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# ***Have Pool Expectations Surpassed their Solvency Measures?***



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## Introduction

*Basic questions for any insurance pool include:*

- *"How well are we funded?"*
- *"Is our surplus level adequate given the pool's risk and financial objectives?"*
- *"Are we in a position to release excess funds to our members/owners?"*

*Traditionally, pools have used various approaches, such as confidence levels, a risk-based capital formula, and/or financial ratios, to answer these questions. Many of the specific guidelines pools use have not changed since the early years of pooling. However, the pooling industry and its members have changed since the insurance coverage availability crisis of the mid-1980s, which resulted in the formation of governmental insurance pools. An examination of operational practices reveals that many pools have moved from being an assessable self-insurance group to an entity that more closely resembles a non-assessable insurance company that its policyholders own. This change in business model requires a change in the manner in which funding adequacy is evaluated.*

*In this paper, we explore various solvency measures pools use to establish and assess funding levels. In order to provide perspectives on their applicability in light of the current financial pressures on pools and their members, we also discuss the context in which the specific measures developed. In addition, we address alternative strategies and approaches to establish and assess funding levels.*

## Historical perspective

When many pools first formed 20 to 30 years ago, insurance coverage for members was becoming unaffordable or unavailable in the traditional insurance marketplace. Pooling risks with similar entities was an effective means of transferring/sharing risk and offered members a way to insulate themselves from the unpredictability of the commercial insurance marketplace. Over time, pool membership has expanded and surplus levels have grown. Pool member expectations have matured as well --- they include the expectation of a sound financial basis, stable rates, innovative and customized coverages, and a focused commitment to their own unique risks.

Unlike insurance companies, insurance pools remain largely unregulated. Minimal regulation allows flexibility, which can be a distinct advantage but, at the same time, this lack of regulation has resulted in insufficient financial information for use in benchmarking and assessing the adequacy of pool funding.

Instead of regulation, a common funding adequacy safeguard for pools continues to be a "cash call" provision that allows a pool to assess their membership in the event of a funding shortfall. However, pool members could view significant shortfalls or problems that trigger such assessments<sup>1</sup> as a failure; they expect the pool to be financially sound and solvent. A loss of confidence in the pool, including its board, management and the sponsoring organization, also would likely result.

Insurance pools must remain financially viable and able to provide stable insurance costs. At the same time, pool members face their own financial pressures and may prefer lower rates or a return of excess pool funds. Addressing these issues requires an appropriate, realistic assessment of the pool's funding adequacy.

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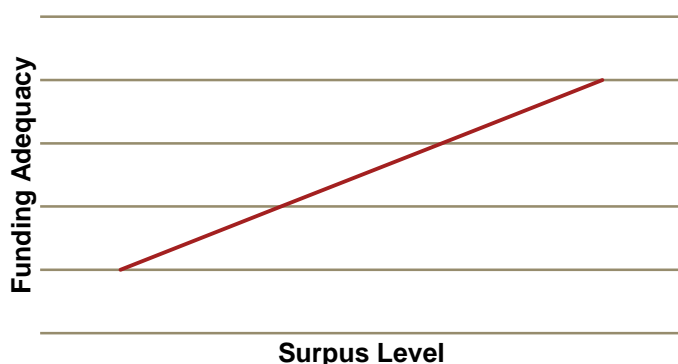
<sup>1</sup> For example, while a pool may have a "cash call" provision, executing it may not be realistic because members lack excess money for payment. In addition, a pool may inadvertently overstate its financial strength; a cash call can result in disputes and delays at a time when the pool needs money to satisfy unfunded claims.

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## ***Funding adequacy measures***

Risk transfer mechanisms, such as pools and traditional insurance entities, have uncertain costs. This uncertainty largely relates to projected future losses underlying the pricing, as well as the unpaid claim estimate, which typically is the largest liability on the balance sheet. As with any financial entity that has variable costs, capital is required to absorb financial fluctuations and keep rates stable. Absent sufficient capital to support risks, the organization may fail or, at a minimum, charges to members may be highly variable.

For insurance companies, this capital commonly is referred to as surplus, but in the pooling industry, capital may be referred to as member fund balance, net assets, or owners' equity. For the purposes of this paper, we will use the terms surplus and capital interchangeably to refer to the pool's total assets less total liabilities. The concept of funding adequacy is simple -- the greater the surplus, the greater the ability of a program to meet its uncertain financial obligations. Determining the appropriate level of surplus, however, is complex.



The insurance industry is highly regulated, and as a result, insurance company capitalization receives heavy scrutiny by regulators, rating agencies and external auditors. To regulate solvency, regulators use a variety of measures, indicators and tools, which include the following:

- Insurance Regulatory Information System (IRIS) ratios;
- Risk-based capital (RBC);
- Triennial financial examinations conducted by the state insurance departments; and,
- Formal actuarial statements that opine on the reasonability of the booked reserves and provide information on other risk factors associated with the insurer's business.

In addition, many outside financial auditors have their own actuarial specialists that provide another perspective on the reserve levels and critical risk factors of insurance companies. Rating agencies also weigh in on the financial condition of insurance companies and provide an independent assessment of financial strength.

Absent the scrutiny and perspective that regulators and rating agencies provide, how much surplus is appropriate for a pool to maintain is a difficult question for key stakeholders to answer. Board members, who typically are not insurance professionals, must rely on pool management and external consultants for advice.

Pools historically have relied on one or a combination of the following measures to assess funding adequacy:

- Confidence levels;
- Risk-based capital calculations; and,
- Financial ratios.

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While each approach has its own appeal, pools must understand the appropriate context of these measures, including the inherent strengths and limitations, and consider supplemental information to establish, or assess, proper funding levels.

## *Confidence levels*

One solvency monitoring concept the pooling industry commonly uses is the confidence level. Pool funding policies and even pool solvency regulation in some states contain confidence level guidelines and recommendations. To determine the confidence level, actuaries estimate the unpaid claim liability using generally accepted actuarial methods. The unpaid claim estimate is uncertain, however, and represents one number within a range of possible outcomes, each with an associated probability. These probabilities over the range of possible outcomes combine to form a probability distribution, which can be used to perform a confidence level analysis as a way to quantify this uncertainty.

The use of confidence levels in establishing or assessing pool funding is intuitively appealing for a number of reasons:

- The basic concept is easy to understand. Stakeholders understand claim costs are uncertain in advance, and more funding provides greater confidence that surplus will prove to be adequate.
- Confidence levels can be based on pool-specific parameters, including claim severities and retentions, which are used in the probability distributions.
- The parameters may be modified to determine the impact of a program change, such as how much additional surplus would be required if the program's per occurrence or aggregate stop loss retention were increased or decreased, or if the volume of business changed due to an increase or decrease in members.

The broader insurance marketplace seldom if ever uses confidence levels in isolation (although enterprise risk management or capital modeling calculations may embed similar concepts). For example, oversight boards and management of mutual insurance companies do not consider the "impact on their confidence level funding" when contemplating a dividend, and brokers do not differentiate between alternative reinsurance options by the "confidence level" at which the reinsurers are funded.

To the extent that pools continue using confidence levels in establishing/assessing funding levels, they should consider the following limitations:

- A comprehensive measure of financial strength for a pool needs to consider more than just the risk that unpaid claims may be higher than the current estimate. Confidence levels for unpaid claim estimates do not reflect asset risks, credit risks and pricing risks. Pricing risk, for example, reflects the possibility that current pricing is inadequate and, because it is highly correlated to the reserve risk, additional surplus may be necessary to support it.
- No generally accepted approach for calculating confidence levels exists. Pool directors and boards seek comfort by comparing the pool to its peer group, but varying approaches to calculating confidence levels invalidate these comparisons.
- Confidence levels run from 0% to 100%. Most pools find themselves toward the upper end of this scale and thus gain a false sense of security. Funding at the 90% confidence level means that, without taking into consideration the program's other risks, the program has a ten percent chance of inadequate funding.
- Confidence levels are determined from historical uncertainty, and therefore make no allowance for potential new types of risks which are not reflected in the historical data.

While confidence levels made sense in the environment when pools were initially established, a funding adequacy assessment based on confidence levels alone, without additional considerations, is generally insufficient today.

### The concept of confidence levels

Suppose the value of a pool's unpaid claim liability is based on a roll of two dice. The expected value of the sum of the values on the two dice is seven, or the average value that would result if the dice were rolled hundreds of times. We know that a 7 will not appear with every roll, and in fact, the sum of the two dice will vary from two to twelve. In terms of confidence levels (i.e., what are the chances that the result will be no higher than a certain value?), consider the following:

No Higher Than	Confidence Level
2	3%
3	8%
4	17%
5	28%
6	42%
7	58%
8	72%
9	83%
10	92%
11	97%
12	100%

In this example, a pool with assets of ten would be funded at the 92% confidence level, which means that if the dice were rolled 100 times, the sum of the dice would not exceed ten 92 times. In our insurance analogy, funding at a 92% confidence level implies an eight percent probability that funding will prove to be inadequate.

### *Risk-based capital*

To provide an additional perspective regarding funding adequacy, some pools have applied an insurance regulatory tool known as risk-based capital (RBC) to their program. RBC, which the regulated insurance industry has used since 1994, provides the regulator statutory authority to intervene with a troubled company.

RBC is a formula which considers numerous risk factors, including asset, credit, reserving and pricing risks, to produce a single amount known as "authorized control level risk-based capital", or ACL. Depending on how a company's surplus compares to the calculated ACL, different regulatory action may apply.

Control Level	Trigger	Regulatory Action
Company Action Level	150% up to 200% of ACL	The company must prepare and file an action plan with the state insurance commissioner that identifies the conditions contributing to its financial condition. The plan must contain corrective actions and projections of financial condition with and without the proposed corrections.
Regulatory Action Level	100% up to 150% of ACL	The company must file an action plan with the state insurance commissioner, who issues corrective orders to address the company's financial problems. The insurance commissioner must perform any examinations/analyses on the company that it deems necessary.
Authorized Control Level	70% up to 100% of ACL	Although the insurer may technically be solvent, the regulator has automatic power to take control of the insurer.
Mandatory Control Level	Up to 70% of ACL	The regulator is required to commence a process to place the insurer under regulatory control.

RBC can be appealing to pools for a number of reasons. First, RBC considers more risks than simply the variability associated with the unpaid claim estimate. In addition, the RBC formula calculates a single capital value based on certain risk factors. The insurance industry's use of RBC also gives it some legitimacy from a pool's perspective. However, risk-based capital is easily misunderstood, and thus easily misapplied.

*"Over half of insurance companies have surplus more than ten times their calculated RBC level, and 30% of companies have surplus over twenty times their RBC level."*

The RBC formula does not calculate the surplus an insurance entity should possess, and in fact, the National Association of Insurance Commissioners (NAIC) explicitly states that RBC "will not compute the precise amount of capital an insurer needs to maintain in a competitive, dynamic and uncertain marketplace." Rather, the RBC formula provides regulators with a clear-cut mechanism for intervening in an insurance company when very minimal surplus is available relative to the risk the entity assumes. The vast majority of insurance companies maintain surplus that exceeds their calculated RBC level by several multiples. A review of the RBC calculations for several regulated pools provides further context for this measure.

Company	Net Earned Premium	Unpaid Claims	Surplus	Risk Based Capital (Authorized Control Level)	Surplus To RBC Ratio
Idaho Counties Risk Mgmt	\$14.5 m	\$22.4 m	\$18.0 m	\$3.4 m	538%
League of WI Municipalities	17.9 m	24.1 m	14.4 m	2.3 m	634%
Transit Mutual Ins Corp. of WI	3.0 m	4.3 m	6.8 m	.2 m	2,809%
New York Mutual Ins Recpl	31.2 m	54.0 m	52.0 m	6.8 m	761%
WI Municipal Mutual Ins Co.	3.2 m	8.4 m	34.3 m	1.5 m	2,279%

As the table shows, these pools have surplus to RBC ratios well above the 200% minimum threshold for remedial action, and in fact, ratios of the magnitude in the table above are not uncommon for regulated insurance companies.

*"Companies with higher surplus to RBC ratios do not necessarily have better financial strength ratings."*

Without putting the RBC measure in its proper context, inappropriate financial decisions, including the release of needed capital, may occur. Pools should consider additional benchmarks in order to establish/set appropriate capital funding levels.

## ***Benchmark financial ratios***

Financial ratios provide an alternative view of funding and are not only intuitively appealing but also simple to calculate relative to confidence levels and RBC. Some pools have incorporated the NAIC Insurance Regulatory Information System (IRIS) ratios into their funding assessments. More commonly, pools use a simpler set of benchmarks including ratios of unpaid claims, premiums, or net retentions to surplus.

## Insurance Regulatory Information System (IRIS)

The NAIC, as part of its solvency monitoring process, uses twelve IRIS ratios to serve as an early warning predictor of troubled companies. The trigger of additional regulatory scrutiny results from the failure of three or more of these ratios relative to the established guidelines at a single point in time. The consistent, detailed financial reporting the NAIC requires of insurance companies facilitates the development of financial ratio benchmarks. While pools do not follow the detailed financial reporting requirements that insurance companies follow, the following IRIS ratios typically are determinable from pool financial statements.

	Ratio	Unusual if Over	Unusual if Under	Comment
1	Gross Premium to Surplus	900%		High leverage reveals increased credit and pricing risk.
2	Net Premium to Surplus	300%		High leverage implies greater pricing risk.
3	Change in Net Writings	33%	-33%	Rapid growth can be an issue as the pricing risk is increased and additional pressure is placed on the surplus.
5	Two-Year Overall Operating Ratio	100%		Operating losses are an indicator of pricing inadequacy.
7	Gross Change in Surplus	50%	-10%	Large changes in surplus, and especially a decline in surplus, is a concern.
8	Liabilities to Liquid Assets	105%		High leverage implies a potential for cash flow challenges to meet liabilities when due.
10	One-Year Reserve Development to Surplus	20%		Any adverse change in the prior year-end reserve estimate that is significant in relation to surplus is a concern.
11	Two-Year Reserve Development to Surplus	20%		Any adverse change in the reserve estimate from two years ago that is significant in relation to surplus is a concern.
12	Estimated Current Reserve Deficiency to Surplus	25%		An indicator of potential deficiency in the current reserve is calculated assuming a consistent relationship between reserves and premium as well as the results from tests #10 and #11. The amount is compared relative to surplus.

Similar to RBC, the use of a broad insurance industry solvency measurement tool has great appeal. When considering these ratios, pools should be mindful that the NAIC established IRIS ratios many decades ago, prior to the development a more sophisticated solvency regimen including RBC, periodic financial examinations and mandatory annual statements of actuarial opinion. An insurance company currently operating near the bounds of the IRIS ratios today would be considered thinly capitalized relative to its peers.



## Other financial ratios

Pools more commonly use a simpler set of ratios which cover the key risk areas for a pool. These ratios include:

- **Unpaid Claims to Surplus** -- This leverage measure provides insight into the ability of surplus to withstand variations in unpaid claim estimates.
- **Net Premium to Surplus** -- This ratio, which is one of the IRIS ratios above, is a leverage measure that assesses the ability of surplus to sustain pricing inaccuracies.
- **Net Retention to Surplus** -- This ratio provides a very basic understanding of how a single large loss could impair surplus.

When evaluating the adequacy of surplus, reviewing the inverse of these ratios may be more intuitive. Specifically, the inverse ratios help to answer the following questions:

- **Surplus to Unpaid Claims** -- How much surplus should be maintained in relation to the unpaid claim estimate?
- **Surplus to Net Premium** -- How much surplus should be maintained relative to net premium?
- **Surplus to Net Retention** -- How much surplus should be maintained relative to the maximum single loss to which the pool is exposed?

### Determining Relevant Benchmarks

To utilize these financial ratios effectively, benchmark values are necessary. While similar ratios from other pools would provide a benchmark, comprehensive pool information is not readily available. In addition, variations in pool funding policies and objectives, such as member assessability, may invalidate comparisons as these policies have a substantial impact on the "appropriate" level of surplus.

Another source for benchmark values is insurance industry data. State insurance departments require insurance companies to file detailed statutory financial statements. In addition, ratings agencies assess the financial strength of most insurance companies, and the information they produce can enhance the development of appropriate benchmark financial ratios. Finding insurance company statistics that are comparable to the pool, particularly with respect to size and mix of business, is critical to using this approach.

**Size of Insurer.** The pooling industry commonly uses consolidated "industry aggregate" information as a source of "insurance industry" ratios. However, the largest insurance companies, which have billions of dollars in unpaid claims and surplus, are highly diversified, and may retain liabilities with very different inherent risks from those retained by pools, dominate these overall aggregate ratios. Many individual insurance companies may be more comparable to pools in size and exposure, but due to their size, these companies do not have a large impact on the overall average. As the table below shows, a company's size has a significant impact on financial ratios.

Unpaid Claims or Net Premium Range	Surplus to Unpaid Claims	Surplus to Net Premium
Under \$50 million	\$2.47	\$2.29
Over \$50 million	\$0.97	\$1.30
Insurance Industry Average	\$0.99	\$1.32

For each \$1.00 in unpaid claims and each \$1.00 in net premium, the insurance industry maintains \$0.99 and \$1.32 in surplus, respectively. However, the amount of surplus held by smaller companies, \$2.47 per \$1.00 in unpaid claims and \$2.29 per \$1.00 in net premium, is much greater than the broad industry average. Larger insurance companies have more offsetting risks and therefore do not require as much surplus per unpaid claim or premium

dollar as smaller companies -- the same underlying principle for pooling of insurance risks. The aggregate loss experience is much more predictable than the individual member loss experience, and thus requires less capital.

**Mix of business.** Another issue to consider when using insurance industry financial ratios is the mix of business. Supporting more predictable, short-tailed, lines of business, such as private passenger auto and homeowners (which tend to have a higher frequency of claims and lower claim severity), requires less capital. Commercial coverages like workers' compensation, commercial auto liability, and general liability are more variable; therefore, a commercial book of the same size as a personal lines book will require more capital.

To further demonstrate the variation in capital benchmarks relative to unpaid claims and net premium, we compile below financial benchmarks of nearly 500 insurance companies that predominantly write coverages similar to those underwritten by pools and have similar risk characteristics, such as claim duration.

Unpaid Claims or Net Premium Range	Surplus to Unpaid Claims	A Rated only Surplus to Unpaid Claims	Surplus to Net Premium	A Rated only Surplus to Net Premium
\$1m to \$5m	\$2.77	\$5.53	\$3.31	\$5.62
\$5m to \$15m	1.68	2.25	2.47	3.09
\$15m to \$50m	1.24	1.43	2.28	2.53
\$50m to \$100m	1.11	1.15	1.40	1.45

As the above table shows, the financial benchmark value varies depending on program size and financial strength<sup>2</sup>. While a single set of financial benchmark ratios applicable to all insurance pools would make financial monitoring easier, the multitude of factors that affect surplus requirements make such a set unrealistic. For example, another risk factor pools should consider is their rating system options. If a significant portion of pool members have deductibles, then the pool may be operating more like a reinsurer. A reinsurer needs to maintain more surplus due to the greater uncertainty of its loss experience.

*"In order to be relevant, the financial benchmark ratios need to reflect both the risk of the pool and its optimum financial strength."*

**Retention level.** Another ratio the pooling community reviews is the surplus to net retention ratio. A commonly cited benchmark is maintaining surplus that is at least ten times the maximum net retention (e.g., \$5,000,000 of surplus for a pool with a \$500,000 self-insured retention). To provide some perspective on this measure, 80 percent of the insurance companies we reviewed that resemble pools in terms of size and coverages maintain surplus 25 times their maximum net retention, and their median surplus to retention ratio is 80.

## Capital modeling

The issue of surplus adequacy is not unique to pools. Private insurance companies deal with the same underlying capital allocation issue -- the balance between having sufficient, but not excessive, surplus.

Insurance companies, ratings agencies, and regulators in Europe continue to develop sophisticated economic capital modeling approaches to better assess capital requirements. These enterprise risk management tools focus on modeling the various risks to which an entity is exposed and developing a target capital level consistent with management's risk appetite or financial strength metrics. While similar in concept to the confidence level measure, capital modeling provides a much more comprehensive assessment of which risks and what time horizon should be considered.

<sup>2</sup> Financial strength ratings provided by A.M. Best for 2010. A rated companies include those with ratings of A- or better.

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Capital modeling inherently recognizes that pools operate in a dynamic environment. Proper financial planning needs to reflect short and long-term goals, assuming various scenarios versus the current program structure for a one year time horizon. Critical risk factors, such as the use of reinsurance, the extent of member deductible programs, the size of the program and the asset mix, will vary in the future. Economic capital modeling provides a more realistic assessment of funding levels considering potential changes to the specific risk factors. Generally, the models are stochastic, which allows consideration of different events, such as a future inflation shock or a very large loss, through multiple simulations.

## ***Perspective***

Reliance on ratings organizations and insurance departments, to gain perspective on the financial condition of their program is not an option for most pools. Benchmark financial ratios that do exist for pools are vague with respect to how and in what context they were developed, and often the source of benchmarks is broad industry averages without particular relevance to pools. While some regulatory and "self-regulated" accreditation standards have developed, the standards tend to provide minimal benchmarks, especially for insurance pools that do not view cash calls, or member assessments, as viable options.

To understand a pool's current surplus needs, a clear view of the business purpose and available funding options is necessary. Is the pool's capital limited to the surplus built up over time or are cash calls a viable alternative? Pools increasingly discuss how to operate safely and maintain solvency. When exploring these issues, many programs will find that the nature of their business has changed from an assessable self-insurance group to a business that more closely resembles a non-assessable insurance company that its policyholders own. Operating without a "cash call" option requires greater financial discipline and an appropriate understanding of the target surplus.

## ***Financial Framework and Controls***

A culture and disciplined framework for making and reviewing critical financial decisions is vital for the long-term financial viability of any program. Examples of such decisions for pools include:

- Dividend or excess surplus distributions;
- Basis of dividend allocation;
- Rate level;
- Impact of a change in retention level on the capital requirement; and,
- Rating plan and options.

Insurance company issues like these are subject to regulation; without such regulation, pools should establish alternative safeguards.

*"Many financial disasters could have been minimized by more questions from key stakeholders."*

Strong governance includes effective controls, relevant financial and risk metrics, and a culture in which stakeholders are inquisitive and do not simply accept the status quo. Inquiries will allow stakeholders to determine if the program is operating as intended. By providing different perspectives and professional skepticism, these stakeholders can serve an important role in a pool's controls. Critical questions key stakeholders may ask include:

- How do we assess our funding adequacy?
- What are the inherent strengths / limitations of our funding assessment tools?
- What processes are in place to ensure our funding guidelines are aligned with our members' expectations?
- How are changes in our program, such as reduced use of reinsurance or potential growth, incorporated in our funding targets?
- What time horizon is considered in our funding level and other critical risk decisions?
- What tools and funding metrics can we leverage from the broader insurance market?

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- How can we demonstrate to our members that we are financially strong?
  - How are we different from pools that have failed?
  - What governance structure do we have over critical financial decisions?

## ***Surplus Target Strategies***

One strategy to develop surplus targets is to benchmark against regulated insurance companies. This practice allows a pool to gain a financial perspective in an efficient manner without being subject to specific insurance regulation. In order to be meaningful, the benchmarks should include a relevant subset of insurance companies -- those that resemble pools in terms of size and coverages offered. This approach provides a perspective on the level of surplus actually maintained by insurance companies with a similar risk profile.

*"How much capital do insurance companies that look like us hold?"*

Another surplus establishment strategy is to apply an economic capital model, perhaps simplified but similar conceptually to models that many insurance companies, regulators, and ratings agencies currently use to assess insurance company surplus requirements. This approach can measure the risk directly based on the specific pool's program parameters, which is superior to the benchmark/proxy approach. Examples of program parameters that can vary in such a model include retention level, proportion of membership with large deductibles, and asset class distribution. The model result will produce a range of capital requirements based on various risk tolerance levels. Furthermore, pool managers and boards who wish to understand the pool's longer term funding needs can contemplate time horizons of three to five years, or even more.

*"How much capital do we need based on our specific risk factors and funding objectives?"*

## ***Conclusion***

Obtaining a valid perspective on financial strength is necessary for a pool to make sound financial decisions. The financial metrics and tools that pools use should keep pace with the changing environment and its members' higher expectations. Pools can and should leverage the many tools and benchmarks available in the broader insurance marketplace to determine capital targets. An understanding of the various measures, including the context in which they developed, is critical to effectively leveraging these tools and interpreting the results in order to make appropriate funding decisions.

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