

# S&P Dow Jones Indices

A Division of **S&P Global**

## The Energy Effect...



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Since the oil market share war began in the summer of 2014, oil's decline has affected multiple asset classes. The S&P GSCI Crude Oil (TR) lost over 80% from June 20, 2014, until its bottom on Feb. 11, 2016. Although the prices are still generally considered low, crude oil has rebounded about 50% on a total return basis. Additionally, volatility has calmed and the correlation between oil and stocks is starting to fall.



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However, even as the oil industry starts to recover, more questions remain from the Brexit vote, the upcoming U.S. presidential election, and lingering volatility in the Chinese stock market. Other economic factors, like the strength of the U.S. dollar, interest rates, and inflation, are now joined by oil as major drivers of markets around the world.

Though the correlation between oil and other asset classes is generally low, there are varying degrees of correlation and even a few surprises. For example, Canadian equities are more correlated with oil than are the emerging markets and U.S. equities; Australian equities are barely correlated with oil; and China, which is not nearly as big a producer as a consumer, has equities that are

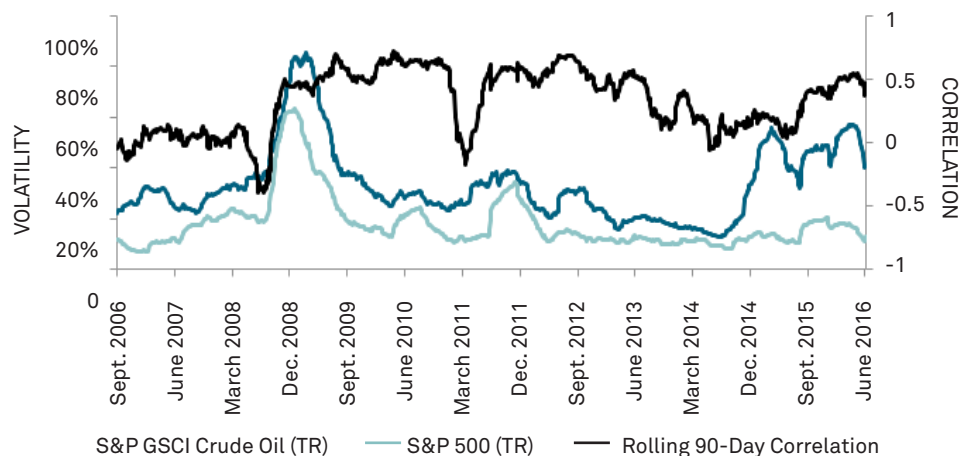


**Philip Murphy, CFA**  
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**EXHIBIT 1: 90-DAY ANNUALIZED VOLATILITY AND CORRELATION OF OIL AND STOCKS**

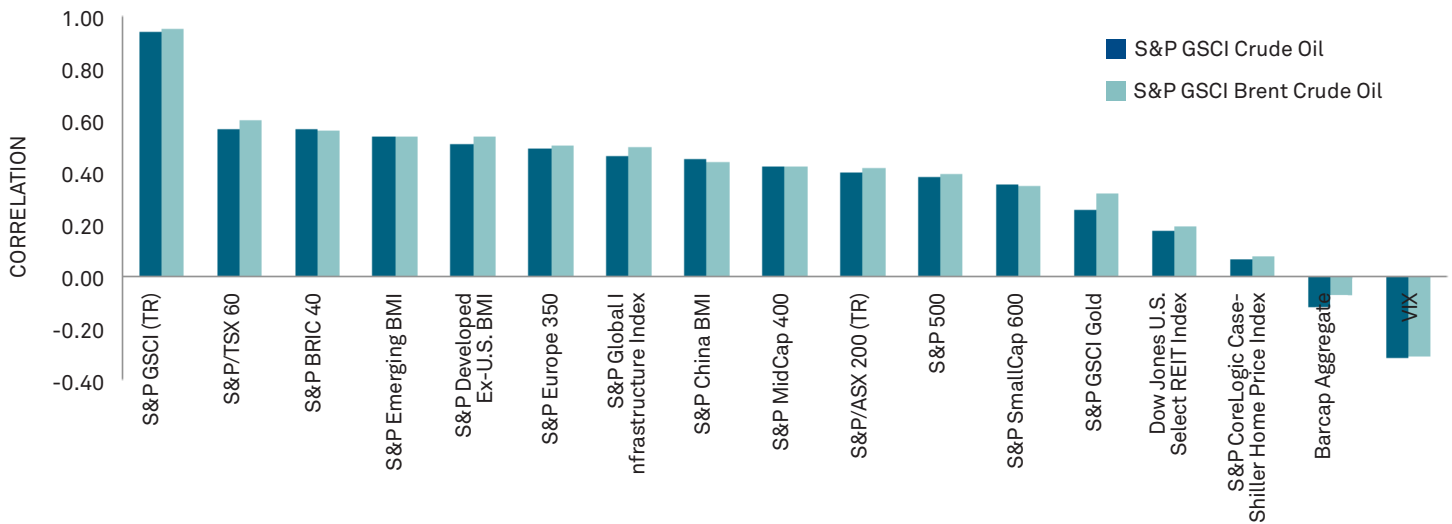


**Jason Giordano**  
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Source: S&P Dow Jones Indices LLC. Data from September 2006 to June 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

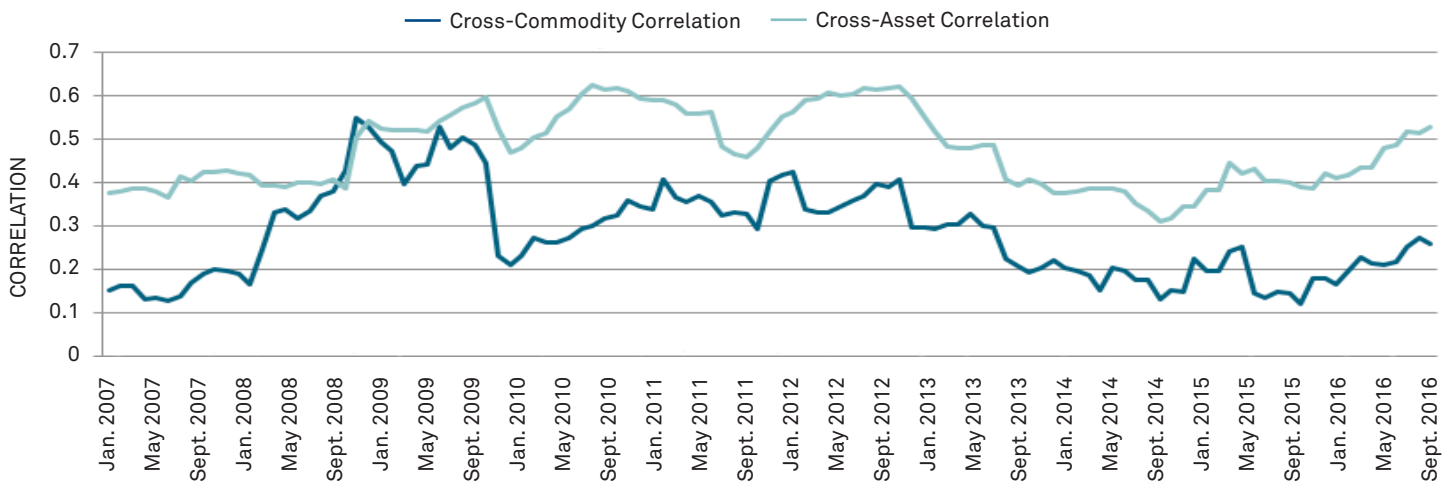
<sup>1</sup> A correlation of +1.0 is perfectly positive, indicating assets move in lockstep, a correlation of 0 indicates no relationship, and a correlation of -1.0 is perfectly negative, indicating opposite movement. Generally, the more negatively correlated the assets, the more diversification.

## EXHIBIT 2: CRUDE OIL CORRELATION TO OTHER BENCHMARKS



Source: S&P Dow Jones Indices LLC. Data from January 2004 to December 2014. Past performance is no guarantee of future results. Chart is provided for illustrative purposes. Note: the S&P GSCI Crude Oil measures WTI crude oil.

## EXHIBIT 3: CORRELATION ACROSS COMMODITIES AND ASSETS



Source: S&P Dow Jones Indices LLC. Data from January 2007 to May 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

moderately correlated with oil. Oil is not as oppositely correlated to gold as many think; they have a relatively weak positive correlation of 0.32. While gold straddles the line between a low-to-moderate positively correlated relationship with oil, a few other assets have shown more diversification

historically. Real estate and bonds show little relationship with oil, with correlations of 0.18 (REITs) and 0.07 (the S&P CoreLogic Case-Shiller Home Price Index), but VIX® is the one asset with an even moderately negative correlation with oil, at -0.32. The correlation has increased across commodities and other asset classes,

so picking winning asset classes may be more challenging today than before the oil crash.

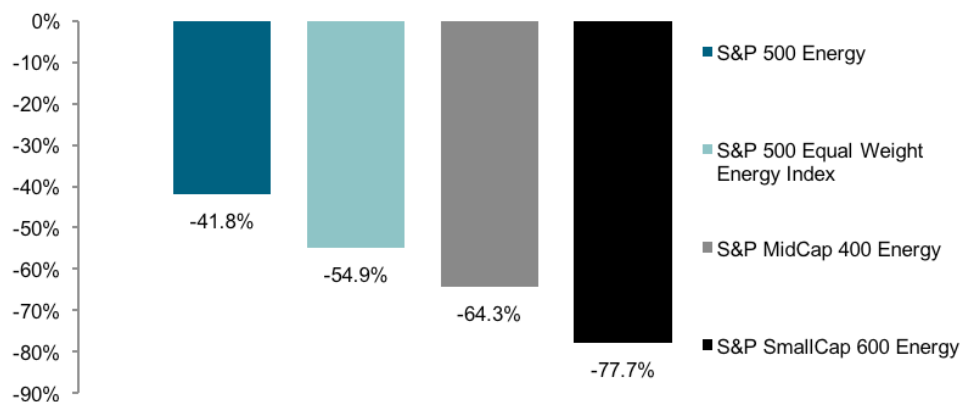
What follows is a series of pieces that explore the impact oil has on specific asset classes to help explain the sensitivities unique to each.

## ...On U.S. Equity

Since the second half of 2014, turmoil in the global crude oil market has severely affected the profits of U.S. energy companies. The effect on share prices was most strongly felt among smaller companies; therefore, the higher the weighting of small-cap shares within energy sector benchmarks, the greater the drawdown. Since February 2016, prices have rebounded significantly, but energy sector indices are still a long way from previously recorded peaks. In the most dramatic example, the S&P SmallCap 600 Energy experienced a drawdown of almost 78%, based on monthly price return index levels, from its peak at the end of June 2014 through February 2016.

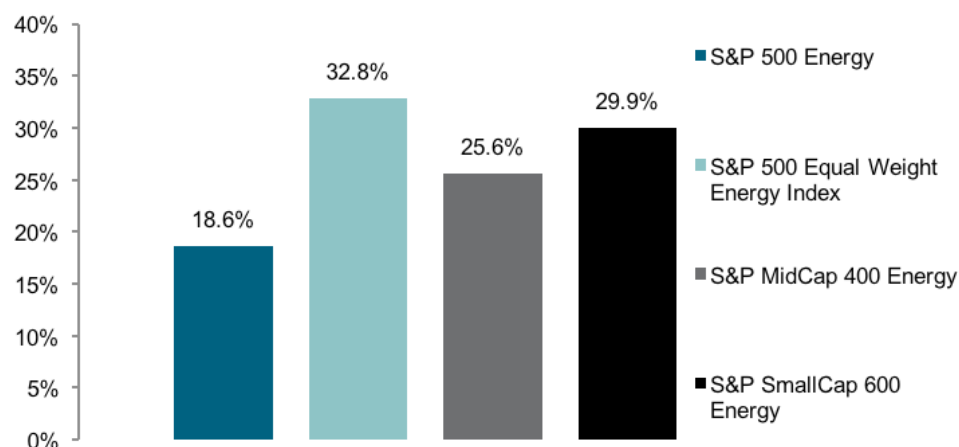
At the end of June 2014, the market value of companies in the S&P SmallCap 600 energy sector was almost USD 37.2 billion. Most were categorized in the “Oil & Gas Equipment & Services”<sup>2</sup> or “Oil & Gas Exploration & Production”<sup>3</sup> sub-industries of the Global Industry Classification Standard (GICS). Index constituents had a great deal of involvement in exploration and production activities, but not much in refining and other downstream businesses that might have mitigated the effects of the bear market in oil. As of February 2016, the market cap of companies in the energy sector of the S&P SmallCap 600 was about USD 13.2 billion.

**EXHIBIT 1: DRAWDOWNS**



Source: S&P Dow Jones Indices LLC. Calculations based on monthly price return index levels. Data from June 2014 to February 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

**EXHIBIT 2: SHARE PRICE RECOVERY**



Source: S&P Dow Jones Indices LLC. Calculations based on monthly price return index levels. Data from February 2016 to July 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

In hindsight, the earnings multiple of the small-cap energy sector in the first half of 2014 seems extreme, but it is trivial to identify such inflection points in historical data. Recognizing them in real time,

under future uncertainty, is another game altogether. At the end of Q1 2014, the S&P SmallCap 600 Energy (Price Return) closed at 1,850.84. The trailing four quarters as reported (GAAP) index earnings per share

<sup>2</sup> The GICS sub-industry description is, “Manufacturers of equipment, including drilling rigs and equipment, and providers of supplies and services to companies involved in the drilling, evaluation and completion of oil and gas wells.”

<sup>3</sup> The GICS sub-industry description is, “Companies engaged in the exploration and production of oil and gas not classified elsewhere.”

(EPS), which would have been fully reported at the time (Q1 2013 to Q4 2013), was USD 14.60. Therefore, the price/earnings ratio (P/E) for trailing GAAP EPS was 126.8. The market evidently expected exciting earnings growth for small-cap energy shares going forward. Unfortunately for market participants buying into that narrative, the energy sector was about to peak. The S&P SmallCap 600 energy sector went on to higher highs for one more quarter. By close of trading in June 2014 the index stood at 1,966.26, with a trailing GAAP P/E of 169.4.

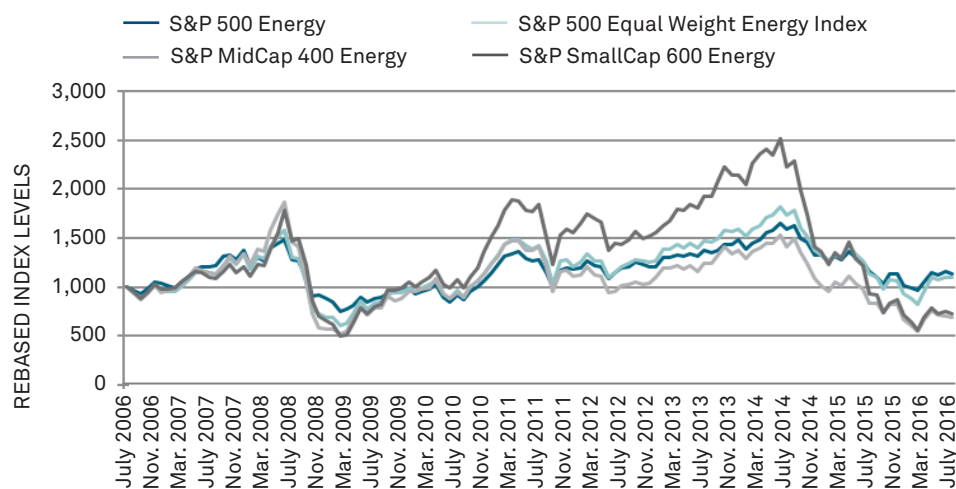
U.S. energy sector earnings peaked in late 2008, as the financial crisis ground on. For Q3 2008, S&P 500 energy companies together earned almost USD 55 billion (GAAP). For the same period, S&P MidCap 400 energy companies earned over USD 3 billion, and those in the S&P SmallCap 600 earned almost USD 1 billion. A steep, but short, contraction ensued in the last quarter of 2008, followed by several years of solid profitability. However, by the second half of 2014, as energy earnings turned negative, large firms had significantly greater amounts of previously retained earnings to cushion shareholder equity. Through Q1 2016, cumulative losses among S&P 500 stocks were only a fraction of the previous few years' cumulative profits—not so for the mid-cap and small-cap benchmarks. Firms in these indices suffered significant losses relative to previously accumulated profits. GAAP index losses for the S&P SmallCap 600 Energy from Q3 2014 to Q1 2016 amount to **over 11 times the previously recorded GAAP index profits** from Q2 2009 to Q2 2014.

### EXHIBIT 3: WTI CRUDE OIL FRONT-MONTH CONTRACT



Source: Factset. Data from Aug. 1, 2014, to Aug. 1, 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

### EXHIBIT 4: PERFORMANCE OF S&P U.S. ENERGY SECTOR BENCHMARKS



Source: S&P Dow Jones Indices LLC. Monthly price return index levels rebased as of July 2006. Data from July 2006 to July 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

### EXHIBIT 5: CUMULATIVE INDEX EARNINGS OF S&P U.S. ENERGY SECTOR BENCHMARKS

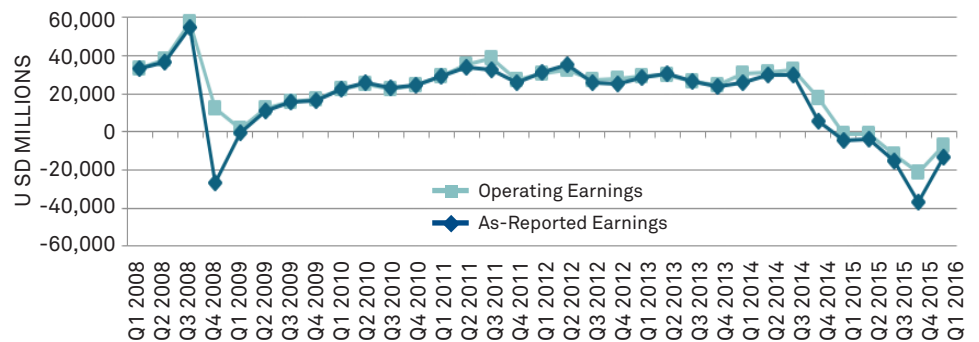
Index	GAAP Earnings From Q2 2009 to Q2 2014 (USD Millions)	GAAP Losses From Q3 2014 to Q1 2016 (USD Millions)
S&P 500 Energy	577,757	38,432
S&P MidCap 400 Energy	13,291	16,878
S&P SmallCap 600 Energy	1,079	12,337

Source: S&P Dow Jones Indices LLC calculations based on S&P Global Market Intelligence data. Data from Q2 2009 to Q1 2016. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

The bear market in oil detrimentally affected balance sheets across the entire U.S. energy sector. In the small-cap space in particular, where speculation of dynamic future growth had been built into share prices, the fallout was massive and would have been expected to lead to significant capital impairments for overexposed market participants. In spite of that, the energy sector in the U.S. carries on with perhaps greater endurance than many expected.

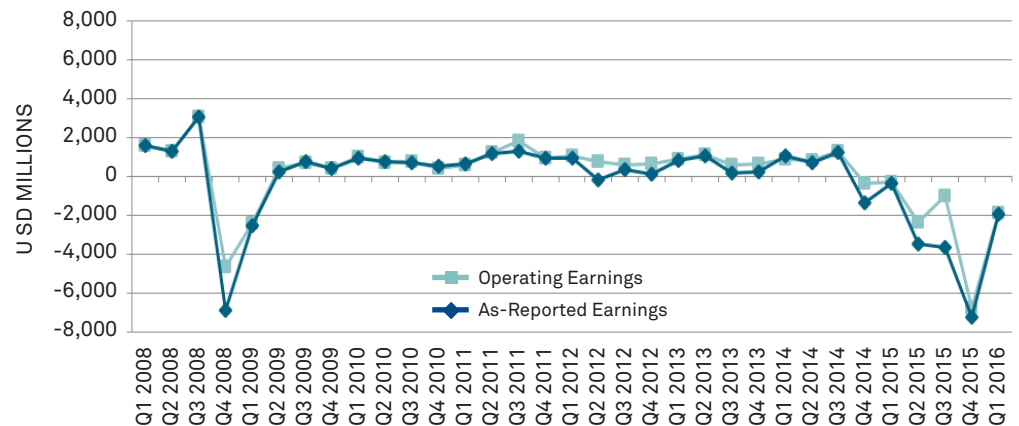
For foreign U.S. competitors, such as state-owned oil producers, the current oil market may represent an existential threat to society and government. The stakes for these nations are a lot higher than in the U.S. As deep as their pockets may be, resisting technological innovation could be a losing proposition in the long run. Keeping high-cost producers out of the market in the short run does not solve the long-term pricing problem. Modern exploration techniques may have essentially put a ceiling over the price of fossil fuels well into the future, which could be helpful for overall U.S. economic growth for a long time to come.<sup>4</sup>

**EXHIBIT 6: INDEX EARNINGS FOR S&P 500 ENERGY**



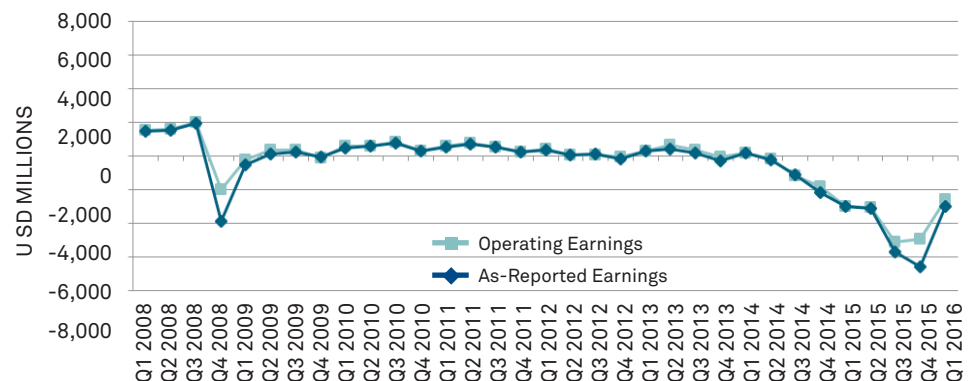
Source: S&P Dow Jones Indices LLC calculations based on S&P Global Market Intelligence data. Operating earnings calculated by Compustat. Data from Q1 2008 to Q1 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

**EXHIBIT 7: INDEX EARNINGS FOR S&P MIDCAP 400 ENERGY**



Source: S&P Dow Jones Indices LLC calculations based on S&P Global Market Intelligence data. Operating earnings calculated by Compustat. Data from Q1 2008 to Q1 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

**EXHIBIT 8: INDEX EARNINGS FOR S&P SMALLCAP 600 ENERGY**



Source: S&P Dow Jones Indices LLC calculations based on S&P Global Market Intelligence data. Operating earnings calculated by Compustat. Data from Q1 2008 to Q1 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

<sup>4</sup> Source: S&P Dow Jones Indices LLC.

## ...On Global Equity

Energy prices have long been an important driver of emerging market economies and global stock markets, and the crash in oil markets within the past few years (and subsequent recovery since early February 2016) has certainly been no exception. With all the recent focus on the uncharacteristically high correlation between oil and the U.S. and other developed equity markets, it should come as no surprise that the connection between emerging markets and oil has been high as well. In fact, it has had an even more profound influence.

Between June 25, 2014, and Feb. 11, 2016, the S&P GSCI Crude Oil, a key barometer for oil prices, plummeted 80% as oil markets fell. Over the same period, the S&P 500 declined 3.4%, interrupting the long-term bull market that had been in place in the U.S. since 2009. However, the impact on emerging markets was much more pronounced, as the S&P Emerging BMI dropped 27.5% in U.S. dollar terms. Because the decline in oil prices was accompanied (and partially driven) by significant strength of the U.S. dollar versus emerging market currencies, the S&P Emerging BMI in local currency terms declined a comparatively modest 11.7%.

Conversely, the recovery in oil prices since February 2016 has led to a substantial rebound in emerging market equities and currencies. Between Feb. 11, 2016, and June 30, 2016, the S&P Emerging BMI gained nearly 20% in U.S. dollar terms and 14.8% in local currency terms.

### EXHIBIT 1: PERFORMANCE OF EMERGING MARKETS DURING THE OIL CRASH AND SUBSEQUENT RECOVERY

Market	Crash		Recovery	
	USD (%)	LCL (%)	USD (%)	LCL (%)
Emerging Markets	-27.5	-11.7	19.6	14.8
Brazil	-59.3	-26.9	60.5	29.7
China	-15.7	-15.3	17.2	16.8
India	-13.0	-1.2	19.8	18.4
Russia	-48.0	5.0	38.3	15.2
Taiwan	-17.0	-7.9	12.3	8.8
S&P 500	-3.4	-3.4	15.7	15.7
Developed ex-U.S.	-20.7	-7.3	11.5	10.3

Source: S&P Dow Jones Indices LLC. Crash data from June 25, 2014, to Feb. 11, 2016. Recovery data from Feb. 11, 2016, to March 17, 2016. Index performance is based on total return in USD and local currencies. Crash is defined using daily peak and trough values of the S&P GSCI Crude Oil. The 2016 recovery is the gain in the S&P GSCI Crude Oil. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Interestingly, the S&P 500 has had nearly as strong a bounce-back in the same time period, up 15.7%, despite experiencing a far less harrowing decline.

Although emerging markets are typically grouped together as one asset category, it is important to remember that these countries differ dramatically across many dimensions, including their dependence on energy. For example, countries such as Brazil and Russia are heavily dependent on oil & gas revenue, while other large emerging markets, such as China, India, and Taiwan, are net importers of oil and should benefit economically from cheaper oil imports. These dynamics are reflected in the variation in returns among the largest emerging markets (see Exhibit 1), with Brazil and Russia generally experiencing the sharpest drawdowns (particularly

in U.S. dollar terms) during the oil crash, while China, India, and Taiwan have seen far less dramatic moves.

Clearly, emerging markets face a variety of challenges beyond volatile energy prices. Steep declines in other commodity prices, most notably metals, have damaged countries that are heavily dependent on mining. Slowing economic growth prospects, particularly in China, have led many market participants to broadly rethink the emerging market growth story. Political and social instability in many countries have also weighed on markets. Finally, the steep decline in emerging market currencies has compounded issues, increasing the potential for emerging market economic crises. Despite a wide array of issues, energy prices remain a focal point and major driver of emerging equity markets.<sup>5</sup>

<sup>5</sup> Source: S&P Dow Jones Indices LLC.

## ...On Fixed Income

Within fixed income, oil's price decline has had a noticeable impact throughout the asset class. Despite the recent bounce off of the 12-year low, the negative effects of the depressed price of oil can be seen in virtually every segment of the bond market, including corporate bonds, municipal bonds, bank loans, and preferred stock.

Perhaps the most obvious sign of oil's impact is in the credit default swap (CDS) market. These swaps aim to offer market participants protection against default risk. Decreasing oil prices have had a negative impact on the forecast operating cash flows of energy companies. As uncertainty

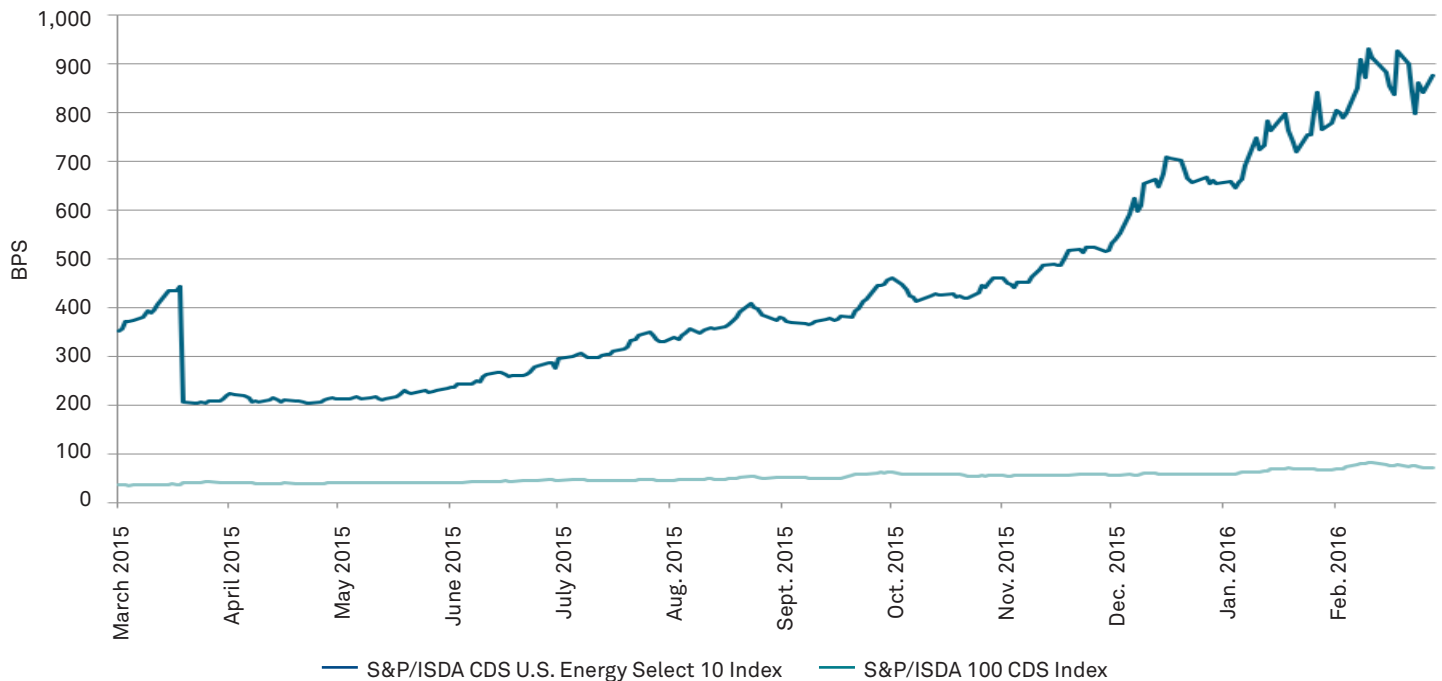
has increased, the cost of credit protection (i.e., CDS premiums) within the energy sector has skyrocketed, as evidenced by the S&P/ISDA CDS U.S. Energy Select 10 (see Exhibit 1).

Even with the recent jump in oil prices, CDS premiums were still up over 300% for the one-year period ending March 20, 2016. Comparatively, as of March 20, 2016, credit default spreads within the energy sector were 650 bps wider than those of the entities in the equity-based S&P 100, as measured by the S&P/ISDA CDS Index (see Exhibit 1).

Due to the cyclical nature of the industry, oil & gas companies use

high-yield debt to fund the majority of their expansion efforts. Further, the debt structure often consists of senior loans (also called bank loans or leveraged loans). These are debt instruments with floating interest rates that are typically secured by assets. Covenants for these loans require the borrower to have sufficient cash flow to cover a preset percentage of the annual interest expense or a percentage of the total debt. As cash flows increase, the amount available to be borrowed also increases. However, declining oil prices have led to decreased earnings, increased debt ratios, and an inability to access additional funding.

**EXHIBIT 1: CREDIT DEFAULT SPREADS**

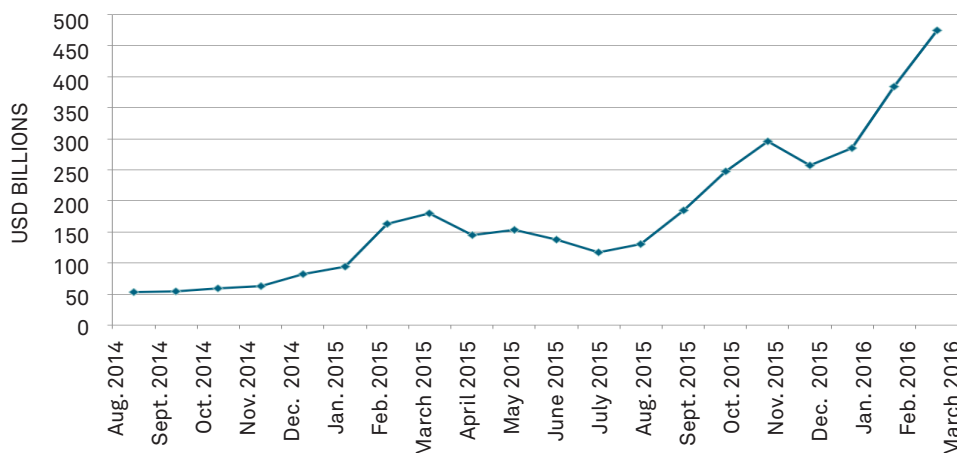


Source: S&P Dow Jones Indices LLC. Data from March 2015 to March 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

As expected, the increase in CDS premiums and the corresponding increase in the amount of leverage have resulted in a similar increase in high-yield energy bonds that are trading at distressed prices. The number of qualifying constituents as well as the amount of par value in the S&P U.S. Distressed High Yield Corporate Bond Index have increased 400% for the one-year period ending March 20, 2016 (see Exhibit 2). The index, which seeks to measure securities with an option-adjusted spread greater than or equal to 1,000 bps, was down 35% over the same one-year period. Additionally, there have been 14 issuers that have exited the index due to default over that period. Of those 14 issuers, 10 were from the energy sector.

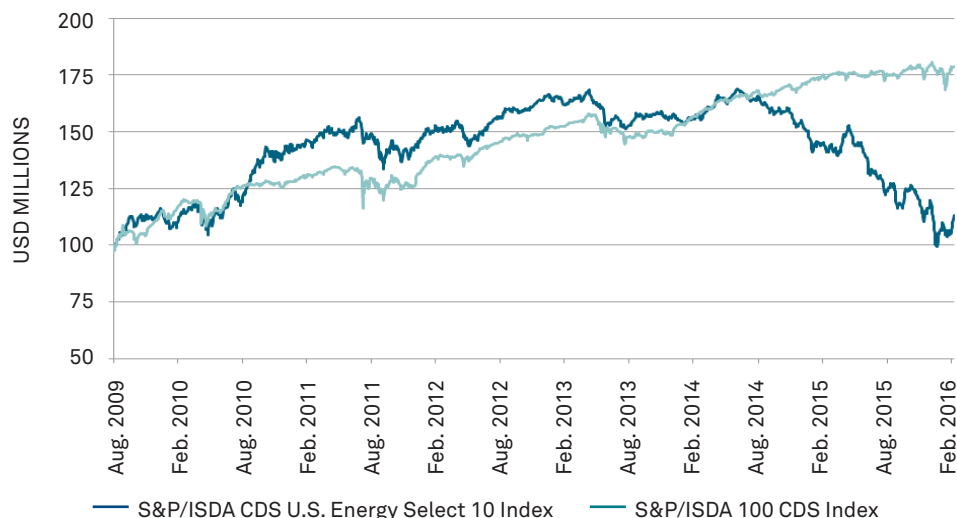
Finally, the impact of depressed oil prices can be seen within the preferred stock asset class by comparing the performance of the S&P International Preferred Stock Index to the S&P U.S. Preferred Stock Index (see Exhibit 3). The International index has over 20% exposure to companies in the energy sector; conversely, the U.S. index has zero exposure. As a result, the U.S. version of the index significantly outperformed its international counterpart. From August 2014 through March 2016, the S&P U.S. Preferred Stock Index was up 7.0%, while the S&P International Preferred Stock Index was down 47.5%.

### EXHIBIT 2: S&P U.S. DISTRESSED HIGH YIELD CORPORATE BOND INDEX TOTAL PAR VALUE



Source: S&P Dow Jones Indices LLC. Data from Aug. 1, 2014, to March 20, 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

### EXHIBIT 3: INTERNATIONAL PREFERRED STOCK VERSUS U.S. PREFERRED STOCK



Source: S&P Dow Jones Indices LLC. Data from Aug. 31, 2009, to March 20, 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.



## ...On Commodities

In the past year, energy lost half of its value, which drove down the annualized 10-year total return of the world-production-weighted S&P GSCI over 10%. Additionally, the equally weighted Dow Jones Commodity Index (DJCI), which has only one-third of its weight in energy, lost almost 5% (annualized) in the same 10-year period. Even excluding energy, commodities lost over 2% on an annualized basis in the past 10-year period. This poor performance over the long term has made many market participants question the viability of using commodities in their portfolios.

Two of the main reasons market participants allocate to commodities are diversification and inflation protection. By definition, long-only commodity indices provide inflation protection because the same food and energy issues that make up the Consumer Price Index (CPI) are included in the indices. Because energy is the most volatile component of the CPI, the more energy allocation an index has, the higher the inflation beta, or sensitivity the index has to inflation. Despite the poor commodity performance in the last decade, this holds true.

### EXHIBIT 1: INFLATION DATA

Index	Inflation Beta	Correlation to Inflation
S&P 500	0.21	0.11
S&P U.S. Aggregate Bond Index	0.20	0.11
S&P GSCI Energy	18.62	0.85
S&P GSCI	15.41	0.85
Dow Jones RAFI Commodity Index	12.90	0.82
Dow Jones Commodity Index	10.81	0.76
S&P GSCI Risk Weight	7.73	0.71

Source: S&P Dow Jones Indices LLC, Bureau of Labor Statistics. Commodity indices performance based on total return and equity indices performance based on net total return. Data from January 2006 to December 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

However, the price paid for inflation protection by investing in commodity-index-linked products has been steep. Several commodity indexing innovations have helped reduce the impact of negative energy returns. For example, simply equally weighting the commodity sectors in the DJCI reduced the negative annualized return by 6.5% over the 10-year period observed. Furthermore, changing the contract selection to optimize the return from rolling in the S&P GSCI Dynamic Roll reduced the annualized loss even more, by 7.4% over the past 10-year period. The most powerful single enhancement was realized in the risk-parity-weighted S&P GSCI Risk Weight, and while it saved an annualized 8.5% over the past 10 years, it still lost

2.1% (annualized) in the same period. There is no single commodity index enhancement that has resulted in a positive 10-year annualized return.

One bright spot, despite these losses even from enhanced commodity indices, is that the Sharpe ratios still improved when moving from a 60% stock/40% bond mix to a 50% stock/40% bond/10% commodity mix. Although the Sharpe ratio fell slightly from 0.46 to 0.45 when using the S&P GSCI for commodities, the simple weight enhancement in the DJCI improved its Sharpe ratio to 0.54. The S&P GSCI Dynamic Roll and S&P GSCI Risk Weight also improved their Sharpe ratios to 0.56 and 0.58, respectively.

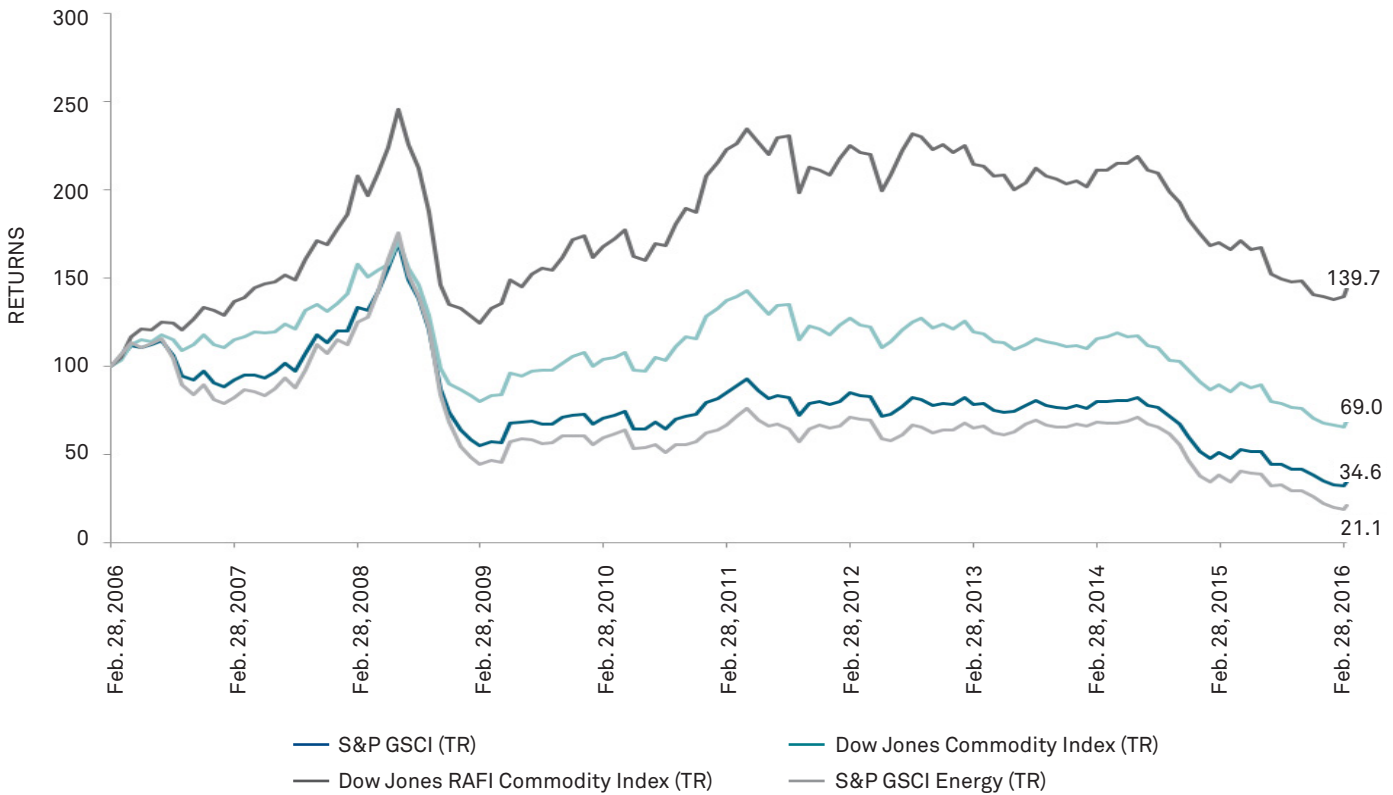
Still, market participants don't like losing. The good news is that by mixing the enhancements together, positive returns were seen in long-only commodity indexing. The S&P GSCI Dynamic Roll Risk Weight Index gained 0.9% annualized over the 10-year period, with an inflation beta of 8.3 and a Sharpe ratio of 0.62. While the goal of reducing risk was achieved with the risk-parity-weighted index (the 10-year

annualized risk of the S&P GSCI was 23.7% versus 13.3% for the S&P GSCI Risk Weight), most market participants probably have a goal of realizing higher returns.

The Dow Jones RAFI Commodity Index aims to deliver the best possible returns in a long-only, well diversified, passive commodity index. Every month, the index combines two factors (momentum and roll yield) to

over or underweight the commodities from their basic DJCI weights; plus, a dynamic roll is used to optimize the contract selection for the highest implied roll yield. The result is a 10-year annualized return of 3.4% with an inflation beta of 12.9 and a Sharpe ratio of 0.67. In the end, commodity indexing with the Dow Jones RAFI Commodity Index outsmarted the worst energy decade in history.

**EXHIBIT 2: IN A 10-YEAR PERIOD WHEN ENERGY LOST ALMOST 80%, THE DOW JONES RAFI COMMODITY INDEX GAINED ALMOST 40%**



Source: S&P Dow Jones Indices LLC. Data from Feb. 28, 2006, to Feb. 29, 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

## ...On Infrastructure

The Dow Jones Brookfield Global Infrastructure Index uses a “pure-play” approach in order to select companies that derive 70% or more of their cash flows from owning and operating infrastructure assets, such as toll roads, airports, oil & gas pipelines, etc. The index seeks to measure commodity prices, as companies that typically operate

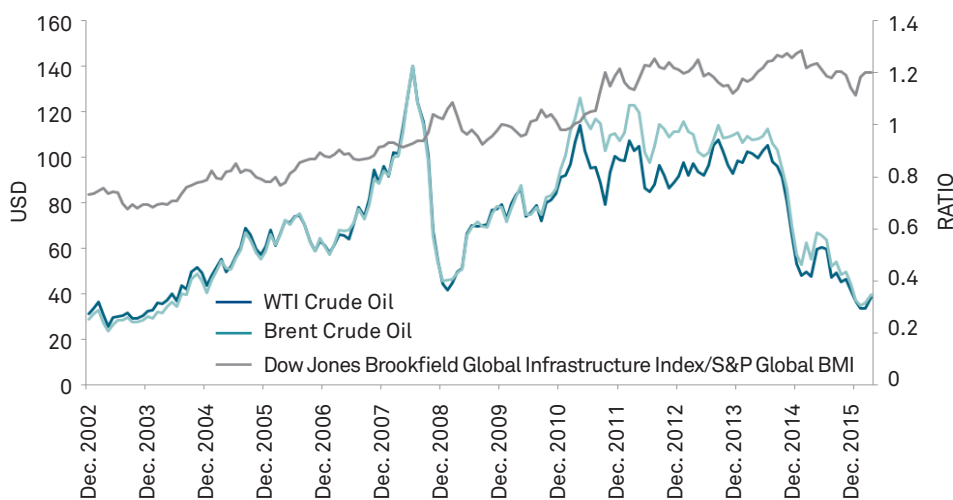
number has been higher. The question of sensitivity to oil prices always comes up, despite the nature of the index constituents, which are all in midstream energy transportation.

During the global financial crisis of 2008, the price of WTI crude dropped 68.1% in the fourth quarter of 2008, from USD 140 to USD 44.6

was flat during the same period and outperformed the S&P Global BMI by 2.3%.

The Dow Jones Brookfield Global Infrastructure Index provided protection during these two oil crises. This is most likely because the index applies a pure-play rather than a sector-based approach to define infrastructure that provides exposure to mainly mid-stream, which performed quite resiliently during these periods as the business didn’t get affected as much by the commodity price shock.

**EXHIBIT 1: CRUDE OIL PRICES AND THE DOW JONES BROOKFIELD GLOBAL INFRASTRUCTURE INDEX VERSUS THE S&P GLOBAL BMI**



Source: S&P Dow Jones Indices LLC. Data from December 2002 to June 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

these assets tend to have stable cash flows backed by long-term contracts that are sometimes regulation enabled. It also helps that most of these assets are monopolistic in nature.

As of May 29, 2016, 43% of the Dow Jones Brookfield Global Infrastructure Index was allocated to the oil & gas storage & transportation sub-industry. Historically, that

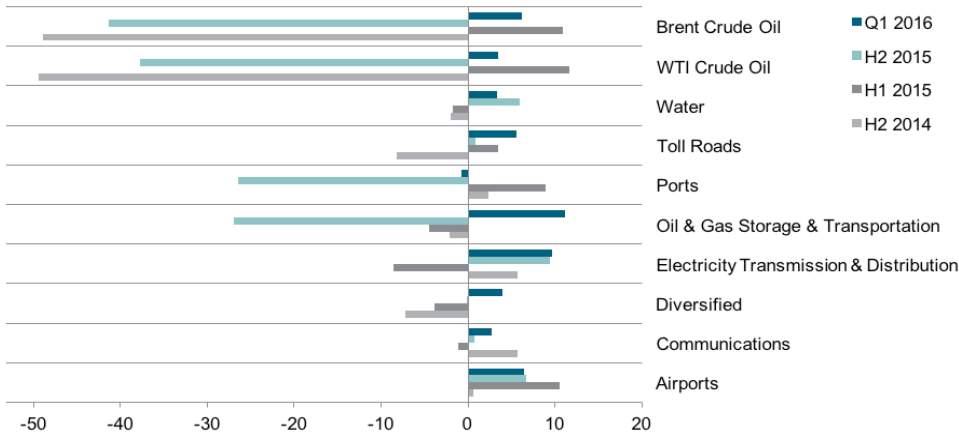
per barrel. The Dow Jones Brookfield Global Infrastructure Index returned -35.9% during the same period but outperformed its benchmark, the S&P Global BMI, by 6.4%.

In the second half of 2014, similar behavior was observed. The price of WTI crude slumped 49.4%, from USD 105.37 to USD 53.27. The Dow Jones Brookfield Global Infrastructure Index

However, as the oil crisis in 2014 continued for a prolonged period and oil slid another 37.7% in the second half of 2015, the Dow Jones Brookfield Global Infrastructure Index failed to outperform the S&P Global BMI. It returned -11.2% and underperformed the S&P Global BMI by 6.0% during that period. The “lower for longer” oil prices started to affect oil-related capital projects, the dislocation in the upstream sector started to flow through to the midstream companies, and long-term distribution contracts began to be affected. The oil & gas storage & transportation sector declined 27.0% in Q2 2015; it only declined 2.1% in Q1 2014, when oil prices moved more dramatically.

In 2016, as oil has stabilized and rebounded, the midstream space has rebounded as well, and companies and market participants have largely become accustomed to the new

### EXHIBIT 2: INFRASTRUCTURE BREAKDOWN

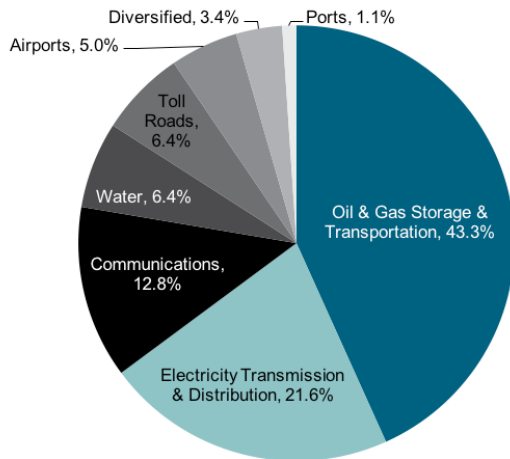


Source: S&P Dow Jones Indices LLC. Data as of June 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

normal. The Dow Jones Brookfield Oil & Gas Storage & Transportation Infrastructure Index returned 18.1% as of the end of May 2016, underscoring that the correction in the midstream sector was largely overdone. The broader Dow Jones Brookfield Global Infrastructure Index was up 11.2% in the same period.

In summary, even with a large weight in the Dow Jones Brookfield Oil & Gas Storage & Transportation Infrastructure Index, the broader Dow Jones Brookfield Global Infrastructure Index has been largely resilient to shorter-term movements and corrections in oil prices. During the oil crisis of 2014-2015, when the decline was spread over a long period and started to affect capital projects, the Dow Jones Brookfield Global Infrastructure Index took a hit and subsequently rebounded as the industry adjusted to the new normal. The larger weight of this sub-industry in the Dow Jones Brookfield Global Infrastructure Index reflects the available opportunity set.

### EXHIBIT 3: INFRASTRUCTURE BREAKDOWN BY PERCENTAGE



Source: S&P Dow Jones Indices LLC. Data as of June 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.<sup>6</sup>

<sup>6</sup> Source: S&P Dow Jones Indices LLC.

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S&P Dow Jones Indices defines various dates to assist our clients in providing transparency on their products. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the Index is set at a fixed value for calculation purposes. The Launch Date designates the date upon which the values of an index are first considered live; index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public Web site or its datafeed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of Introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

Past performance of the Index is not an indication of future results. Prospective application of the methodology used to construct the Index may not result in performance commensurate with the back-test returns shown. The back-test period does not necessarily correspond to the entire available history of the Index. Please refer to the methodology paper for the Index, available via [www.spdji.com](http://www.spdji.com) for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Another limitation of using back-tested information is that the back-tested calculation is generally prepared with the benefit of hindsight. Backtested information reflects the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities (or fixed income, or commodities) markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

Additionally, it is not possible to invest directly in an Index. The Index returns shown do not represent the results of actual trading of investable assets/securities. S&P Dow Jones Indices maintains the Index and calculates the Index levels and performance shown or discussed, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. For example, if an index returned 10% on a US \$100,000 investment for a 12-month period (or US\$ 10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US\$ 1,650), the net return would be 8.35% (or US\$ 8,350) for the year. Over a three-year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US\$ 5,375, and a cumulative net return of 27.2% (or US\$ 27,200).