

# Cloud computing brings technological advance to reinsurance pricing models



## Introducing SMART Re™

Standard pricing methods with integrated workflow, robust data warehouse and automated renewals that will save at least 30% of your time

**Matβlas**

Dedicated to simplifying your workflow

***SMART Re is the easiest and most intuitive pricing application I have ever used. Switching to SMART Re has simplified our workflow from having to manipulate 6 or 7 spread sheets and having to manually transfer data between them, to having everything in one place with a database and easy downloads.***

***We were a bit concerned about the system being “a black-box”, but the technical training easily explains all the mathematical nitty-gritty behind the scenes, which is all based on standard pricing techniques. Referrals, updates and last minute structure changes are very easily done within the system. Now most of the work is done by our underwriters and we have plenty of time to focus on using the data to perform market benchmark analysis and curve fitting.***

***Treaty pricing actuary  
Lloyd's syndicate***

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# Foreword

Every treaty pricing actuary and underwriter I know dreams of a pricing tool in a single file, with integrated workflow from data to CR/ROE with a data warehouse that captures all claims, premiums, exposures, benchmarks and each and every selection used throughout the rating process.

Many understand that Microsoft Excel® is not the ideal platform for this, yet most pricing models being developed and used out there are in Excel. The common workflow involves manipulating several spreadsheets and moving data around. The amount of time wasted waiting for Excel to respond or finding bugs is simply outrageous!

Gathering and aggregating information for updating benchmarks (curves, rate changes, LDFs, etc.) tend to consume most of the summer months, just getting the data ready may take a huge chunk of “the summer project”.

Renewing accounts should be straightforward taking much less time each year, but as tools are updated, bugs fixed and new features added during “the summer project”, every year pricing an account involves starting from scratch.

Technology evolves daily and we use it in our personal lives, take cloud computing and web server applications as examples, but why are we falling behind in the industry, almost being stuck with inefficient time wasting tools?

SMART Re was born out of frustration and need. As a consultant I have been asked time and again to help clients review their models, fix their models and even start models from scratch, then help them with account pricing and often help them with benchmarking. For me there is an obvious missing piece in most reinsurance rating models I have come across: integrated workflow with data warehousing, which is not an easy goal to achieve in Excel/Access models.

SMART Re is a web application in a .NET platform with all code written in C# with MySQL database behind the scenes. SMART Re embeds in a single record an integrated workflow for all standard pricing methods: experience, exposure, mixed/hybrid together with aggregate loss distributions to evaluate loss dependent features from data input to economic target.

SMART Re can cope with as many lines and sub-lines of business as needed, different segmentation for experience and exposure, any number of layers, in any currency.

**SMART Re is not a ground breaking new mathematical way to price treaties. SMART Re is not about the maths, is about the platform. SMART Re brings you the solid methodology you are used to in a cutting edge platform with integrated management information reporting tools.**

SMART Re is designed to save you time that you can invest doing more in-depth analyses and interesting projects. I invite you to go through this booklet to get a feel for how SMART Re looks like and then take a look at the quick “live” demo I have put together for you.

Get in touch and I or any member of my team would be delighted to give you a live demo.

Yours sincerely,



Ana J. Mata, PhD, ACAS  
Managing Director and Founder

# Core benefits – why SMART Re

- 1) **No spreadsheet expertise** is required. Everything flows through the application minimising the need for you to move things around across models or spreadsheets. In the London Market, the majority of SMART Re users are underwriters.
- 2) **Ease of workflow**: from single layer/class/currency treaty to global multi class treaties, SMART Re allows you to keep everything in a single record.
- 3) **Single record** with comments boxes and ease of workflow facilitates peer reviews, referrals, updates and audit trails.
- 4) **Free data warehouse**: everything is saved to a database and you can access and download data to Excel. Pricing your accounts through SMART Re automatically builds up your database of claims and premium by class, rate changes and loss development factors, which can be used for benchmarking. In Excel application, this is typically a manual process that can be very time consuming.
- 5) **Standard actuarial methods**: SMART Re has built in most standard pricing techniques for exposure, experience and combination methods. You decide how you apply inflation, development and exposure curves simply by selecting the methodology in the Analysis Design. The calculations are all built in.
- 6) **Easy to switch between methods**: if a specific account or data availability prevents you from using your standard method, it's easy to switch to other methods. With SMART Re there is minimal need for ad-hoc analysis outside the application.
- 7) **Mobility**: work anywhere you are as long as you have access to the Internet, even on your iPad! No dongles, no software to install, live updates without affecting prior records and easy access while on the road.
- 8) **Benefit from your peers' suggestions**: users regularly provide feedback and request additional features. We continually enhance the application and updates are covered by the license agreement.
- 9) **Free technical and actuarial training for beginners**: users are trained by a dedicated team not only on how to use and navigate the application, but also on the actuarial side of things.
- 10) **Easy to renew and compare year on year pricing assumptions and results**: the renewal functionality copies everything that was done the previous year and the only thing that needs to be updated on renewal is the submission data: claims, premiums and risk profile and refresh pages are needed.
- 11) **Resources**: as a SMART Re user, you will have discounted rates to access to a pool of data analysts and actuaries that can assist you with data formatting to prepare the submission data and even can provide short term actuarial pricing support when you need extra resources.
- 12) **Bespoke products**: while SMART Re is our standard application, we can easily customise it to suit specific companies' workflows and methodology and integration with other systems and databases within the company.
- 13) **FREE no obligation trial licence**: each quarter we offer 20 FREE no obligation trial licences and during the trial licence we work closely with users throughout the familiarisation process. To get a trial licence get in touch by e-mail [ana.mata@matblas.com](mailto:ana.mata@matblas.com) or by phone **+44 (0) 20 7510 9690**

MySMART: this page allows you to manage your accounts, edit, review (view only, ideal for audits and peer reviews), renew. Create new accounts, load benchmarks from Excel files (standard template) and generate reports.

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Search  
New Account  
Load Benchmarks  
CSV downloads  
Logout

### Account List

User Manual: [Section I: Overview](#), [Section II: Analysis Preparation](#)

Cedant Name	Description	Effective Date	EPI	Currency	Broker	Status	Last Change By			
ABC Casualty	International Liability	01/07/2012	620,000,000.00	GBP	AON Benfield	Work in progress	ana@matblas.com	<a href="#">Edit</a>	<a href="#">Review</a>	<a href="#">Renew</a>
BT - AF	Testing	01/01/2012	100,000,000.00	GBP	AON Benfield	Work in progress	ana@matblas.com	<a href="#">Edit</a>	<a href="#">Review</a>	<a href="#">Renew</a>
BT - AF	Testing	01/01/2013	100,000,000.00	GBP	AON Benfield	Work in progress	ana@matblas.com	<a href="#">Edit</a>	<a href="#">Review</a>	<a href="#">Renew</a>
Demo 01022012	Demo	01/01/2012	200,000,000.00	GBP	AON Benfield	Work in progress	ana.mata@matblas.com	<a href="#">Edit</a>	<a href="#">Review</a>	<a href="#">Renew</a>
Demo Jul11	Demo	01/08/2011	200,000,000.00	GBP	AON Benfield	Work in progress	ana@matblas.com	<a href="#">Edit</a>	<a href="#">Review</a>	<a href="#">Renew</a>
Gross Triangles v2	Testing	01/01/2012	200,000,000.00	USD	AON Benfield	Work in progress	ana@matblas.com	<a href="#">Edit</a>	<a href="#">Review</a>	<a href="#">Renew</a>
Matt 2	Test	31/01/2012	10,000,000.00	GBP	AON Benfield	Work in progress	ana@matblas.com	<a href="#">Edit</a>	<a href="#">Review</a>	<a href="#">Renew</a>

[New Account](#)

Benchmarks are prepared in a standard Excel template that is loaded in the system. The benchmarks are classified by class of business and include loss ratios, curve, loss development patterns by attachment point, rate changes, severity trend, frequency trend, exposure trend and payment patterns.

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New Account  
Load Benchmarks  
Logout

### Load Benchmarks

User Manual: [User Guide for Benchmarks](#)

File to Upload:  No file chosen

From MySMART you can generate downloads of everything you have loaded or selected while pricing your accounts:

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Search  
New Account  
Load Benchmarks  
CSV downloads  
Logout

### CSV Reports

[Claims .csv report](#)  
[Historical premiums .csv report](#)  
[Limits profile .csv report](#)  
[COBs reports](#)  
[Selected loss development factors .csv report](#)  
[Payment patterns .csv report](#)  
[Incurred patterns .csv report](#)  
[FGU trended losses .csv report](#)  
[Trended ultimate losses .csv report](#)  
[Economic summary .csv report](#)  
[Account summary .csv report](#)  
[Rate monitoring .csv report](#)



For example, you can download selected development patterns filtered by account, country of domicile, division, effective date and status (bound, work in progress, decided)

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Search

New Account

Load Benchmarks

CSV downloads

Logout

### CSV Reports: Selected loss development factors

Account: ALL

Country:

Division: ALL

Treaty Effective Date From:

Treaty Effective Date Until:

Status: ALL

Clear dates

Download

The download will produce a .csv file that can be opened in Excel and looks like this:

Account name	Country	Treaty currency	Division	Treaty effective date	Status	Layer	Class of business	Type of triangle	Contents	Month of	Factor to ult
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	Motor UK	Treaty Year	Trended - Incurred - Counts	6	15.5379
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	Motor UK	Treaty Year	Trended - Incurred - Counts	18	2.5897
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	Motor UK	Treaty Year	Trended - Incurred - Counts	30	1.6860
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	Motor UK	Treaty Year	Trended - Incurred - Counts	42	1.4802
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	Motor UK	Treaty Year	Trended - Incurred - Counts	54	1.4004
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	Motor UK	Treaty Year	Trended - Incurred - Counts	66	1.2000
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	Motor UK	Treaty Year	Trended - Incurred - Counts	78	1.2000
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	Motor UK	Treaty Year	Trended - Incurred - Counts	90	1.0000
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	Motor UK	Treaty Year	Trended - Incurred - Counts	102	1.0000
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	6	2.9512
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	18	1.6162
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	30	1.2423
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	42	1.0413
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	54	0.9373
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	66	0.9929
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	78	1.0080
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	90	0.9892
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	102	0.9660
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	114	1.0000
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	1M xs 1M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	126	1.0000
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	2M xs 3M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	6	5.2242
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	2M xs 3M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	18	2.1767
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	2M xs 3M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	30	1.5394
ABC Casualty	United Kingdom	GBP	Reinsurance	01/07/2012	Work in progress	2M xs 3M	GL Intl - Med	Treaty Year	Trended - Incurred - Counts	42	1.4294

The same can be done with claims, premiums, limits profile, benchmarks used by accounts, user selections, economic summaries and account summaries. **This is one of the greatest benefits SMART Re offers, truly a time saving feature!**

Creating accounts is easy, simply create a record using the New Account button on the screen and fill the form.

New Account

Load Benchmarks

Logout

## New Account ?

Name:

Description:

Country:

Currency:

Underwriter:

Division:

Broker:

Treaty Effective Date:

EPI:

Status:

LastChangeBy:

Select the lines or classes of business from the benchmarks list. Can add as many classes as needed for experience rating, the exposure rating breakdown can be done at a more granular level at a later stage.

General

Classes of Business

Layers

Load Data

Historical Premiums

Claims

Limits Profile

Rates of Exchange

Logout

Account: ABC Casualty

## COBs ?

COB	User label	Description	Currency	
Motor UK	Motor UK	Motor UK	GBP	<a href="#">Details</a>   <a href="#">Edit</a>   <a href="#">Copy</a>   <a href="#">Delete</a>
GL Intl - Med	GL All	GL Intl - Med	USD	<a href="#">Details</a>   <a href="#">Edit</a>   <a href="#">Copy</a>   <a href="#">Delete</a>

[Add New](#)

Everything within the class of business benchmark can be manually overwritten, to allow for differences between the specific account and the benchmarks. When a class of business is added, this is copied from the benchmarks database to the specific account. **Overwriting benchmarks for a specific account does not alter the benchmarks.** Furthermore, changing benchmarks does not alter past records. So you always know which factors were benchmarks and which ones were changed for the account.

Adding a layer is also easy, we can add as many layers as we need, and each layer is independent of each other. You could have LOD layers and RAD layers within the same treaty or layers with different ALAE handling.

General

Classes of Business

Layers

Load Data

Historical Premiums

Claims

Limits Profile

Rates of Exchange

Logout

## Edit Layer ?

Name: ? Ref

Type: ? Per Risk

Treaty Effective Date: ? 01/07/2012

New/Renewal: ? Renewal

Limit: ? 1000000

Attachment: ? 1000000

Inuring Attachment: ?

Indexation: ? Fully Indexed

Franchise: ?

SIC: ?

Treaty Basis: ? Risks Attaching During

Direct Policy Basis: ? Occurrence

ALAE Treatment: ? In addition to policy limit / Included in treaty limit

SMART Re allows you to include both per risk or risk excess layers as well as clash layers.

The list of layers may look like this:

General

Classes of Business

Layers

Load Data

Historical Premiums

Claims

Limits Profile

Rates of Exchange

Logout

## Layers ?

Name	Treaty Effective Date	Attachment	Limit	
Ref	01/07/2012	1,000,000	1,000,000	<a href="#">Details</a>   <a href="#">Edit</a>   <a href="#">Copy</a>   <a href="#">Delete</a>
1st excess	01/07/2012	3,000,000	2,000,000	<a href="#">Details</a>   <a href="#">Edit</a>   <a href="#">Copy</a>   <a href="#">Delete</a>
2nd excess	01/07/2012	5,000,000	5,000,000	<a href="#">Details</a>   <a href="#">Edit</a>   <a href="#">Copy</a>   <a href="#">Delete</a>
3rd excess	01/07/2012	10,000,000	15,000,000	<a href="#">Details</a>   <a href="#">Edit</a>   <a href="#">Copy</a>   <a href="#">Delete</a>
4th excess	01/07/2012	25,000,000	1,000,000,000,000	<a href="#">Details</a>   <a href="#">Edit</a>   <a href="#">Copy</a>   <a href="#">Delete</a>
Unlimited xs ref	01/07/2012	1,000,000	1,000,024,000,000	<a href="#">Details</a>   <a href="#">Edit</a>   <a href="#">Copy</a>   <a href="#">Delete</a>
Ref 2	01/07/2012	2,000,000	1,000,000	<a href="#">Details</a>   <a href="#">Edit</a>   <a href="#">Copy</a>   <a href="#">Delete</a>

[Add New](#)

We are then ready to load the submission data: claims, premiums and limits profile.

The submission data is formatted in Excel in a standard template. You can include historical premiums in any breakdown you want, by state, class of business, hazard, etc. Types of premiums include written or earned, calendar year or treaty year. Exposures can also be included in the premiums page.

Claims can be identified by class, sub-class, hazard and state. There is a clash ID identifier for clash layers. Claims can be triangulated or latest position only or could be aggregated by year or individual claims. Split of paid, incurred, indemnity and ALAE could also be included.

Limits profile could also be classified by class, sub-class, etc, even historical profiles could be included. SMART Re can also work with full individual risk download with stacked policies.



All inputs could be included in original currency and SMART Re would convert to the rating currency selected.

Once the Excel file is ready, you find it, upload it and EVERYTHING is automatically copied to the database for later use.

Smart Re

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User: Ana Mata [ana@matblas.com]

My SMARTInputsAnalysisScenarios

Account: ABC Casualty

GeneralClasses of BusinessLayersLoad DataHistorical PremiumsClaimsLimits ProfileRates of ExchangeLogout

Load Data ?

User Manual: [Section III - Data Preparation](#), [Section IV - Data Integrity](#), [User Guide for Inputs](#)

Select the Excel file containing Input Data (Historical Premiums, Claims and Limits Profile)

File to Upload:  No file chosen

SMART Re shows you on screen what has been loaded.

Smart Re

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User: Ana Mata [ana@matblas.com]

My SMARTInputsAnalysisScenarios

Account: ABC Casualty

GeneralClasses of BusinessLayersLoad DataHistorical premiumsClaimsLimits profileRates of exchangeLogout

Historical Subject Premiums

Label 1	Label 2	Class of Business	State	Hazard	Type of premium	Currency	Year	Premium	Exposure/Counts	Alt
Motor	Written				UW Written Premium	GBP	2002	109,789,980.62	464,318.00	
Motor	Written				UW Written Premium	GBP	2003	115,675,197.95	484,364.00	
Motor	Written				UW Written Premium	GBP	2004	136,813,758.10	565,804.00	
Motor	Written				UW Written Premium	GBP	2005	142,852,933.97	587,840.00	
Motor	Written				UW Written Premium	GBP	2006	141,977,901.20	596,163.00	
Motor	Written				UW Written Premium	GBP	2007	153,775,082.50	690,883.00	
Motor	Written				UW Written Premium	GBP	2008	170,942,217.38	777,733.00	
Motor	Written				UW Written Premium	GBP	2009	179,781,383.69	794,125.00	
Motor	Written				UW Written Premium	GBP	2010	186,817,878.02	791,945.00	
Motor	Written				UW Written Premium	GBP	2011	212,933,348.39	822,237.00	
Motor	Written				UW Written Premium	GBP	2012	234,242,502.33	857,692.00	

The core of the pricing workflow is defined in the Analysis Design page (see next page), where SMART Re displays the labels or identifiers of the profile, premiums and claims and the classes of business selected. Here is where we can assign different curves by profile and class of business for exposure rating. The dropdown under Curve will show you all curves available from the benchmarks. Exposure rating will be done by layer, class and curve and finally aggregated by layer/class.

For example there are 5 sub classes of limits profile for GL, each one has a different curve and loss ratio, but all of them fall on the same GL class. This will allow you to compare loss costs for experience and exposure at the same level later.

Premiums and claims are assigned to each class of business using the check boxes. Finally, you tells SMART Re which layers apply to each class and which methods to perform for each layer.

Analysis Design

Gross Triangles

Exposure

Triangles

Experience

Mixed

Projected Premiums

Loss Cost Summary

Logout

Analysis Design

Please select which premiums, claims and limits profile apply to each class of business:

[Copy COBs values to Limit Profiles](#)

Limits Profile		Classes of Business					
		Motor UK [Motor UK]			GL Intl - Med [GL All]		
		Curve	Ind. LR	ALAE %	Curve	Ind. LR	ALAE %
	GL Europe - Const				IntGLHigh12	0.8	0.1
	GL Europe - Other				IntGLMed12	0.7	0.15
	GL UK - Const				GLUKHi12	0.7	0.2
	GL UK - Other				GLUKMed12	0.65	0.15
	GL USA - Prod				GLUSHi12	0.8	0
	Motor - UK	Motor UK	0.85	0			
Premiums	GL - All						
	Motor - Earned						
	Motor - Written						
Claims	GL - All						
	Motor - UK						
	Premium Adjustment	With exposures			With rate changes		

Layers			
Ref [1M xs 1M]	Exposure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Experience	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1st excess [2M xs 3M]	Exposure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Experience	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2nd excess [5M xs 5M]	Exposure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Experience	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3rd excess [15M xs 10M]	Exposure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Experience	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4th excess [1000000M xs 25M]	Exposure	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Experience	<input type="checkbox"/>	<input type="checkbox"/>
Unlimited xs ref [1000024M xs 1M]	Exposure	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Experience	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ref 2 [1M xs 2M]	Exposure	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Experience	<input type="checkbox"/>	<input type="checkbox"/>

Please select how you want to apply claims inflation: ?

- ☐ Calendar year basis
- ☒ Treaty year basis

Please select how you want to develop claims: ?

- ☒ Create excess development triangles
- ☐ Develop individual claims from inception
- ☐ Develop individual claims from open date
- ☐ Develop individual claims from report date

Please select how you want to exposure rate: ?

- ☒ Ground-up method
- ☐ Limits only method

Save

You decide how you want to apply your methodology: how claims are trended, which method of claims development would be used and whether direct policies attachment or excess would be accounted for in exposure rating.

Now you are ready to start analysing. The first method performed is the exposure rate. Exposure rate is displayed by layer, class of business and sub-class given by the selected curve. The results are displayed for the latest year in the profile if multiple years of profile are available.

Standard methods and adjustments are used for exposure rating including currency conversions and ALAE adjustments. Exposure rating results are presented by frequency, severity and total loss cost or burn cost. It also shows the total premium included in the profile converted to rating currency.

Exposure

Triangles

Experience

Mixed

Projected Premiums

Loss Cost Summary

Logout

User Manual: [Section V - Exposure Rating](#)

Create PDF

Calculate [Last calculated on the: 09/05/2012 17:38:32] [Elapsed time: 6.0269257 secs]

Layers Name	COBs Name	Curve Name	Year	Frequency	Avg Severity	Burn Cost	Total Premium
Ref [1M xs 1M]	GL Intl - Med [GL All]	IntGLHigh12	2011	0.21519	1,015,218	21.847%	4,359,420
		IntGLMed12	2011	0.29742	223,679	6.653%	15,009,773
		GLUKHi12	2011	0.24183	769,886	18.618%	25,281,908
		GLUKMed12	2011	0.22005	527,872	11.616%	948,748
Total			2011	0.25713	577,245	14.843%	45,599,850
Ref [1M xs 1M]	Motor UK [Motor UK]	Motor UK		0.23150	684,667	15.850%	212,933,348
Total				0.23150	684,667	15.850%	212,933,348
1st excess [2M xs 3M]	GL Intl - Med [GL All]	IntGLHigh12	2011	0.09557	1,976,477	18.889%	4,359,420
		IntGLMed12	2011	0.02724	1,806,363	4.920%	15,009,773
		GLUKHi12	2011	0.07954	1,461,399	11.624%	25,281,908
		GLUKMed12	2011	0.03096	927,197	2.870%	948,748
Total			2011	0.06284	1,580,022	9.930%	45,599,850
1st excess [2M xs 3M]	Motor UK [Motor UK]	Motor UK		0.04707	1,574,200	7.410%	212,933,348
Total				0.04707	1,574,200	7.410%	212,933,348

These results could be printed and saved as PDF, simply by pressing the PDF button.

Apart from exposure rating as a method, the results are also used later for:

- A priori for the BF method
- Historical exposure rating results are used to calculate an exposure adjustment to experience due to changes in limits profile
- In the mixed or hybrid method to extrapolate frequency to higher layers

Then you start the experience rating method by generating the triangles by class of business and layer. SMART Re produces up to 11 triangles for each combination class/layer including: Incurre/Paid, Losses/Counts, Trended/Untrended, claim counts per unit of exposure, claim counts per million of premium and average loss per claim.

All processing of claims, including trending and layering is done by code behind the scenes. However, on the triangle page you have the option to download all individual claims just before layering, after the application of trend and other adjustments.

Account: ABC Casualty

Analysis Design

Gross Triangles

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## Triangles Index ?

User Manual: [Section VI - Triangles](#)

[Last calculated on the: 07/05/2012 17:31:19]

Layer / COB	Trended				Untrended				Frequency		Avg. Loss	
	Incurred		Paid		Incurred		Paid		per	per	per	
	Losses	Counts	Losses	Counts	Losses	Counts	Losses	Counts	Exposure	Premium	Claim	
Ref [1M xs 1M]												
Motor UK [Motor UK]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<a href="#">View</a> <a href="#">FGU trended losses.c</a>
GL Intl - Med [GL All]	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	<a href="#">View</a> <a href="#">FGU trended losses.c</a>
1st excess [2M xs 3M]												
Motor UK [Motor UK]												<a href="#">View</a> <a href="#">FGU trended losses.c</a>
GL Intl - Med [GL All]	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	<a href="#">View</a> <a href="#">FGU trended losses.c</a>
2nd excess [5M xs 5M]												
Motor UK [Motor UK]												<a href="#">View</a> <a href="#">FGU trended losses.c</a>
GL Intl - Med [GL All]	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	<a href="#">View</a> <a href="#">FGU trended losses.c</a>
3rd excess [15M xs 10M]												

You then go to each specific layer/class triangle to select loss development factors as appropriate.

Layer:	Ref [1M xs 1M]	Contents:	Trended - Incurred - Losses	Data Threshold (k):	168,941
COB:	Motor UK [Motor UK]	Type:	Treaty Year	Losses Mapped:	1259

  

Year	6	18	30	42	54	66	78	90	102
2003	0	0	293,491	277,448	0	113,352	74,977	1,223,609	1,223,609
2004	0	3,924,116	5,372,131	5,851,590	7,662,745	7,195,164	7,064,313	7,111,376	
2005	0	2,695,940	4,353,842	5,560,178	6,068,048	6,682,279	6,771,706		
2006	0	3,628,804	6,644,892	6,294,964	7,529,173	8,134,928			
2007	0	3,351,664	4,821,833	5,516,330	8,165,861				
2008	832,832	4,536,389	3,860,145	5,008,505					
2009	0	3,037,788	5,868,669						
2010	0	901,155							
2011	0								

Year	18 : 6	30 : 18	42 : 30	54 : 42	66 : 54	78 : 66	90 : 78	102 : 90
2003			0.945	0.000		0.661	16.320	1.000
2004		1.369	1.089	1.310	0.939	0.982	1.007	
2005		1.615	1.277	1.091	1.101	1.013		
2006		1.831	0.947	1.196	1.080			
2007		1.439	1.144	1.480				
2008	5.447	0.851	1.297					
2009		1.932						
2010								

Most key exhibits can be downloaded to Excel and saved or printed as PDF files.

Average Link Ratios	18 : 6	30 : 18	42 : 30	54 : 42	66 : 54	78 : 66	90 : 78	102 : 90	Tail Factor
Average All	5.447	1.506	1.117	1.015	1.040	0.886	8.663	1.000	1.000
Average Last 7	5.447	1.506	1.117	1.015	1.040	0.886	8.663	1.000	1.000
Average Last 5	5.447	1.534	1.151	1.015	1.040	0.886	8.663	1.000	1.000
Average Last 3	5.447	1.407	1.130	1.256	1.040	0.886	8.663	1.000	1.000
Wgt Avg All	26.507	1.474	1.125	1.252	1.041	0.994	1.167	1.000	1.000
Wgt Avg Last 7	26.507	1.474	1.125	1.252	1.041	0.994	1.167	1.000	1.000
Wgt Avg Last 5	18.558	1.481	1.127	1.252	1.041	0.994	1.167	1.000	1.000
Wgt Avg Last 3	10.177	1.332	1.097	1.253	1.035	0.994	1.167	1.000	1.000
Benchmarks									1.000
Selected	5.5	1.474	1.125	1.252	1.09	1	1.167	1	1
Factor to Ult	14.525	2.641	1.792	1.593	1.272	1.167	1.167	1.000	1.000

Comments:

The triangles page will display the closest pattern with the closest attachment point that it finds in the benchmark for that class and layer in the benchmarks row.

A comments box is available for any rationale of selection. If the latest diagonal is not complete, SMART Re excludes it and then interpolates, presenting the interpolated pattern in the summary page. All your selections are saved on the database.

Once you are ready selecting your development pattern, move to the experience summary.







Finally, before selecting the loss cost, you input the projected premiums for the treaty year by class of business at the same level that the experience analysis was done.

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User: Ana Mata [ana@matblas.com]

Account: ABC Casualty

Analysis Design

Gross Triangles

Exposure

Triangles

Experience

Mixed

Projected Premiums

Loss Cost Summary

### Projected Premiums

Label	Projected Premium
GL All	384,000,000
Motor UK	234000000

Save

You are now ready to select your loss pick in Loss Cost Summary. Here you can aggregate (using a Loss Cost Label) layers and classes to which the same rate and terms and conditions apply. Below the label **1<sup>st</sup> excess** is used to aggregate the loss cost for Motor and GL for the layer 3M xs 2M.

Layer: 1st excess [2M xs 3M]

COB: Motor UK [Motor UK]

Subject Premium: Motor UK: 234,000,000

Loss Cost Label: 1st excess

	Exposure	Experience	Mixed	Market	Wtd. Avg.	Selection
Burn Cost:	7.4096%		1.6861%		1.6861%	0.016861
Freq. (per mil prem):	0.04707		0.01071			
Avg. Severity:	1,574,200		1,574,200			
Weights:			1.00			

Comments: No sufficient data to experience rate, relied on curve.

[Back to top](#)

Save

Layer: 1st excess [2M xs 3M]

COB: GL Intl - Med [GL All]

Subject Premium: GL All: 384,000,000

Loss Cost Label: 1st excess

	Exposure	Experience	Mixed	Market	Wtd. Avg.	Selection
Burn Cost:	9.9451%	1.3310%	1.2868%		1.3310%	0.01331
Freq. (per mil prem):	0.06284	0.00813	0.00813			
Avg. Severity:	1,582,723	1,637,146	1,582,723			
Weights:		1.00				

Comments:

[Back to top](#)

Save

In the Loss Cost Summary you can also leave behind any analysis or reference layer that will not be used in the next part of the analysis.

Now you are ready to evaluate terms and conditions such as rate, AAD, reinstatements, etc. This happens in the Scenarios section.

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User: Ana Mata [ana@matblas.com]

Account: ABC Casualty

**Contract Terms**  
**Aggregate Lost Distribution**  
**Economic Summary**  
**Account Summary**  
**Cedant Summary**  
**Rate Monitoring**  
  
**Logout**

**Edit Contract Term** ?  
  
Scenario: ? Expiring T&C  
Loss Cost Label: ? 1st excess ▾  
Layer(s): ? 1st excess [2M xs 3M]  
Effective Date: ? 01/07/2012 00:00:00  
Subject Premium: ? 618,000,000  
Expected Losses in Layer: ? 9,056,514  
Apply indexation to T&C?: ? No ▾  
Type of aggregate distribution: ? Parametric approximation ▾  
Coefficient of Variation: ? 0.75  
Variance Multiplier: ?  
  
**Premium** ?  
Type of rate: ? Fixed ▾  
Minimum %: ? 0  
Provisional %: ? 0.005  
Maximum %: ? 0  
Loss load %: ? 0  
No claim bonus %: ? 0  
  
**Losses** ?  
Coinsurance %: ? 0  
Annual Aggregate Deductible: ? 3000000  
Number of reinstatements: ? 50  
Loss corridor start LR %: ? 0  
Loss corridor end LR %: ? 0

On this page you fill in the features that apply to premiums, losses, commissions and brokerage as well as internal operating expenses. These will be used to arrive at a combined ratio.

### Reinstatement Premium ?

	Rate %	Brokerage %
1st	0	0
2nd	0	0
3rd	0	0
4th	0	0
5th	0	0
6th	0	0
7th	0	0
8th	0	0

Type of commission ? None ▼

### Sliding Scale

	%	LR %
Min	0	0
Prov/Fixed	0	0
Max	0	0

### Profit Share ?

% of profit: ? 0

UW expenses %: ? 0

### Brokerage ?

Gross/Net: ? ☒ Gross ☐ Net

Initial/Ultimate: ? ☒ Initial ☐ Ultimate

Initial %: ? 0.15

Swing %: ? 0

### Operating Expenses ?

% of premium: 0.08

Basis: Premium gross of commission ▼

Save

An aggregate loss distribution is calculated for each scenario. The step by step cash flows and combined ratio are calculated for each percentile of the distribution.

[CSV Download](#)

[Last calculated on the: 10/05/2012 23:27:56]

Probability	Losses in layer	Re-scaled losses in layer	Losses Net of AAD	Losses Net of ADD & Reinst.	Losses net of co-insurance	Initial Premium	No claims bor
1.00%	1,531,474	1,562,252	0	0	0	12,360,000	0
2.00%	1,837,378	1,874,303	0	0	0	12,360,000	0
3.00%	2,062,424	2,103,872	0	0	0	12,360,000	0
4.00%	2,249,706	2,294,919	0	0	0	12,360,000	0
5.00%	2,414,521	2,463,045	0	0	0	12,360,000	0
6.00%	2,564,282	2,615,816	0	0	0	12,360,000	0
7.00%	2,703,217	2,757,543	0	0	0	12,360,000	0
8.00%	2,833,993	2,890,947	0	0	0	12,360,000	0
9.00%	2,958,413	3,017,868	17,868	17,868	17,868	12,360,000	0
10.00%	3,077,765	3,139,619	139,619	139,619	139,619	12,360,000	0
11.00%	3,193,004	3,257,173	257,173	257,173	257,173	12,360,000	0
12.00%	3,304,860	3,371,277	371,277	371,277	371,277	12,360,000	0
13.00%	3,413,910	3,482,519	482,519	482,519	482,519	12,360,000	0
14.00%	3,520,617	3,591,371	591,371	591,371	591,371	12,360,000	0

Finally, an economic summary for each scenario is calculated and this shows the combined ratio for each layer or section of the treaty. You then decide whether this is the final scenario by Selecting the treaty (Yes/No) and the % share your company has taken.

Treaty Reference: ?	Sec A	Account: ?	ABC Casualty
Select Treaty?: ?	Yes <input type="button" value="v"/>	Layer: ?	1st excess [2M xs 3M]
% Share: ?	0.2000	Effective Date: ?	01/07/2012

	Amount	% of Premium
Initial Premium: ?	12,360,000	
No Claims Bonus: ?	0	
Swing Premium: ?	0	
Reinstatement Premium: ?	0	
Ultimate Premium: ?	12,360,000	
Losses to layer: ?	9,056,514	73.27%
Losses net of AAD: ?	6,111,436	49.45%
Losses Net of ADD & Reinst.: ?	6,111,436	49.45%
Ultimate Losses to Treaty: ?	6,111,436	49.45%
Initial Commission: ?	0	0.00%
Sliding Scale Commission: ?	0	0.00%
Profit Commission: ?	0	0.00%
Total Commission: ?	0	0.00%
Initial Brokerage: ?	1,854,000	15.00%
Brokerage on Reinst. Premium: ?	0	0.00%
Brokerage on Swing Premium: ?	0	0.00%
Total Brokerage: ?	1,854,000	15.00%
Operating Expenses: ?	988,800	8.00%
Net UW Profit: ?	3,405,764	27.55%
Combined Ratio: ?		72.45%
Economic Target: ?		0.9500



Account Summary		Share %		Share %		Share %			
Cedant Summary		20.00%		20.00%		20.00%			
Rate Monitoring		Treaty Reference:		Treaty Reference:		Treaty Reference:		Treaty Reference:	
		Sec A		Sec B		Sec C		Combined Programme	
		Amount	% of Premium	Amount	% of Premium	Amount	% of Premium	Amount	% of Premium
Initial Premium:		2,472,000		1,483,200		1,236,000		5,191,200	
No Claims Bonus:		0		0		0		0	
Swing Premium:		0		0		0		0	
Reinstatement Premium:		0		0		0		0	
Ultimate Premium:		2,472,000		1,483,200		1,236,000		5,191,200	
Losses to layer:		1,811,303	73.27%	1,137,569	76.70%	862,010	69.74%	3,810,882	73.41%
Losses net of AAD:		1,222,287	49.45%	1,137,569	76.70%	862,010	69.74%	3,221,866	62.06%
Losses Net of ADD & Reinst.:		1,222,287	49.45%	1,137,569	76.70%	862,010	69.74%	3,221,866	62.06%
Ultimate Losses to Treaty:		1,222,287	49.45%	1,137,569	76.70%	862,010	69.74%	3,221,866	62.06%
Initial Commission:		0	0.00%	0	0.00%	0	0.00%	0	0.00%
Sliding Scale Commission:		0	0.00%	0	0.00%	0	0.00%	0	0.00%
Profit Commission:		0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total Commission:		0	0.00%	0	0.00%	0	0.00%	0	0.00%
Initial Brokerage:		370,800	15.00%	222,480	15.00%	185,400	15.00%	778,680	15.00%
Brokerage on Reinst. Premium:		0	0.00%	0	0.00%	0	0.00%	0	0.00%
Brokerage on Swing Premium:		0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total Brokerage:		370,800	15.00%	222,480	15.00%	185,400	15.00%	778,680	15.00%
Operating Expenses:		197,760	8.00%	118,656	8.00%	98,880	8.00%	415,296	8.00%
Net UW Profit:		681,153	27.55%	4,495	0.30%	89,710	7.26%	775,358	14.94%
Combined Ratio:			72.45%		99.70%		92.74%		85.06%
Economic Target:			95.00%		95.00%		95.00%		95.00%

<div> <div>Create PDF</div> <div>CSV Download</div> </div> <div>Calculate</div>												
			Share %		Share %		Share %					
			20.00%		20.00%		20.00%					
Treaty Reference:	Gross of reinsurance		Sec A		Sec B		Sec C		Ceded summary		Net of reinsurance	
	Amount	% of Premium	Amount	% of Premium	Amount	% of Premium	Amount	% of Premium	Amount	% of Premium	Amount	% of Premium
Initial Premium:	683,000,000		2,472,000		1,483,200		1,236,000		5,191,200		677,808,800	
No Claims Bonus:			0		0		0		0		0	
Swing Premium:			0		0		0		0		0	
Reinstatement Premium:			0		0		0		0		0	
Ultimate Premium:	683,000,000		2,472,000		1,483,200		1,236,000		5,191,200		677,808,800	
Losses to layer:	546,400,000	0.8000	1,811,303	73.27%	1,137,569	76.70%	862,010	69.74%	3,810,882	73.41%	542,589,118	
Losses net of AAD:			1,222,287	49.45%	1,137,569	76.70%	862,010	69.74%	3,221,866	62.06%	543,178,134	
Losses Net of ADD & Reinst.:			1,222,287	49.45%	1,137,569	76.70%	862,010	69.74%	3,221,866	62.06%	543,178,134	
Ultimate Losses to Treaty:	546,400,000	80.00%	1,222,287	49.45%	1,137,569	76.70%	862,010	69.74%	3,221,866	62.06%	543,178,134	80.14%
Initial Commission:	102,450,000	0.1500	0	0.00%	0	0.00%	0	0.00%	0	0.00%	102,450,000	
Sliding Scale Commission:			0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	
Profit Commission:			0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	
Total Commission:	102,450,000	15.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	102,450,000	15.11%
Initial Brokerage:			370,800	15.00%	222,480	15.00%	185,400	15.00%	778,680	15.00%		
Brokerage on Reinst. Premium:			0	0.00%	0	0.00%	0	0.00%	0	0.00%		
Brokerage on Swing Premium:			0	0.00%	0	0.00%	0	0.00%	0	0.00%		
Total Brokerage:			370,800	15.00%	222,480	15.00%	185,400	15.00%	778,680	15.00%		
Operating Expenses:	34,150,000	0.0500	197,760	8.00%	118,656	8.00%	98,880	8.00%	415,296	8.00%	34,150,000	5.04%
Net UW Profit:	0	0.00%	681,153	27.55%	4,495	0.30%	89,710	7.26%	775,358	14.94%	-1,969,334	-0.29%
Combined Ratio:		100.00%		72.45%		99.70%		92.74%		85.06%		100.29%

**EASY AND IN ONE PIECE!!** You can only really appreciate the system by using it. Get in touch to access one of the **FREE** no obligation trial licences, and spend the summer testing and trying **SMART Re.**



# About Us

MatBlas is a consultancy company dedicated to simplifying people's workflow.

Our core services include underwriting management, actuarial pricing and software development. From in-house interim pricing support to developing pricing and underwriting integrated systems, our goal is make clients lives at work easier.

In general, the insurance industry is known for lagging behind in technology and often internal workflows and systems require repetition of manual entry.

At MatBlas we believe that technology can help us achieve ANYTHING we want, yet the success rate of IT projects in the insurance industry is quite low, often due to an understanding gap between users/clients, project managers and developers. It's challenging to find a team of IT developers that understand insurance and in particular, actuarial techniques.

Our software developers have been thoroughly trained on the fundamentals of actuarial methods in rating, reserving and reinsurance. This facilitates their understanding of each and every project.

Whether we are developing tools for underwriters or actuaries, or working on a systems integration project, we always put ourselves on the user's shoes and focus on their needs.

Here at MatBlas actuaries act as project managers between clients and developers taking clients specifications (often Excel files or handwritten scanned notes!) and translating them to developers in an algorithm or "pseudo programming language" that is very easy for developers to understand and implement.

## What makes SMART Re unique compared to other software in the market?

We recognise people have preferences in the way they apply trend, claims development, currencies, etc. The needs of a US actuary are different to the needs of an actuary working at Lloyd's pricing global treaties. Our wide experience allowed us to build-in all methods widely used in the market and let users choose their preferred approach.

Also, most pricing models out there have been designed for actuaries as the intended audience. But many underwriters in London wanted to be able to analyse their accounts prior to referring to the actuary, but most models are not user friendly enough for them. **SMART Re is the result of this gap in the market...**

Ana Mata is the Managing Director and founder of MatBlas Limited. Ana is a qualified actuary with broad experience developing underwriting management solutions for London market and commercial insurance companies. She has extensive pricing experience of Professional Liability, Casualty and Property classes of business.

Ana has held senior pricing roles both in insurance and reinsurance companies in the US and in London. This experience, combined with her candid and pragmatic approach to business, enables her to understand the needs and to develop customised solutions to a wide range of clients.

Ana is an Associate of the Casualty Actuarial Society; she holds a PhD in Actuarial Mathematics and a Bachelor's Degree in Mathematics, she has published a number of articles on pricing and reinsurance and is a frequent speaker at actuarial and insurance conferences.

MatBlas Limited is registered in England and Wales under company number 6182887. VAT registration number 919 2518 12

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