

Justification for, and Implications of, Regulators Suggesting Particular Reserving Techniques

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Abstract

Motivation. Prior to 30th June 2013, Kenya's Insurance Regulatory Authority mandated that minimum IBNR reserves for a particular class of insurance be set as a percentage of a company's calendar year net written premium for that class. While this method may provide a proxy that is easy to use by those who do not have actuarial training, it is uncertain how accurate the mandated IBNR percentage is for individual insurers. This could lead to a situation of reserves that are acceptable in the eyes of the regulator but actually deficient. Some stakeholders may not be aware of the consequences of such a method. Most importantly, any suggestion to use one particular reserving method may lead to inaccurate reserves for many insurers.

Method. This paper uses several actuarial methods to calculate the IBNR of one Kenyan general insurance company's private motor insurance line. These estimates are compared to the minimum IBNR required of the regulator.

Results. The minimum IBNR mandated by the regulator understates IBNR of the company according to the alternative methods used.

Conclusions. In Kenya, an industry-wide study could be undertaken to make sure that mandated IBNR percentages do not lead to inaccurate reserves on average. Also, the regulatory authority could determine a more reliable proxy. Individual companies should be encouraged, as they are under new Kenyan guidelines, to calculate IBNR by other methods. Both regulators and insurers should know that using a formulaic proxy to set IBNR is not a fail-safe method. Furthermore, insurers should consider multiple methods when calculating reserves.

Keywords. Reserving Methods, IBNR, Solvency, Data Quality, Data Collection and Statistical Reporting

1. INTRODUCTION

Prior to 30th June 2013, Kenya's Insurance Regulatory Authority (IRA) mandated minimum IBNR reserves. Each company was required to set IBNR for a particular class of business as a percentage¹ of the company's calendar year net written premium² for that class. While this method may provide a proxy that is far easier to use than more sophisticated actuarial reserving methodologies (in an environment that often does not have the technical capacity to explore such other methods), it is uncertain how accurate the mandated IBNR percentages are for the industry as a whole. Furthermore, it is uncertain to what extent the experience of individual companies varies from the industry average. This could lead to a situation of reserves that are acceptable in the eyes of

¹ The percentages set by the Kenyan regulator are detailed in Appendix A. New percentages, as a part of new reserving guidelines (excerpted in Appendix C) that became effective 30th June 2013, are detailed in Appendix D. The majority of this paper will discuss issues that existed prior to those new guidelines becoming effective, as well as general considerations regarding regulators suggesting particular reserving methods. The new guidelines set by IRA address some of the concerns discussed in this paper. Where relevant, references to the new guidelines will be made.

² The proxy varies in other markets. Some markets use net earned premium, for example.

the regulator but actually deficient. If such a method is to be used, there are also additional concerns: How does the regulator set such percentages? How *should* the regulator set the percentages? Clearly, a mere average IBNR could result in deficient reserves for some and redundant reserves for others. Also, what is to keep the insurer from purposely setting case outstanding reserves lower than is reasonable in order to compensate for having to set IBNR at a higher level than the company desires? In mandating minimum IBNR, the regulator does not necessarily ensure adequate reserves overall. Insurers can game the system by setting case outstanding reserves lower.

This paper uses several actuarial methods to calculate the IBNR of a small Kenyan company's private motor insurance line. These estimates are compared to the minimum IBNR required of the regulator. The analysis shows that the minimum IBNR mandated by the regulator is only 36% to 83% of what it should be for the example company according to the alternative methods used. These results are then considered in the context of the Kenyan environment, which largely lacks actuarial expertise. It is acknowledged that this simplified method might have advantages in an environment with few qualified actuaries. However, precautions must be taken.

For instance, an industry-wide study could be undertaken to make sure that mandated IBNR percentages are not deficient on average.³ Also, the regulatory authority could determine a more reliable proxy, which would likely require collecting more detailed claims data from insurers. Individual companies could be encouraged to calculate IBNR by other methods. Both regulators and insurers should know that using a formulaic proxy to set IBNR is not a fail-safe method. Furthermore, insurers should consider multiple methods when calculating reserves.

1.1 Research Context

“Actuarial Activity in General Insurance in the Northern Countries of Europe,” from 1958, by L. Wilhelmsen, discusses issues that are still relevant in many developing insurance markets. In Kenya, regulators are just starting to require the use of actuaries in non-life (general)⁴ insurance.

Most actuarial literature focuses on what should be done by actuaries. The literature does not address approaches that should be taken in insurance markets that lack actuaries.

The main science discussed here is that of the reserving methods used in such environments. The

³ Of course, there could be issues here. By the time the analysis is completed for long-tailed lines of business, companies may have been underestimating IBNR for multiple years, which could have led to a cycle of causing premiums to be set too low, thus booking IBNR even lower.

⁴ This paper will use the terms “non-life” and “general” interchangeably. In Kenya, general insurance includes everything other than life insurance, annuities, and pensions.

implications that the reserving methods have on solvency are also addressed.

1.2 Objective

Current reserving literature does not address how reserves are, or should be, set in developing markets that often lack qualified actuaries. This paper attempts to bring awareness to the fact that this lack of technical expertise can present issues to insurers, regulators, and the public. Furthermore, it makes broad suggestions on precautions that should be taken by regulators and insurers in such environments. Specifically, using IBNR as an example, it addresses the justifications for, and implications of, the regulator offering simplified formulaic proxies in lieu of requiring more detailed, company-specific actuarial analysis. This paper also discusses the implications of using any prescribed method for setting reserves.

1.3 Outline

The remainder of the paper proceeds as follows. Section 2 will discuss the methods used to test the regulator's minimum IBNR proxy. Section 3 discusses the results of the analysis and places them in the context of the market, providing practical advice for insurers and regulators in such markets. Finally, Section 4 concludes the paper by reiterating the key messages learned regarding regulators prescribing specific reserving techniques.

2. BACKGROUND AND METHODS

An anecdotal example using one Kenyan general insurance company's internal motor insurance claims data is used to test the accuracy of the minimum IBNR proxy. The results of several reserving methods are compared to the results of the proxy. The pros and cons of the proxy method are analyzed. Discussions with actuarial analysts of the regulatory authority were undertaken to understand the history of the proxy method, as well as to understand the recently updated guidelines for setting reserves in Kenya.

2.1 Reserving Analysis Using Company Internal Data

As an anecdotal example,⁵ data from Company ABCD was used to test the appropriateness of the minimum proxy that the regulator mandated for motor insurance. The IBNR shown in the year-end financial statement is to be set as 5% of net written premium for the year. The results of several

⁵ Aged accident year data was only available for the author's employer. Aggregated industry data is not collected in triangular accident year format. This has implications that will be discussed in more depth later in the paper.

reserving techniques⁶ will be shown in comparison to the 5% proxy. The comparison is made, for each method, by first calculating the IBNR for each accident year. Then, the total IBNR for all accident years is summed and divided by the sum of net written premium for the corresponding calendar year.

2.2 Discussions with Actuarial Department of Insurance Regulatory Authority

In order to better understand the justifications for the minimum proxy method, discussions with actuarial analysts of the regulatory authority were undertaken regarding the history of the method. The proxies were set in 1984 and had not been updated until new guidelines were issued in June of 2013. It is uncertain what method was used to set the original percentages. The actuarial department knows that the percentages may no longer be accurate, and they are interested in updating the percentages or exploring alternative methods. New guidelines effective 30th June 2013 include an optional reserving method that uses a similar proxy, with some refinements and potential improvements. Still, these percentages are not based on typical reserving analysis that would require the regulatory authority to collect aged claims data.

3. RESULTS AND DISCUSSION

In our example, when compared to other reserving methods, the 5% assumption underestimates IBNR by anywhere from 17% to 64%. This misestimation of IBNR could have negative consequences for regulators, insurers, and other stakeholders of the insurance industry. There may, however, be justifications for using such a technique, and there are precautions that can be taken to mitigate the inaccuracies in calculating IBNR and to ultimately avoid the possibility of insolvency.

3.1 Summary of Reserving Method Results

The results of several common reserving techniques using ABCD's internal data are summarized in Appendix B. The results show IBNR ranging from 6% to 14% of net written premium.

⁶ A summary of results by technique is listed in Appendix B. Considering that these are common reserving techniques that have been adequately explored in previous research, they will not be further discussed here. Also, it should be noted that the author did not perform extremely detailed analysis within each technique. For instance, there was no attention given to using tail factors, adjusting for changes in case strengthening or weakening, or adjusting for changes in claim payment rates. Rather, several methods are used in a simple, straightforward way in order to illustrate a range of estimates that might be reasonable utilizing different techniques. Not adjusting the data at all might indeed misstate IBNR; however, using the methods in this fashion might point to additional problems arising from the regulator's new guidelines, which call for use of techniques such as those used here, while some insurers may not currently have the capacity to adequately use those methods.

3.2 Accuracy of Minimum IBNR Technique

In this example, the 5% minimum assumption mandated by the regulator is not appropriate. In fact, it may be drastically understating IBNR. Clearly a one-size-fits-all approach will not give an accurate estimate of every company's IBNR reserves. Differences in claims processing, management style, the underlying book of business, growth, and IBNER (just to name a few), will cause different companies to require different percentages of net written premium as their IBNR reserves. Still, the magnitude of the differences in percentage of net written premium in this example are significant and might be beyond an acceptable margin of error.⁷ Several Kenyan companies used a variety of techniques when setting reserves, even prior to the new reserving guidelines that took effect on 30th June 2013. Still, some companies relied heavily on the minimum percentages supplied. Furthermore, offering a minimum without requiring the insurer to justify its use takes away the incentive for insurers to build a culture around reserving analytics. The new IRA guidelines should help to instill such a culture.

3.3 Appropriateness of Proxy

Net written premium is a simple proxy that every company surely calculates, particularly in a market that is highly driven by sales volume. Assuming that an up-to-date and accurate reserving analysis could be performed on industry data to develop reasonable estimates for a company's IBNR liabilities, then what would be a reasonable and accurate proxy? Indeed, for short-tailed lines, the current year's premium might be closely related to the amount of IBNR. But net earned premium would more closely correlate with IBNR than net written premium.

Another issue is that if IBNR liabilities exist for policies written in previous years (as would be the case for longer-tailed lines) the current year's premium would only continue to provide a reasonable estimate if the company were growing at the same rate at which the industry was growing when the analysis to calculate the IBNR percentages was performed. IRA's new reserving guidelines effective 30th June 2013 address this last concern to some extent. In the new guidelines, companies with fewer than three years of internal experience data can set IBNR using a simplified proxy method similar to the approach previously used for minimum IBNR. However, there is more refinement, as the IBNR for liability, motor commercial, and workmen's compensation classes of business is set as a distinct percentage of net written premium for each of the three preceding

⁷ This acceptable margin of error might be considered in the context of the actuary's range of reasonable estimates if there were an actuary analyzing the data. In lieu of an actuary, what is likely important is what effect the misestimation could have on earnings, capital, and solvency.

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calendar years, rather than only considering the most recent calendar year. Still, premium adjustments, such as audit premiums, retrospective premium adjustments, and dividends, will likely show up after the books are closed at the end of the financial period. In this case, the reserves would be set based on incomplete premium information.

Finally, there are general issues around using premium, whether it is written or earned, whether it is net or gross of reinsurance, whether it is the total premium including adjustments, and whether or not the premium from multiple years is considered. Premium levels do not necessarily accurately reflect risk. One source of this inaccuracy is inaccurate pricing. Insurers who set inadequate premiums will also be setting reserves too low. Other companies may charge lower premiums for justifiable reasons. For instance, a company having more efficient operations that lead to a lower expense ratio would lead to that company holding lower reserves than a company with the same claims ratio but a higher expense ratio.

Another problem with using premium as a proxy for IBNR arises because of the hard and soft markets of the underwriting cycle, which might cause an insurer to charge different rates at different times for the same underlying risk. The likely lower premiums of soft markets would cause many insurers to hold lower levels of reserves than they would hold in hard markets, relatively understating the amount of risk. Soft markets can also cause companies to loosen underwriting standards or expand into new lines of business. Loosening underwriting standards might lead insurers to accept riskier business. Expanding into new lines for which the insurer does not have proper expertise or hold adequate capital might cause the risk of this new business to be understated when compared to an existing book of business.

3.4 How IBNR Affects Overall Reserve Levels and Solvency Implications

Once we consider other possible inaccuracies, such as misestimation of case reserves, it is not unthinkable that strictly following both the minimum IBNR and solvency capital requirements (solvency capital also being calculated with premium as a proxy) mandated by the Kenyan regulator could lead to complete depletion of capital for one or more firms.

By the end of 2013, the Kenya Insurance Regulatory Authority is expected to release a risk-based capital framework that should improve on the basic formula that is currently used for solvency capital. This should help insurance firms to better align their capital with the risks that they face. Still, the combination of inaccurate IBNR and case reserves could lead to insolvency or at least to significant variations in earnings once all claims are finally reported and fully paid.

Of the 25 general insurance companies in Kenya, 18 showed growth in 2011. In fact, 13 of the 25 companies showed growth in excess of 10%. Many of these companies show growth year after year.⁸ This persistent growth in net written premium can surely mask under-reserving for IBNR claims because there is a mismatch between the fewer exposures associated with IBNR of previous years and the increased exposures associated with net written premium of the current year. An eventual year of slowed growth would result in IBNR claims that are a comparatively larger proportion of net written premium. This could result in large variations in earnings.

3.5 Considerations When Establishing a Regulatory Approach

There is much to gain from discussing the *accuracy* of the reserving method suggested by the regulator. However, further discussion is needed regarding the *practicality* of different methods for setting reserves. There are often restrictions on the amount or accuracy of data available for analytics. Reinsurers sometimes only receive censored claims data. Legacy IT systems may be more trouble than they are worth in terms of collecting old data for analysis. Developing markets, in particular, often lack abundance of internal data, accuracy of data, access to data, and personnel (actuaries or otherwise) who have the proper skills and training to analyze the data. As an example, the following is a list, in the opinion the author, of issues affecting the Kenyan insurance market and the data used for this paper:

- There are fewer than 10 qualified actuaries living and practicing in Kenya, and most of them are trained in life insurance, while there are 25 companies licensed to sell non-life insurance.
- Actuarial consultants are seen as too expensive for many Kenyan insurers because insurers see high consulting fees and often do not fully understand the value provided by an actuary.
- The Kenyan insurance market may have less of a “need” (due to, for instance, competition being mostly price driven) for highly technical pricing, capital modeling, and reserving (when compared to more developed insurance markets), and thus have less of a need for the skills of an actuary.

⁸ Indeed, in emerging and developing markets, many firms see large growth because they are not merely fighting for customers in a saturated or near-saturated market. Instead they are finding new customers and selling new policies to existing customers, as they cater products to the needs of lower-income customers who have never before been insured, or as they benefit from high population growth rates and the emergence and growth of the middle class.

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- Some companies do not have abundant (credible) internal experience data.
- Companies that do indeed have some credibility in their internal data might not have adequate access to the data needed for sophisticated analysis.
- Individual company and aggregated industry data as published by IRA only show calendar year incurred losses. This makes performing certain reserving techniques on aggregated industry data impossible.
- Without appropriate internal and external claims data, one might argue that the usefulness of an actuary is diminished, aside from the value of the actuary's extensive use of judgment.⁹
- Indeed, the data used in the ABCD example are known to have some inaccuracies. Those inaccuracies that could easily be handled were corrected. However, there are, for instance, some data duplicates that cannot easily be adjusted for without an extreme amount of manual work or a non-trivial computer algorithm.¹⁰ Other companies may face similar issues. They may have an adequate ERP system; however, that ERP system might be suited for record keeping but not be best suited for extracting data to be used for analytics.

Given these constraints, using a simple formula based on a readily available proxy might be more accurate than requiring Kenyan insurers to calculate reserves using common actuarial techniques. Then what is an appropriate method for making sure that adequate reserves are booked in an environment lacking actuarial expertise or adequate data? This will certainly depend on the context of the market. The regulatory authority should conduct a cost-benefit analysis. This analysis should not understate the high costs of insolvency, in terms of the policyholders, employees, and investors of the insolvent company, as well as the broader consequences to other insurers who pay directly and indirectly for the insolvency.

The author suggests that regulators take into account the following general considerations:

- What is the actuarial or otherwise technical capacity of the market?
- If a proxy is to be used to calculate reserves, how is that proxy to be determined?
- Does the regulator have the data needed to calculate an accurate proxy? (For instance, is

⁹ Granted, one might conversely argue that the judgment of an actuary is more important when data is limited.

¹⁰ Because of these data issues, ABCD is embarking on a project to clean up their data.

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aged accident year data available?) What would be the costs of collecting additional data?

- Forcing or allowing insurers to use one particular method for setting reserves will surely lead to inaccurate reserves for some of the insurers. It is prudent to consider multiple methods when setting reserves.¹¹ Additionally, providing a simple formula does not incentivize insurance organizations to adopt a culture of reserve analytics.
- Do insurers hold adequate capital that would buffer against inaccurate reserves?
- What affect do the reserves have on solvency and general market stability?
- The regulator can help insurers who lack credible experience data by combining industry data that can be used by all members. The more robust the requirements of the “data call,” the more useful this data will be in helping insurers set reserves.

Furthermore, insurers can work toward ensuring adequate reserves, thus protecting themselves and their stakeholders, by taking into account these considerations:

- No formulaic method for setting reserves will be accurate for every insurer.
- The inaccuracy of (IBNR) reserves, even when using formulas supplied by the regulator (and especially when coupled with other inaccuracies), can lead to insolvency.
- A sound actuarial analysis of reserves will likely produce a more accurate estimate of unpaid liabilities than can be achieved by using a one-size-fits-all formulaic proxy.

4. CONCLUSIONS

Regulations play an important role in the business of insurance. Setting standards for reserves and solvency capital can help to ensure a functional insurance market that protects the financial stability of insurers and consumers. It is important that these regulations consider characteristics of the jurisdiction, such as the risk appetite of stakeholders, the technical knowledge of insurance personnel and consumers, and functional issues such as availability and quality of data. In the example presented here, regulators had been requiring minimum IBNR reserves based on a particular, simple reserving technique because of the low technical expertise present in the market,

¹¹ In particular, U.S. standards of practice suggest that “The actuary should consider the use of multiple methods or models appropriate to the purpose, nature and scope of the assignment and the characteristics of the claims unless, in the actuary’s professional judgment, reliance upon a single method or model is reasonable given the circumstances.” See an excerpt of ASOP 43 in Appendix E.

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while updated guidelines call for the use of techniques that many insurers do not have experience with. In more developed markets, mandated techniques might leave actuaries feeling like their hands are tied; they wish to use their expertise in particular areas, but they are forced to use only the methods that are prescribed by regulators.

In the specific case of Kenya, an industry-wide study of the Kenyan insurance market could be undertaken to make sure that mandated IBNR percentages are accurate (and especially not deficient) on average. The regulatory authority could more accurately calculate the IBNR percentages by collecting accident year data at different ages and performing (or hiring consultants to perform) an in-depth reserve analysis.¹² In addition, individual companies could be encouraged, as they are in the new guidelines effective 30th June 2013, to calculate IBNR by other methods to make sure that they are reserving adequately and ultimately avoiding insolvency. Furthermore, Kenya's regulatory authority, actuarial bodies, and others could encourage the development or transplanting of more actuaries. This would help with the issue of technical expertise, and the actuaries could also play an important role in collecting data and making it usable for analytics.

Using a proxy to set minimum IBNR reserves may offer benefits in an environment lacking actuarial expertise. However, there should be careful consideration in developing the proxy. And, above all, both regulators and insurers should know that using a formulaic proxy to set IBNR reserves is not a fail-safe method. Using any one reserving method, regardless of data quality or the level of actuarial expertise present in the market, will generally not lead to accurate reserves for most companies.

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¹² This reserve analysis should include a variety of methods, such as those used in this paper, as well as stochastic methods that allow the regulatory authority to set reserves based on their comfort level with expected rates of insolvency.

Appendix A: IBNR Percentages by Class of General Insurance Mandated by Kenya's Insurance Regulatory Authority Prior to 30th June 2013 (C.N. Gituai, personal communication, 7 December 2012)

Class of General Insurance Business	Percentage of Net Written Premium
Aviation	0%
Engineering	5%
Fire Domestic	1%
Fire Industrial	1%
Liability	5%
Marine	3%
Motor Private	5%
Motor Commercial	5%
Personal Accident	5%
Theft	5%
Workman's Compensation	5%
Medical	5%
Miscellaneous	5%

Appendix B: Reserving Method Results Using ABCD's Experience Data

Reserving Method	Type	Details	IBNR as % of NWP
1	Incurred Chain Ladder	Straight Average, latest 5 quarters	8%
2	Incurred Chain Ladder	Weighted Average, all (18) quarters	8%
3	Incurred Chain Ladder	Weighted Average, latest 5 quarters	7%
4	Bornhuetter-Ferguson	60% expected claims ratio, ¹³ percent unreported from incurred chain ladder (weighted average, latest 5 quarters)	6%
5	Bornhuetter-Ferguson	60% expected claims ratio, percent unpaid from paid chain ladder (weighted average, latest 5 quarters)	14%

¹³ 60% is near the industry average claims ratio for this line of business.

Appendix C: Excerpt of “Guidelines on Valuation of Technical Liabilities for General Insurers” Published by IRA, Effective 30th June 2013

4.2 Claim Reserves

4.2.1 Reserves in respect of outstanding claims incurred and reported shall be determined prudently by using Case Estimate Method, Average Cost per Claim Method or other methods recognized by the Authority.

4.2.2 Reserves in respect of incurred but not reported claims shall be valued and determined prudently by using at least two of the following methods in accordance with the risk nature, risk distribution and experiential data of the insurance lines:

- i. Chain-Ladder Method;
- ii. Average Cost Per Claim Method
- iii. Bornhuetter-Ferguson Method
- iv. Standard Development Method¹⁴

4.2.3 An insurer that has been in existence for not more than three years can use the Standard Development Method.

4.2.4 The percentage of net premiums written during the year should be applied when using Standard Development Method as provided in the appendix¹⁵ to this guideline.

4.2.5 The methods to be adopted for the valuation of the Claim reserves shall depend on:

- i. The particular characteristics of the class of business
- ii. The reliability and volume of the available data
- iii. Past experience of the insurer and the industry
- iv. The robustness of the valuations models
- v. Considerations of materiality

4.2.6 The value of the Claim Reserves shall include an amount in respect of the anticipated Claim adjustment expenses

4.2.7 When determining claims reserves, an insurance company shall conduct a test on the adequacy of the reserves. Where the claims reserves are inadequate, claims deficiency reserves margin shall be determined.

4.2.8 The insurer shall determine and disclose a value for its Claims Reserves for each class of business.

¹⁴ The Standard Development Method in the new guidelines is very similar to the method prescribed in the old guidelines, wherein IBNR is set as a percentage of net written premium.

¹⁵ The appendix of the new guidelines, which shows the percentages to be used in the Standard Development Method, is included in this paper as Appendix D.

Appendix D: IBNR Percentages by Class of General Insurance to be Used Under the “Standard Development Method” (effective 30th June 2013)

This table is from the appendix of “Guidelines on Valuation of Technical Liabilities for General Insurers,” Published by IRA, effective 30th June 2013. It shows IBNR Percentages by class of general insurance business to be used by an insurer that has been in existence for not more than three years. The previous guideline recommended a similar approach for determining minimum IBNR, but it did not dictate further analysis like that required in the new guidelines (shown in Appendix C) for those companies with more than three years of data.

No	Class of Insurance Business	Percentage of Net Premium Written
1	Aviation	2%
2	Engineering	5%
3	Fire Domestic	1%
4	Fire Industrial	1%
5	Liability	5% - Current Year
		3% - One year preceding the current year
		1% - Two years preceding the current year
6	Marine	2.50%
7	Motor Private	5%
8	Motor Commercial	5% - Current Year
		3% - One year preceding the current year
		1% - Two years preceding the current year
9	Motor Commercial (PSV)	20% - Current Year
		12.5% - One year preceding the current year
		5% - Two years preceding the current year
10	Personal Accident Insurance	5%
11	Theft	5%
12	Workmen’s Compensation	5% - Current Year
		3% - One year preceding the current year
		1% - Two years preceding the current year
13	Medical	3%
14	Micro insurance	4%
15	Miscellaneous	5%

Appendix E: Excerpt of ASOP 43

The actuary should consider the following items when performing the unpaid claim estimate analysis:

3.6.1 Methods and Models—The actuary should consider methods or models for estimating unpaid claims that, in the actuary’s professional judgment, are appropriate. The actuary should select specific methods or models, modify such methods or models, or develop new methods or models based on relevant factors including, but not limited to, the following:

- a. the nature of the claims and underlying exposures;
- b. the development characteristics associated with these claims;
- c. the characteristics of the available data;
- d. the applicability of various methods or models to the available data; and
- e. the reasonableness of the assumptions underlying each method or model.

The actuary should consider whether a particular method or model is appropriate in light of the purpose, constraints, and scope of the assignment. For example, an unpaid claim estimate produced by a simple methodology may be appropriate for an immediate internal use. The same methodology may be inappropriate for external financial reporting purposes.

The actuary should consider whether, in the actuary’s professional judgment, different methods or models should be used for different components of the unpaid claim estimate. For example, different coverages within a line of business may require different methods.

The actuary should consider the use of multiple methods or models appropriate to the purpose, nature and scope of the assignment and the characteristics of the claims unless, in the actuary’s professional judgment, reliance upon a single method or model is reasonable given the circumstances. If for any material component of the unpaid claim estimate the actuary does not use multiple methods or models, the actuary should disclose and discuss the rationale for this decision in the actuarial communication.

In the case when the unpaid claim estimate is an update to a previous estimate, the actuary may choose to use the same methods or models as were used in the prior unpaid claim estimate analysis, different methods or models, or a combination of both. The actuary should consider the appropriateness of the chosen methods or models, even when the decision is made not to change from the previously applied methods or models.

5. REFERENCES

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Abbreviations and notations

IRA, (Kenya) Insurance Regulatory Authority
IBNER, incurred but not enough reported
PSV, passenger service vehicle (e.g., a taxi)

ERP, enterprise resource planning
IBNR, incurred but not reported
NWP, net written premium

Biography of the Author

William (Bill) Collins recently completed a one-year fellowship with the International Labor Organization's Microinsurance Innovation Facility. He worked with a Kenyan insurance company to develop insurance programs catered to the needs of Kenya's working poor. Before working in Kenya, Bill worked on life, automobile, and crop insurance in the U.S. He has a bachelors of science in mathematics with honors from the University of Kansas. Bill is a member of the Casualty Actuarial Society. He has guest lectured on actuarial science at Strathmore University (Nairobi) and serves on the IAA Task Force on Microinsurance.