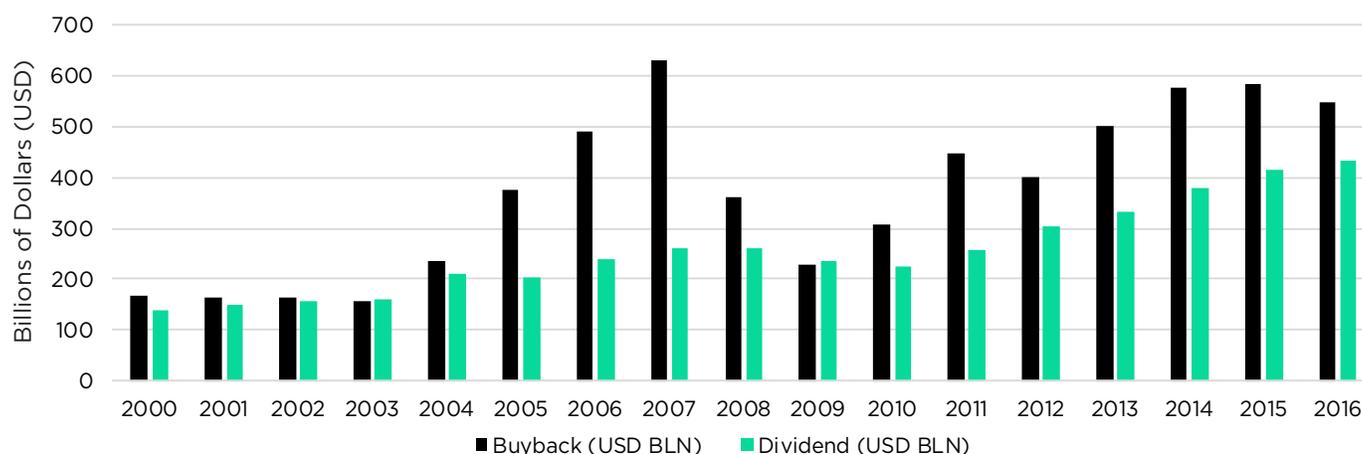
Of the total capital returned to shareholders, one factor capable of boosting dividend growth is the increase in the share of dividends in comparison to buybacks. The share of buybacks in the S&P 500 companies has increased over time. In 1985, only 52 share repurchases were authorized, according to Birinyi Associates. In 2013, there were 885.

Shareholders have recently laid much criticism regarding buybacks and their value creation. In 2016, S&P 500 company share repurchases, at USD 595 billion, were almost 30% higher than dividends, which were at USD 431 billion. Furthermore, the all-time high for annual S&P 500 buybacks occurred in 2007 (USD 629 billion), just prior to the steep market decline, leaving investors baffled. Unfortunately, larger buybacks usually occur at elevated market prices instead of when prices are low, defying market wisdom and the adage of buying low and selling high.

The stage may already be set for a reduction in buybacks, as during Q1 2017, buybacks fell by 17% compared to Q1 2016 despite cash and cash equivalents having increased 11.0% to a record \$1.497 trillion. This can indicate that the reduction in buybacks is not due to financial strain but instead a shift in corporate strategy, as companies look to conserve and reallocate cash for other expenditures including future dividend growth.

S&P 500 BUYBACKS VS DIVIDENDS*

2000-2016



* Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

6. Emergence of new cash rich sectors

We also have relatively new dividend payers emerging in sectors in which earnings and cash flows have stabilized as of late. Industry maturity is a major factor in the determining of payout ratios. The Info. Tech. sector for example was a growth sector in the last decade, and major cash was invested back into business expansion. As many of these new age tech firms developed into mature companies however, they started paying regular dividends. As of Q1 2017, the Info. Tech. sector is the largest contributor to S&P 500 dividends with a share of 15.55% compared to 10.3% at 2011's year-end. In Q1 2017, the sector also had the highest share of S&P 500 cash on balance sheets, 44%, of USD 658 billion. There is a high probability that a portion of that cash will be distributed as dividends.

7. Bank regulation

Banks are constrained by regulations such as Dodd Frank Act and Basel III to reduce and maintain their leverage at prescribed levels. Investment banks dealing with structured products create flow of derivative transactions on behalf of their clients. This flow results in increased leverage due to dividend risk exposure. Banks systematically sell dividends to hedge dividend risk and maintain optimal leverage.

Other studies related to the performance of isolated dividend growth

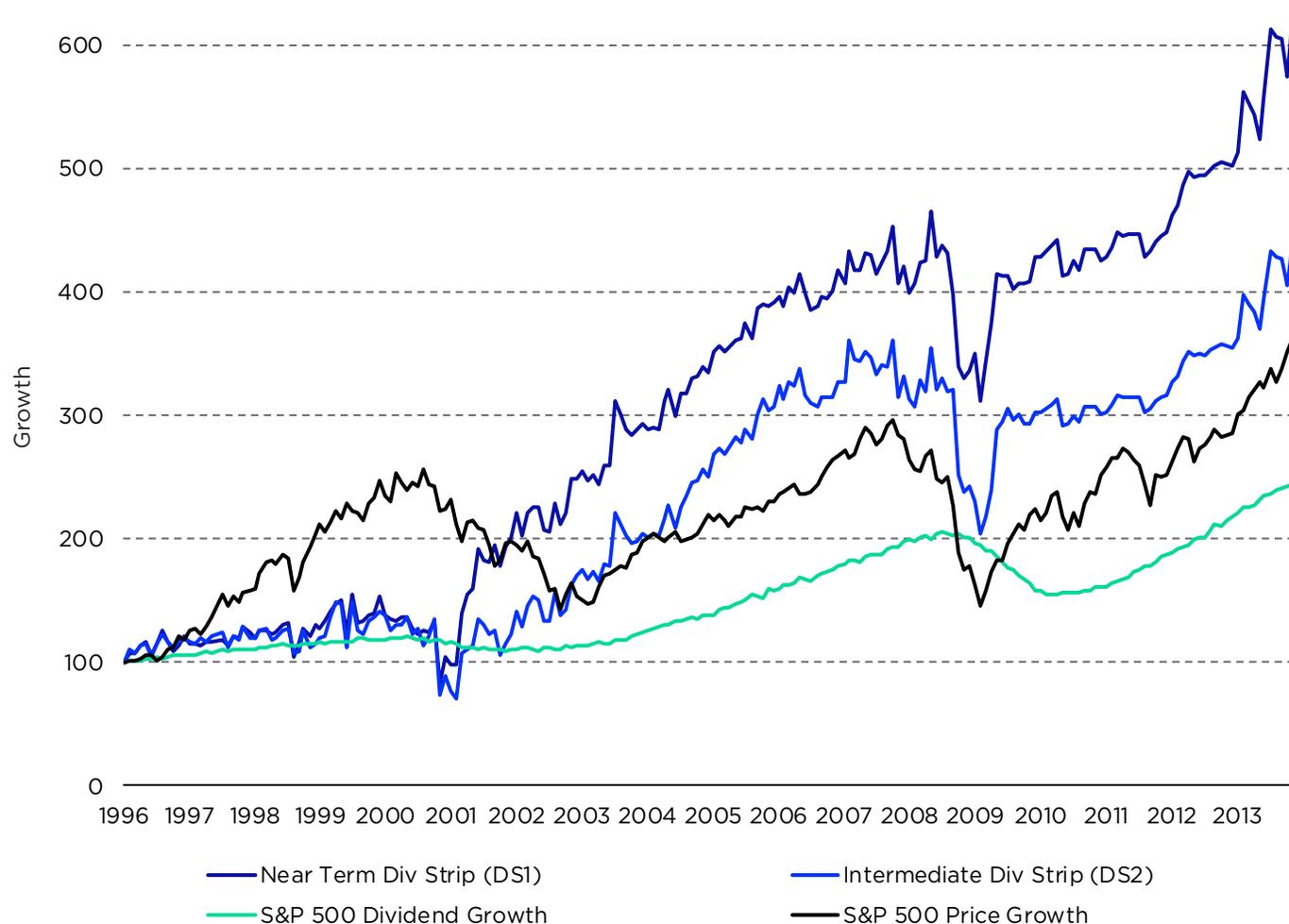
Some studies emerged evaluating the performance of isolated dividend growth strategies in the S&P 500. In one study “On the Timing and Pricing of Dividends”, van Binsbergen, Brandt & Kojien (2011) showed how dividend strips have outperformed the S&P 500 index over a longer time horizon - Jan. 1996 - Dec. 2013.

They used S&P 500 index option data to price dividend strips. The two strategies used in the study are as follows:

- › Near term dividend strip (DS1) - Holding a long position in the short-term isolated dividends
- › Intermediate term dividend strip (DS2): “Dividend Steepener” involves the holder to the dividends being paid out between period T1 and T2. Buy T2 period dividends and sell T1 period dividends. The resultant position is long dividends paid out between T1 and T2.

DIVIDEND ISOLATION STRATEGIES VS. S&P 500 DIVIDEND AND PRICE GROWTH¹

(Jan. 31 1996 - Jan. 31 2013)



¹ Source: van Binsbergen, Brandt, and Kojien, Deutsche Bank, Reality Shares Research, Compustat. Past performance does not guarantee future results.

*Note this series is appended starting 10/30/2009 with updated OTC dividend swap data from Deutsche Bank through 1/31/2013

**<https://edge.credit-suisse.com/Edge/public/bulletin/ServeFile.aspx?FileID=24848&m=-187350540>

The volatility of the strategies is higher than that of the S&P 500 index, due to the use of options data in the analysis.

The dividend strip strategy, also known as a “Jelly Roll,” uses four index options and corresponding interest rate futures. In total, the strategy uses no fewer than eight securities. In practice these eight securities can be traded and quoted over the counter very effectively with minimal deviation in price. However, for historical research purposes, the researcher’s data is limited to the listed option markets alone. Because each option trades independent of the entire combination, this adds a high degree of artificial noise to the data. To further illustrate this, below we compare the listed spread of each individual component of a jelly roll combination on the S&P 500 index to the over-the-counter quoted spread given on a randomly selected day (November 16, 2016).

S&P 500 Index 2100 Strike¹

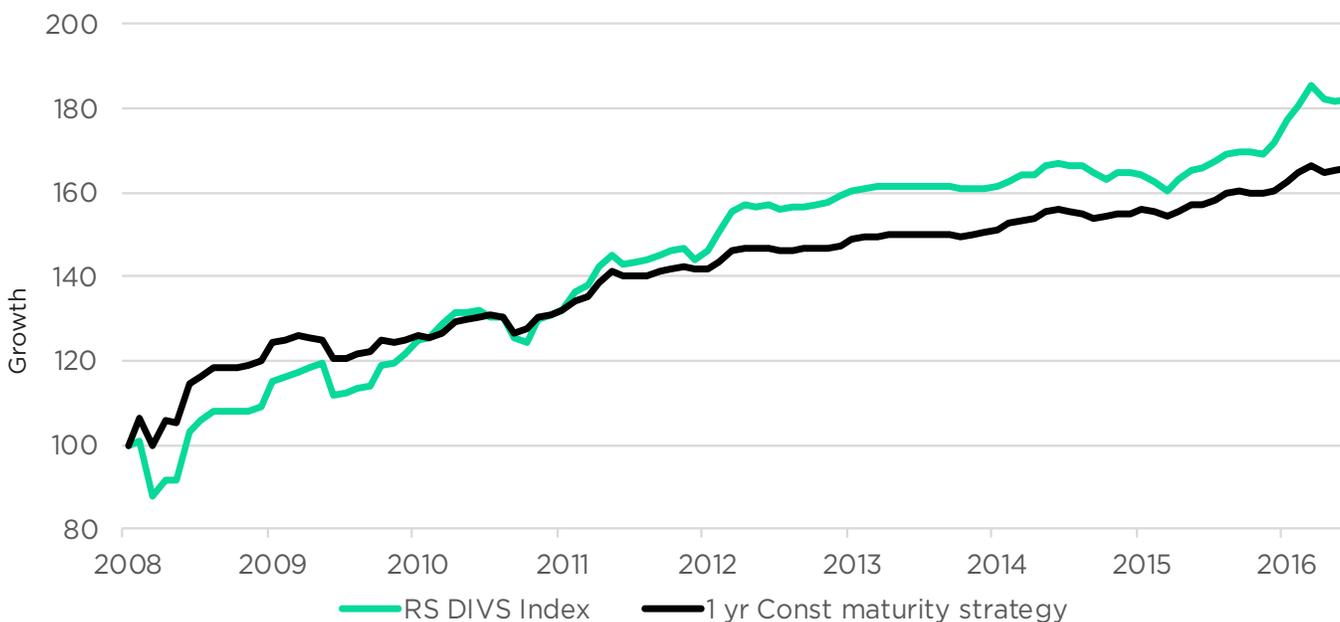
Dec 2016 - Dec 2017 Jelly Roll Combo

Listed				OTC		
Bid	Mid	Offer		Bid	Mid	Offer
\$14.80	\$19.60	\$24.40		\$19.50	\$19.75	\$20.00
Spread \$9.60			vs.	Spread \$0.50		

Another study by Georg Cejneky, Otto Randl (2015) is based on a strategy with constant 1-year maturity (C1YM) using index dividend swaps for the period Jan. 2006 – Dec. 2015. They arrive at the C1YM by investing 52 units in the near term swap and 0 units in the next term swap at the start of the year (the 3rd Friday in December). In the subsequent week, they increase the exposure to next-term swaps by 1 unit while decreasing the exposure to near-term swaps by 1 unit. By the end of the year, exposure to near term swaps would have reduced to 0. This strategy is reported in the Credit Suisse 2013 equity derivatives strategy commentary** as well.

1 YEAR CONSTANT MATURITY S&P 500 DIVIDEND SWAPS VS RSDIVS INDEX

(Jan 2009 - May 2017)²



1 Source: van Binsbergen, Brandt, and Kojien, Deutsche Bank, Reality Shares Research, Compustat. Past performance does not guarantee future results.

*Note this series is appended starting 10/30/2009 with updated OTC dividend swap data from Deutsche Bank through 1/31/2013

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2 Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

OVERALL RISK VS. RETURN (JAN. 2009 - MAY 2017)¹

	RSDIVS Index	C1YM Strategy
ANNUALIZED RETURN	7.4%	5.5%
ANNUALIZED RISK	8.3%	6.2%

Though the RSDIVS Index outperformed the C1YM strategy from Jan. 2009 – May. 2017, for most years, overall volatility was lower for C1YM.

The results from the 2015 Cejneky and Randlz study show that the C1YM strategy outperformed the underlying index against the Euro Stoxx 50, FTSE 100 and Nikkei 225 indexes but underperformed against the S&P 500. The overall performance numbers have been lower for the S&P 500 however, in comparison to other indexes. This contrasts with the van Binsbergen, Brandt & Kojien study in which S&P 500 dividend strips outperformed the underlying index. One major assumption depressing the performance of the C1YM strategy for the S&P 500 is the abnormally high trading costs assumed for S&P 500 dividend swaps compared to other indexes, as shown to the right².

CALENDAR YEAR RETURNS¹

	RSDIVS Index	C1YM	SPX TOT. RET.
2017	2.8%	1.8%	8.7%
2016	7.7%	4.4%	12.0%
2015	1.9%	3.3%	1.4%
2014	0.5%	1.3%	13.7%
2013	9.9%	5.1%	32.4%
2012	10.7%	7.4%	16.0%
2011	5.4%	4.8%	2.1%
2010	8.5%	1.2%	15.1%
2009	15.3%	24.4%	26.5%

Index	C1YM strategy trading costs ²
Euro Stoxx 50	0.49%
S&P 500	1.81%
FTSE 100	0.28%
Nikkei 225	0.28%

These trading costs are in no way representative of actual market reality. See below for the average bid-ask spread as of Nov 16th, 2016 in the following listed markets. Like any derivative, the listed screen market is typically wider than an actual tradeable quote. We further analyzed every trade made by Reality Shares in S&P 500 Dividend Swaps for the period between September 2015 and October 2016. The average trade price was within 12bps of the midpoint implying a total spread of 24bps. It is also important to note, that friction from total spread cost is only incurred to the extent that swaps are bought AND sold. In practice, shorter term Dividend Swaps would be held to maturity incurring only half of the total spread as friction. The strategy deployed by Cejneky and Randlz, selling and buying a fraction of the swap every week works well for research purposes, but not in practice. The results of their research would have been more representative of actual market performance had they used a spread cost between 20-50bps.

Dividend Futures ¹	Bid	Ask	Spread	Spread %
2016 S&P 500 Annual Dividend Index Future	45.4	45.65	0.25	0.55%
2015 FTSE 100 Dividend Index Future	254.1	255.7	1.6	0.63%
2016 Nikkei Dividend Index Future	327	329	2	0.61%
2016 Euro Stoxx 50 Dividend Future	118.4	118.5	0.1	0.08%

1 Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

2 Source: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2374023. Past performance does not guarantee future results. As of December 31, 2015.

Another difference between the two studies is that van Binsbergen, Brandt & Kojen used dividend strips, while Cejneký and Randlž used dividend swaps. Dividend strips can be considered a combination of dividend swaps with the swap notional value invested in bonds. The additional bond returns can increase the overall returns in comparison to a dividend swap only strategy. To get an idea of the return contribution from investing the dividend swap notional value in government bonds, we look at the performance of the ICE U.S. Treasury 1-3 Year Bond index (IDCOT1TR), below. From Dec. 31, 2004 - May. 31, 2017, this index delivered a cumulative return of 31%, which is equivalent to a 2.21% annualized return. Regardless of the tool, dividend swaps or option combinations, the collateral would always be invested in interest-bearing securities. Therefore, it is an important part of the overall equation when evaluating the merits of such a strategy, contributing perhaps more than half of the annual return.

ICE U.S. TREASURY 1-3 YEAR BOND INDEX (IDCOT1TR)

(31st December 2004 - 31st May 2017)*



S&P 500 dividends versus other major indexes

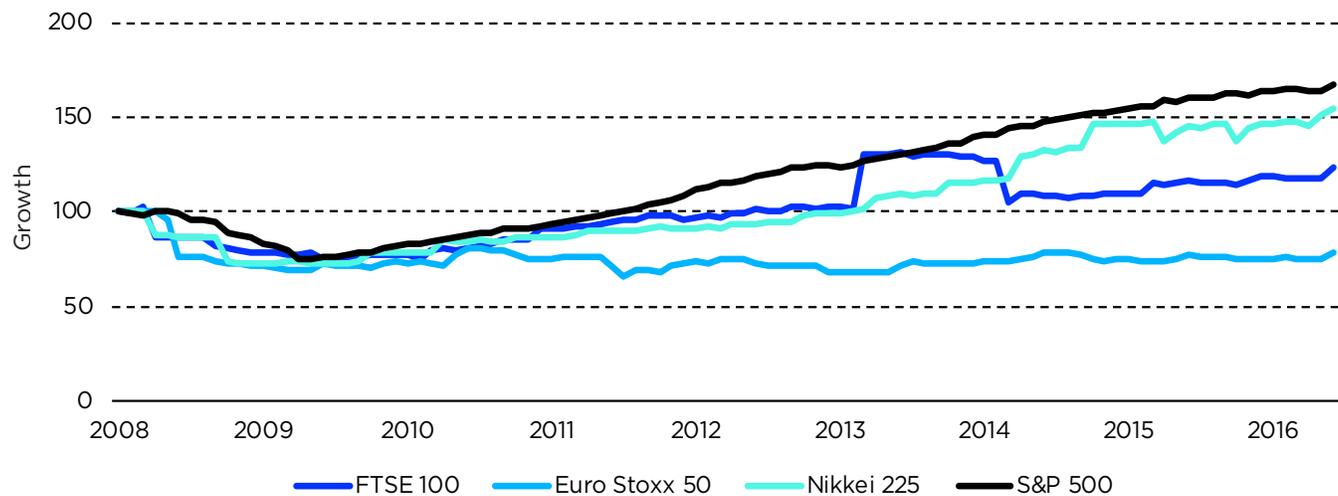
The Cejneký and Randlž study authors suggest that international diversification provides better benefits than a domestic S&P 500 strategy, as the other indexes have a higher DRP. The higher dividend risk premium for other indices, when compared to S&P 500, is accompanied by higher risk than in the C1YM strategy. We believe the higher DRP for other indexes is due to greater uncertainty in dividends in comparison to the S&P 500. S&P 500 dividends have better growth potential and stability compared to other indexes when compared on factors like payout ratios and cash per share.

In the relative growth of dividends per share for the S&P 500, FTSE 100, Euro Stoxx 50 and Nikkei 225 over the period Jan. 2009 - May 2017, S&P 500 dividends grew by 67%. This is in comparison to 55% for the Nikkei 225 and 24% for the FTSE 100. Meanwhile, Euro Stoxx 50 dividends fell by 22% over this same timeframe.

* Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

DIVIDEND GROWTH FOR MAJOR INDICES (INDEXED TO 100)

Jan 2, 2009 - May 31, 2017*



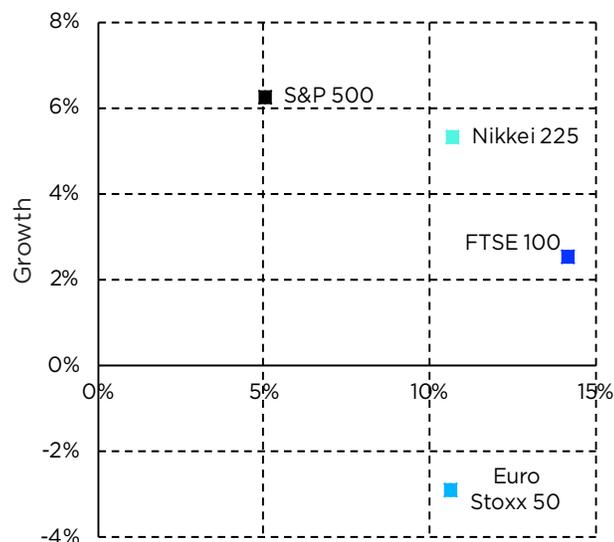
S&P 500 dividends were also less volatile and exhibited a better risk/return profile in comparison to the FTSE 100, Euro Stoxx 50 and Nikkei 225. The long term average of the S&P 500 dividend payout ratio is lower compared to the other indexes, indicating the potential for additional dividend growth. In the FTSE 100 and Euro Stoxx 50, companies distribute more than 70% of their earnings as dividends. Because of this, their dividends are expected to be more exposed to earnings volatility.

The growth of cash per share for the S&P 500 has been more robust compared to the other indexes. The S&P 500 cash per share grew 270% from Jan. 2002 to May. 2017, compared to growth of 108% in the FTSE 100, 106% in the Nikkei 225 and 65% in the Euro Stoxx 50.

S&P 500 dividends were also less volatile and exhibited a better risk/return profile in comparison to the FTSE 100, Euro Stoxx 50 and Nikkei 225

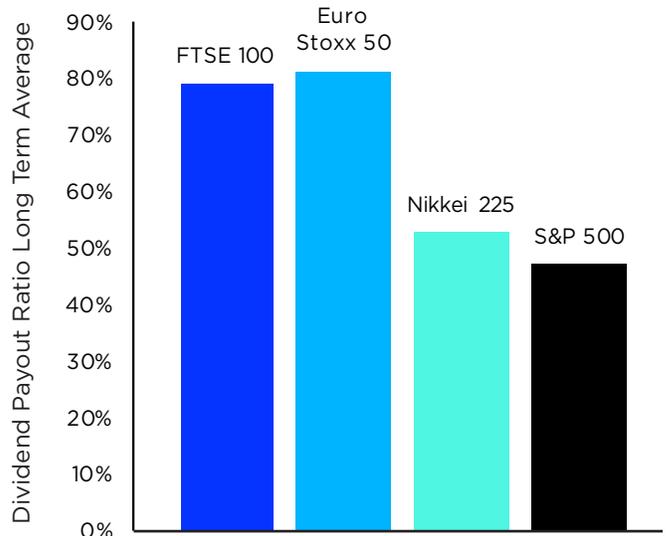
RISK RETURN PROFILE OF INDEX DIVIDEND

Jan 2, 2009 - May 31, 2017*



INDEX DIVIDEND PAYOUT RATIO LONG TERM AVERAGE

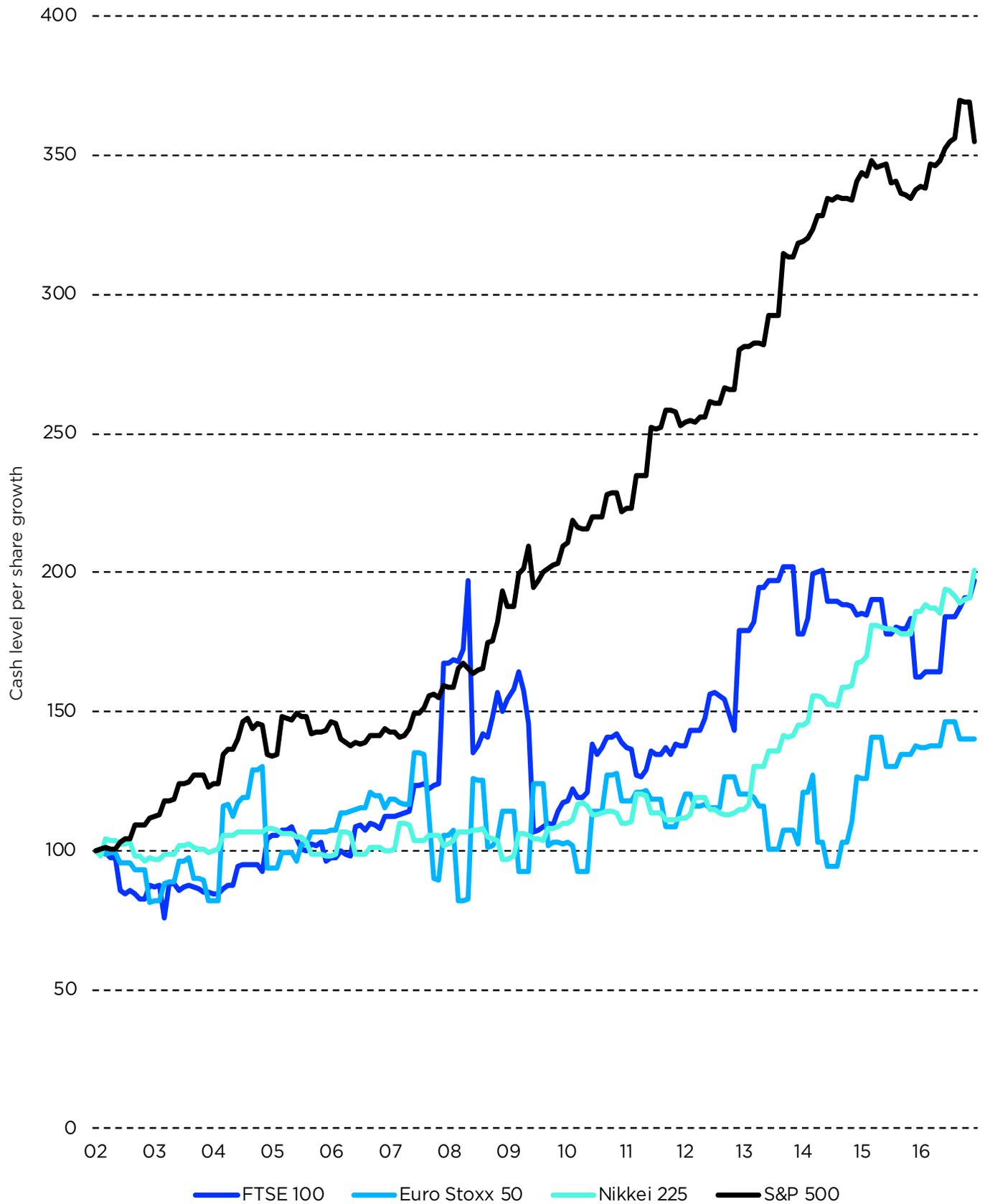
Jan. 2, 2009 - May. 31, 2017*



* Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

CASH LEVEL PER SHARE OF MAJOR INDICES (INDEXED TO 100)

Jan. 31, 2002 - May. 31, 2017*



*Source: Bloomberg, Reality Shares Research. Past performance does not guarantee future results.

Conclusion

By looking at the emergence of dividends as a separate asset class and studying the various avenues available for investing in isolated dividend growth, Realty Shares developed the RSDIVS Index as based on S&P 500 dividend swaps.

The RSDIVS Index utilizes swaps in the S&P 500 after discovering that though international stock markets might offer more value and growth potential, the underlying value was eroded by volatility in those markets the higher probability of dividend cuts in large cap companies when compared to S&P 500. When pricing in this risk, international companies no longer provided a notable value in our opinion. In comparison to other index dividends, S&P 500 dividends seem to offer better growth prospects with lower volatility looking at factors including payout ratios and cash per share.

The DRP was analyzed for sources and sustainability, and it was shown that a few factors like the underestimation of index level dividends, the cushion from buybacks and historically high cash per share to dividend multiple may provide sustainability for the DRP in the future.

DIVY, an ETF tracking the RSDIVS Index, has been shown to have a number of beneficial characteristics making it a potentially compelling investment products for a variety of purposes. These characteristics include:

- » Recently dividends have outperformed equities and earnings
- » Dividends have had greater persistence and lower drawdowns than earnings, cash flow, share price
- » Dividend growth typically had lower volatility than equities and a favorable risk/return profile
- » Lower correlation to equities and other assets
- » Dividends may act as an inflation hedge
- » Historically S&P 500 dividend growth offered diversification during rising rate environments

DIVY also, despite its careful management and use of S&P 500 dividend swaps, maintains a relatively low expense ratio of just 0.85%. In a number of ways, DIVY was designed to offer the general public a rare opportunity: the chance to invest in a potentially highly favorable yet relatively new and misunderstood investment strategy.

DIVY can have low correlation and low volatility characteristics, allowing it to potentially help investors cut out the noise in the market. Due to its focus on a more stable long-term growth, DIVY also exhibits an attractive risk/return profile when compared to other asset classes and alternative funds. DIVY may serve as a strategic replacement for bond allocations, especially during times of market volatility and rising rates, as the strategy offers attractive characteristics in portfolio building.

ACCESS THE FUTURE OF DIVIDEND GROWTH

At Reality Shares, we focus solely on dividend growth investing and offer a range of ETFs pinpointing and capitalizing on investments in the stocks most likely to increase their dividends. Our proprietary DIVCON™ model systematically ranks companies' future dividend growth prospects based on seven quality factors that are correlated to dividend growth. DIVCON was designed to also help avoid the stocks more likely to cut their dividends. Our rules-based, forward-looking methodology sets us apart in the market and allows investors to access and harness the power of dividend growth investing.

Reality Shares offers four unique ETFs, **POWERED BY DIVCON™**, that deliver access to the benefits of dividend growth investing:

LEAD



Investing in the dividend growth leaders

DFND



Long dividend growers and short dividend cutters

GARD



Long dividend growers with a dynamic market hedge

DIVY



Isolating and accessing the dividend growth rate

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Shares of the Fund are bought and sold at market price (not NAV) and are not individually redeemed from the Fund. Brokerage commissions will reduce returns. Market Price is based on the midpoint of the bid/ask spread at the close of the market and does not represent the returns an investor would receive if shares were traded at other times.

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RLT000514 Exp. 10/31/2017.