



ACTUARIAL  
PARTNERS



building value together





## Actuarial Partners

### Putting Years of Experience and Informed Strategies to Work for You

Actuarial Partners (“Partners”) is more than a typical actuarial consulting firm. With more than 100 years of combined consulting experience, our partners are not only leaders in their field but are progressive and forward-thinking innovators. Our strengths are numerous, and our experience is vast, making Actuarial Partners the right source for traditional actuarial consulting, strategic consulting and risk management.

Our firm is distinguishable from other actuarial firms in that we pride ourselves on combining top-level strategic thinking and old-fashioned personal attention and sensibility to all of our clients for services such as: pension scheme valuation and design, pricing of insurance and takaful products, determining appraisal values in mergers & acquisitions and the actuarial valuation of insurance and takaful company liabilities.

Our clients are spread across the globe; from Malaysia to the UK, with various countries in between like Singapore, Brunei, Indonesia, Thailand, Hong Kong, Sri Lanka, Mauritius, Saudi Arabia, Bahrain, Oman, Nigeria and Sudan. We are leaders in consulting to the growing takaful (Islamic insurance) industry.

## Our History

### A Glimpse Into Our Past

Our firm was first established in Malaysia in 1977, as a subsidiary of a leading UK based actuarial firm.

We came under Mercer’s wing in 1986. Under Mercer, our company developed international “best practices” and adopted time-tested processes in all areas of its operations, in particular in the development of peer review and checking processes, codes of conduct and other global policies and processes.

Whilst the firm has thrived and developed in Malaysia under Mercer’s umbrella, our firm’s core expertise in insurance, takaful and retirement consulting conflicted with Mercer’s shift in focus to human resource and investment consulting. After the completion of the management buy-out on 1st February 2011, the firm re-emerged as Actuarial Partners.

We remain affiliated to Mercer and work closely with professionals from Mercer to provide investment consulting and other retirement-related services, including global accounting coordination, valuation of stock option plans and flexible benefit plans.

## Our Mission

### Continued Growth, Expansion and Diversification

Our mission is clear and strong; to build value together with our clients. Our experience around the globe and our ability and willingness to work with multinationals, diverse cultures and companies both large and small, place us at an advantage to extend operations to rapidly emerging regions of the Middle East, Africa, Asia... globally.

We are a firm of consulting actuaries that has been partnering with clients for more than three decades and always with a focus on building value together



## Our Consulting Services

### Takaful

Partners has been active in takaful consulting since 1984 in all aspects of takaful from company set up to Appointed Actuary work. Our clients include companies using both *mudharaba* and *wakala* takaful models, from Saudi Arabia to Malaysia, Indonesia to Nigeria and UK to Sudan. For many assignments, we have been involved from the conceptual stage to product launch to supporting the on-going needs of the company.

### Insurance

Conventional life and general insurance consulting continues to be the mainstay of Partners' services. We have been the Appointed/Signing Actuary for companies in Malaysia, Singapore, Brunei, Hong Kong, Mauritius and the Middle East. Aside from the statutory role, we are also involved, among others, in the due diligence of merger & acquisition exercises (appraisal valuations), in the development of Malaysia's assured lives mortality tables, and have led research into Long Term Care ("LTC") and the Protection Gap.

### Retirement

The retirement team at Partners provides advice on retirement plans and other long term benefit schemes to employers, trustees, government bodies and non-governmental organisations. The firm started in 1977 with retirement and employee benefits as its core business. The team has vast experience in the setting up of retirement benefit programs, financing, funding, accounting, communication, trustees training, administration, mergers & acquisitions and recently, de-risking of retirement benefit plans.

### Asset Liability Management

Our ALM model has been used to assist pension funds, social security funds as well as insurers. As actuaries, we are able to apply our understanding of liability risks to investment decisions.

### Actuarial Software

We have developed actuarial solutions using the Mo.net financial modelling software for pricing, reserving and capital management for life insurers and takaful operators, as well as for pension valuation. In particular, by applying our expertise on takaful, our Takaful Solutions are robust enough to model incidence and repayment of *qard*, as well as surplus-sharing.



## Takaful And Insurance Consulting

### Feasibility

The first step in any business venture is a feasibility study. In some markets this study is done both for internal management as well as for the regulators in order to obtain a license. In others, it is recognizing a niche market. Once you are certain of your target market and business model and have the necessary approvals, the next step is to set up the business line or even a company. This includes putting the final details of the model together, business projections, IT and operational systems and, for takaful, Shariah Council approvals.

### M & As

In the life cycle of an insurer or takaful operator, there will be times when parts of the company must be sold off or purchased. In such cases, an actuarial appraisal will be needed in order to determine the value of the company. For the seller, ideally an appraisal study should be done several years beforehand as this will allow operations to be fine-tuned in order to maximize value by recognizing areas of high new business values. For the buyer, this exercise would also include reviewing the risks of the operations and how the buyer's own plans will affect value. This due diligence is routinely performed in appraisals to ensure that the buyer is aware of the risks entailed and that the reserves set aside in the company's books are adequate to cover expected liabilities.

### Capital Management

Is your operation holding the right amount of capital? Without sufficient capital you run the risk of insolvency and reputational risk. Too much capital and servicing this capital will be difficult, requiring you to increase fees or rates which would also not be in your policyholders' interests and more importantly, puts you at a competitive disadvantage.

### ALM

When your liabilities are long term in nature, and substantial funds have been accumulated to meet those liabilities, it is important to take cognizance of your liability profile in setting an investment strategy for your operation. We use asset liability modelling (ALM) techniques, that take account of the nature and duration of your liabilities to set Strategic Asset Allocation (SAA) targets. A dashboard built using ALM techniques is also useful when setting an internal Capital Management Framework. This provides information on key risks faced by your operation, typically for insurers these are investment related, and helps quantify those risks by plotting a risk versus reward matrix for management to consider.

## Setting Up Takaful Operations

Setting up a takaful company, or a takaful window, is a complex process and in many ways is more complex than setting up a conventional insurance company. There are many aspects which can have a significant influence on how takaful can be implemented. As an example, whereas for conventional insurers the product pricing is fairly standardized, in takaful there is a wide variety of operating models to choose from. You must consider the most appropriate operating model, be it *mudharaba* (profit sharing), *wakala* (agency) or *musharaka* (partnership) which will affect the pricing basis, and the interaction of English Law and *Shariah* (Islamic) Law and principles and avoidance of *riba* (usury) and *gharar* (risk).

The Shariah Council members, who are responsible for approval of the takaful products, are most concerned with the adherence to these rules and principles. Partners can provide guidance with developing your model and identifying how your takaful model adheres to these principles while maintaining business viability.

Our consultants can assist from the initial planning which includes conceptualisation of these takaful models until product launch, with our services grouped into three areas:



### 1. Financial model development:

- Determining appropriate distribution channels and types of products to sell
- Determining the necessary capital and other statutory requirements
- Determining the model to use
- Developing the charges, compensation and retakaful quotes (including sample projections)

### 2. Shariah Council assistance:

- Preparing submissions to the Shariah Council for approval of the takaful model
- Refining brochures, underwriting forms, sales illustration and claim forms for shariah acceptability
- Modeling charges and compensations structures for shariah approval

### 3. Operations and Regulatory assistance:

- Preparing submissions to the Regulators for approval for the model and basic concepts / structure of the operations
- Submissions to the Regulators for approval for all products, forms and other operational aspects
- Assistance in testing of the system based on the final product design and *wakala* charges



## Regulatory roles for Actuaries in Insurance and Takaful

### Appointed Actuary

In some jurisdictions, an Appointed Actuary is needed for every insurer and Takaful Operator. The Appointed Actuary would be responsible for ensuring the health of the company through yearly reviews of the actuarial liabilities of the company and reporting on the financial condition of the company. In the case of general insurance / takaful companies, the actuarial liabilities would include calculation of Incurred but Not Reported (IBNR) claims and assessment of the premium and expense (for takaful) liabilities in line with the Liability Adequacy Test (LAT) under FRS.

### Reviewing Actuary

Where work is carried out internally, recent global trends in insurance regulations and corporate governance requirements increasingly require various stakeholders such as shareholders and regulators to obtain an independent peer review to be performed regularly to ensure compliance with regulatory requirements and market best practices. An independent review is even more critical during the first few years of a new line of business where the internal actuary might not be comfortable due to the lack of experience specific to that company, the region or the industry, particularly in takaful, or when new regulations are introduced in the market. Nevertheless, there is value in obtaining regular independent peer review as part of the company's risk management process.

We offer independent reviewing actuary services beyond the typical scope of an external auditor and we are able to add significant value to companies given our familiarity with the insurance and takaful regulations and market best practices across the industry. Our experience as independent reviewing actuary includes the following:

- Review of the adequacy of the actuarial liabilities, taking into account the methodology and assumptions adopted by the internal actuary.
- Review of processes in statutory valuation, product development, pricing and other actuarial functions.
- Review of the controls and processes in place to mitigate the risk and the adequacy of actuarial resources for the relevant tasks.
- Review of the actuarial valuation models (including Prophet) to determine the actuarial liabilities relative to regulatory requirements.

### Pricing Actuary

We have a strong track record of helping our clients price their products adequately – taking into account the cost of capital involved. As part of that service, we highlight and quantify areas of risk that would have an impact on the profitability of the product. Aside from life and takaful products, we are also active in medical and health pricing as well as pricing for the Motor and Fire classes using the Generalized Linear Model (GLM). For the latter, the need has intensified in recent years as companies in Malaysia prepare for the impending de-tariffing of Motor and Fire classes in 2016.

# Mo.net Financial Modelling Software and Programming

## An Actuary's Tool Kit

Partners has developed a number of financial models using Mo.net that is used for various actuarial functions for insurers and takaful operators:

- Product pricing
- Profit testing
- Net premium valuation
- Gross premium valuation
- Risk Based Capital computations
- Surplus distribution calculations
- Asset share calculations
- Embedded value calculations
- Profitability assessment of new business written
- Dynamic Solvency Testing (DST)
- Projection of balance sheets and income statements
- Asset Liability Modelling
- IBNR computations

Model audit is an important process in a company's risk management process. Mo.net models can also be used to perform checks on a company's gross premium valuation and RBC calculations and cash flow outputs produced by other software.

## An Advanced and Robust Platform

Models in Mo.net use a hierarchical structure that allows the models to be adaptable to complex needs using simple coding i.e. using the cash flow model and changing input variables to build on the pricing, profit testing, valuation, solvency and even asset liability modelling. As an example, the basic building blocks of takaful i.e. contributions, commissions, expenses, and takaful benefits outgo can lead to the cash flow model and then be used again in the reserving model which could then be used as the liability model in asset liability modelling. This ensures models are able to interact with each other, making Mo.net a perfect tool for the increasingly complex financial modelling of IFRS and other standards. This also allows the company to maintain just the one model for each of its products for the various actuarial activities e.g. pricing and reserving.

Some of Mo.net's compelling features are:

- ✓ **Speed** The ability to run in multi-core or 64 bit systems can tremendously improve model runtime
- ✓ **No legacy issues** It is based on Microsoft's .NET technology, hence it does not and will not have legacy issues
- ✓ **Secure** The different versions of licenses (Development edition and Runtime edition) allow users to have better control on selecting employees who are allowed to change the codes
- ✓ **Clear audit trail** Workgroup functionalities include version control, auditing logs of model changes and backup and archive functionality
- ✓ **Seamless transition from one tool (Excel) to another (Mo.net)** Visual Basic (VB) language is used for coding. Consultants or clients who are accustomed to Excel macros can easily understand functions in the model in a short period of time

## Add-in support

Apart from the models built in Mo.net, Partners has also developed tools using Microsoft Excel VBA to support work on Mo.net models. This includes tools for the preparation of data to be fed into the models, the Data Checking Tools for the extraction of Mo.net results to fill up regulatory forms or production of reports, profit and loss accounts as well as balance sheets for internal usage. The idea behind the creation of these tools is so that business processes should be automated to help ease the reporting burden as well as to minimize error in manual work processes. In addition, actuarial resources can be managed more efficiently as less time is allocated for manual work. The Data Checking Tool can also be used on its own as a data management system to ensure data cleanliness, accuracy and completeness.

## Meeting Retirement Needs

Providing for adequate financial resources post-retirement is an important aspect of retirement planning. The two areas where we have significant experience are assisting companies with their corporate pension/retirement plans and working with governments on national social security and pension schemes.

Any retirement planning should be holistic in nature taking into account the various possible contingencies. As actuaries, we are trained to identify and quantify risks. We recognize investment, inflation and longevity as the key risks faced in retirement planning.

### Sharing of Risks and Responsibilities

At the heart of successful retirement planning is the sharing of risks between the various stakeholders. Besides the individual and his employer, the State is an important stakeholder. The underlying mandated social security benefits provided by the State have to be appropriate as to the level and coverage and yet should avoid unsustainable promises that would prevent the development of a robust private sector retirement industry.

The continuous increase in life expectancy coupled with falling birth rates and increasing urbanisation have put pressure on governments to allocate more of their financial resources to meet the needs of their older population such as the provision of old age pensions, healthcare and long-term care. It is important for policy-makers of today to formulate a dynamic program and policy towards mitigating the financial and social risks associated with an ageing society. With our extensive experience working with employers and the government/semi government sector we can assist in the design of integrated pension and social security programs.

### Financial Modelling

In addition to the traditional actuarial work, actuarial skills are increasingly being applied in the building of financial models for provident funds, social security, labour planning, banking, project financing and investment. At Partners we are proficient in building and modelling future cash flows (deterministically or stochastically) and projecting future balance sheets and the revenue & expenditure accounts of financial organisations.

### Scheme Design

We can assist clients to identify their objectives in setting up or updating a Scheme and implement strategies to achieve them. In addition to legislative changes, corporate reorganization, changing demographics and investment market volatility may cause clients to re-evaluate the effectiveness of their retirement programs from time to time. Our team specialises in the design of defined benefit, defined contribution and hybrid plans. Retirement plans can be integrated with government-mandated arrangements, such as social security, to form a cohesive benefits strategy.

### Accounting and Funding Valuation

Where the benefit design links ultimate pay-out to a future variable (e.g. salary prior to retirement), the cost of such plans will vary over time with experience. Plan sponsors need to understand the funding and accounting implications of their plan. We provide valuation services to clients which include the actuarial analysis needed to measure, report and fund the liabilities. Our actuaries can assist clients to align their funding objectives with their business objectives and prepare information required by the various accounting standards (e.g. MASB 29, IAS 19, FRS 119, FAS 87, IPSAS 25). In addition to retirement benefits, we provide valuation of other benefit plans such as medical benefits for retirees, termination indemnity and stock option plans in accordance with the relevant accounting standard e.g. FRS 2.

### Asset Liability Modelling

Where retirement benefits are pre-funded, there is a need to understand the interaction between benefit pay-outs and investment cash flows. The risk of having to liquidate investments to pay out benefits when market prices are depressed can be expensive to plan sponsors, especially where the sponsors' own financial performance is directly correlated with asset prices. Asset Liability Modelling combines actuarial and investment expertise to assist clients with modelling the financial position of their retirement plan under different scenarios. The variables may include different asset allocation policies, crediting rate policies, actuarial assumptions, demographic changes and economic conditions. An investment strategy may then be formulated to best fit our clients' specific objectives and constraints.

### Communication, Training and Financial Awareness

A retirement plan, no matter how good it is, may not be appreciated by employees, plan members or beneficiaries if they do not understand it. At Partners we believe that the introduction of a benefit plan must be accompanied by an effective communication strategy. Our actuaries, through years of involvement in benefit design and restructuring exercises, can assist organisations in enhancing their benefit communication package. Another area where we can assist organisations is in financial education and retirement planning for their employees, with the aim to empower employees to take charge of their financial well-being.

*The company thrives under the leadership of our Senior Partner, Zainal Kassim. Together with the six partners, we have more than 100 years of consulting experience between us.*



## Senior Partner

Zainal Abidin Mohd. Kassim

FIA, FASM, FSAS, ASA

Zainal has been with the company since 1982. His consulting experience spans the full spectrum of actuarial services including life and general insurance consulting, family and general Takaful consulting, retirement and employee benefit consulting and investment consulting. He was among the first five Malaysians to qualify as a Fellow of an actuarial professional body.

With the benefit of a long and diverse career in actuarial consulting, he currently specializes in the strategic aspects of takaful, insurance and retirement consulting. He is a firm believer that the best solutions are those that consider the long term needs of all stakeholders. This requires looking at problems on a holistic basis and recognizing the limitations of solutions that overly rely on laws to regulate behaviors.

Zainal has written many articles and spoken at conferences globally on his experiences with the development of takaful. He was the first actuary to practice takaful in Malaysia. He has also been involved in strategic analysis and the setup of takaful and retakaful operators in Asia, Africa and Europe.

Zainal started his career as a pension actuary and remains active in retirement consulting. He is a member of the International Accounting Standards Board Working Group in London which reviewed proposed changes to IAS 19, accounting for pensions and other retirement benefits.

He is a Fellow of the Institute of Actuaries of the UK, a Fellow of the Actuarial Society of Malaysia, Fellow of the Singapore Actuarial Society and an Associate of the Society of Actuaries in the USA. He graduated in 1978 from City University in London with a First Class Honours degree in Actuarial Science.

He is a past President of the Actuarial Society of Malaysia.

## Partners

### Aiza Yasmin Benyamin FIA, FASM



Aiza is a qualified actuary who has been with the company since graduating in 1995. She currently leads the ALM Practice. Notably, she has recently completed an assignment on the long term funding requirement of a social security fund that took ALM analysis into consideration.

Aiza has had significant experience in life insurance and takaful consulting. She has been involved in a number of actuarial due diligence exercises for mergers & acquisitions. For takaful, she has led a team in performing feasibility studies for a number of life insurers and reinsurers looking to set up retakaful operations in Malaysia, Africa and UK. She has also been responsible for a wide range of other traditional actuarial work, including financial condition reporting, statutory and bonus reserve valuation, asset share and bonus revision exercises, product development and pricing, embedded value and appraisal valuations on a Risk Based Capital (RBC) basis and MCEV basis.

Aiza is a Fellow of the Institute and Faculty of Actuaries in the UK since 2003. She graduated with BSc (Honours) in Math, Stats and Operational Research from UMIST and has a Masters in Actuarial Science from City University, UK.

### Chin Chee Yen

Since joining the company in 1992, Chee Yen has been involved in various areas of actuarial work, particularly in general insurance. Her expertise lies in liability estimations for Incurred But Not Reported (IBNR) claims reserving, appraisal valuation of insurance companies for the purpose of mergers & acquisitions, and risk margin, stress testing and capital adequacy analyses under the RBC framework in Malaysia.

She has also performed reinsurance optimization analysis using stochastic testing and been involved in the rating of a motor portfolio in Singapore. Other work includes data integrity analysis, staff training for IBNR/RBC and model auditing for infrastructure projects in Australia.

Chee Yen graduated with BSc (Honours) in Actuarial Science from City University, UK.



### Farzana Ismail FIA, FASM



Farzana Ismail joined the company in May 2012. Previously, she was a senior consulting actuary in the life insurance practice for 8 years in a multinational actuarial consulting firm in London. In Malaysia, she has worked on various projects including independent actuarial reviews, statutory valuation, pricing, appraisal valuation work for mergers and acquisitions purposes and strategic consulting. She is also the Appointed Actuary for several companies in Malaysia, both the takaful and conventional insurance industry.

Her previous experience whilst working in London include statutory valuations, Individual Capital Assessments, Asset-Liability Management (ALM) modelling for with-profits business, mergers and acquisitions, block annuities transactions, independent expert review work, and Solvency II. She worked extensively on annuities and longevity issues in the UK and had also led takaful initiatives in the UK.

In addition to Malaysia and the UK, Farzana has worked on client assignments in continental Europe, the US and Asia Pacific. She has written and regularly presented at industry conferences in the UK, US, Europe and Malaysia on actuarial topics including longevity risk, Solvency II and takaful. She has also written several articles on risk management. She is a co-author of the book "Longevity Risk" by RiskBooks.

Farzana is a Fellow of the Institute and Faculty of Actuaries in the UK. She graduated with BSc (Honours) in Actuarial Science from London School of Economics and Political Science and has a Masters (Distinction) in Actuarial Management from CASS Business School, UK.

## Hassan Scott Odierno FSA, FASM



Hassan Scott Odierno has been with the company since 1996. His specialties are in life and takaful consulting. He is the Appointed Actuary for both takaful operators as well as conventional insurers, extending from Malaysia to Mauritius to Hong Kong. He has been involved in assisting companies set up takaful operations from feasibility studies to product and model development and business projections in countries such as Malaysia, Indonesia, Saudi Arabia and Bahrain for both local companies as well as multinationals. He has also been involved in merger & acquisition exercises for insurers in countries such as Malaysia, Taiwan, Thailand, Singapore and Bahrain. He is the co-author of the World Bank Book on Takaful & Mutual Insurance, co-author of the book Essential Guide to Takaful and a contributing author to the book Health Insurance in Asia. He is also the external adviser to two universities in Malaysia to their risk management and actuarial science programs.

Hassan is a Fellow of the Society of Actuaries, and has a Bachelor of Science degree with high distinction in Mathematics from Worcester Polytechnic Institute in the USA.

## Nurul Syuhada Nurazmi FCAS, FASM

Syuhada joined the company after completing her BA in Actuarial Science and Risk Management & Insurance at University of Wisconsin, Madison (USA). She has been with the company since May 2004 and is among the first in Malaysia to qualify as a Fellow of Casualty Actuarial Society.

She has performed reserving for Incurred But Not Reported (IBNR) claims and Risk Based Capital (RBC) works for general insurers and takaful operators in Malaysia, Brunei, Mauritius and Bahrain. Her experience in appraisal valuation ranges from due diligence of the general insurers/takaful operators to determining the potential value of a bancassurance general operations of a Malaysian insurer. She has also assisted in the feasibility study for the set up of a family takaful operations in Malaysia and was involved in the modelling of a stress testing tool for a retakaful company in Malaysia. Furthermore, she had performed a review of the insurance and takaful operations of a banking entity in Malaysia with focused areas on profitability, capital allocation, accounting treatment, rating and underwriting processes. She is currently the Signing Actuary for several general insurers and takaful operators in Malaysia.

Syuhada is also involved in the pricing and certification of Medical and Health insurance products in Malaysia. This includes the pricing of Life Insurance Association of Malaysia's and Malaysian Takaful Association's Critical Illness Scheme for Employee Provident Fund and National Insurance Association of Malaysia's Sihat Malaysia and Cergas Malaysia products.



## Syed Hamadah Othman FFA, FASM



Hamadah leads the Retirement Business and is responsible for the delivery of actuarial services to our clients. He specializes in consulting with private corporations and government institutions on issues including pension funding & accounting, pension aspects of mergers & acquisitions, pension scheme design, training and plan member's communication.

His experience includes being a member of the consulting team on the review of pension, social security and healthcare systems in Malaysia. He has also worked on benefit reviews and designs of major pension schemes in Malaysia and the Middle East. He has recently completed an actuarial valuation of a social security fund with over five million members. In addition to pension work, he manages a talent of aspiring actuaries in the delivery of traditional actuarial work in insurance and takaful business, employee stock option valuation, actuarial experience analysis and valuation of post-retirement medical benefits.

Hamadah has been with the firm since 1996. He is a Fellow of the Faculty of Actuaries, United Kingdom and a Fellow of the Actuarial Society of Malaysia. He holds a BSc (Honors) in Actuarial Mathematics and Statistics from Heriot Watt University, Edinburgh.



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