



Oil and Gas 2018 Retirement Benchmarking

Drilling Subsector and Services & Manufacturing Subsector

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Executive Summary

Retirement Design Benchmarking for U.S. Salaried Employees

Our research finds that the average oil and gas company continues to provide valuable retirement programs, with many committed to defined benefit plans. The picture, however, varies greatly depending on the subsector within oil and gas and by company. The Drilling Subsector and Services & Manufacturing Subsector are highlighted in this report in which we describe how the average retirement program within these two subsectors is less valuable than oil and gas industry averages. The following design trends stand out within the Drilling and Services & Manufacturing Subsectors.

- Defined benefit plans remain open to new hires for only one company in both the Drilling and the Services & Manufacturing Subsectors.
- Hybrid plan designs like cash balance plans remain the most prevalent pension design.
- Average long-term spending is 5.6% for drilling companies and 4.5% for services & manufacturing companies, ranging from 0% to 10.9% of pay.
- Drilling companies and services & manufacturing companies spend less on retirement than the industry average.

Financial Benchmarking for U.S. Defined Benefit Plans

The benefit obligation of the Drilling and Services & Manufacturing Subsectors averages about 15% of market capitalization¹. While this is significant, it is small compared with headline grabbers like Ford and GM, which have benefit obligations that exceed 150% of market capitalization. The following financial trends are apparent within the Drilling and Services & Manufacturing Subsectors.

- There is a broad range in plan size, funded status, and accumulated other comprehensive income under Accounting Standards Codification (ASC) 715.
- Defined benefit plans are material obligations and considerations for drilling and services & manufacturing companies.
- Funded ratios increased to 83% as of December 31, 2017, up 2% from the previous year.
- Expected return on assets assumptions under ASC 715 continue to decrease.

U.S. Pension Funding Strategy in the Current Era

Over the past several years, many companies have materially decreased contributions to their qualified pension plans in the United States as a result of funding relief provided by Congress. These companies have deferred contributions, although the funded status of their pension plans has not changed materially. Congress has also significantly increased the Pension Benefit Guaranty Corporation (PBGC)² variable premium rates for underfunded plans. These extra premiums, combined with new regulations for special reporting to the PBGC for underfunded plans, have changed the economic picture. Many companies should seriously consider making higher contributions than required to help materially decrease the

¹ Number of company common equity shares multiplied by the corresponding share price.

² An independent agency of the U.S. government that acts as an insurance program for qualified private defined benefit plans. The PBGC pays pension benefits to plan participants (up to a specified limit) when the plan sponsor is bankrupt and the plan does not have the assets to make all future benefit payments.

unfunded liabilities of their pension plans. Companies should also consider settlement strategies to reduce their longer-term risks as well as reduce their near-term PBGC premiums. These include terminated vested lump sum windows and retiree annuity lift-outs.

Benchmarking for U.S. Retiree Health Care Programs

Health care has received significant media coverage in recent years, and changes within the industry are abundant. The following trends are apparent within the Drilling Subsector and Services & Manufacturing Subsector.

- 17% of drilling companies and 32% of services & manufacturing companies in this study reported retiree welfare obligations, while 53% of S&P 500 companies reported obligations.
- Retiree welfare¹ obligations are material, but they are significantly smaller than defined benefit obligations.
- The risk from rising health care cost trends varies by company but can be substantial.
- Many companies have changed the retiree health care plan they offer to their Medicare-eligible participants and more are expected to change in the near future.

¹ Benefits for eligible retirees accounted for under ASC 715-60, which includes all postretirement benefits other than pensions (medical, prescription drug, life insurance, dental, etc.).

About This Report

In this report, we present data that compares large drilling companies and large services and manufacturing companies to each other. We have also presented high-level information comparing each key subsector within the oil and gas industry, since companies compete with other subsectors for talent and some companies operate within multiple subsectors. Our analysis focuses primarily on the following large companies in the Drilling and Services & Manufacturing Subsectors:

Drilling	Services & Manufacturing
Diamond Offshore Drilling Inc.	Baker Hughes
EnSCO plc	Core Laboratories
Helmerich & Payne Inc.	Dril-Quip Inc.
Nabors Industries Ltd.	DXP Enterprises Inc.
Noble Corporation plc	Exterran Corporation
Parker Drilling Company	Forum Energy Technologies
Patterson–UTI Energy Inc.	General Electric Oil & Gas
Pioneer Energy Services Corporation	Halliburton Company
Precision Drilling Corporation	Helix Energy Solutions Group Inc.
Rowan Companies plc	National Oilwell Varco Inc.
Seadrill Ltd.	Newpark Resources Inc.
Transocean Ltd.	Oceaneering International Inc.
	Oil States International Inc.
	RPC Inc.
	Schlumberger Ltd.
	Superior Energy Services Inc.
	TechnipFMC plc
	TETRA Technologies Inc.
	Tidewater Inc.
	Weatherford International Ltd.

Our Oil and Gas Retirement Benchmarking: Drilling Subsector and Services & Manufacturing Subsector report is in its second year of publication. This edition includes new perspectives and insights, in addition to updates to last year's report.

The data for benchmarking defined benefit plans and retiree health care programs are based on publicly available company financial statements. The financial information as reported by each company may include salaried plans, hourly plans, and potentially nonqualified plans. The U.S. information was either explicitly identified or assumed to be equal to the total if the split was not provided.

Part I: Retirement Design Benchmarking for U.S. Salaried Employees

The analysis in this section covers the design of retirement income programs for U.S. salaried employees.

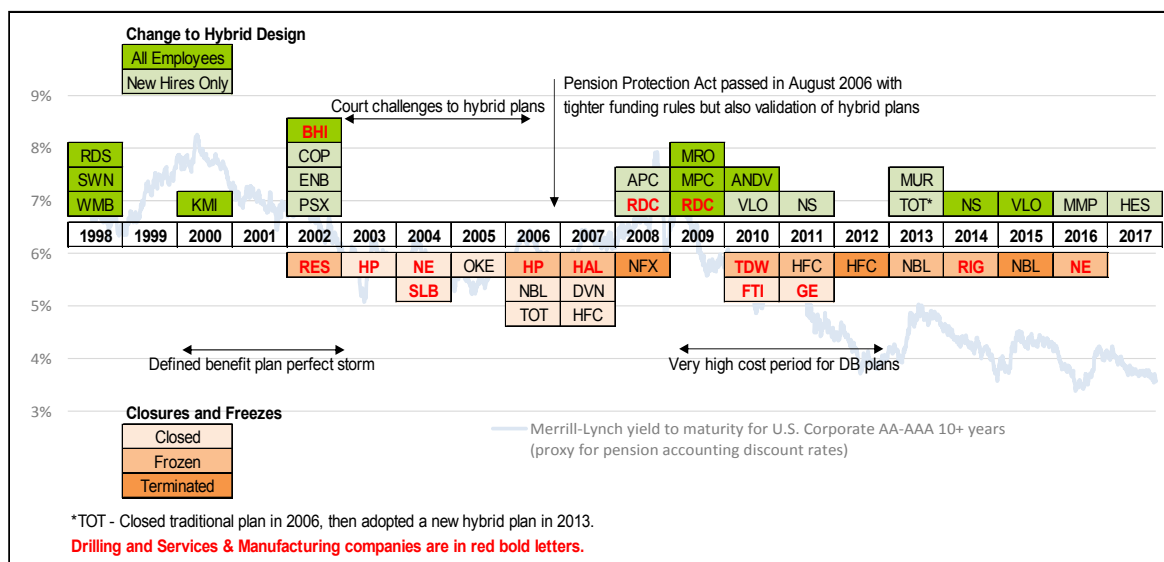
Most Companies Have Moved to Hybrid Design or Plan Closure

Over the past 20 years, oil and gas companies have followed the high-level general industry trends of moving to hybrid designs like cash balance or closing/freezing their defined benefit plans—but with two main differences: (1) More oil and gas companies have moved to hybrid designs; and (2) fewer have closed or frozen their defined benefit plans. The chart below summarizes oil and gas companies' changes to their defined benefit plans.

The shift to hybrid plans slowed for oil and gas companies while these plans were being challenged in the courts from 2003 through 2006. It then accelerated after Congress validated hybrid designs in 2006. Seven oil and gas companies closed or froze their defined benefit plans after the financial crisis of 2008, although many more general industry companies closed or froze their defined benefit plans.

Oil and gas companies that have kept their defined benefit plans for new hires appear committed to these types of programs despite the higher cost volatility. These sponsors are showing the beginnings of a trend toward de-risking, as discussed later in this report.

The chart below shows major changes to oil and gas company defined benefit plans over the past 20 years, with changes to hybrid plans in shades of green above the timeline and plan closures, freezes, and terminations in shades of orange below the timeline.

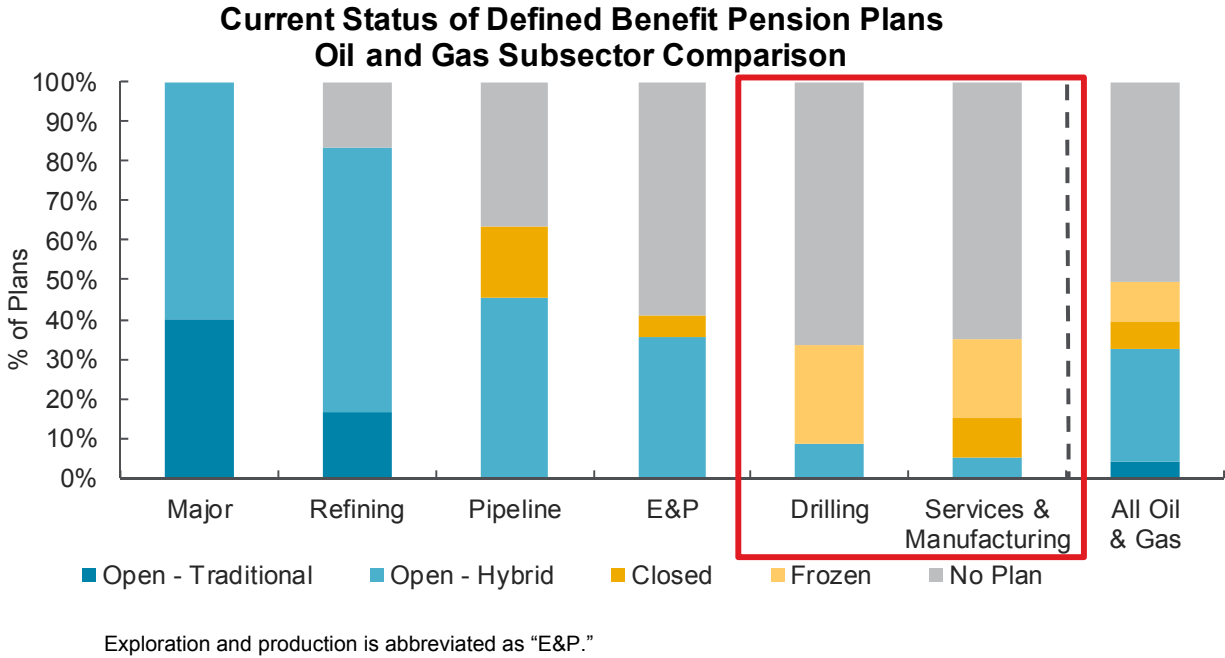


Number of Oil & Gas Companies Changing Their Defined Benefit Plans

Sponsors Defined Benefit Plan = 38	No Defined Benefit Plan = 33
No Change = 5	Major Changes = 33

Defined Benefit Plans Are Not a Core Benefit for the Drilling Subsector and Services & Manufacturing Subsector

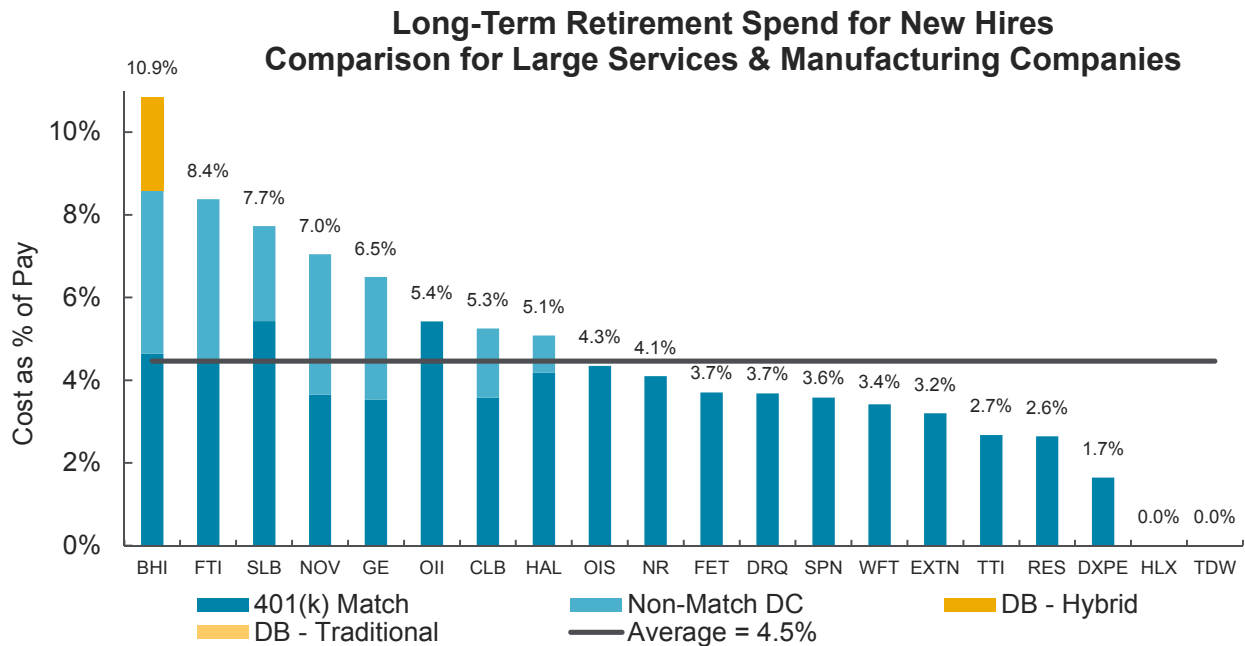
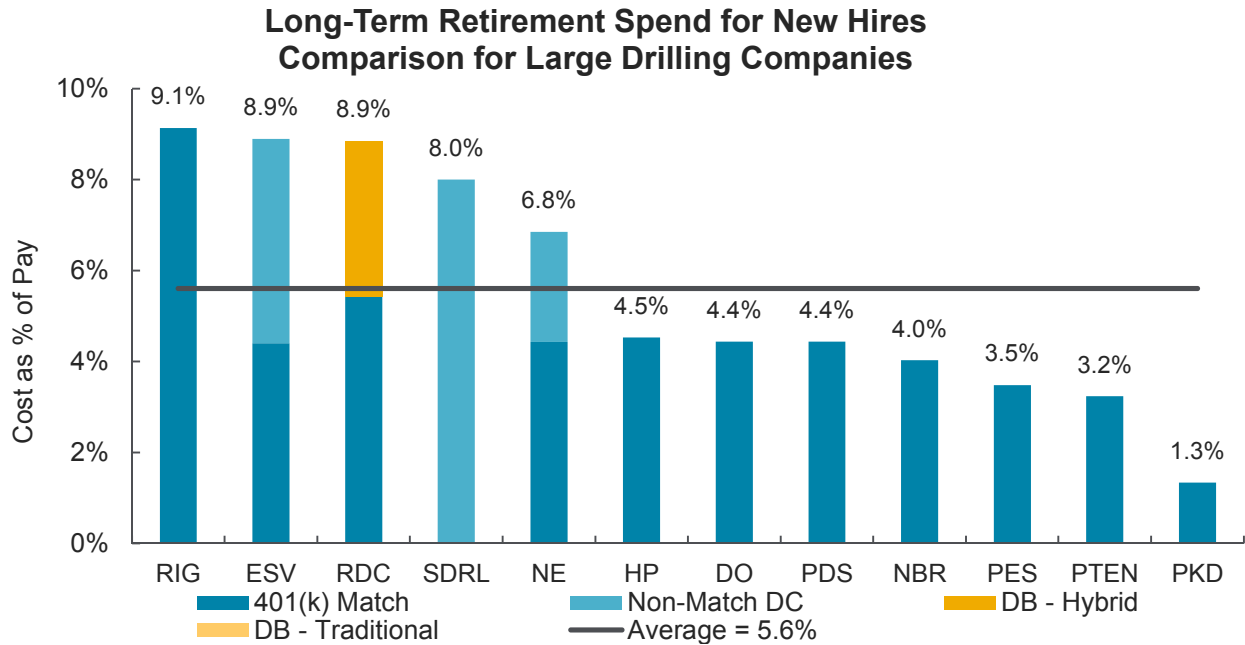
Many companies in the United States have either frozen or closed their defined benefit plans to new hires, but the rate and types of changes have varied by industry. Overall, oil and gas companies have not shifted away from defined benefit plans as much as general industry. Based on 2017 survey data, 18% of corporations sponsored defined benefit plans for U.S. salaried new hires (i.e., open plans)¹ while 32% of large oil and gas companies sponsored defined benefit plans open to U.S. salaried new hires. However, the percentages varied among subsectors of oil and gas companies. For the Drilling and Services & Manufacturing Subsectors, only one company in each subsector sponsors a defined benefit plan open to new hires, both of which are hybrid plans (such as cash balance plans).



¹ Source: Aon Benefit SpecSelect™.

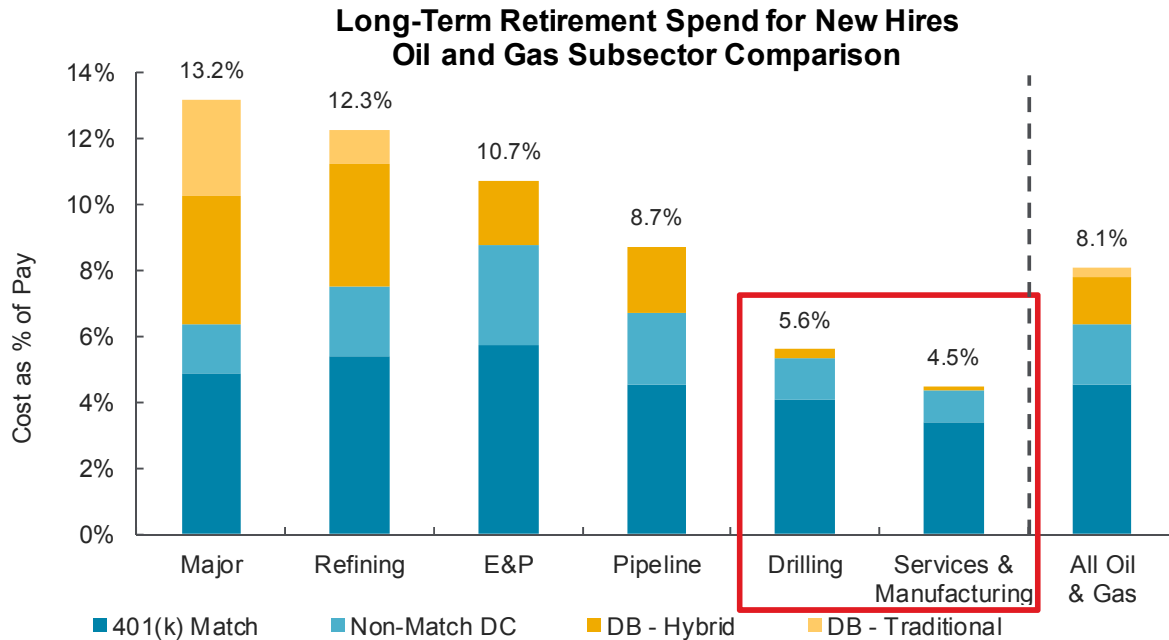
Average Long-Term Cost of Retirement Programs for New Hires

Based on current plan designs for U.S. salaried new hires, companies in the Drilling and Services & Manufacturing Subsectors are expected to spend respectively an average of 5.6% and 4.5% of payroll on retirement programs in the long term. As shown in the charts below, the long-term cost ranges from 0% to 10.9%¹ for companies in these subsectors, with some companies having eliminated or suspended their matching contributions for defined contribution plans.

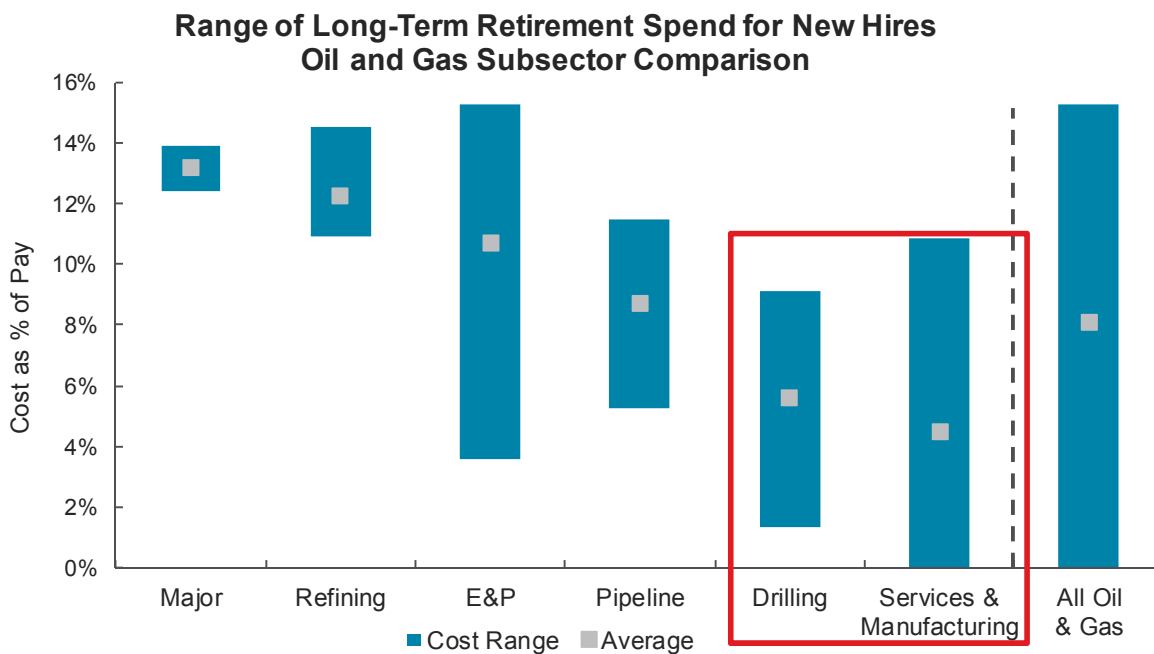


¹ Long-term spending estimates are based on standard census data and standard assumptions that apply equally to all plans, including a 6.5% net asset return assumption for defined benefit plans.

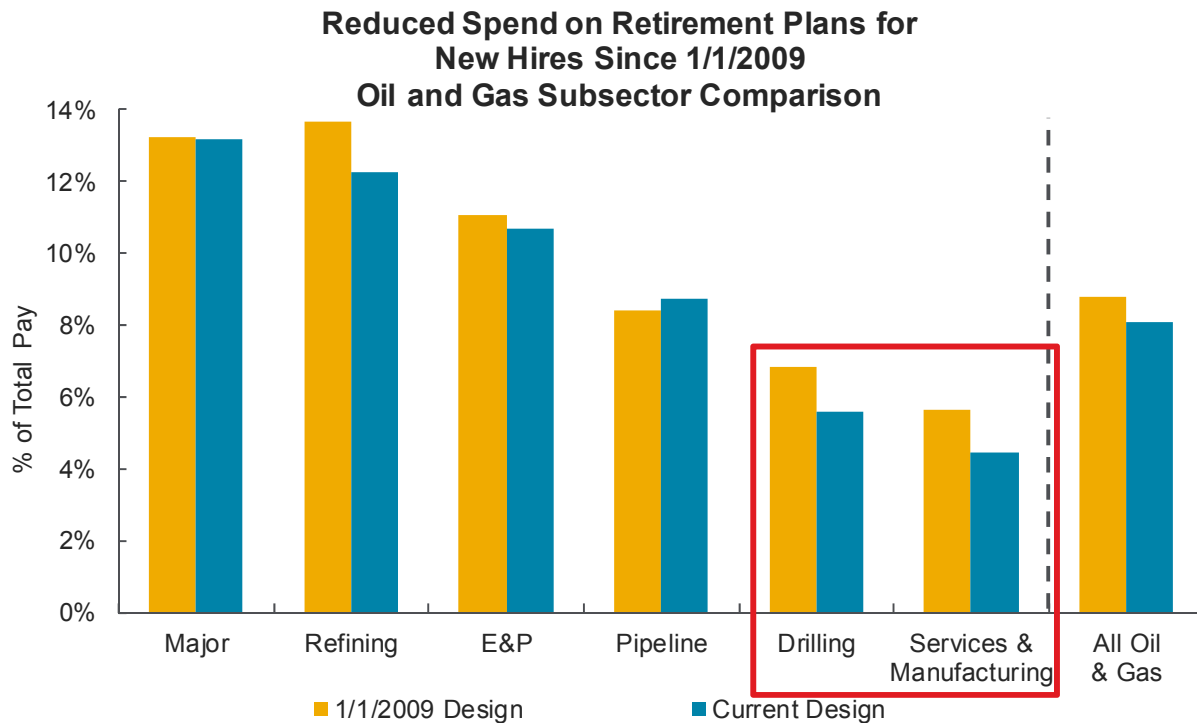
For drilling and services & manufacturing companies, the long-term costs of retirement programs are lower than the average of 8.1% of pay across the oil and gas industry. The chart below shows the average long-term cost for each subsector and the overall industry.



Except for the Major Integrated Subsector, each oil and gas subsector has a wide range of retirement program costs. For the Drilling and Services & Manufacturing Subsectors, the combined range is 0% to 10.9% of pay.



While defined benefit plans remain a significant part of the retirement programs in the industry, the plan designs have followed the national trend of shifting costs from defined benefit to defined contribution plans, particularly for new hires. Since 2009, such shifts have been implemented primarily through lowering costs by transitioning from traditional defined benefit to hybrid defined benefit plans, such as cash balance plans, and often offset by enhancements to defined contribution plans. The following chart shows that oil and gas companies have reduced their retirement plan costs since 2009 from an average of 8.8% to the current 8.1%. However, the Pipeline Subsector has been an exception to that trend. For the Drilling and Services & Manufacturing Subsectors, the average costs dropped from 6.8% and 5.6% in 2009 to 5.6% and 4.5% respectively.

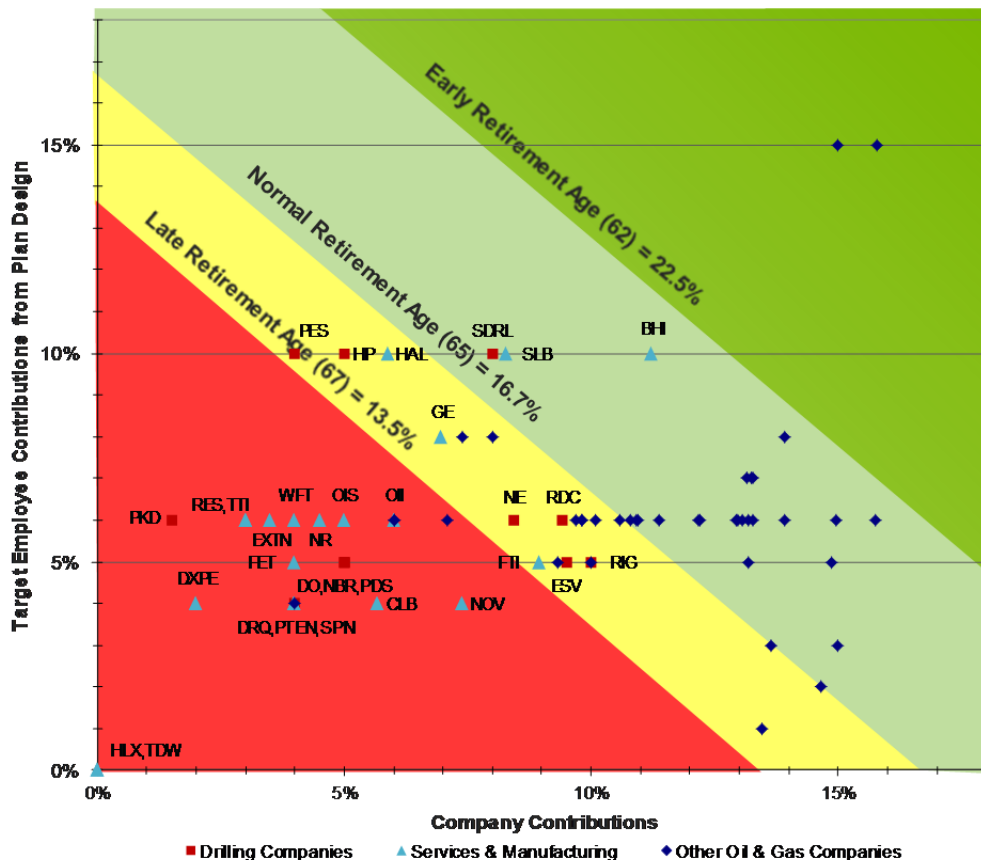


Target Retirement Age Based on Employer Plan Design

The design of an employer's retirement program is a big factor in how well prepared its employees are for retirement. Even with the generous retirement benefits available within the oil and gas industry, employees need to share the responsibility by saving on their own, especially if they want to retire early. According to Aon's *The Real Deal*TM analysis,¹ employees need to accumulate 11 times final pay (after Social Security) at age 65 if they expect to have sufficient assets to fund retirement at the same standard of living as before retirement. That equates to contributing 16.7% of pay every year over a 40-year career. However, retirement expectations in the oil and gas industry tend to be earlier than age 65. To retire at age 62, for example, an average employee starting at age 25 needs to contribute 22.5% of pay over a 37-year career.

The chart below provides perspective on how plan designs within the oil and gas industry provide for, and encourage, adequate retirement income. The horizontal axis shows the total expected company contribution (defined benefit and defined contribution) assuming the maximum 401(k) match. The vertical axis shows the likely employee contribution, given the encouragements of the plan design (maximum contribution to receive the full match or the high end of auto-escalation). The intersection of these two points shows the probable age at which an average employee will attain sufficient assets for retirement.

In most cases, employees in the Drilling and Services & Manufacturing Subsectors will need to save more than the amounts encouraged by the plan design in order to retire at age 65 with the same standard of living.



¹ *The Real Deal: 2015 Retirement Income Adequacy at Large Companies*

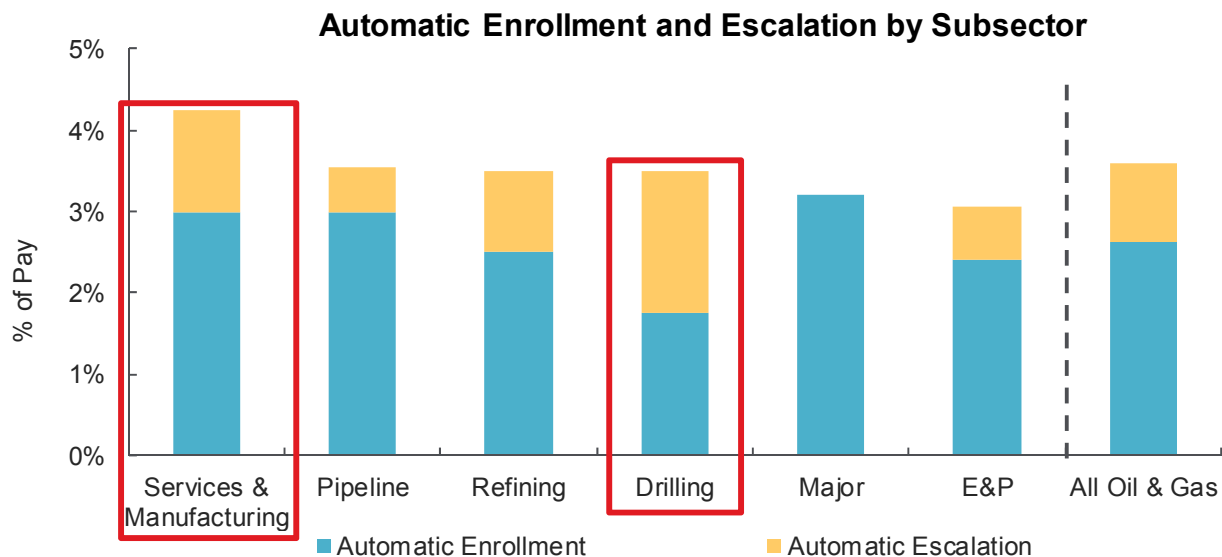
Automatic Enrollment and Escalation Are Growing in Popularity

The rise of the 401(k) plan has shifted responsibility for retirement adequacy into employees' hands. But many employees have not embraced that responsibility and researched their retirement objectives and how much they need to save to satisfy those objectives. In many cases, employees need to save an additional 5% to 10% of their earnings in order to retire at age 65 or earlier and maintain their standard of living. Retirement savings communications and education are important, but they only go so far.

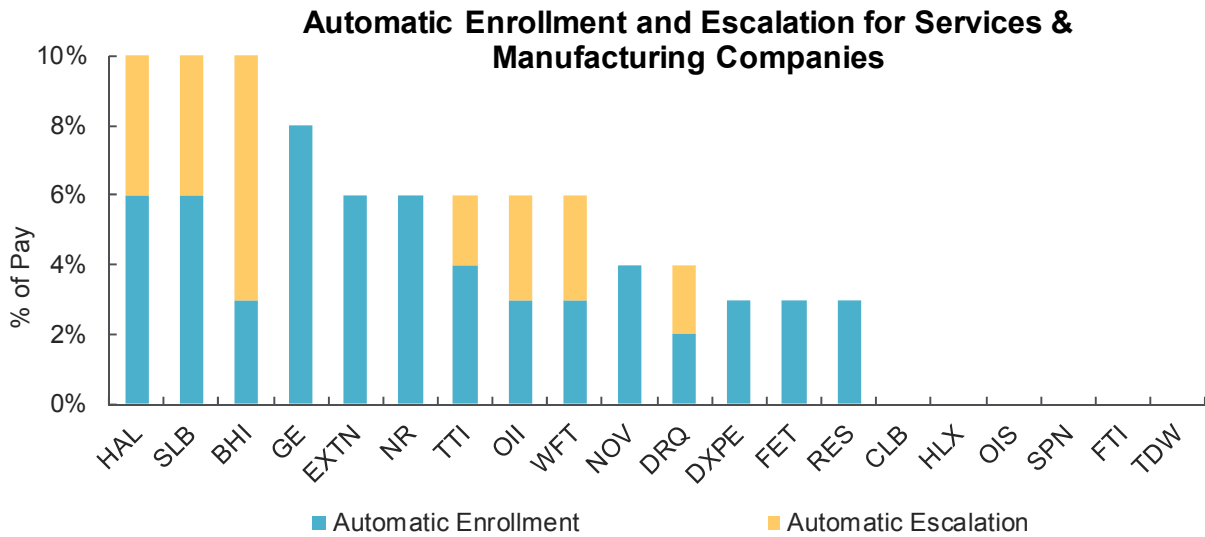
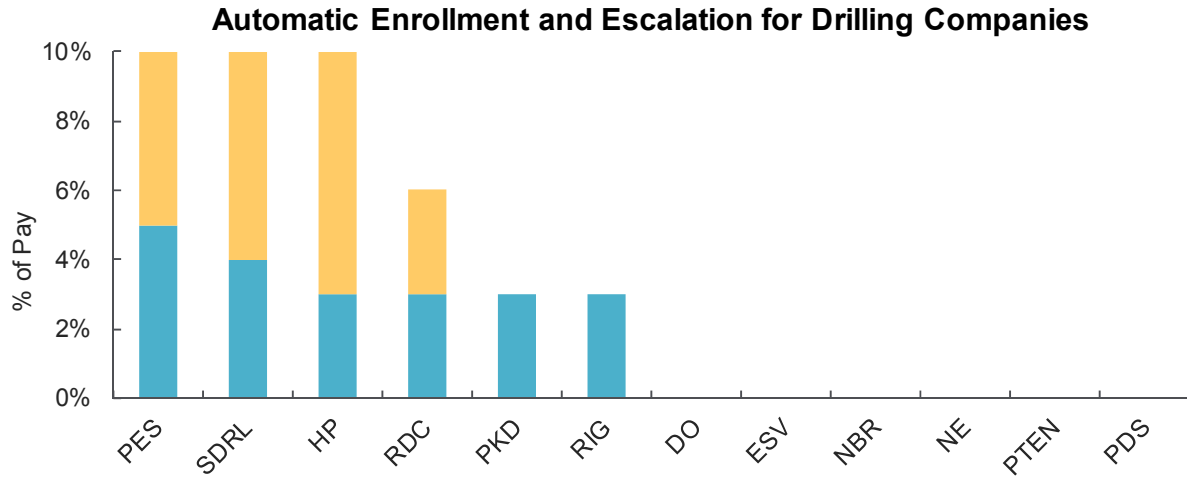
Automatic enrollment and escalation have gained significant popularity as 401(k) plan design features over the past 10 years to address this savings gap. Well-designed automatic enrollment and escalation features nudge employee savings upwards over time, but not so quickly as to induce a high rate of opt-out.

In many cases, the current automatic enrollment programs remain too timid to fully address the savings gap. The most appropriate endpoint automatic savings will vary from company to company, but it is not uncommon for 10% or higher to be cited as the ultimate savings target to close the savings gaps revealed by Aon's *The Real Deal* analysis.

The level of automatic enrollment and escalation varies significantly within each subsector; the Services & Manufacturing Subsector is the highest on average, ostensibly corresponding to the subsector's reliance on defined contribution plans as the primary retirement vehicle. The Drilling Subsector is around the average of oil and gas companies.



Several companies in the Drilling and Services & Manufacturing Subsectors did not mention the design features for their plans in public filings. It is assumed that they do not have these features in their plans.

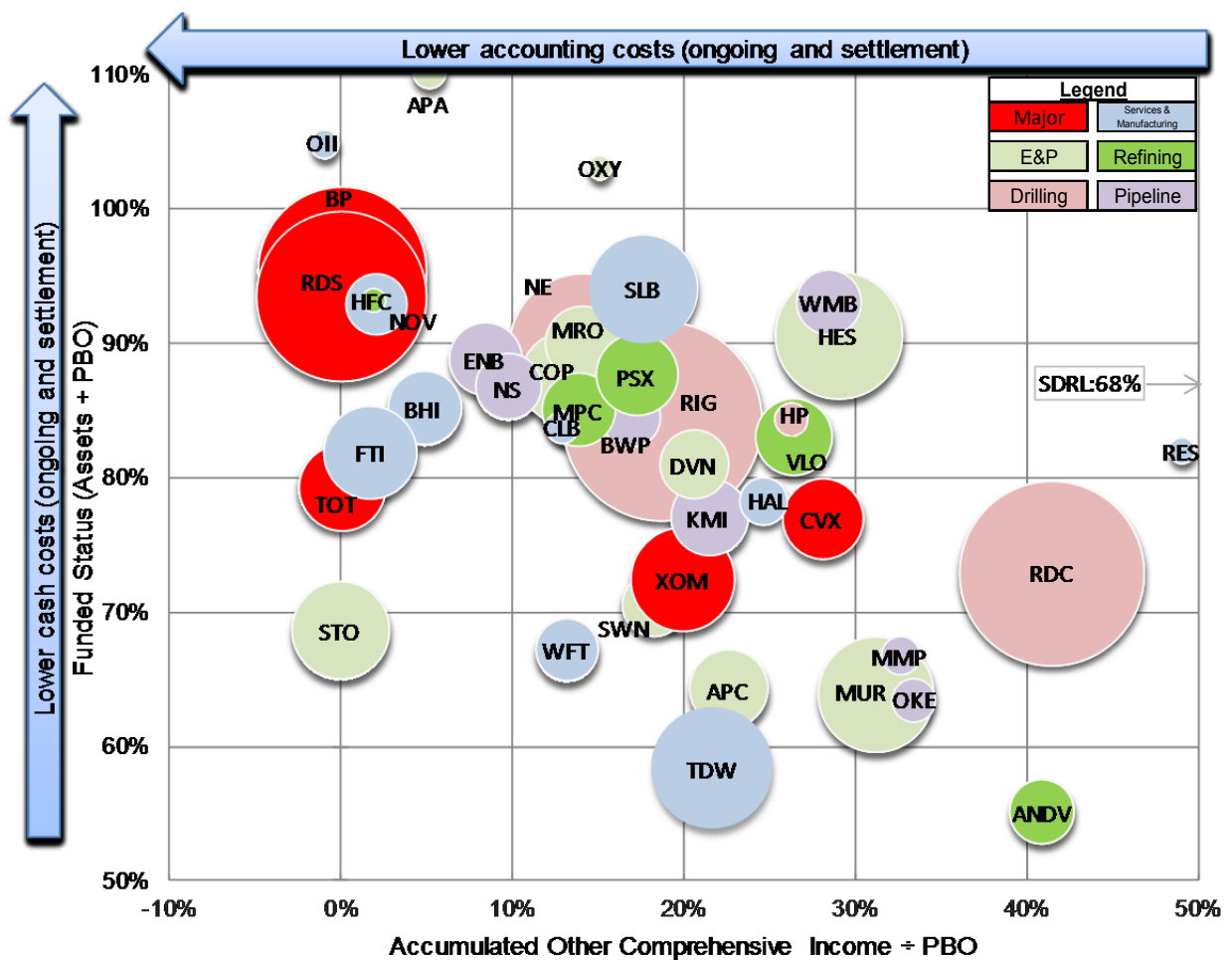


Part II: Financial Benchmarking for U.S. Defined Benefit Plans

The analysis in this section covers key financial variables for the referenced companies' defined benefit plans in the United States (unless otherwise indicated).

Three Dimensions of Pension Risk

The chart below shows three key dimensions in managing defined benefit plans and their risks. Each dimension is described on the next page.



The first key dimension is the ratio of each company's global projected benefit obligation (PBO)¹, for qualified and nonqualified plans, and its market capitalization as of December 31, 2017. This is illustrated by the size of the bubble. Larger bubbles mean higher risks. For many companies, this ratio is the most important dimension. For the Drilling and Services & Manufacturing Subsectors, the PBO-to-market capitalization ratio ranged from 1% to 49%.

The second key dimension, shown in the vertical axis, is the funded status of each company's global defined benefit plans, measured as aggregate plan assets divided by aggregate PBO. A lower funded status represents higher future cash costs. The funded status for the Drilling and Services & Manufacturing Subsectors ranged from 58% for Tidewater to 105% for Oceaneering.

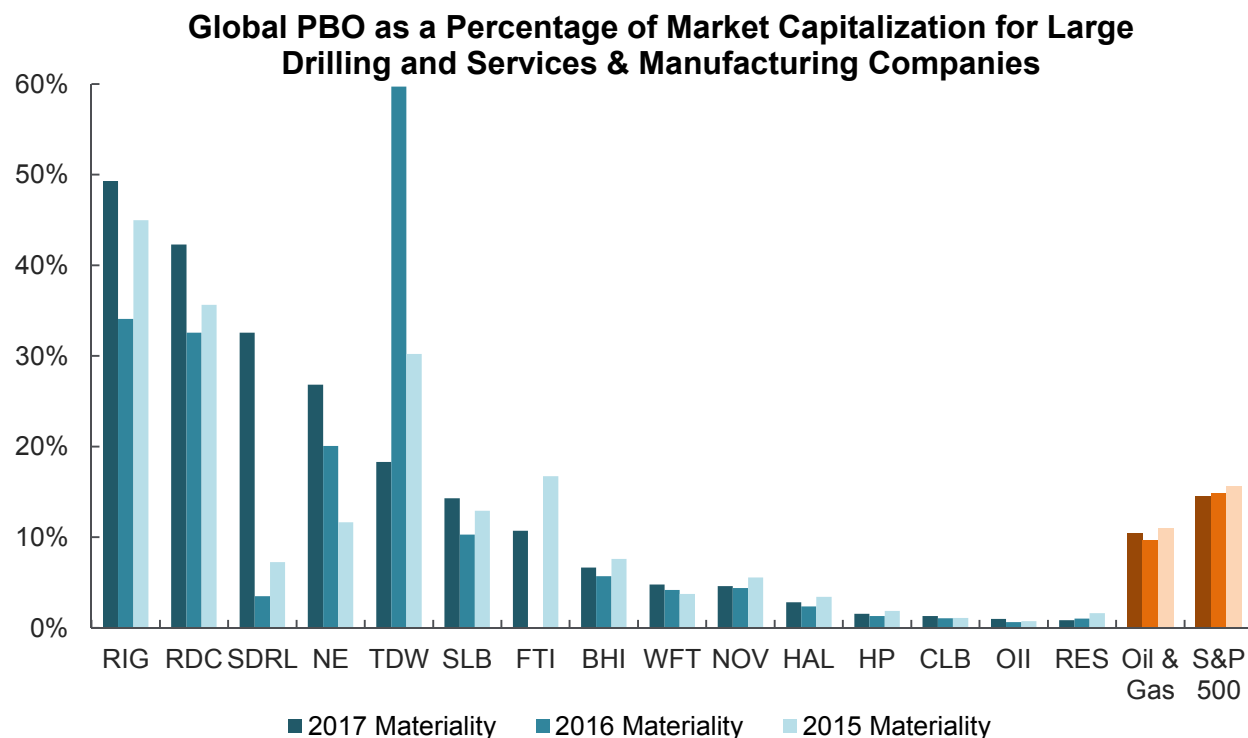
The third key dimension, represented by the horizontal axis, is the accumulated other comprehensive income (AOCI)² divided by PBO. This is important because a higher AOCI represents higher future accounting costs from ongoing amortization and/or future settlement charges. The AOCI for the Drilling and Services & Manufacturing Subsectors ranged from -1% to 68% of the PBO. Companies reporting under International Financial Reporting Standards do not maintain an AOCI and are therefore shown as 0%.

¹ The present value of expected future benefit payments to plan participants, reflecting current service but expected future increases in compensation, as reported under ASC 715. The present value is based on a set of actuarial assumptions including a discount rate that reflects interest rates based on high-quality corporate bonds.

² Past pension costs that have not yet been recognized in expenses under ASC 715. AOCI accumulates as a result of plan amendments or actual plan experience differing from actuarial assumptions—such as varying asset returns and changes in discount rates—which increase/decrease the projected benefit obligation.

Drilling Companies and Services & Manufacturing Companies Have Material Obligations From Their Defined Benefit Plans

Defined benefit plans are a material form of debt for the drilling and services & manufacturing companies that sponsor such plans. On average, the subsectors' PBO was 14.5% of market capitalization as of December 31, 2017, up from 12.9% as of December 31, 2016. This is around the average for S&P 500 companies that sponsor defined benefit plans.



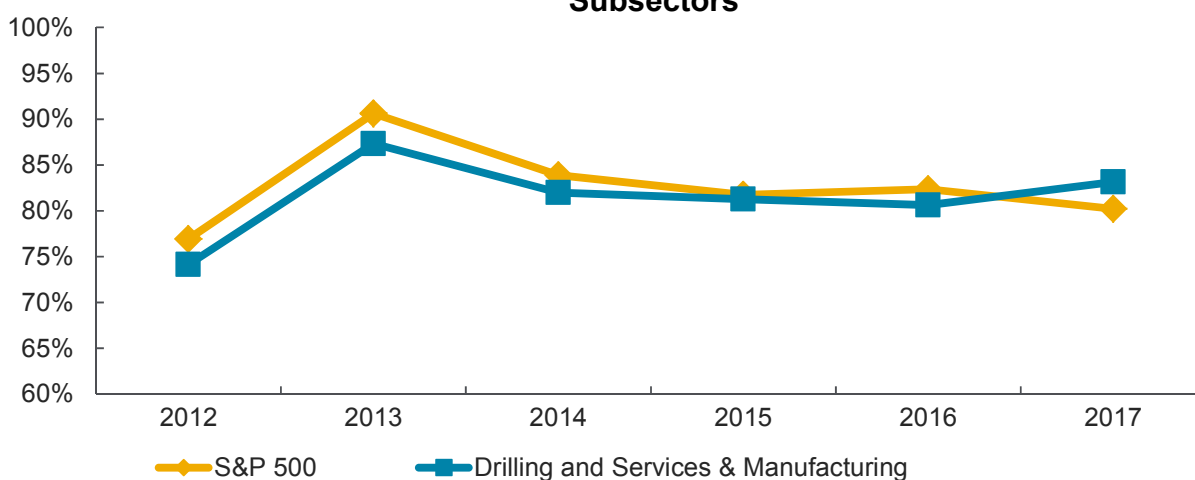
All Oil & Gas and S&P 500 averages exclude companies without a defined benefit plan.

Plan sponsors are cognizant of the risk represented by unfunded pension obligations and are looking for ways to both quantify and reduce pension risk. In doing so, sponsors can secure the benefit of greater financial stability in support of long-term human resources and financial objectives.

Pension Funded Ratios Improve

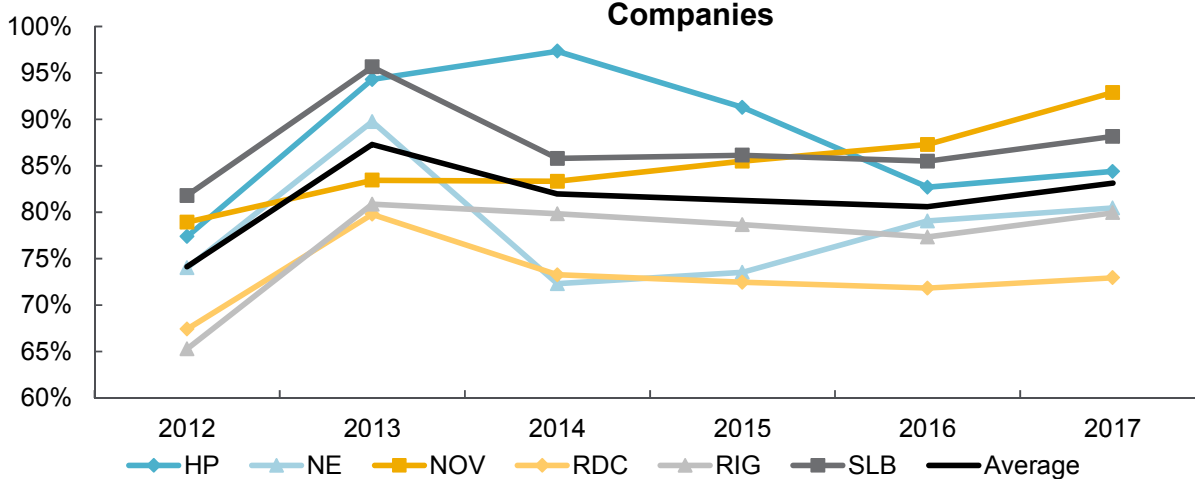
Pension funded ratios¹ below 100% represent future, and potentially substantial, cash flow requirements. Funded ratios for the Drilling and Services & Manufacturing Subsectors, as well as for the S&P 500, have been volatile over the past 10 years due to underlying volatility in the financial markets. For the average S&P 500 company, plan assets covered more than 100% of plan obligations (including nonqualified) at the end of 2007, but they covered only 80% at the end of 2017. For the Drilling and Services & Manufacturing Subsector companies, assets covered 83% of obligations at the end of 2017. Broadly speaking, we estimate that funded ratios would have increased 2% through the first four months of 2018².

**Pension Funded Ratio (Assets Divided by PBO)
Averages for S&P 500 vs. Drilling and Services & Manufacturing Subsectors**



S&P 500 averages exclude companies without a defined benefit plan.

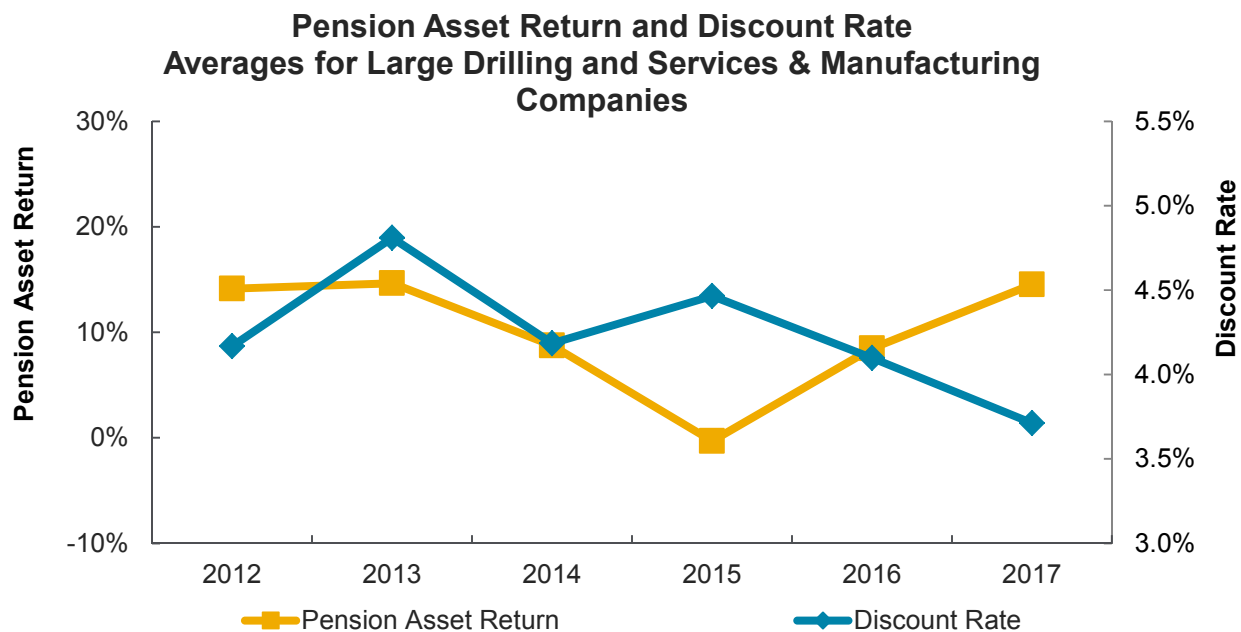
**Pension Funded Ratio (Assets Divided by PBO)
Comparison for Large Drilling and Services & Manufacturing Companies**



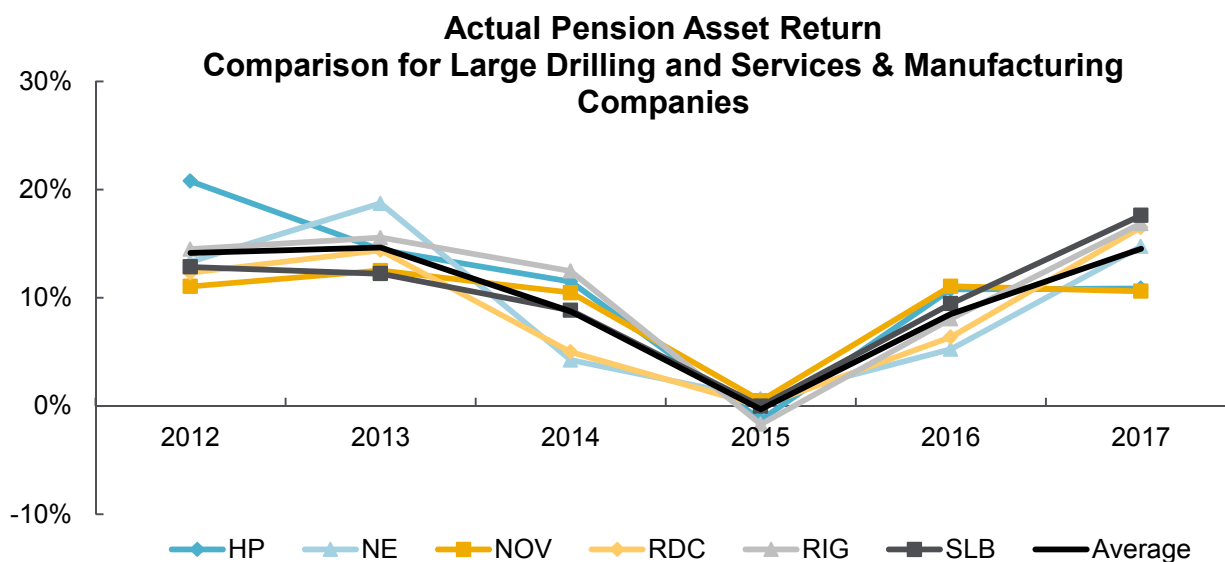
¹ Fair value of assets divided by the projected benefit obligation as reported under ASC 715.

² Based on findings in Aon Pension Risk Tracker through May 31, 2018, <https://pensionrisktracker.aon.com/>

The major components of funded status volatility are plan asset return, based on market performance and plans' asset mix, and high-quality corporate bond yields, which drive discount rates for measuring pension obligations. The following chart shows the changes in these two components in recent years.

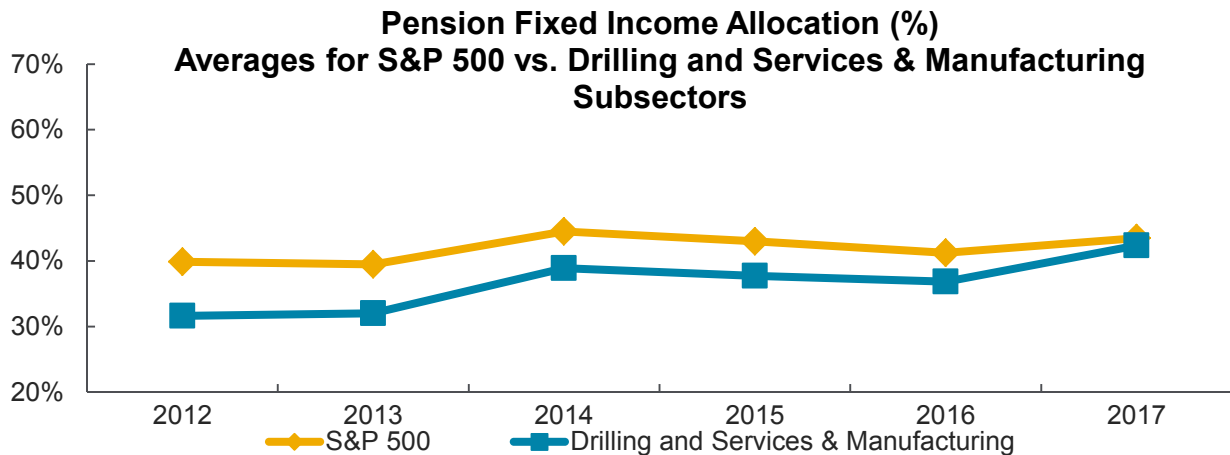


Individually, drilling and services & manufacturing plan sponsors saw 2017 asset returns in the range of 11% to 18%.



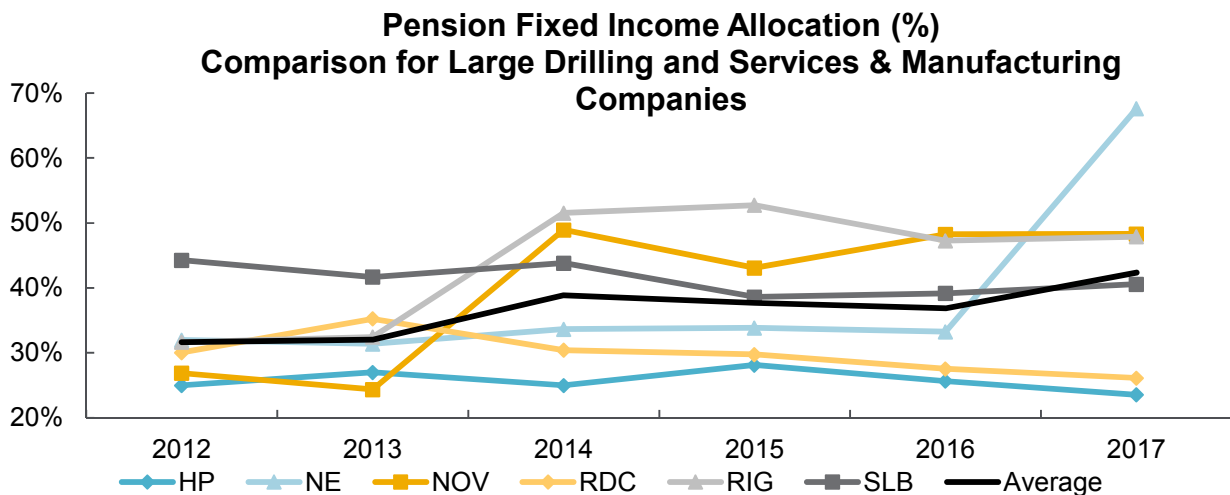
Asset Allocations Indicate a Trend Toward De-Risking

Many defined benefit plan sponsors have amended their investment policies to gradually reduce plan assets invested in return-seeking assets, such as equities, in favor of liability-matching assets, such as fixed income securities with duration and cash flow profiles that more closely match those of their pension obligations. The objective is typically to partially de-risk¹ pension plans, stabilizing balance sheet, and reducing expense volatility. In some cases, such policies require implementation of an asset reallocation when the plan's funded ratio improves above certain thresholds. De-risking is a current trend in reconciling long-term human resources objectives with short-term financial volatility.



The Drilling and Services & Manufacturing Subsectors, on average, have de-risked through fixed income allocations on par with the average S&P 500 company. The average oil and gas company has de-risked with about the same fixed income allocations as the average S&P 500 company.

Among companies in the Drilling and Services & Manufacturing Subsectors, with some exceptions, the trend is not as discernible. In some cases, it is possible that a de-risking policy has been adopted but implementation has been deferred until certain funded ratio thresholds or interest rate thresholds have been satisfied.



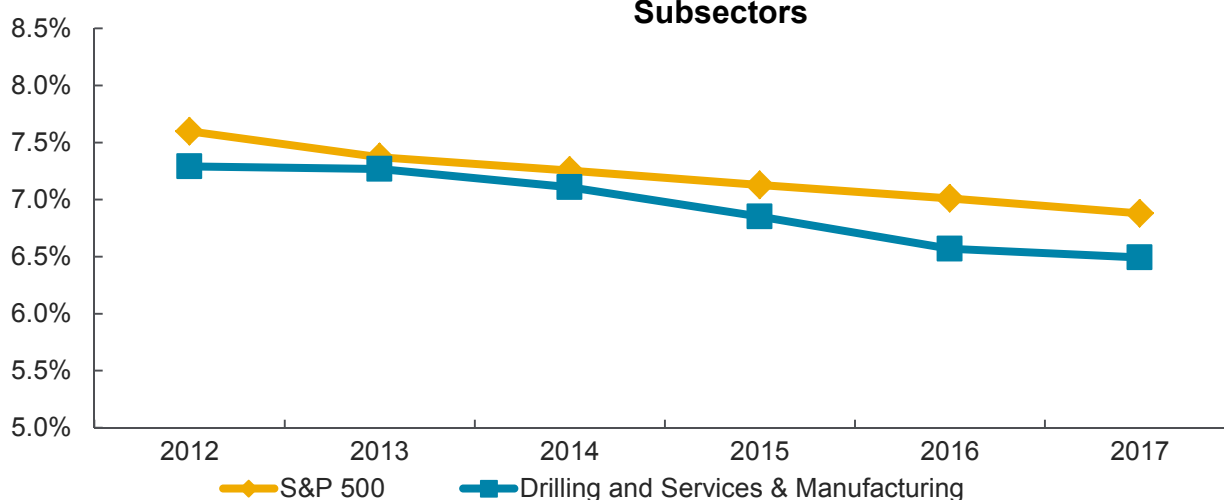
¹ De-risk—Investment policies or practices to reduce plan assets invested in return-seeking assets, such as equities, in favor of increasing plan assets invested in liability-matching assets, such as fixed income securities, with duration and cash flow profiles that more closely match those of the pension benefit obligations.

Expected Return-on-Assets Assumptions Continue to Decrease

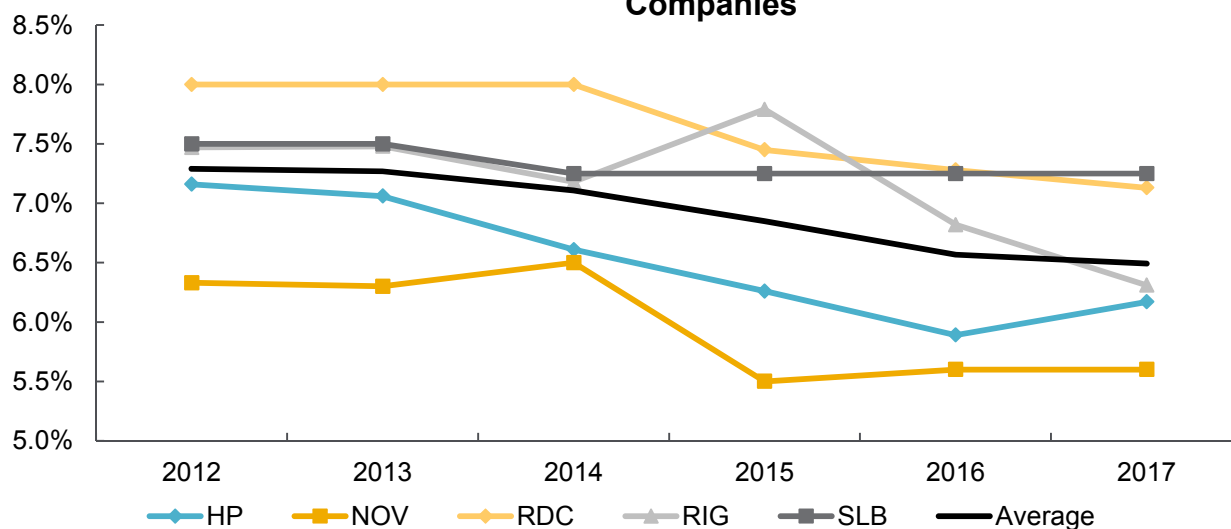
Asset returns are expected to be lower in pension plans in which the allocation is more heavily in liability-matching assets, like fixed income, than in return-seeking assets. The short-term and long-term expense will be higher under pension accounting as a trade-off for the de-risking policy. The increase is partially offset by expense improvement that comes with improved funded status.

Overall, the Drilling and Services & Manufacturing Subsectors have shown a moderate decrease in expected asset return since 2013. The average expected return for U.S. plans was 6.5% as of December 31, 2017, reducing slightly from the prior year.

**Expected Asset Return for Pension Accounting
Averages for S&P 500 vs. Drilling and Services & Manufacturing
Subsectors**



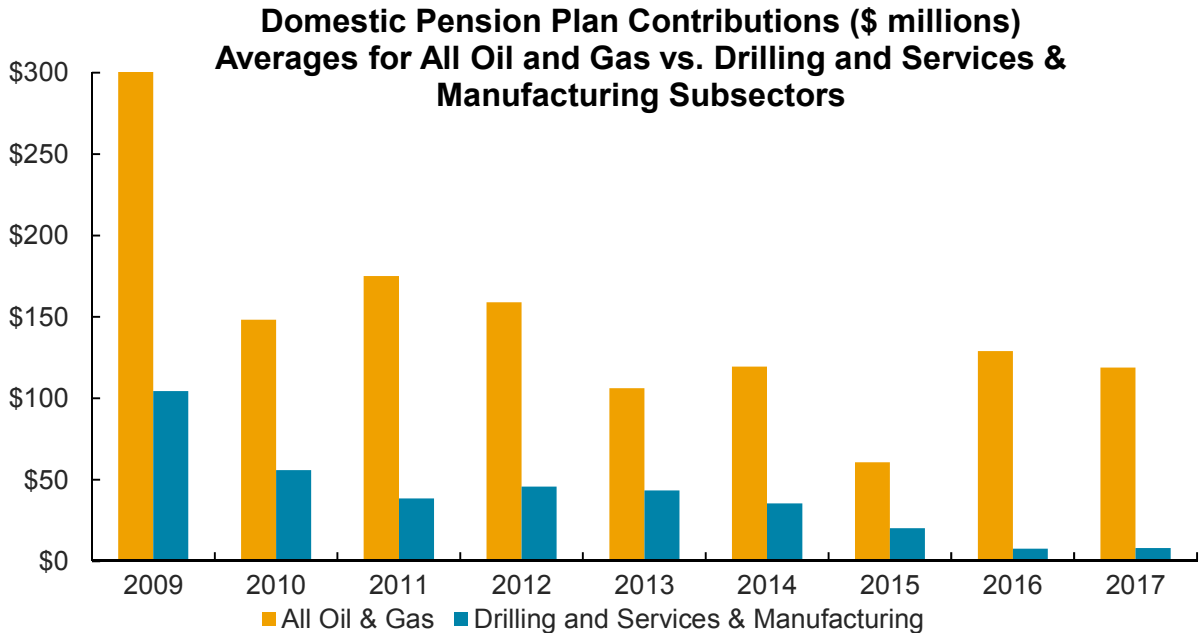
**Expected Asset Return for Pension Accounting
Comparison for Large Drilling and Services & Manufacturing
Companies**



Part III: U.S. Pension Funding Strategy in the Current Era

Penalties for Underfunding Change the Funding Equation

Since 2009, Congress has provided pension plan sponsors the ability to defer contributions through pension relief, and most companies have utilized this opportunity. In the oil and gas industry, the average contribution has decreased from \$302 million in 2009 to \$119 million in 2017. As a result, PBGC funded ratios have not rebounded over this period, although asset returns have been high.

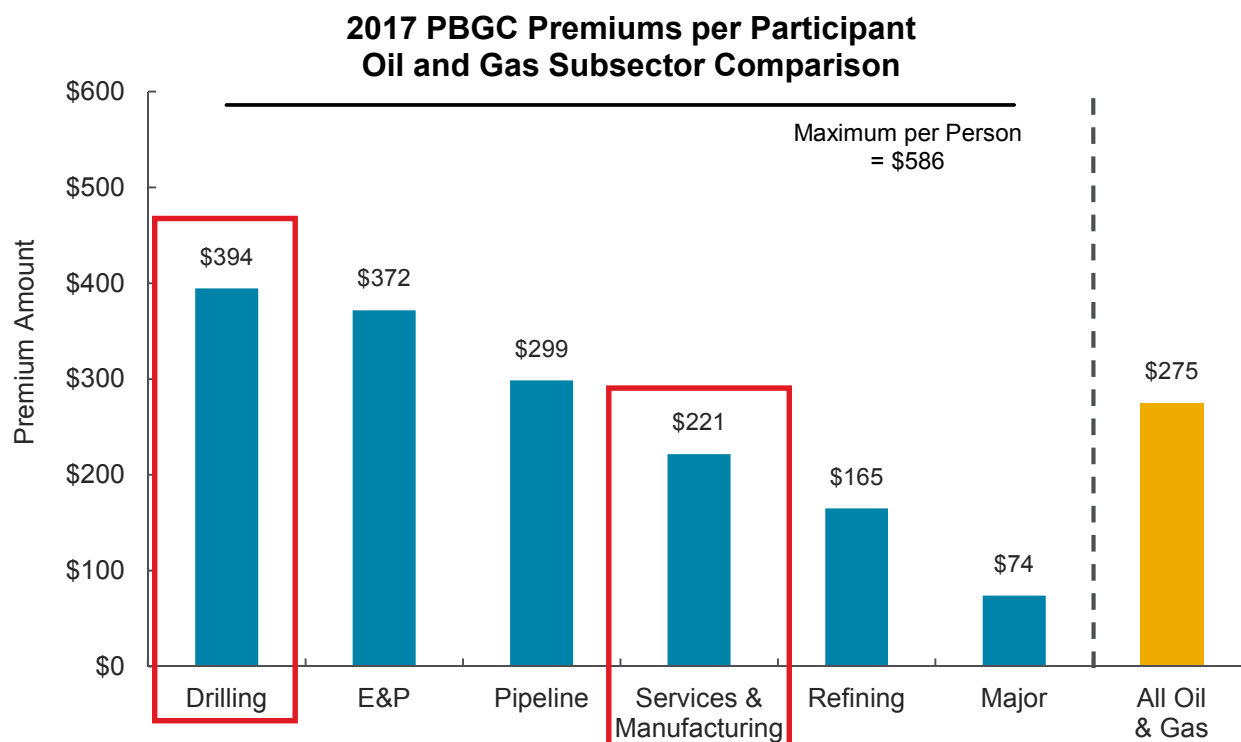


Underfunded pension plans incur a penalty—and that penalty is increasing significantly. PBGC variable rate premiums were 0.9% of underfunded liabilities in 2012, but they have more than quadrupled, to 3.8%, in 2018. The rate is scheduled to increase further to 4.5% by 2020, with inflationary increases thereafter. These premiums, typically paid by the pension plan, have become a considerable penalty for underfunded pension plans.

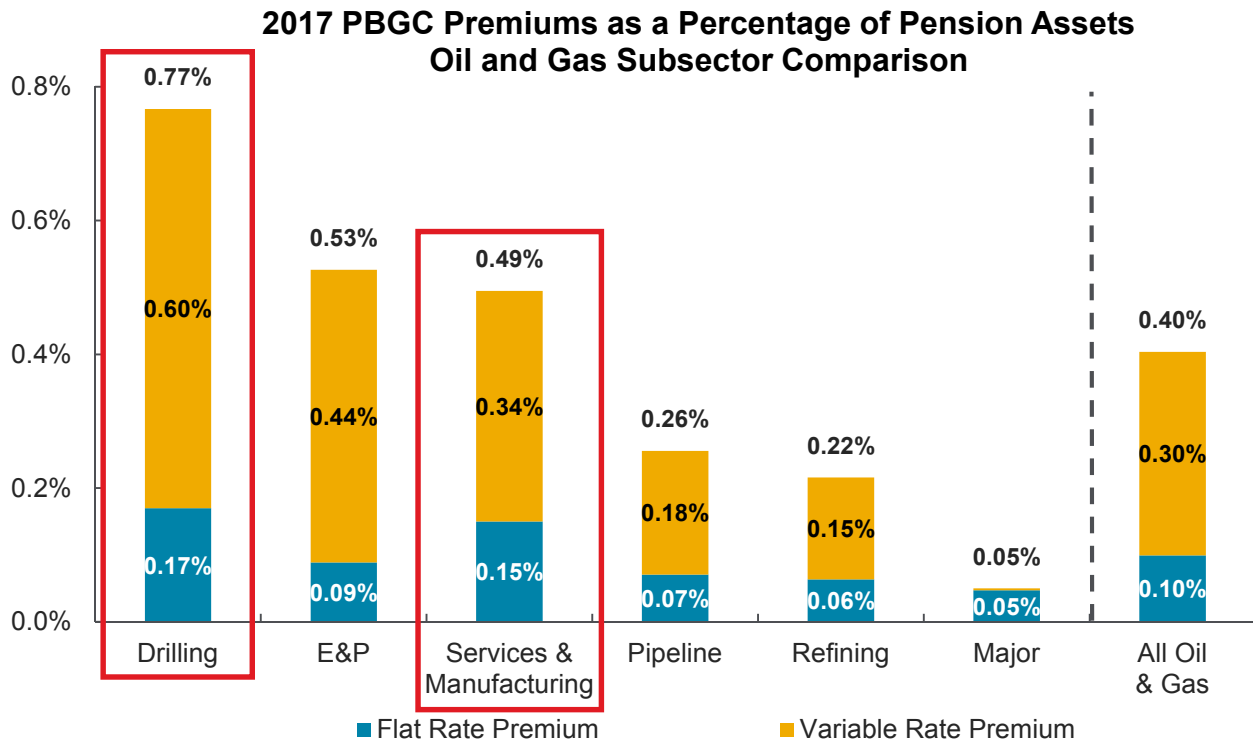
	2012	2018	2023 (projected ¹)	Present Value ²
Flat Rate (per person)	\$35	\$74	\$88	\$2,000
Variable Rate (per \$10K unfunded)	\$90	\$380	\$475	\$5,000

¹ Assuming 2.5% annual increase in National Average Wage Index
² For a 50-year-old commencing life annuity at age 65. 4.5% interest rate used.

The combination of deferred required contributions and increasing penalties for underfunding has resulted in the potential for significant PBGC premiums. The following chart shows the 2017 PBGC premiums (per defined benefit participant) by subsector.



Another way to view the value lost through PBGC premiums is to look at the opportunity cost on investment returns. As shown in the chart below, the 2017 net investment return had a 0.40% drag on average due to PBGC premiums. The majority of the drag is from plan underfunding (variable rate premium), though a portion is due to the number of employees covered by pension plans (flat rate premium).



Many companies deferred making contributions to their pension plans because of:

- Company cash flow restraints;
- The expectation that interest rates would increase materially within a couple of years, which would eliminate the unfunded liabilities; and/or
- Better perceived return on investment (ROI) from other investments.

The environment has changed over the past few years. Interest rates have actually decreased, and the penalties for contribution deferrals have become substantial through higher PBGC variable rate premiums. The result is that the ROI from borrowing money to contribute to the pension plan has become positive for many companies.

Consider Costs of PBGC Premiums in Borrow-to-Fund Strategies

In today's interest rate environment, borrowing to fund an underfunded pension plan may present favorable economic outcomes for companies with a before-tax borrowing cost of 10%–15%. This rule of thumb is based on the principle that a fund-now strategy makes sense as long as the borrowing cost is less than the return on assets associated with new contributions plus the PBGC variable premium rate.

The break-even formula reflecting the tax deduction of the contribution is:

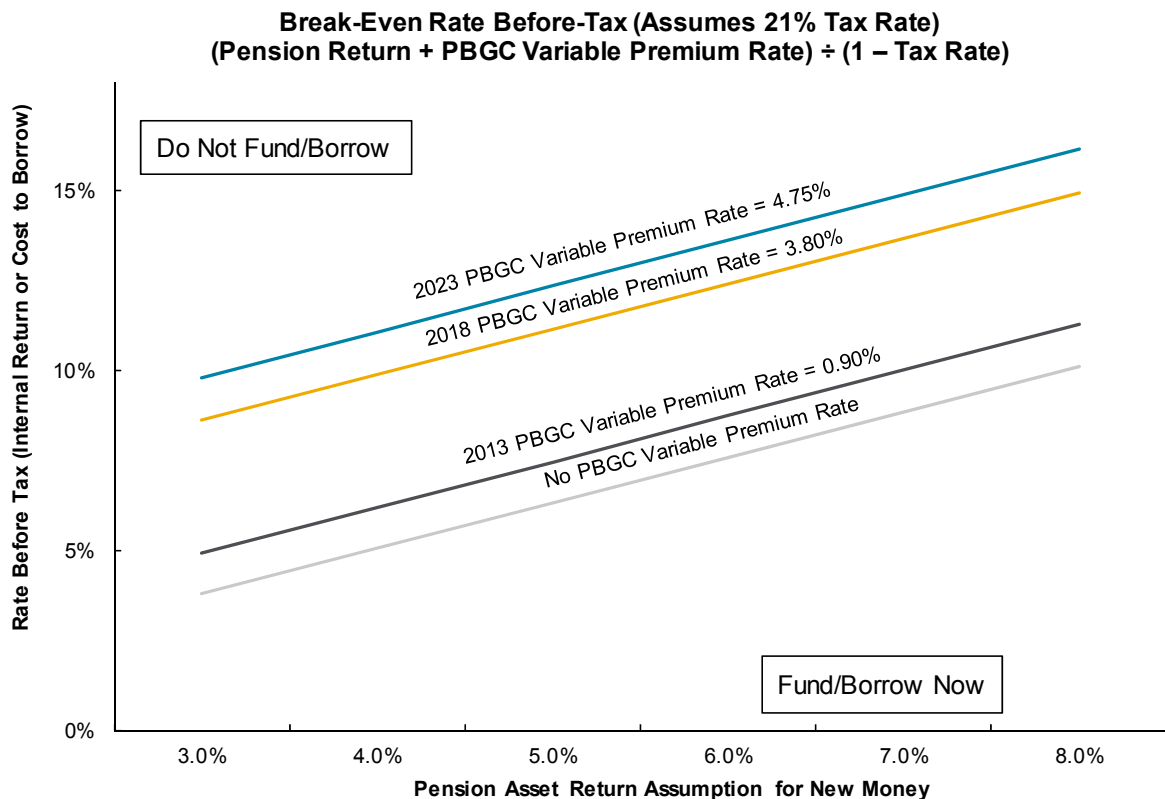
$$\text{Borrowing Cost} \times (1 - \text{Tax Rate}) = \text{Expected Return on Assets} + \text{PBGC Variable Premium Rate}$$

The significant increase in the PBGC variable premium rate has produced a much higher break-even rate for borrowing to fund than in the past. However, this is partially offset by the decrease in corporate tax rates from 35% to 21% starting in 2018.

Taking a closer look, the following conditions improve the expected economic outcomes of an accelerated contribution policy (all else being equal):

- Higher borrowing costs or internal return if redirecting existing cash reserves
- A higher return on pension plan assets associated with new contributions
- Higher PBGC variable premium rates

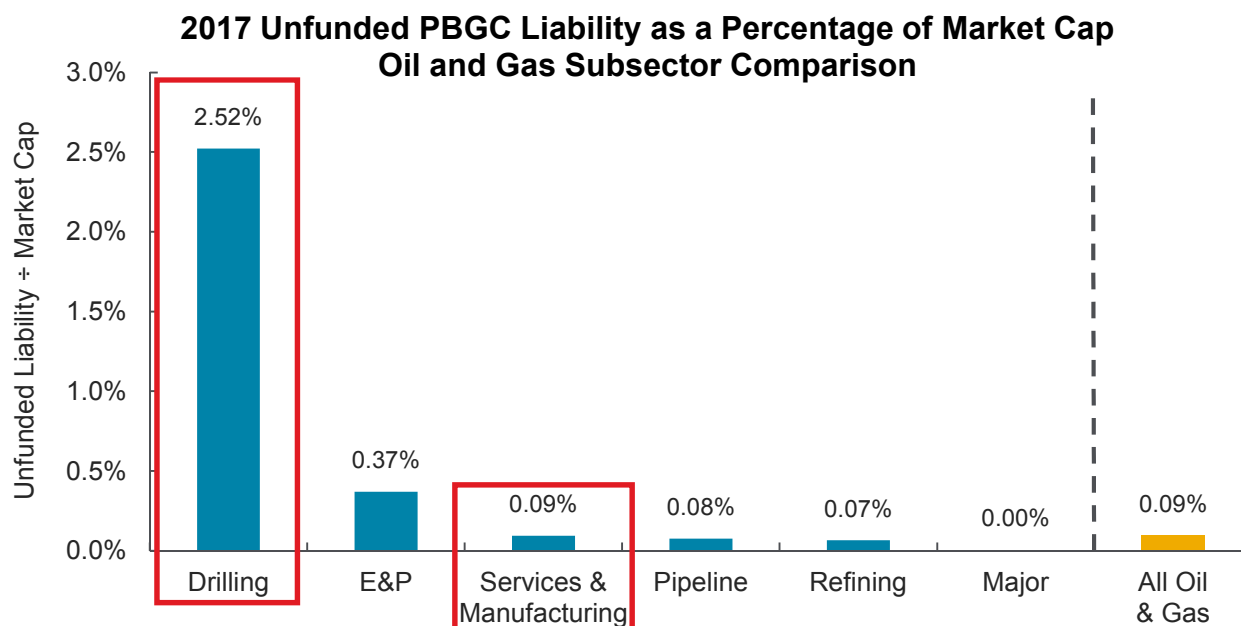
The following graph illustrates the effect of the three variables on the break-even point.



When analyzing expected asset return, it is important to focus on the expected return on the assets associated with the accelerated contributions, which may differ from the plan's current long-term rate of return. For instance, contribution acceleration may facilitate the progress toward de-risking if contributions are allocated to a higher concentration of fixed income. In this case, the expected return on the contributions will likely be lower than the plan's current long-term rate of return.

As previously discussed, PBGC variable premium rates are scheduled to increase, providing an even higher break-even point in the near future. However, the break-even rate decreases significantly after the plan is 100% funded and the PBGC variable rate premium returns to \$0.

Companies with a higher unfunded PBGC liability as a percentage of market capitalization may find the expected outcomes of borrowing to fund worthy of further discussion.



For a deeper discussion and illustration of the economics of prefunding versus minimum contributions for general industry, see Aon's white paper titled "Pension Funding Strategy: Considerations for Prefunding a Pension Plan," published in March 2016.¹

Reducing PBGC Premiums Through Pension Settlements

Many plan sponsors with significant variable rate premiums are implementing strategies to reduce premiums. One of these strategies is pension settlement initiatives, which transfer the pension obligation to either the participant or an insurance company and thus reduce the headcount for PBGC premium calculations. They are especially attractive to companies with underfunded plans and PBGC variable rate premium limited by the per-participant cap.

Companies whose variable rate PBGC premiums are capped (\$523 per participant in 2018) will find headcount reduction through settlement initiatives the most effective way to immediately reduce ongoing PBGC premiums. For a plan that is currently underfunded and at the variable rate cap, reducing headcount by 1,000 participants will reduce annual PBGC premiums by \$597,000 in 2018 (\$523,000 in

¹ The complimentary white paper can be downloaded on the [Aon Retirement and Investment Blog](#).

variable rate premiums plus \$74,000 in flat rate premiums). Savings of this magnitude continue annually until the plan's PBGC funded status improves.

Terminated Vested Lump Sum Windows

Lump sum windows for terminated vested participants are a first-step settlement initiative for many companies, and many have already implemented windows over the past several years. Terminated vested participants are participants who have terminated employment but have not commenced retiree annuity benefits. Oil and gas companies that have historically offered traditional pension plans with no or limited lump sum payment options may have significant liabilities for terminated vested participants. Even oil and gas companies that have changed to cash balance design or switched to defined contribution plans will often maintain liabilities for legacy terminated vested participants for many years after the plan change.

In addition to reducing costs of PBGC premiums, a lump sum window may reduce costs of the plan due to the elimination of administrative carrying costs.

Retiree Annuity Lift-Outs

More recently, settlement initiatives have also addressed retiree obligations. Although the IRS has issued a moratorium on retiree lump sum windows, companies may still settle retiree obligations with the purchase of annuity contracts from insurance companies. The popularity of the "retiree lift-out" has increased as term vested window activity diminishes.

A retiree lift-out is not a plan termination and thus avoids many of the complexities associated with the plan termination process. The plan sponsor will still need to follow a formal insurance company selection process—but overall the entire transaction is considerably shorter in duration than a plan termination.

In considering a retiree annuity lift-out, companies typically have one of the following two objectives:

1. Reduce risk by settling a large portion of the retiree obligation—This is a significant de-risking strategy that potentially eliminates a large portion of the plan's pension liability for a fixed insurance premium that is typically 1% to 5% higher than the accounting liability.
2. Reduce PBGC premiums for retirees with small annuities—This strategy is used for retirees with an insurance premium that is less than the carrying cost of the annuity, including PBGC premiums and administrative expenses.

Settlement Expense Considerations

Should the total settlements made by a pension plan for a year exceed the sum of the plan's service cost and interest cost for the year, a one-time settlement expense will be required under ASC 715. For plans with large unrecognized losses, this one-time expense could be significant.

However, plan sponsors interested in settlement initiatives but concerned with the exposure to a potential one-time expense may have found significant relief with FASB's issuance of Accounting Standard Update (ASU) 2017-07 in March 2017. The most important change under ASU 2017-07 is the removal of non-service cost items, including settlement charges, from the determination of operating expense. While companies using non-GAAP measures may have already been excluding these charges, others may now find settlements more appealing under this new ASU.

Special Reporting Under ERISA 4010 More Likely Under New PBGC Regulations

Under ERISA Section 4010, companies that sponsor pension plans that are less than 80% funded must provide certain financial and actuarial information to the PBGC unless the aggregate shortfall of underfunded plans in the controlled group is less than \$15 million. The 80% funded threshold does not reflect interest rate relief, but the \$15 million threshold has historically reflected interest rate relief and significantly lower liabilities. In March of 2016, however, the PBGC issued final regulations that require the \$15 million threshold to be based on liabilities without interest rate relief, resulting in significantly higher liabilities. Many companies that have not reported financial and actuarial information to the PBGC in the recent past are at a higher risk to do so.

Additional contributions to the pension plans or waivers of prefunding balances will allow many plan sponsors to avoid this special reporting to the PBGC. In some cases, the magnitude of these contributions and prefunding balances could be considerable, and companies may not find a meaningful benefit in avoiding the filing. In other cases, a minor acceleration of contributions or a waiver of a prefunding balance may be sufficient. Plan sponsors that are near 80% funded might find it beneficial to determine their 4010 filing status and the timing and amounts of contributions or waivers that would be required to avoid the filing.

Part IV: Benchmarking for U.S. Retiree Health Care Programs

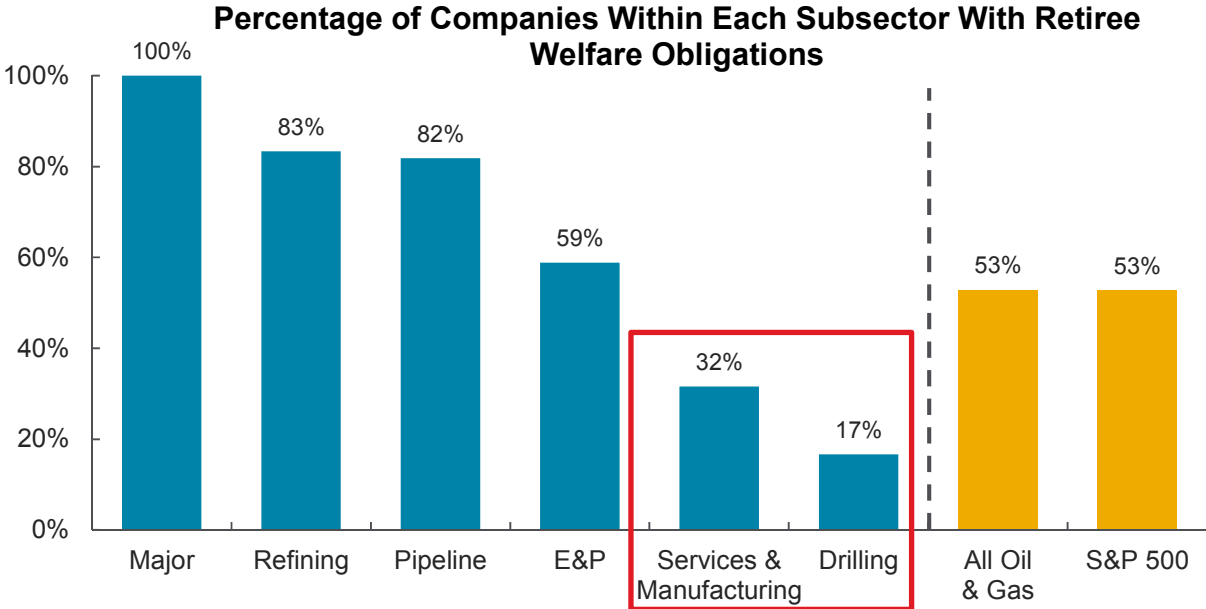
The analysis in this section covers the continuing changes in U.S. retiree health care programs for companies through the benchmarking of their associated accounting obligations, which include all retiree welfare programs.

Reductions Have Occurred, but Accounting Obligations Remain Material

Private sector employers have been actively changing their U.S. retiree health care programs to reduce their future subsidies since the late 1980s, but their obligations remain material. In the late 1980s, the Financial Accounting Standards Board announced that private sector employers would be required to account for the costs of health benefits and other postretirement benefits for current and future retirees. This started the steady erosion of the employer’s share of future retiree health care costs.

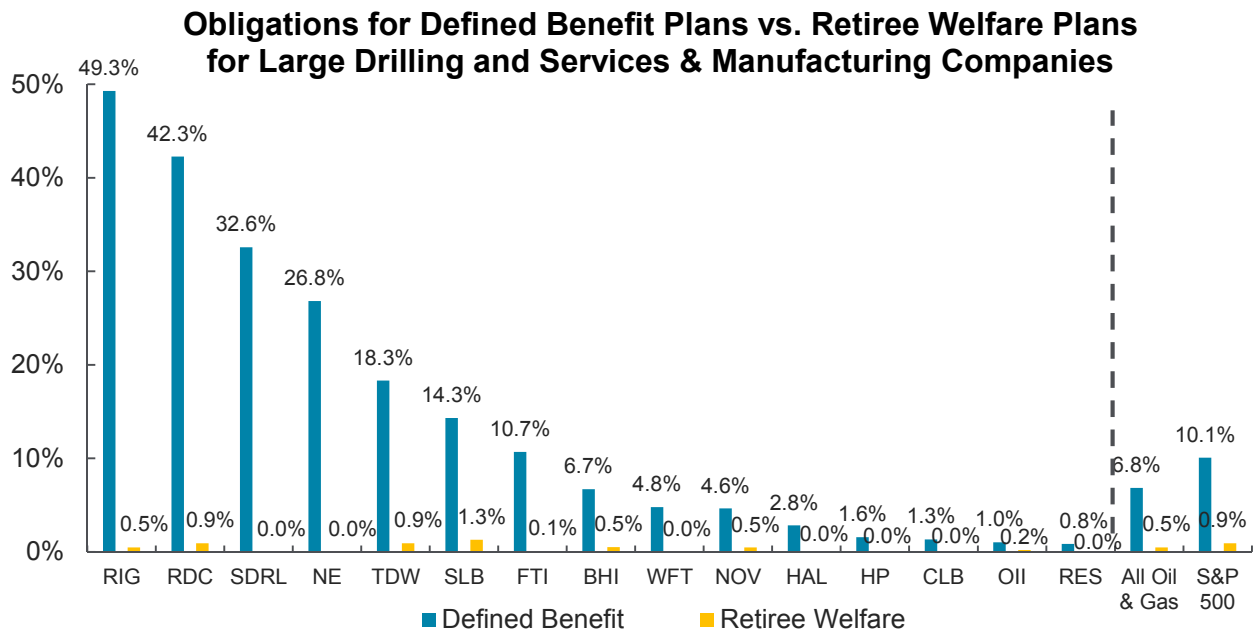
The first area of reduction was the elimination of the employer subsidy for new hires. The 2018 Aon Benefit SpecSelect™, a database of large-employer benefit programs, shows that 15% of general industry employers offer a subsidy for pre-Medicare coverage and 12% of employers offer a subsidy for Medicare-eligible coverage for salaried employees. These percentages were near 70% in 1994.

Employers have also been implementing many other changes to reduce their accounting obligations, such as higher deductibles, higher retiree contributions, and subsidy caps. These efforts have been partially offset by very high health care inflation over the past 25 years. The end result is that the majority of large employers—including oil and gas employers—have a material obligation as reported for accounting purposes. The Drilling and Services & Manufacturing Subsectors, however, have significantly less exposure than other subsectors. The chart below shows the percentage of companies reporting a material retiree health care or other retiree welfare obligation as of their 2017 fiscal year-ends.



Size of Accounting Obligations

The accounting obligation for retiree welfare benefits as a percentage of market capitalization varies within the Drilling and Services & Manufacturing Subsectors. The accounting obligations for retiree welfare are material, but they are significantly smaller than the obligations for defined benefit plans for companies in these subsectors. The chart below compares the two obligations as a percentage of market capitalization as of fiscal 2017 year-end.



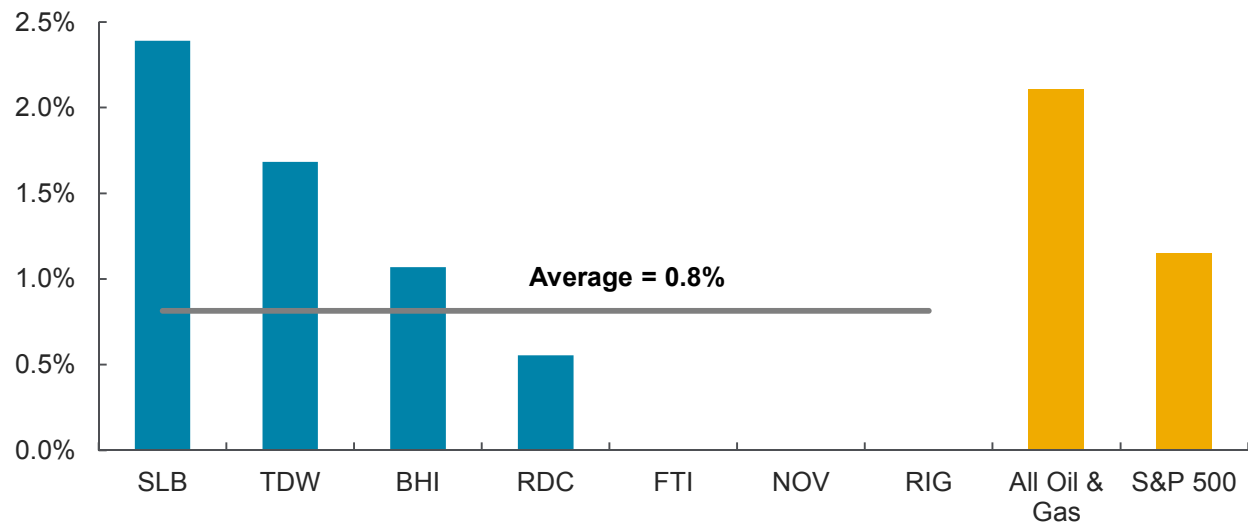
All Oil & Gas and S&P 500 averages include companies without a defined benefit or retiree welfare plan.

One key difference between defined benefit plans and retiree welfare plans is prefunding. The law requires prefunding for qualified defined benefit plans but not for retiree welfare plans; therefore most companies do not have assets in segregated trusts to pay future retiree welfare benefits. Only one services & manufacturing company in this study has assets for retiree welfare. The average funded status for all oil and gas companies in this study is 21%, with the majority of funding in Pipeline Subsector companies. The average funded status for S&P 500 companies is 33%.

Obligation for Future Retirees

The accounting rules require an expense component, called “service cost,” that ties directly to active participants who are expected to retire in the future. A service cost of \$0 implies that all or nearly all of the accounting obligation is for current retirees. The chart below shows the size of the service cost as a percentage of the accounting obligations for drilling and services & manufacturing companies. The lower percentage for Transocean indicates that its accounting obligation for future retirees comprises a smaller percentage than that of the other companies. This is an indication that these companies have higher legacy costs than the other companies.

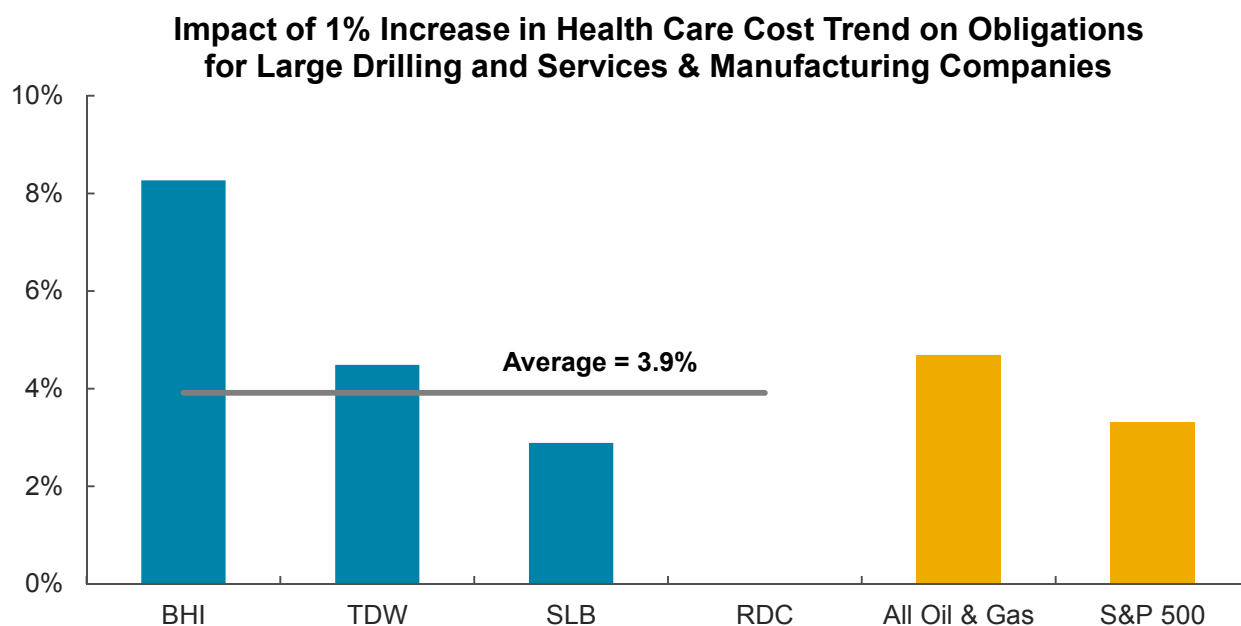
Service Cost for Actives as a Percentage of Obligations for Large Drilling and Services & Manufacturing Companies



All Oil & Gas and S&P 500 averages include companies without a defined benefit or retiree welfare plan. Oceaneering International was excluded from the chart because the financials specific to its retiree welfare plans are unavailable.

Risks From Health Care Inflation

Many employers have adopted subsidy caps for most of their current and future retirees. These caps eliminate company risks and higher accounting obligations from higher-than-expected health care inflation. The chart below shows the potential risk of health care costs rising faster than expected when caps are not in place for some participants. Note that Rowan has no risk from health care costs rising faster than expected, while Baker Hughes has material risks from high inflation.



TechnipFMC, National Oilwell Varco, Oceaneering International, and Transocean were excluded from the chart because the financials specific to their retiree welfare plans are unavailable.

Changes Expected Over the Next Few Years

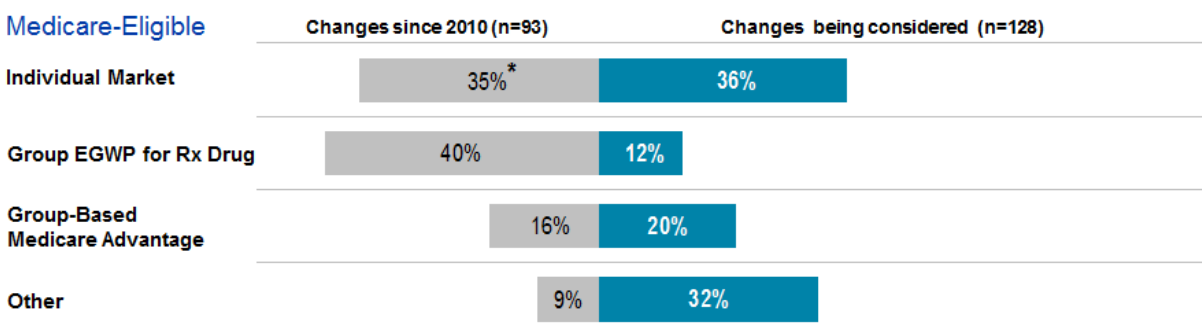
The Affordable Care Act of 2010 (ACA) included several provisions that offered employer incentives to substantially reduce accounting obligations for retiree health care. Many employers have acted on these incentives for Medicare-eligible retirees, and only a few have acted for retirees not eligible for Medicare due to market and political risks.

For pre-Medicare retirees and their former employers, the biggest ACA change was the creation of the new state/federal exchanges with insurance reforms. For the first time, this enables pre-Medicare retirees to purchase health coverage on a guaranteed-issue basis with no pre-existing condition exclusions at below-market premiums through federal mandates and incentives. The ACA also created a 40% excise tax for high-cost employer-sponsored plans beginning in 2020. Although there is speculation that the excise tax could be delayed further, it would apply to many employer plans for pre-Medicare retirees. This is giving employers another incentive to shift retirees to the state/federal exchanges. On the other hand, the insurance market for the state/federal exchanges has been very volatile with political risks of major changes. Therefore, only a limited number of employers have shifted to the state/federal exchanges, and nearly all other employers are waiting to see final legislative changes.

For Medicare-eligible retirees, the most significant ACA change was the gradual closure of the “donut hole” for Medicare Part D prescription drug benefits¹. Beneficiaries were paying 100% of total drug costs in the gap in 2010, and this will be reduced to 25% in 2020. The ACA also repealed the Retiree Drug Subsidy (RDS)² preferential tax treatment in 2013. The combination of these changes has encouraged plan sponsors to change their prescription drug programs to integrate directly with Medicare Part D or shift to the individual market so that retirees can purchase Medicare Part D policies.

Some companies are embracing employer group waiver plans (EGWPs)³, which are an alternate approach to receive government subsidies for group coverage of post-Medicare prescription drugs, and which are becoming more favorable than the RDS. The ACA also reduced future Medicare payments for Medicare Advantage plans.

Below is a summary for Medicare-eligible retirees from the Aon 2016 Retiree Health Care Survey of 229 general industry plan sponsors, representing 3 million retirees.



* 95% of these use a private exchange partner.

The results show material changes have already been implemented for many Medicare-eligible retirees, with many of the remaining employers expected to change in the next few years.

¹ Medicare Part D “Donut Hole”—The gap in prescription drug coverage between what is covered by individual insurance / employer-provided benefits and when Medicare Part D begins to cover expenses. Individuals are 100% responsible for expenses incurred in this gap. The gap will have decreased substantially by 2020.

² Partial government reimbursement available to employers that provide retiree prescription drug benefits to Medicare-eligible retirees in a group welfare plan. The reimbursement is available only if substantial prescription drug benefits are provided to post-Medicare retirees.

³ Group Medicare Part D prescription drug plan option that provides government subsidies. These subsidies will increase with the closure of the Medicare Part D “donut hole.”

Conclusion

Our research shows that oil and gas companies continue to provide valuable retirement programs, although the Drilling and Services & Manufacturing Subsectors lag behind the rest of the oil and gas industry. The cost of these retirement programs varies widely, so knowing and understanding these differences is important for each company.

Defined benefit plans are a material obligation on the balance sheets of drilling and services & manufacturing companies. Some companies are in the early stages of de-risking these plans, including companies that are moving to select glide path¹ strategies based on funded status and/or interest rate thresholds. In most cases, volatility will remain until glide paths mature and/or additional steps are executed.

Most qualified defined benefit plans in the United States remain materially underfunded. New laws and regulations have significantly increased PBGC variable premium rates and made it more difficult to avoid special reporting to the PBGC for underfunded plans. Companies with underfunded plans should actively consider the acceleration of contributions to avoid these costs. In most cases, borrowing to fund will produce an overall favorable economic outcome for the plan sponsor. Companies should also consider settlement strategies to reduce short-term and long-term costs.

U.S. retiree health care programs continue to be a hot topic as policies are evolving and the risk of health care inflation becomes more prominent. Many companies have taken action to adjust their programs, and more are expected to make changes in the next few years for Medicare-eligible retirees. Most companies are waiting to make changes for pre-Medicare retirees until legislative changes are known.

Aon's oil and gas industry team has significant data, expertise, and experience specific to oil and gas companies. We are available to discuss the data and conclusions of this report and to assist you in developing strategies to achieve your human resource and financial objectives.

¹ Predetermined plans to move a plan's assets away from growth-oriented assets and toward liability-hedging fixed-income allocations as the plan's funded status increases.

Appendix

The companies individually cited in this report and the reports for other subsectors are listed below.

Drilling Subsector

DO	Diamond Offshore Drilling Inc.
ESV	Ensco plc
HP	Helmerich & Payne, Inc.
NBR	Nabors Industries Ltd.
NE	Noble Corporation plc
PKD	Parker Drilling Company
PTEN	Patterson-UTI Energy, Inc.
PES	Pioneer Energy Services Corp.
PDS	Precision Drilling Corporation
RDC	Rowan Companies plc
SDRL	Seadrill Ltd.
RIG	Transocean Ltd.

E&P Subsector

APC	Anadarko Petroleum Corporation
APA	Apache Corporation
CHK	Chesapeake Energy Corporation
COP	ConocoPhillips Company
DNR	Denbury Resources Inc.
DVN	Devon Energy Corporation
EOG	EOG Resources, Inc.
HES	Hess Corporation
LINN	Linn Energy, Inc.
MRO	Marathon Oil Corporation
MUR	Murphy Oil Corporation
NFX	Newfield Exploration Company
NBL	Noble Energy, Inc.
OXY	Occidental Petroleum Corporation
PXD	Pioneer Natural Resources Company
SWN	Southwestern Energy Company
STO	Statoil ASA

Refining Subsector

ANDV	Andeavor
CITGO	CITGO Petroleum Corporation
HFC	HollyFrontier Corporation
MPC	Marathon Petroleum Corporation
PSX	Phillips 66 Company
VLO	Valero Energy Corporation

Major Integrated Subsector

BP	BP p.l.c.
CVX	Chevron Corporation
XOM	Exxon Mobil Corporation
RDS	Royal Dutch Shell plc
TOT	Total Petrochemical (Total S.A.)

Pipeline Subsector

BWP	Boardwalk Pipeline Partners
BPL	Buckeye Partners LP
ENB	Enbridge, Inc.
ETP	Energy Transfer
EPD	Enterprise Products Partners
KMI	Kinder Morgan
MMP	Magellan Midstream Partners
NS	NuStar Energy
OKE	ONEOK, Inc.
PAA	Plains All-American Pipeline
WMB	The Williams Companies

Services & Manufacturing Subsector

BHI	Baker Hughes
CLB	Core Laboratories
DRQ	Dril-Quip, Inc.
DXPE	DXP Enterprises, Inc.
EXTN	Exterran Corporation
FET	Forum Energy Technologies
GE	General Electric Oil & Gas
HAL	Halliburton Company
HLX	Helix Energy Solutions Group, Inc.
NOV	National Oilwell Varco Inc.
NR	Newpark Resources Inc.
OII	Oceaneering International, Inc.
OIS	Oil States International, Inc.
RES	RPC, Inc.
SLB	Schlumberger Limited
SPN	Superior Energy Services, Inc.
FTI	TechnipFMC plc
TTI	TETRA Technologies, Inc.
TDW	Tidewater Inc.
WFT	Weatherford International Ltd.

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