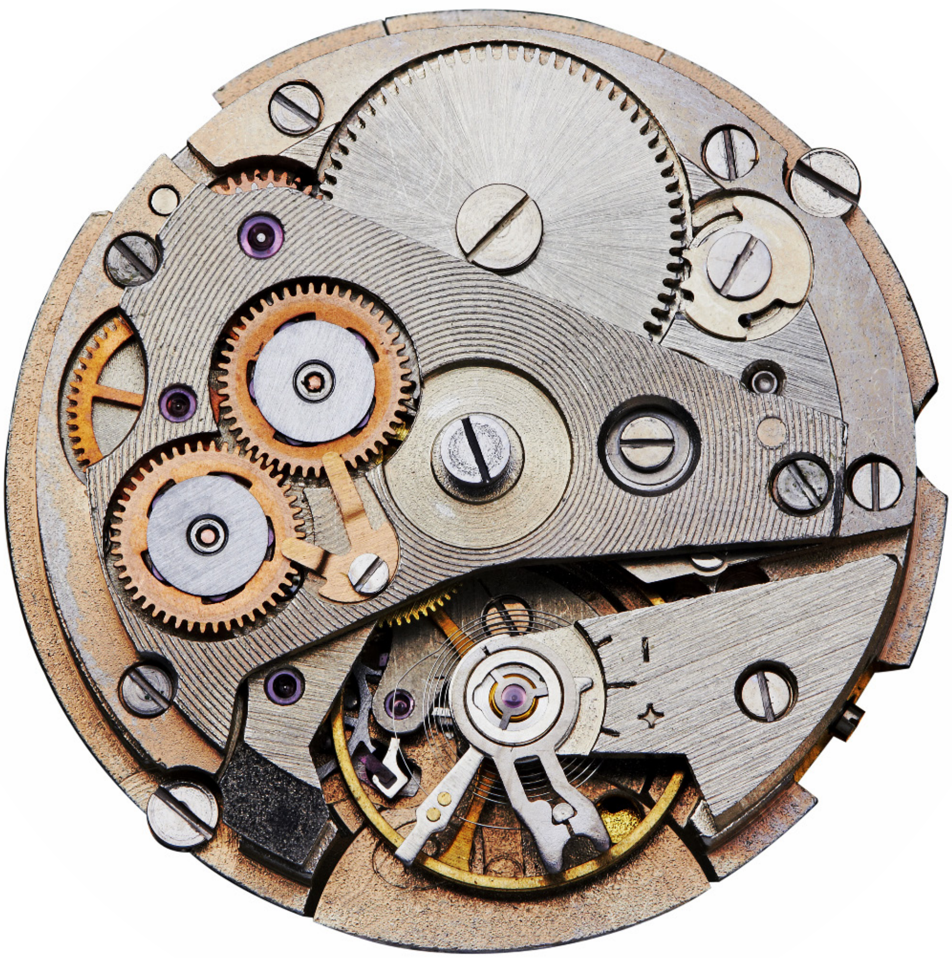


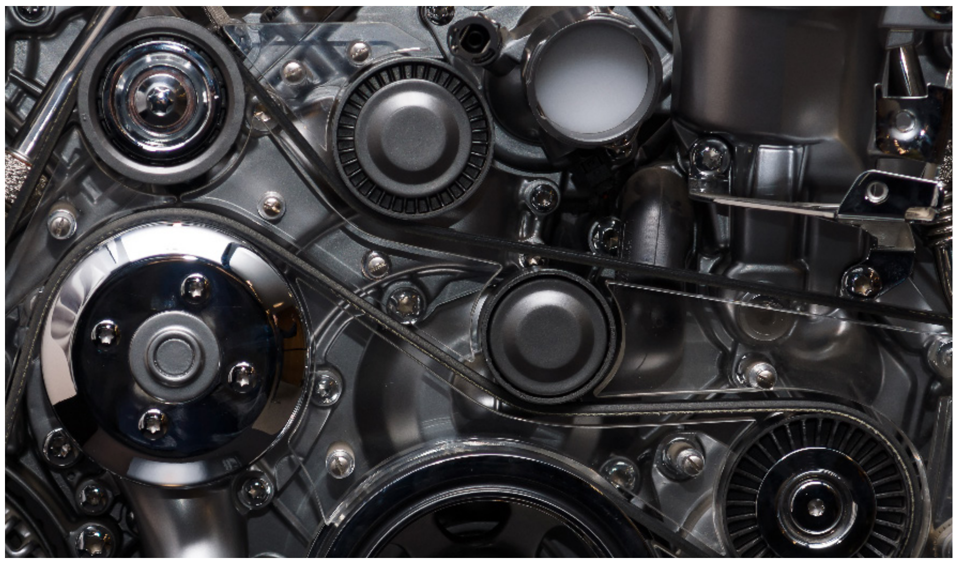
Reinsurance as a capital management tool

Contents

Reinsurance remains core to capital management

Important industry trends driven, in part, by reinsurance considerations

In an age of accelerating transformation—technological, financial, and regulatory—our research indicates that reinsurance continues to be an important component of capital management strategy across the insurance industry. This is true in spite of, and sometimes because of, the evolving ecosystems of ceding companies and reinsurers.



Both life insurers and property and casualty (P&C) carriers are coping with a number of critical challenges that are undermining growth potential and threatening profitability. Waning demand and increased capacity for traditional products have, in some instances, left companies struggling to achieve traditional profit targets. An increase in commoditized pricing, internal expenses related to arguably onerous regulations, inefficiencies in internal infrastructure, and the sustained low interest rate environment are additional factors impacting the top and bottom lines of reinsurers and primary carriers alike.

Reinsurance trends differ in the P&C and life subsectors. In the P&C market, reinsurance premium rates and returns have fallen thanks to overcapacity. This is the result of a low number of catastrophes and the growth of insurance-linked securities and hedge fund facilities driven by nontraditional investors seeking higher yields and less-correlated risk. Similarly, excess capital for primary P&C carriers has led to a decline in demand for reinsurance, putting additional downward pressure on pricing. For life insurers, on the other hand, consolidation among reinsurers with capacity for large transactions, a vanishing middle-market, and certain counterparty-specific preferences in select situations for primary carriers have driven increases in reinsurance pricing.

However, irrespective of pricing trends, it is becoming increasingly problematic for any sector of the industry—life or P&C, primary insurer or reinsurer—to consistently generate top-line growth while maintaining a competitive bottom line. It doesn't promise to get any easier, as insurers of all kinds are faced with a new frontier of dynamically evolving risks. At the same time, the menu of risk management, mitigation, and transfer solutions is maturing while internal and external stakeholder expectations are becoming ever more complex.

Despite these macro conditions, one certainty remains: Those insurance organizations possessing the combination of sophistication and the adaptability needed to optimally manage capital will be the likely market leaders. Historically, reinsurance has been a valuable and effective capital and risk management tool. It has been deployed to reduce exposure, free up capital to support increased premium writings, manage earnings volatility, and generally make more efficient use of the capital that companies manage.

While reinsurance will continue to serve these purposes, its role will evolve along with that of the broader financial services landscape.

Where does reinsurance fit into the insurance market today, and how is demand for it likely to evolve over the next three to five years? How might ceding companies and reinsurers adapt to changing times?

Over the course of this research report, we will take a deeper look at recent and expected trends in the use of reinsurance and its interaction with broader industry evolution.

To address those questions, we dissected publicly available statutory data for hundreds of insurance companies, executed a detailed survey of dozens of insurers with an active and diverse presence in the business, and interviewed key players on the ceding and assuming sides of the reinsurance marketplace. Key takeaways include the following:

Life industry

- Significant consolidation in the life reinsurance industry has led to a hardening of prices from a buyer's perspective. Some expect this trend to be offset by increased price competition from alternative capital sources.
- Regulatory uncertainty with respect to the implementation of statutory regulations (such as Actuarial Guideline 48 and principle-based reserves under VM20) is easing, which may lead to an increased use of reinsurance, given continued reserve-and-capital challenges.
- Sensitivity to policyholder behavior has increased reinsurers' interest in mortality-only covers such as yearly renewable term (YRT) structures.
- Mortality increases and a recent reduction in American life expectancy[1] underscore the increasing value of leveraging large amounts of data and applying advanced analytics to inform pricing and strategy. We observe increased interest here among life reinsurers.

Property and casualty industry

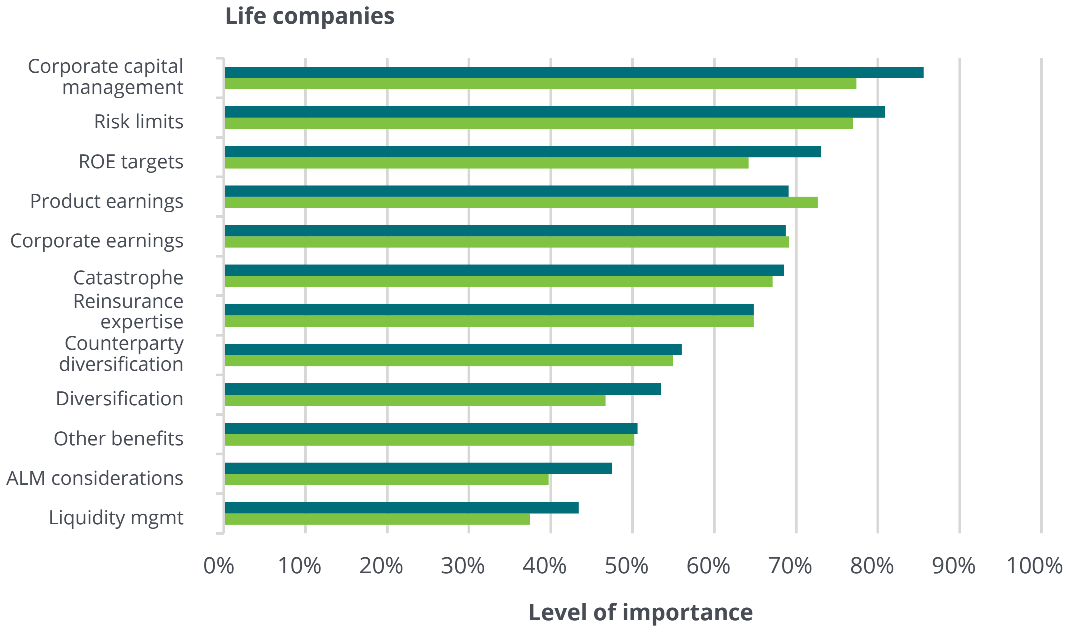
- Reinsurance pricing has decreased, in large part due to strong capital positions for insurers and the entry of alternative capital.
- There was a decline in the use of reinsurance from 2011 to 2014. That trend reversed in 2015 as the reinsurance market reached a price point where ceding companies are finding it relatively more attractive to reinsure business on a risk-adjusted return basis.
- There's been a shift in focus with respect to reinsurance purchase drivers, where buyers who had been primarily motivated by capital management are now focusing on mitigating the volatility of returns.
- Consolidation of reinsurers will likely improve pricing leverage for sellers over the next few years as capacity continues to be removed from the marketplace.

As shown in Figure 1, our survey results indicate that reinsurance is expected to continue to be used strategically to manage capital and exposure to tail events (to help spread the risk of catastrophes, for example), which is similar to how it has been used in the recent past. Reinsurance needs to be responsive to a number of disparate trends in the industry, including alternative capital, low interest rates, creative hybrid derivative solutions, finance transformation, and system modernization.

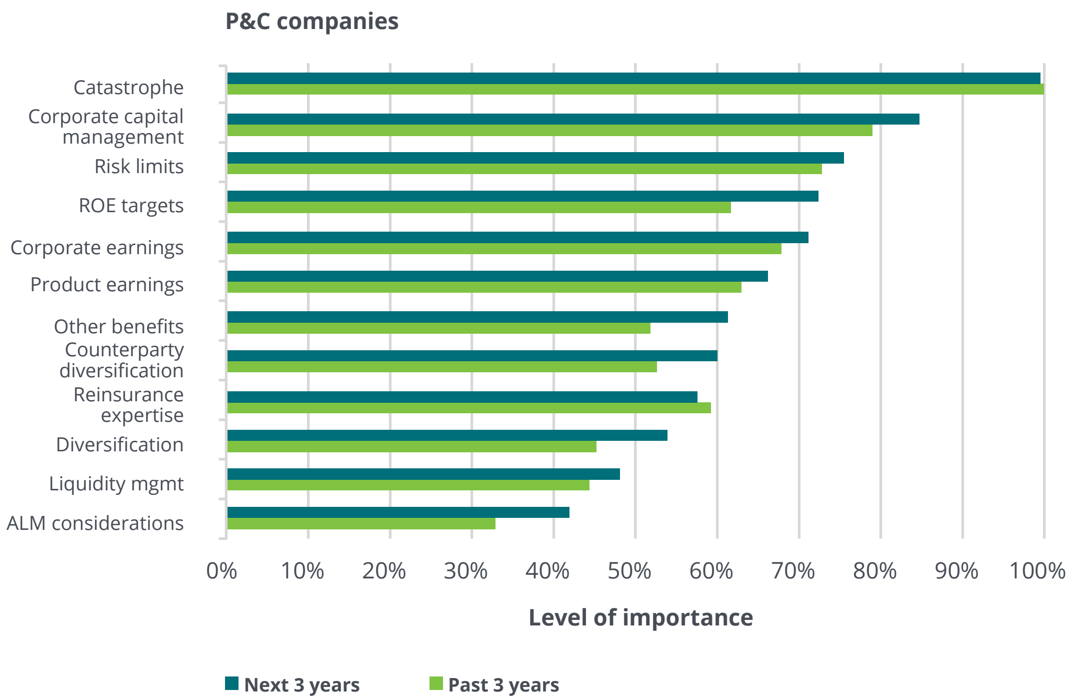
[1] Larry Bernstein, "US Life Expectancy Declines for the First Time Since 1993," ***Washington Post***, Dec. 8, 2016

Figure 1. Strategic reasons for purchasing reinsurance

Please indicate the importance of each of the following strategic reasons for your company's reinsurance purchases over the last three years versus in the next three years.



Life observations
- **Primary drivers:** Corporate capital management, product earnings, and the need to manage risk limits
- **Short-term (0-3 years) expectations:** No significant change



P&C observations
- **Primary drivers:** Catastrophe, corporate capital management, and the need to manage risk limits
- **Short-term (0-3 years) expectations:** No significant change

Source: Deloitte Reinsurance Survey, 2016

What shaped the present state of the market?

The disparate impact of the financial crisis on life and P&C reinsurers continues to play out today

Post-crisis (2008 to 2011)

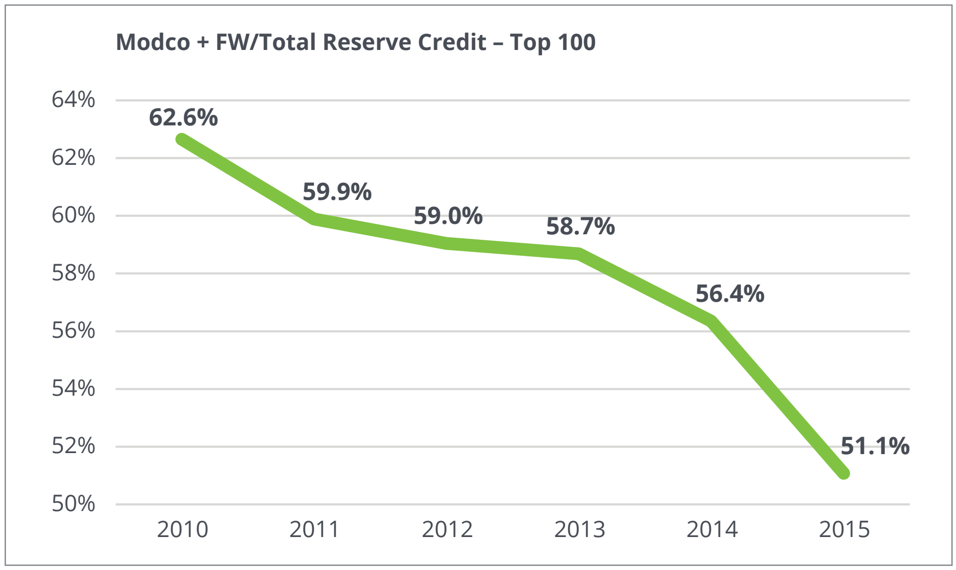
Following the financial crisis of 2008 to 2009, life insurers saw profitability dwindle and concern about capital levels rise due to both economic and regulatory pressure. This resulted in a recalibration of pricing, assumptions, and modeling. The crisis did not, however, increase demand for traditional reinsurance to the extent some had anticipated, due primarily to the steady and stable recovery of the credit and equity markets as well as cautious strategic thinking around reinsurance balance sheet impacts.

During this time, P&C companies saw moderate declines in enterprise values attributable to low interest rates, but the negative impacts weren't nearly as significant as those seen by their life counterparts. Soon after the crisis, insurance pricing began to soften in the P&C space due to increased capital levels in the industry.

Post-post-crisis (2012 to 2015)

Over the past four years, life insurers have struggled to achieve return on capital (ROC) targets. This is due in large part to products being generally commoditized with very competitive pricing or challenged by high capital requirements due to potential volatility (attributable to product features such as variable annuity and universal life riders). The prolonged low interest rate environment and recent instances of adverse mortality experience have added to pricing challenges. Product innovation has generally slowed since the annuity-driven guarantee boom with pockets of continued development in the combination-products space.

Figure 2. Top 100 life insurers, modco and funds withheld reserve credits as a percentage of total reserve credits



Source: S&P Global Market Intelligence

Meanwhile, the P&C landscape evolved to meet emerging market needs such as cyber risk protection and usage-based auto insurance. However, the traditional product landscape has been plagued with an abundance of capital and a softening market, which is in part a consequence of reserve releases from past hard markets fueling strong earnings.

During this time period, we observed a decrease in the overall use of reinsurance for both life and P&C companies. This may have been driven by some regulatory uncertainty—both domestically and globally. However, more recently this trend seems to be reversing. For example, note the certainty to be provided by the recently concluded covered agreement between the US and the European Union eliminating the potential for worldwide group capital standards and the easing of reinsurance collateral requirements. Going forward, there is also an expectation within the industry that there likely will be less—not more—domestic regulation under a Republican-led US government, at least on a national level.

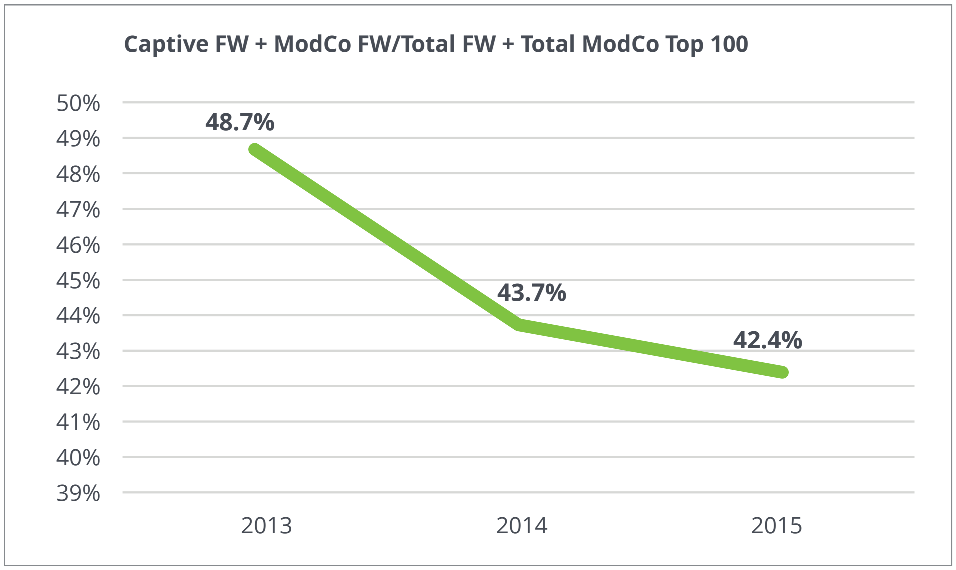
Reinsurance use waned, shifted, and is now moderately on the rise

Life reinsurance developments

Consolidation. There has been a bifurcation in the life reinsurance space, with the middle market almost disappearing. As of the beginning of 2016, the top five life reinsurers accounted for approximately 84.2 percent of the life reinsurance in force in the US.[2] Industry sentiment seems to generally be that this consolidation trend might level off and that the current five major players will lead the sector for the foreseeable future.

[2] J.P.Morgan North America Equity Research, Market Share Bible, Vol. LXIX, October 2016.

Figure 3. Top 100 life insurers, captive modco and funds withheld reserve credits as a percentage of total modco and funds withheld reserve credits



Source: S&P Global Market Intelligence

Pricing. For primary carriers, reinsurance pricing has remained firm. Industry sentiment seems to indicate that there will be a continued hardening trend for buyers. There is a top tier of 20 to 30 ceding companies for which only the top five reinsurers typically have capacity to meet coverage needs. Often, writers of this size work with three or four of these large reinsurers. Consequently, there is a lack of overwhelming pressure to compete on price. Mid-market insurers also benefit from working with the larger reinsurers in part because of industry insight and perspective that can be gained from the relationships.

Regulatory. Concern by some regulators about capital regime differences and associated public discourse led to a decline in the use of certain types of financial reinsurance in the recent past. Data filed by insurers on statutory blank forms through year-end 2015 shows this trend, as well as a decline in the use of captives (see Figure 2 and Figure 3). It appears that the finalization of the principle-based reserving (PBR) guidance and the adoption of Actuarial Guideline 48 (AG 48) did have the effect of discouraging these types of contracts, temporarily. This uncertainty appears to be dissipating with the implementation of AG48 and PBR. Industry sentiment is that financial reinsurance will continue to be an important part of the life reinsurance space as the industry gains comfort with the future state of statutory guidance.

Our research indicates ceding companies see continued "reserve and capital interaction" challenges that—combined with more certainty around statutory regulation and a queue of reinsurance demand built up during the regulatory evolution period—should lead to a slight to moderate increase in use of reinsurance for capital management purposes.

Ceding insurers will likely be looking to optimize capital costs while reinsurers will probably seek to provide more innovative capital management solutions to their clients. Several AG 48 compliant captives have been formed in the last few years, which we expect to evolve into PBR-compliant solutions as implementation proceeds (beginning January 1, 2017, for most states and January 1, 2018 for New York-domiciled companies).

Correspondingly, emerging capital requirements such as Solvency II, rating agency benchmarks, and comprehensive capital analysis and review (CCAR) for systemically important financial institutions (SIFIs) are generally increasing required capital for insurers—which, all else being equal, lowers ROC. Increasingly, maximizing ROC requires a sophisticated understanding of risk modeling and infrastructure to support it.

Capital levels. Among the largest 100 US-based life insurers, risk-based capital (RBC) levels (as a percentage of company action level RBC) have increased significantly since the financial crisis, averaging 477% in 2015 compared with 413% in 2009.[3] This trend is attributable to stable markets, adjusted pricing and risk tolerance, improvements in the general financial health of the industry, and capital re-positioning to respond to regulatory and rating agency concerns. Increased capital cushions and associated generally accepted accounting principles (GAAP) equity have allowed many public insurers to execute share buybacks and dividend increases.

As markets stabilized and pricing normalized, both reinsurers and cedants have been more confident executing reinsurance treaties. Higher capital levels, we believe, have partly driven investment in innovative solutions in the reinsurance

[3] Figures derived from data provided by S&P Global Market Intelligence

space, which has been focused more on down-scenario planning and ROC-denominator pressure. Our discussions with reinsurers and ceding companies confirm that modeling, collaboration, and increased capital sourcing are aligned with the expectation that reinsurance solution creativity and development are expected to increase over the next several years.

Our survey (see Figure 4) shows that reinsurance decisions are highly motivated by an organization's capital metrics. For US life insurers, the primary capital-based driver is statutory RBC, followed by rating agency capital.

Earnings. Our research also found that while earnings-based drivers were considered important by some companies, there were far fewer that indicated they were "significantly important" in the decision-making process (as shown in Figure 5).

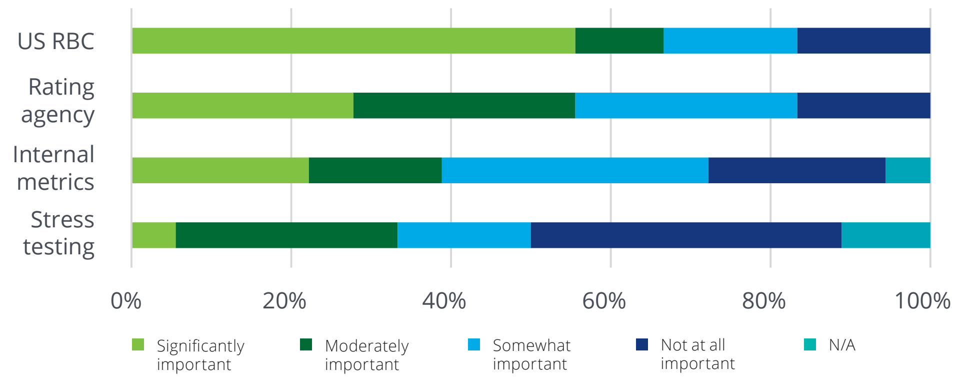
Rating agency models. There has been a rise in the level of modeling sophistication insurers seek, in proportion with rating agency expectations and the increased analysis those agencies are performing themselves. Our discussions with insurers and reinsurers reflected an improved ability to project and assess differences among agency, statutory, GAAP and economic capital or equity. This in turn has led to pockets of increased reinsurance activity —a trend we expect to continue.

P&C reinsurance developments

Pricing, volume, and type. The use of reinsurance generally declined from 2011 to 2014, but began to increase again in 2015—likely attributable to decreases in pricing and modest industry-wide increases in earnings volatility, which reinsurance is being used more often to mitigate. (A difference in trends between affiliated and non-affiliated transactions is highlighted in Figure 6.)

Figure 4. Capital based reinsurance drivers – life companies

To what extent has each of the capital-based items driven your reinsurance purchase volume over the last three years?

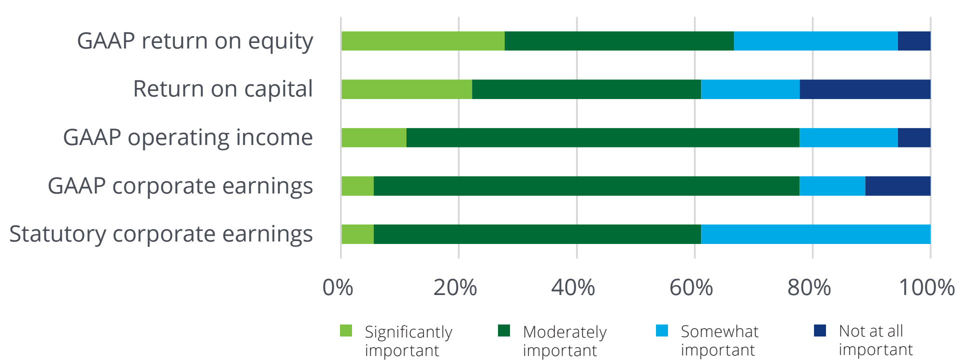


Source: Deloitte Reinsurance Survey, 2016

Life observations
- **Primary drivers:** US RBC, rating agency, internal metrics
- **Secondary/tertiary drivers:** Stress testing
- **Less impactful drivers:** US GAAP equity, Bermuda solvency capital ratio (BSCR), non-US and non-Europe capital metrics, Solvency II, emerging regulatory

Figure 5. Earnings based reinsurance drivers – life companies

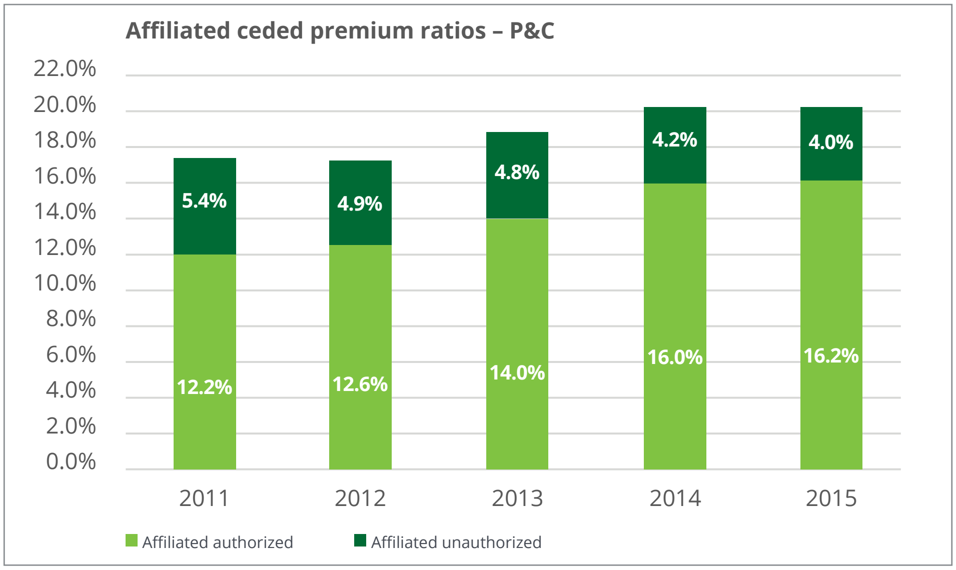
To what extent has each of the earnings-based items driven your reinsurance purchases over the last three years?

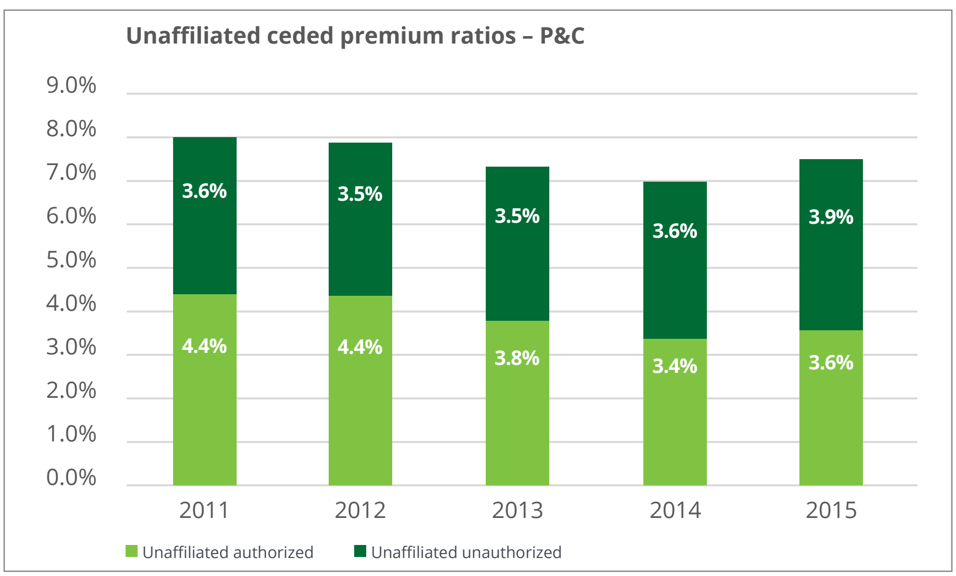


Source: Deloitte Reinsurance Survey, 2016

Life observations
- **Primary drivers:** GAAP return on equity, return on capital (ROC), GAAP operating income, GAAP corporate earnings
- **Secondary/tertiary drivers:** Statutory corporate earnings
- **Less impactful drivers:** Statutory return on surplus, divisional earnings, divisional return on equity/surplus, IFRS metrics, liquidity, internal earnings metrics

Figure 6. Top 100 P&C premiums ceded as a percentage of total premium





Source: S&P Global Market Intelligence

Insurers have increased cessions to onshore affiliates and decreased cessions to offshore affiliates, which is likely the consequence of low underwriting returns. However, with third-party (unaffiliated) reinsurance, companies decreased purchases from onshore reinsurers in 2011 to 2014, and then reversed that trend in 2015. Companies increased their onshore third-party reinsurance use in 2015, which followed several years of steady volume for these cessions. These two trends suggest that companies are ceding less business offshore on an intra-group basis given that underwriting results are not as strong as in prior years. Concurrently, companies are increasing purchases from new alternative capital reinsurers or other off-shore reinsurers as they gain comfort that these organizations have staying power in the market.

Risk and modeling. Across the P&C industry, insurers have been using more sophisticated modeling techniques (typically deploying internal economic capital models) to make reinsurance decisions for the past five years. This modeling has primarily focused on capital requirements from a solvency perspective (for example, the 99.5th percentile of loss distributions). Many of the larger ceding companies decreased reinsurance purchases, in part, due to these modeling results versus internal targets.

However, a consequence of these reduced reinsurance purchases was a corresponding increase in earnings volatility. In some cases, this took a toll on P&C insurer net income, prompting companies to return to prior, higher levels of reinsurance use as a result.

Firms are currently seeking to balance capital management and earnings volatility as drivers of reinsurance decisions. Since earnings and surplus are related, the interaction of reinsurance and other risk management decisions over time is further driving investment in modeling capabilities, which is needed to optimize the capital-and-earnings equation. Such investment is occurring with reinsurers as well as ceding companies.

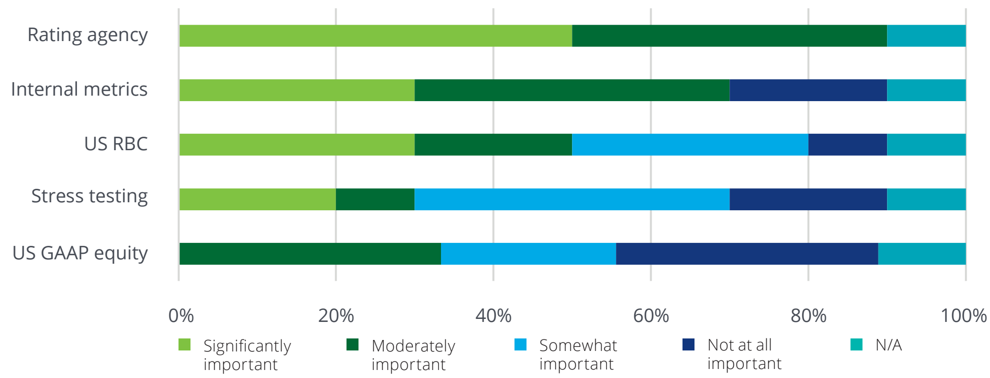
Capital levels. Reinsurance decisions are highly motivated by an organization's capital metrics for P&C insurers as well. However, rating agency capital (rather than RBC) is the primary driver, followed by internal capital metrics (as shown in Figure 7).

Earnings. As was the case with life insurers, few of the P&C insurers surveyed indicated that earnings were "significantly important" in the decision-making process (see Figure 8). As noted earlier, however, we are seeing increased focus on using reinsurance to control earnings volatility. We saw evidence of this phenomena with an increase in reinsurance premium volume in 2015.

Regulatory. As is the case with life insurers, emerging capital requirements (such as Solvency II, rating agency benchmarks and CCAR) are generally increasing required capital for P&C insurers, which, all else being equal, lowers ROC and will require a sophisticated understanding of risk modeling, both for internal management purposes and to satisfy stakeholder expectations.

Figure 7. Capital-based reinsurance drivers

To what extent has each of the capital-based items driven your reinsurance purchase volume over the last three years?

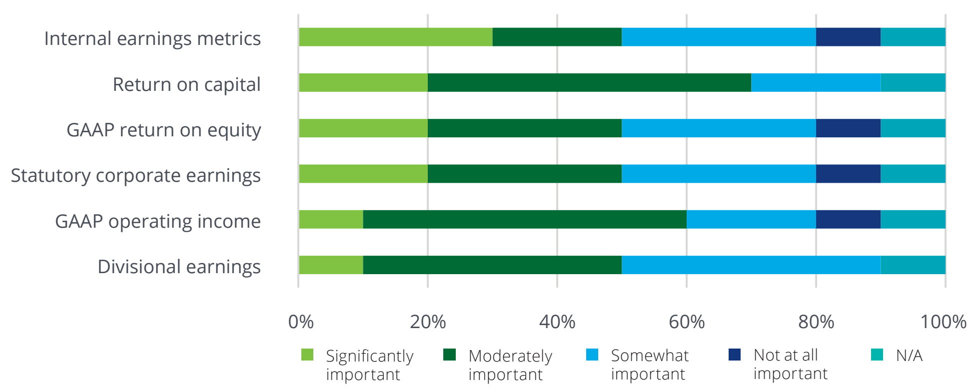


P&C observations
- **Primary drivers:** Rating agency, internal metrics, US RBC
- **Secondary/tertiary drivers:** Stress testing, US GAAP equity
- **Less impactful drivers:** IFRS-based equity, BSCR, other non-US and non-Europe capital metrics, Solvency II, emerging regulatory

Source: Deloitte Reinsurance Survey, 2016

Figure 8. Earnings-based reinsurance drivers

To what extent has each of the earnings-based items driven your reinsurance purchases over the last three years?



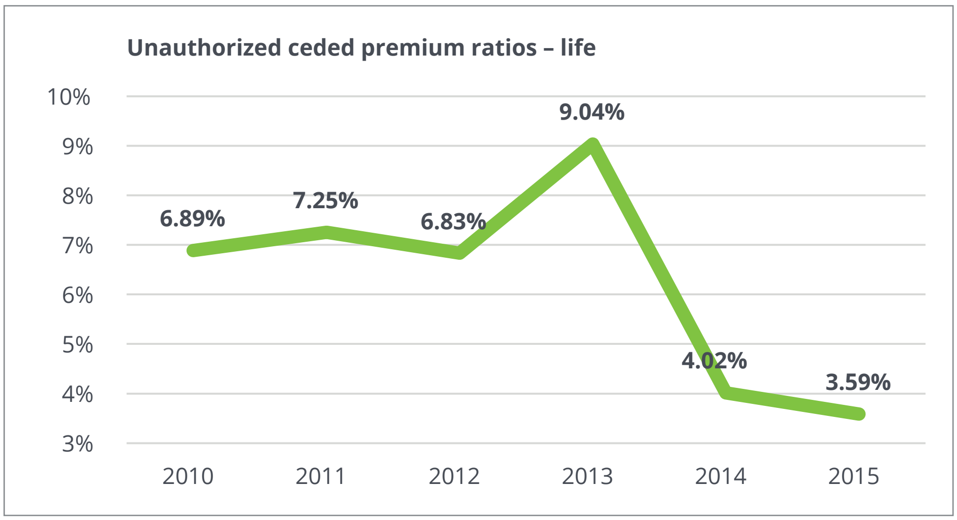
P&C observations
- **Primary drivers:** Internal earnings metrics, ROC, GAAP operating income
- **Secondary/tertiary drivers:** GAAP ROE, statutory corporate earnings, divisional earnings
- **Less impactful drivers:** GAAP corporate earnings, statutory return on surplus, divisional return on equity/surplus, IFRS metrics, liquidity

Source: Deloitte Reinsurance Survey, 2016

What will shape the future role of reinsurance?

Reinsurers will likely evolve alongside broader industry trends

Figure 9. Top 100 life premiums ceded as a percentage of total premium



Source: S&P Global Market Intelligence

Shift in incentives for reinsurers is redefining ROC reality

During the past four years, we observed a decrease in the overall use of reinsurance for both life and P&C companies. This trend seems to be reversing.

Certain trends have been a part of both the decline and recovery. Increased pressure on ROC, for example, motivated by regulatory and economic concerns, left less room for ceding companies to "share" with reinsurers, and there was a perception that reinsuring was only occurring at a relatively high cost. However, repricing, a recognition of a new "ROC reality," and creative use of embedded derivatives (tying reinsurance to potential future rate moves) are helping parties from both sides overcome this challenge.

Life captives and P&C offshore domiciles

Insurers have traditionally made significant use of unauthorized (offshore) reinsurance. The issues addressed by this solution have varied, but are usually driven by management of capital and/or earnings volatility.

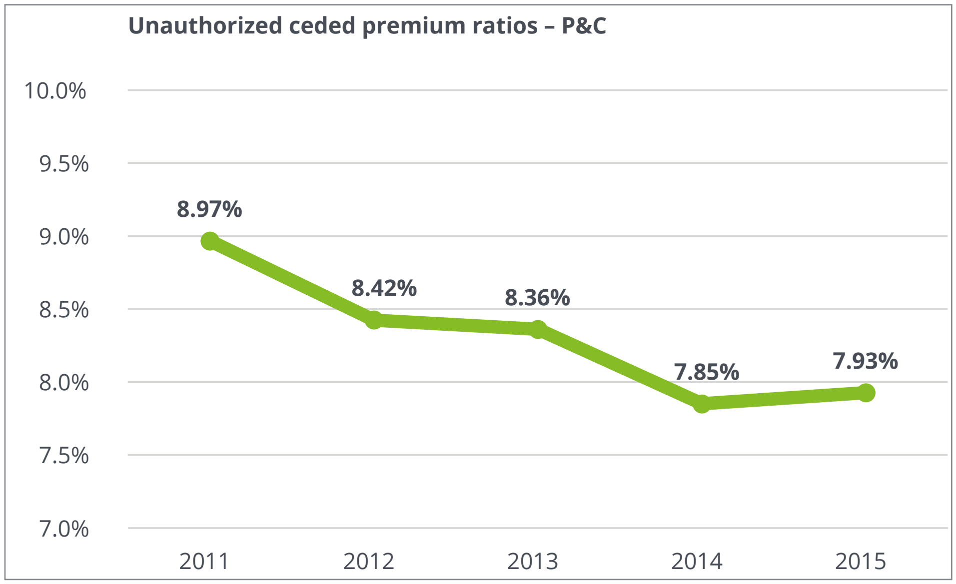
For life companies, the elimination of redundant reserves and the freeing up of domestic capital have been top priorities. For P&C writers, the motivation has primarily been the need for more efficient capital management in home office locations (primarily in Bermuda and across Europe).

As shown in Figure 9, life insurers saw a peak in unauthorized ceded premium ratios of nine percent in 2013, followed by a relatively steep decrease in unauthorized reinsurance during 2014 and 2015, which was driven primarily by regulatory uncertainty surrounding AG 48 and PBR implementation. Moreover, as expressed in our discussions with life industry leaders, the use of unauthorized reinsurance is expected to increase, focused on unaffiliated treaties. This suggests that the decreases for 2014 and 2015 were temporary, as regulatory uncertainty surrounding AG 48 and PBR subsided.

For P&C insurers (as shown in Figure 10), we have observed the use of offshore reinsurance generally declining but maintaining a tighter range from 2011 to 2015. The drop in offshore reinsurance is driven by a decline in affiliated offshore reinsurance, slightly offset by a flat to increasing use in unaffiliated offshore treaties. This suggests that the industry will continue to cede less to offshore affiliates as long as pricing remains soft, while increasing cessions across the board to third party reinsurers as a result of an increased focus on earnings volatility management.

The general sentiment of our executive discussions was that, from a reinsurer's perspective, the largest benefit of captive-based solutions is the ability to isolate and underwrite very specific risks as the reinsurer's appetite and other activities change.

Figure 10. Top 100 P&C premiums ceded as a percentage of total premium



Source: S&P Global Market Intelligence

Additional forward-looking regulatory developments

In addition to the evolving regulatory developments mentioned earlier, there are others on the horizon that will likely have a direct or indirect influence on reinsurance flow over the next three to five years.

For one, Department of Labor (DOL) changes to fiduciary guidance led to significant adjustments to life insurer pricing, compensation platforms, and interaction with sales forces. In some cases, life insurers are reconsidering strategy, shifting down slightly the risk-taking component of their mission with a parallel increase in the non-risk-taking side—which includes customer services focused on advisory, data management, record-keeping, and administration. If this adjustment is quantitatively small and short term, its qualitative impact in some segments could, in our view, lead to an increased risk-transfer interest. Longer term, a scaling back or outright repeal of the DOL rules could alter this equation as well.

For another, proposed US GAAP targeted improvements and the issuance of IFRS 17, both aimed at enhancing financial reporting requirements for long duration contracts issued by insurance entities, may be implemented as early as 2020. Both requirements could create a greater need for reinsurance, as many organizations will face increased exposure to earnings volatility. This increased exposure would naturally lead to changes in reinsurance-related risk tolerance levels for any given product, line of business, or company.

Meanwhile, the International Association of Insurance Supervisors (IAIS) continues to work on the concept of an insurance capital standard with field tests being conducted by a growing number of US firms. This approach is similar to Solvency II in that debates regarding the applicability of market-consistent metrics are revived.

Broadly, many executives see the potential for regulatory scope to be relaxed under the Trump administration and Congress, but also have some apprehension over continual adjustments to requirements, structure, and competing regulatory bodies.

Transformation efforts

As with all financial services, the insurance sector has been focused on transformation efforts around finance, talent, and other ecosystems. Almost every firm we spoke with included some combination of enhancements to people, process, technology, and governance in their strategic objectives.

While some of this trend may arguably fall into an "ongoing maintenance" category, our view is that insurers are reaching an inflection point such that investment in long-term structural initiatives is increasing due to technological advancements. Specifically around modeling, the increased importance of controls and the desire to leverage data are key goals. These factors are ultimately viewed to be driving long-term expense ratios downward (especially on a net basis, as is the case with data projects that open the door for new revenue streams), making reinsured risk units (lines of business, products, or cohorts) more attractive from the standpoint of the ceding company acting as advisor (including data manager and administrator) as opposed to risk-taker.

Big data and advanced analytics

P&C insurers have been ahead of the curve regarding predictive analytics, but life insurers are now also investing heavily in this capability. We see a natural synergy between reinsurers and ceding companies, as reinsurers become more interested in gaining access to a broad array of data, while primary insurers look to optimize capabilities and seek underwriting advantages.

Partnerships in this area among cedants, reinsurers, outside big data vendors, and third-party advisors could fuel collaborative activity and inform pricing and strategy in the form of creative data-sharing agreements and industry risk-reward research.

Modeling enhancements

Along with transformation efforts and increased use of big data and analytics comes enhanced modeling capabilities. Reinsurance—a classic "if-then" decision—can benefit from the ability to run multiple scenarios across various accounting and capital bases.

This is underscored further by the sensitivity to a low interest rate environment and decision-making around future market conditions. More consideration is being given to derivatives embedded within reinsurance contracts to allow for risk-sharing in the event rates or other market factors move significantly after a treaty is signed. Insurers and reinsurers alike are better equipped today to make smart choices in this arena, informed by complex analysis resulting from advanced modeling.

What to watch for

Reinsurance as a capital management tool will likely continue to help buyers balance profitability versus protection

The most significant drivers of increased reinsurance purchases are likely to continue to be a decline in regulatory uncertainty (as reforms such as PBR are implemented) and the continued refinement of sophisticated approaches to managing risk and return. We expect to see a moderate increase in the use of reinsurance over the next three years.

Technical advances have made understanding the complexities of reinsurance treaties a more efficient undertaking. As this trend continues, we anticipate more complex products being developed and new reinsurance covers emerge that address relevant exposures from both the primary carrier and reinsurer perspectives. One such product with life reinsurance potential, for example, is reinsurance agreements with embedded interest-rate pricing adjustments.

There are some short-term tactical challenges that reinsurance products must address, such as mortality surprises for life carriers, a prolonged soft market in the P&C space, and the uncertainty of policyholder behavior.

Meanwhile, there are additional regulatory developments on the horizon that primary insurers and reinsurers will be monitoring and are likely to have an impact on reinsurance decisions, such as the implementation of DOL fiduciary guidance (if it survives the new administration), GAAP targeted improvements, and the potential IAIS insurance capital standard.

Advanced modeling, predictive analytics, and finance transformation will likely continue to fuel innovation, the capability of executing more complex treaties, as well as reconsideration of the risk-taking and non-risk-taking components of insurers' businesses and their associated returns.

There is room for growth in the reinsurance space, due largely to the benefits of increased creativity and alternative capital, which can be modeled with a power not before seen. The pressure to be efficient will continue to increase with rising transparency and governance expectations. Maintaining a competitive advantage across the industry will likely require strict attention to capital and risk management, and reinsurance will continue to be an essential part of that process.

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