

User Guide for General Insurance Reserving & Reporting Suite (“GIRRS”)

A step by step guide to using GIRRS

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1

Overview of *GIRRS*



Scope of Software (1/3)

The purpose of the software is to perform IFRS 17 specific calculations and produce IFRS 17 financial figures, as required for accounting and reporting purposes. The software includes a reserving module, which has the capability to produce best estimate liabilities and fulfilment cashflows to feed into the IFRS 17 calculations.

In terms of IFRS 17 financial figures, given the correct input data and assumptions, the software is able to produce:

- Balance Sheet (“B/S”) items for IFRS 17 related items:
 - Asset / Liability for Incurred Claims
 - Asset / Liability for Remaining Coverage
 - Loss Component, Loss Recovery Component
- Profit or Loss (“P&L”) items for IFRS 17 related items:
 - Insurance Service Result (comprising Insurance Revenue and Insurance Service Expenses)
 - Insurance Finance Income or Expenses
- IFRS 17 related disclosures:
 - Reconciliation of Asset / Liability for Remaining Coverage
 - Reconciliation of Asset / Liability for Incurred Claims
 - Other required quantitative IFRS 17 disclosures
- IFRS 17 specific accounting journal entries

Scope of Software (2/3)

The software is designed for the purposes of measurement of specific insurance and reinsurance contracts that fall within the scope of IFRS 17. Concepts referred to within IFRS 17 that require measurement under a different IFRS (e.g. distinct investment components, embedded derivatives) cannot be accounted for within the software. Contracts that are not within the scope of IFRS 17 (e.g. warranties, financial guarantees) also cannot be accounted for within the software.

The following types of insurance contracts that are within the scope of IFRS 17 and can be accounted for within the software include:

- Insurance contracts without direct participation features
- Reinsurance contracts held

The following types of insurance contracts that are within the scope of IFRS 17 but cannot be accounted for within the software include:

- Insurance contracts with direct participation features
- Investment contract with direct participation features
- Fixed fee service contracts
- Loans that transfer significant risk

Scope of Software (3/3)

There are three (3) measurement approaches (GMM, PAA, VFA) that can be applied under IFRS 17. In this software version (v Beta), the software can perform the measurement for the PAA only, and does not include the GMM and VFA measurement. The entity is required to perform its own analysis of its insurance contracts and determine the measurement model which is appropriate for those contracts. This analysis is performed outside of the software.

There are a number of limitations to the software, including:

- Externally produced input data (e.g. portfolio data, cohort year definition, UPR, DAC) must be provided in accordance with IFRS 17 requirements. Further detail is provided in the Software Data Dictionary.
- Certain calculations or assumptions (e.g. directly attributable expenses, illiquidity premium) are required to be performed externally, prior to entry in the system. These will be specified throughout the document.

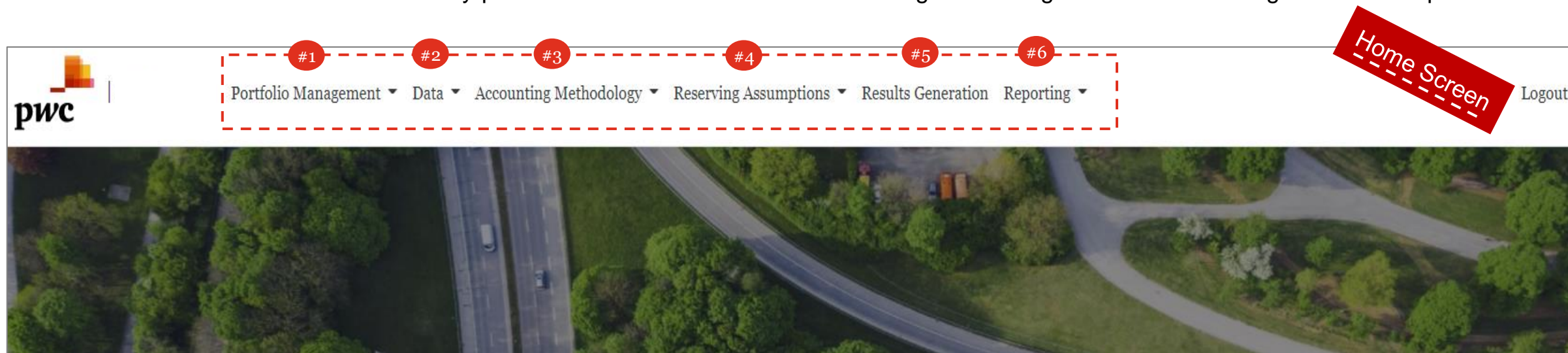
A hand is shown using tweezers to work on the internal components of a disassembled smartphone. The background is a solid red color. A large white number '2' is overlaid on the left side of the image.

2

User Guide for *GIRRS*

GIRRS User Guide - Overview

Below are the illustration of the functionality process flow to use GIRRS. The following sides will go into detailed user guide for each process.



Six key functionality steps to operating the PwC's simplified solution:

#1

Step 1: Portfolio management

To configure and map to the IFRS 17 Portfolio, Cohort and Group definitions.

#2

Step 2: Data

Upload required data (flexible integration options) with automated data validation functionality

#3

Step 3: Accounting Methodology

Select accounting policy choices under IFRS 17 and configure the IFRS 17 Chart of Accounts

#4

Step 4: Reserving Assumptions

Select reserving assumptions using actuarial methodology to determine the Fulfilment Cashflows

#5

Step 5: Results Generation

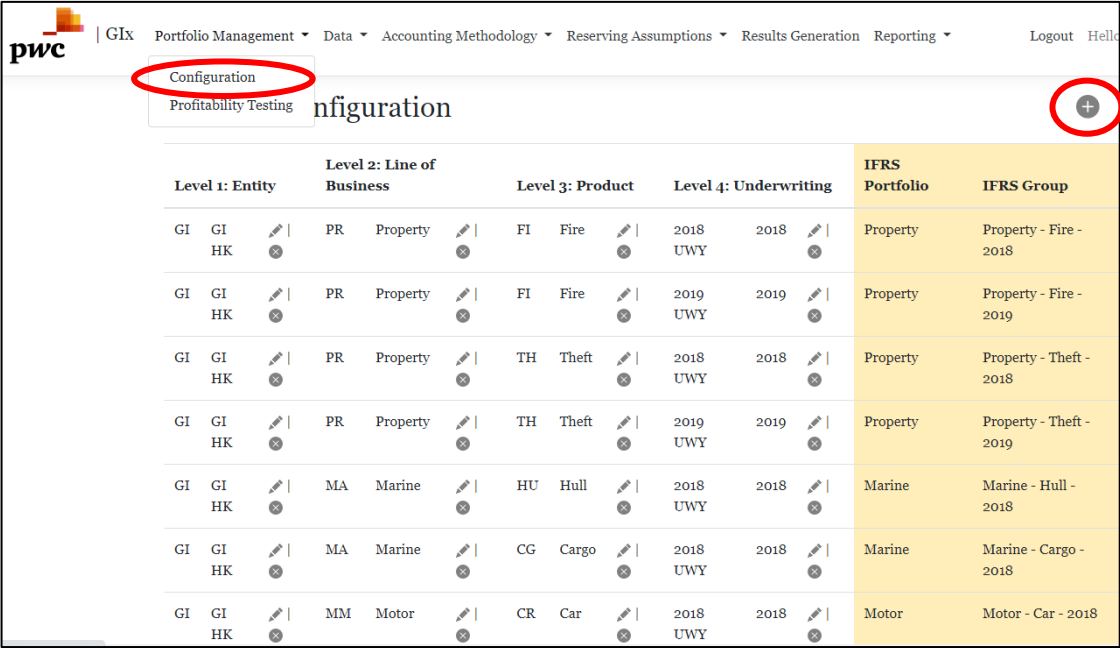
Run the results for each valuation date, including the risk adjustment bootstrapping simulation

#6

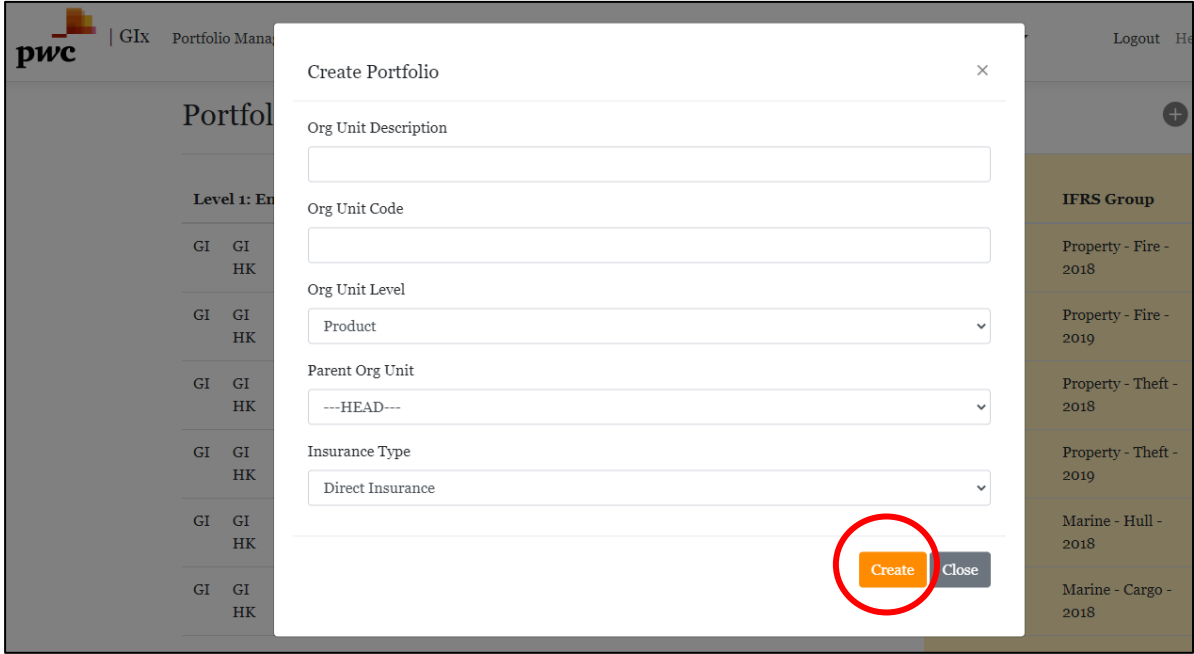
Step 6: Reporting

Filter through reports for IFRS 17 results (financial statements, reconciliation disclosures)

GIRRS User Guide – Portfolio Management (1/2)



Level 1: Entity		Level 2: Line of Business		Level 3: Product		Level 4: Underwriting		IFRS Portfolio	IFRS Group
GI	GI HK	PR	Property	FI	Fire	2018	2018	Property	Property - Fire - 2018
GI	GI HK	PR	Property	FI	Fire	2019	2019	Property	Property - Fire - 2019
GI	GI HK	PR	Property	TH	Theft	2018	2018	Property	Property - Theft - 2018
GI	GI HK	PR	Property	TH	Theft	2019	2019	Property	Property - Theft - 2019
GI	GI HK	MA	Marine	HU	Hull	2018	2018	Marine	Marine - Hull - 2018
GI	GI HK	MA	Marine	CG	Cargo	2018	2018	Marine	Marine - Cargo - 2018
GI	GI HK	MM	Motor	CR	Car	2018	2018	Motor	Motor - Car - 2018



Create Portfolio

Org Unit Description

Org Unit Code

Org Unit Level

Parent Org Unit

Insurance Type

Create Close

Under the Portfolio Management tab, the user can click on the **“Configuration”** button.

This will take the user to a screen which outlines all of the IFRS 17 Portfolios have been set up in GIRRS.

To add a new Portfolio, the user can click on the **“+”** button on the upper right, which will bring up a pop up screen.

In the pop up screen, the user can enter or select the characteristics of the Portfolio from the drop-down, including the **“Org Unit Description”**, **“Org Unit Code”**, **“Org Unit Level”**, **“Parent Org Unit”** and **“Insurance Type”**. Once that is done, click the **“Create”** button to add the new portfolio.

GIRRS User Guide – Portfolio Management (1/2)

The screenshot shows the 'Configuration' page in the Portfolio Management interface. The page has a navigation bar with 'pwc' logo and menu items: 'GIx', 'Portfolio Management', 'Data', 'Accounting Methodology', 'Reserving Assumptions', 'Results Generation', 'Reporting', 'Logout', and 'Help'. Below the navigation bar, there are two tabs: 'Configuration' (selected) and 'Profitability Testing'. The main content area is a table with the following columns: 'Level 1: Entity', 'Level 2: Line of Business', 'Level 3: Product', 'Level 4: Underwriting', 'IFRS Portfolio', and 'IFRS Group'. The table contains 8 rows of data, each representing a different portfolio configuration.

Level 1: Entity	Level 2: Line of Business	Level 3: Product	Level 4: Underwriting	IFRS Portfolio	IFRS Group
GI HK	PR Property	FI Fire	2018 UWY	Property	Property - Fire - 2018
GI HK	PR Property	FI Fire	2019 UWY	Property	Property - Fire - 2019
GI HK	PR Property	TH Theft	2018 UWY	Property	Property - Theft - 2018
GI HK	PR Property	TH Theft	2019 UWY	Property	Property - Theft - 2019
GI HK	MA Marine	HU Hull	2018 UWY	Marine	Marine - Hull - 2018
GI HK	MA Marine	CG Cargo	2018 UWY	Marine	Marine - Cargo - 2018
GI HK	MM Motor	CR Car	2018 UWY	Motor	Motor - Car - 2018

The screenshot shows the 'Create Portfolio' pop-up screen. The form contains the following fields: 'Org Unit Description' (text input), 'Org Unit Code' (text input), 'Org Unit Level' (dropdown menu with 'Product' selected), 'Parent Org Unit' (dropdown menu with '---HEAD---' selected), and 'Insurance Type' (dropdown menu with 'Direct Insurance' selected). At the bottom right of the form, there are two buttons: 'Create' (highlighted with a red circle) and 'Close'.

Under the Portfolio Management tab, the user can click on the **“Configuration”** button.

This will take the user to a screen which outlines all of the IFRS 17 Portfolios have been set up in GI Suite.

To add a new Portfolio, the user can click on the **“+”** button on the upper right, which will bring up a pop up screen.

In the pop up screen, the user can enter or select the characteristics of the Portfolio from the drop-down, including the **“Org Unit Description”**, **“Org Unit Code”**, **“Org Unit Level”**, **“Parent Org Unit”** and **“Insurance Type”**. Once that is done, click the **“Create”** button to add the new portfolio.

GIRRS User Guide – Data (1/2)

Data Input

The key source of external information for GI Express is historic claims, premiums, expenses and UPR data. As part of implementation, our team would create an ETL from your current source systems (e.g. IIMS, GLMS) to the GI Express. We would agree the details of this ETL with you e.g. extract frequency and any data model conversion choices.

Our simple but powerful claims data model ensures this process is simple and well structured.

[Data Template](#) [Validate](#) [Default Assumption](#)

	A	B	C	D	E	F	G	H
	OrgUnitId	ValuationYear	OccurrenceYear	Pattern	Version	Direction	CashflowType	Entity
2	61	2018	1	100%	0	Incurred to Paid	Premium	GI HK
3	61	2018	2	0%	0	Incurred to Paid	Premium	GI HK
4	61	2018	3	0%	0	Incurred to Paid	Premium	GI HK
5	61	2018	4	0%	0	Incurred to Paid	Premium	GI HK
6	61	2018	5	0%	0	Incurred to Paid	Premium	GI HK
7	61	2018	6	0%	0	Incurred to Paid	Premium	GI HK
8	61	2018	7	0%	0	Incurred to Paid	Premium	GI HK
9	61	2018	8	0%	0	Incurred to Paid	Premium	GI HK
10	61	2018	9	0%	0	Incurred to Paid	Premium	GI HK
11	61	2018	10	0%	0	Incurred to Paid	Premium	GI HK
12	61	2018	11	0%	0	Incurred to Paid	Premium	GI HK
13	61	2018	12	0%	0	Incurred to Paid	Premium	GI HK
14	61	2018	13	0%	0	Incurred to Paid	Premium	GI HK
15	61	2018	14	0%	0	Incurred to Paid	Premium	GI HK
16	61	2018	15	0%	0	Incurred to Paid	Premium	GI HK
17	61	2018	16	0%	0	Incurred to Paid	Premium	GI HK
18	61	2018	17	0%	0	Incurred to Paid	Premium	GI HK
19	61	2018	18	0%	0	Incurred to Paid	Premium	GI HK
20	61	2018	19	0%	0	Incurred to Paid	Premium	GI HK
21	61	2018	20	0%	0	Incurred to Paid	Premium	GI HK
22	61	2018	1	70%	0	Earning	Premium	GI HK
23	61	2018	2	25%	0	Earning	Premium	GI HK
24	61	2018	3	5%	0	Earning	Premium	GI HK
25	61	2018	4	0%	0	Earning	Premium	GI HK
26	61	2018	5	0%	0	Earning	Premium	GI HK
27	61	2018	6	0%	0	Earning	Premium	GI HK
28	61	2018	7	0%	0	Earning	Premium	GI HK

UnexpiredRisk | HistoricalCashflow | PremiumCashflow | EarnedPremium | InterestRateAssumption | SFC | FutureRunningOffPattern

Under the Data tab, the user can click on the “Data Input” button.

This will take the user to a screen where the user can click “Data Template” and download the template (excel format) for data upload.

The user should populate the data template with the appropriate data (e.g. premiums, UPR, claims, expenses). GIRRS will come with a data dictionary to help users source the right data and format.

Once the data template is populated, the user can then upload it to GIRRS.

GIRRS User Guide – Data (2/2)

The key source of external information for GI Express is historic claims, premiums, expenses and UPR data. As part of implementation, our team would create an ETL from your current source systems (e.g. IIMS, GLMS) to the GI Express. We would agree the details of this ETL with you e.g. extract frequency and any data model conversion choices.

Our simple but powerful claims data model ensures this process is simple and well structured.

Data Template Validate Default Assumption

Entity	Portfolio	Valuation Year	Historical Cashflow	Future Cashflow	Unexpired Risk	Earned Premium	Assumption
GI HK	EC	2018	Y	Y	Y	Y	Y
GI HK	EC	2019	Y	Y	Y	Y	Y
GI HK	LC	2018	Y	Y	Y	Y	Y
GI HK	LC	2019	Y	Y	Y	Y	Y
Asia	MCPD	2019	Y	Y	Y	Y	Y
Asia	MCPD	2020	Y	Y	Y	Y	Y
Asia	MCEC	2019	Y	Y	Y	Y	Y
Asia	MCEC	2020	Y	Y	Y	Y	Y
Asia	HK PD	2019	Y	Y	Y	Y	Y
Asia	HK PD	2020	Y	Y	Y	Y	Y

Generate Default Assumptions

The New Portfolio Data

Confirm

Data Template Validate Default Assumption

Valuation Year	Historical Cashflow	Future Cashflow	Unexpired Risk	Earned Premium
2018	Y	Y	Y	Y
2019	Y	Y	Y	Y
2018	Y	Y	Y	Y
2019	Y	Y	Y	Y
2019	Y	Y	Y	Y

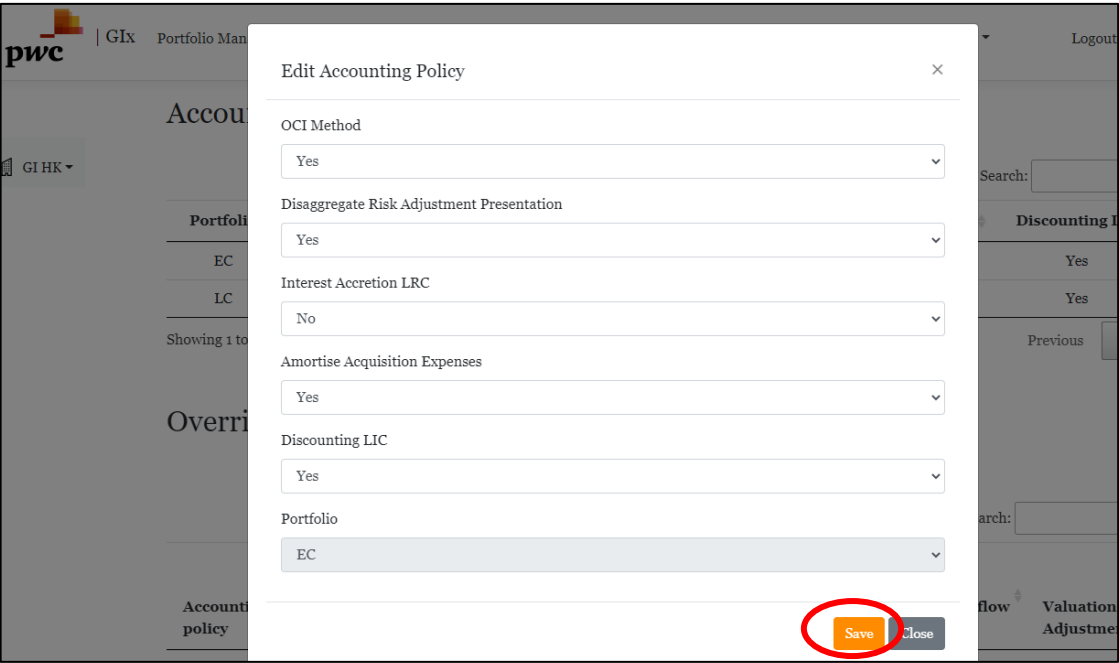
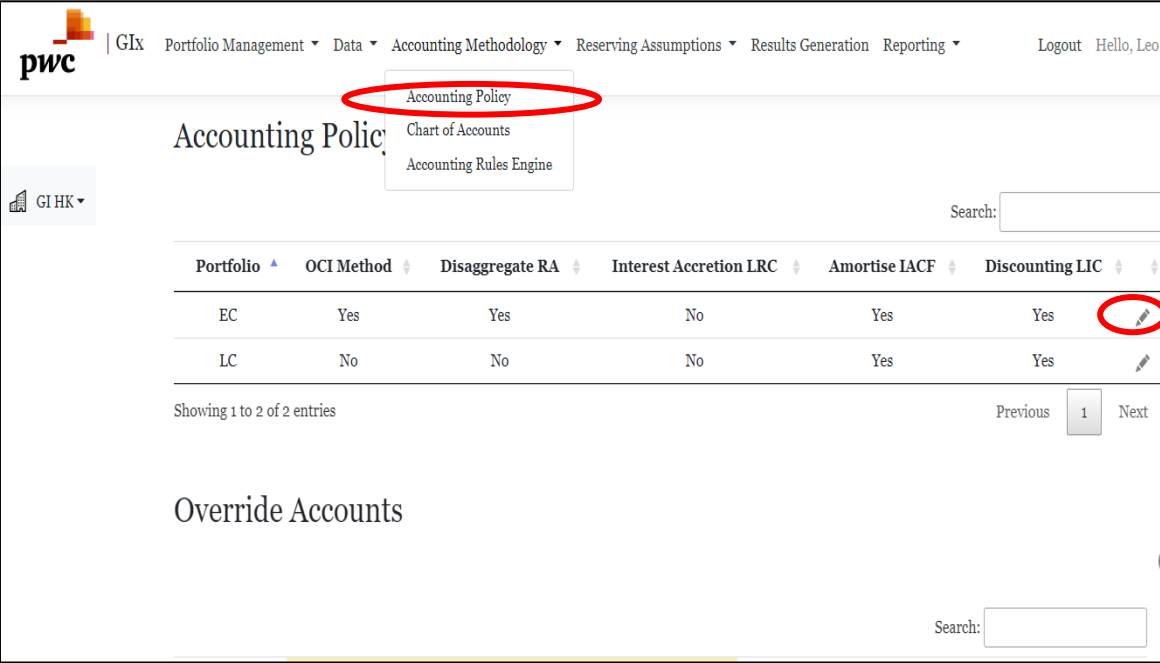
After the data is uploaded to GIRRS, the user can click on the **“Validate”** button.

This will take the user to a screen showing whether each data tabs have been uploaded to GIRRS. The user should be able to identify the data for each group is uploaded with a ‘Y’.

To generate default assumption for each group, the user can click on the **“Default Assumptions”** button on the right side, which will bring up a pop up screen.

In the pop up screen, the user can select the existing reference group from the drop-down list. Once that is done, click the **“Confirm”** button to load the default assumptions for new portfolio data.

GIRRS User Guide – Accounting Methodology (1/3)



Under the Accounting Methodology tab, the user can click on the **“Accounting Policy”** button.

This will take the user to a screen which outlines all of the Accounting Policy options (PAA only) for each Portfolio in GIRRS.

To edit a new accounting policy option, the user can click on the **“edit”** button on the right side, which will bring up a pop up screen.

In the pop up screen, the user can enter or select the accounting policy choices from the drop-down, including the **“OCI Method”**, **“Disaggregate Risk Adjustment Presentation”**, **“Interest Accretion LRC”**, **“Amortise Acquisition Expense”** etc. Once that is done, click the **“Save”** button to edit/add the new accounting policy choices.

GIRRS User Guide – Accounting Methodology (2/3)

The screenshot displays the GIRRS Accounting Methodology interface. On the left, the 'Accounting Methodology' tab is active, and the 'Chart of Accounts' button is highlighted with a red circle. Below this, a table lists various chart of accounts entries. The 'edit/+' button for the first entry is also circled in red. On the right, the 'Edit Chart of Account' pop-up window is shown, with the 'Save' button circled in red.

Account Code	Account Description Level 1	Account Description Level 2	
10	LIC	PV RBND Overheads	
1001	Insurance Finance Expense	Impact of change in discount rate on RA Claims	
1002	Insurance Finance Expense	Impact of change in discount rate on RA ULAE	
1003	Insurance Finance Expense	Interest accretion on RA Claims	
1004	Insurance Finance Expense	Interest accretion on RA ULAE	
101	Insurance Service Expense	Incurred Claims - Claims Reported for Current Service	
102	Insurance Service Expense	Incurred Claims - Claims Due for Current Service	

Edit Chart of Account

Account Code: 10

Account Description Level 1: LIC

Account Description Level 2: PV RBND Overheads

Reporting Basis: IFRS17

Save **Close**

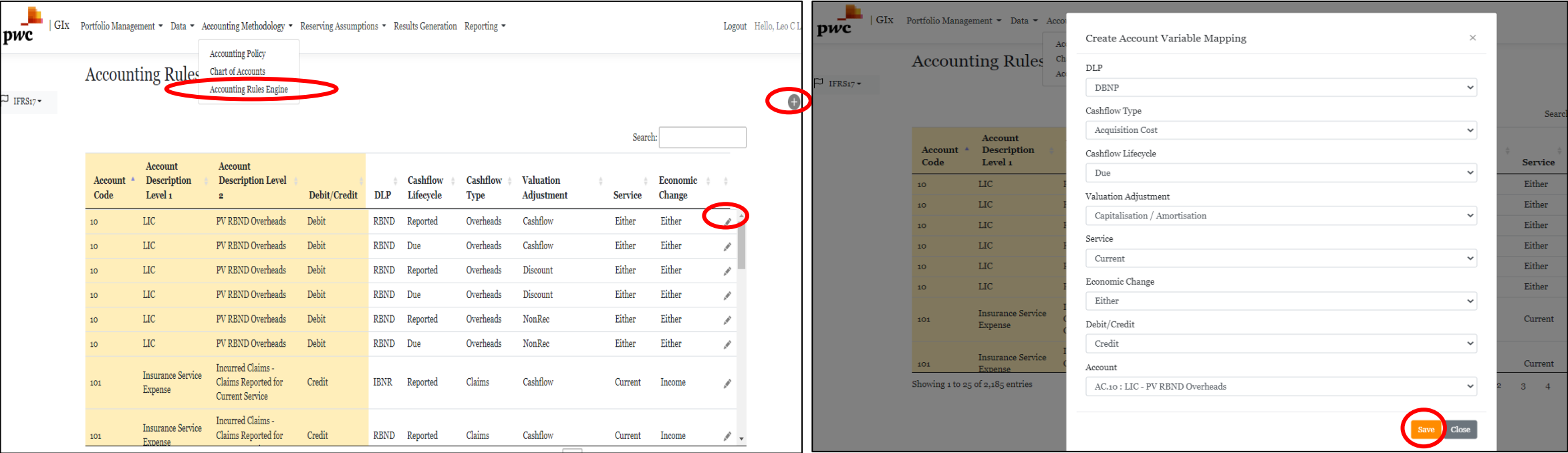
Under the Accounting Methodology tab, the user can click on the **“Chart of Accounts”** button.

This will take the user to a screen which outlines all of the defined Chart of Accounts in GIRRS.

To edit/add a chart of account, the user can click on the **“edit/+”** button on the right side, which will bring up a pop up screen.

In the pop up screen, the user can enter or select the characteristics of the chart of accounts from the drop-down, including the **“Account Code”**, **“Description”** etc. Once that is done, click the **“Save”** button to edit/add the chart of account.

GIRRS User Guide – Accounting Methodology (3/3)



Under the Accounting Methodology tab, the user can click on the “Accounting Rule Engine” button.

This will take the user to a screen which outlines all of the defined Accounting Rules Engine in GI Suite.

To edit/add a new accounting rule, the user can click on the “edit/+” button on the right side, which will bring up a pop up screen.

In the pop up screen, the user can enter or select the characteristics of the accounting rule from the drop-down, including the “Cashflow Type”, “Cashflow Lifecycle”, “Debit/Credit”, “Account” etc. Once that is done, click the “Save” button to edit/add the new accounting rule.

GIRRS User Guide – Reserving Assumptions (1/6)

Development Factors Assumptions

Cumulative Claims

Accident Year	Development Year						
	1	2	3	4	5	6	7
2011	-49,380	-66,219	-70,497	-72,389	-72,773	-73,095	-73,095
2012	-41,584	-62,310	-74,795	-82,187	-85,080	-86,728	-86,728
2013	-56,920	-75,814	-84,851	-90,743	-92,646	-93,041	-92,976
2014	-53,809	-71,392	-85,332	-92,252	-96,644	-99,135	
2015	-63,289	-90,182	-107,484	-115,314	-119,164		
2016	-69,032	-98,615	-112,444	-122,031			

Selected Claims Development Factors

	Development Year								
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	Tail Factor
Maximum	1.498	1.200	1.099	1.048	1.026	1.000	1.000	1.000	
Minimum	1.327	1.065	1.027	1.005	1.004	0.999	1.000	1.000	
Average - All Years	1.408	1.153	1.072	1.028	1.013	1.000	1.000	1.000	
Latest 3 Year Average	1.448	1.163	1.080	1.034	1.016	1.000			
Latest 5 Year Average	1.419	1.161	1.081	1.028					
Weighted Average - All Years	1.412	1.154	1.074	1.030	1.014	1.000	1.000	1.000	
Latest 3 Year Weighted Average	1.449	1.162	1.080	1.034	1.017	1.000			
Latest 5 Year Weighted Average	1.425	1.160	1.081	1.030					
Previous Selection	1.398	1.167	1.071	1.028	1.009	1.000	1.000	1.000	
Current Selection	1.425	1.160	1.081	1.030	1.000	1.000	1.000	1.000	1.050
Update	1.425	1.160	1.081	1.030	1.000	1.000	1.000	1.000	1.050

Under the Reserving Assumptions tab, the user can click on the “Development Factors” button.

This will take the user to a screen which the user can select Paid or Incurred Chain Ladder Development Factors (“LDFs”) based on historical data. These assumptions are used by GIRRS to determine reserves (i.e. IBNR) and payment patterns which produces future cashflows.

To toggle between Paid or Incurred data, the user can click on the “Paid/Incurred” button on the left side. As the user scrolls down the page, the last table is where the user can select the LDF assumption for each development year and tail development. The user can either select one of the pre-calculated averages, or enter a manual number. Once input, the user can press the “Update” button to save the assumptions.

GIRRS User Guide – Reserving Assumptions (2/6)

Under the Reserving Assumptions tab, the user can click on the **“Initial Loss Ratios”** button.

This will take the user to a screen which the user can select the Initial Loss Ratios (“ELRs”) based on historical data. These assumptions are used by GIRRS to determine reserves (i.e. IBNR for BF method and ELR method), the unexpired risk loss component and profitability testing.

At the top left side, the user can select the **“Valuation Year”** and **“Portfolio”** for the data. The first table is where the user can select the ELR assumption for reserving for each accident year. The user can enter a manual number and press the **“Update”** button to save the assumption.

As the user scrolls down the page, the last table is where the user can select the ELR assumption for profitability testing and unexpired risk loss component. The user can either select one of the pre-calculated averages, or enter a manual number. Once input, the user can press the **“Update”** button to save the assumption.

GIRRS User Guide – Reserving Assumptions (3/6)

The screenshot displays the 'IBNR Selection Assumption' interface. At the top, there is a navigation bar with 'Reserving Assumptions' selected. A dropdown menu is open, showing 'IBNR Selection' circled in red. On the left, '2018' and 'GI HK' are selected in dropdowns, also circled. The main table is titled 'IBNR Selection Assumption' and contains data for accident years 2011 through 2016. The table is divided into 'Ultimate Claims by Method' and 'Weighting by Method' sections. The 'Final IBNR Estimate' section at the bottom right is circled in red, showing 'Weighted IBNR' and 'Selected IBNR' columns. An 'Update' button is located at the bottom right of the table, also circled in red.

AY	Ultimate Claims by Method				IBNR Estimate by Method				Weighting by Method				Final IBNR Estimate	
	ELR	BF	ICL	PCL	ELR	BF	ICL	PCL	ELR	BF	ICL	PCL	Weighted IBNR	Selected IBNR
2011	(81,690)	(73,095)	(73,095)	(73,095)	(8,995)	-	-	-	0%	0%	10%	0%	-	0
2012	(89,839)	(86,728)	(86,728)	(86,728)	(3,131)	-	-	-	0%	0%	10%	0%	-	0
2013	(98,028)	(93,041)	(93,041)	(93,041)	(4,987)	-	-	-	0%	0%	10%	0%	-	0
2014	(106,197)	(100,018)	(98,586)	(97,556)	(6,922)	743	689	1,719	0%	0%	10%	0%	689	689
2015	(114,366)	(118,779)	(119,276)	(119,703)	4,656	(243)	(254)	(681)	0%	0%	10%	0%	(254)	-254
2016	(122,535)	(122,754)	(124,929)	(124,983)	1,296	(1,077)	(1,098)	(1,152)	0%	5%	5%	0%	(1,088)	-1,088
2017	(130,704)	(113,180)	(133,288)	(147,081)	(7,568)	(9,956)	(10,152)	(23,945)	0%	5%	5%	0%	(10,054)	-10,054
2018	(138,873)	(51,950)	(133,906)	(146,699)	(45,199)	(41,724)	(40,232)	(53,025)	0%	5%	5%	0%	(40,978)	-40,978
Total	(882,252)	759,545	(862,848)	(888,887)	(70,450)	(52,257)	(51,046)	(77,085)					(51,685)	(51,685)

Under the Reserving Assumptions tab, the user can click on the **“IBNR Selection”** button.

This will take the user to a screen which the user can select the IBNR for each accident year based on historical data. These assumptions are used by GIRRS to determine the final reserves. At the top left side, the user can select the **“Valuation Year”** and **“Portfolio”** for the data. As the user scrolls down the page, the right hand columns are where the user can either:

- Manually enter the IBNR (e.g. if the user wants to import the analysis done outside of GIRRS)
- Calculate the IBNR within GIRRS by using a weighted average of different methods (ELR, BF, ICL and PCL). The user can enter the weightings to apply for each method. Note the % for each accident year has to add up to 100%.

Once input, the user can press the **“Update”** button to save the assumption.

GIRRS User Guide – Reserving Assumptions (4/6)

The screenshot shows the 'Expenses Assumption' page. At the top left, there are navigation controls for '2018', 'GI HK', and 'EC', all of which are circled in red. A dropdown menu is open, with 'Expenses' highlighted in red. The page contains three tables:

Valuation Year	PAE Incurred Amount	ULAE Incurred Amount	ULAE %
2018	-9,600	-7,382	5.186 %

Valuation Year	PAE Assumption	ULAE Assumption
2018	9.800 %	4.521 %

Valuation Year	Method	Rate
2018	IBNR	100.000 %
2018	RBNP	50.000 %

This is a detailed view of the 'Expenses Assumption' page. It shows the same three tables as the previous screenshot, but with red circles highlighting specific data points: the 'PAE Assumption' and 'ULAE Assumption' for 2018, and the 'Rate' for IBNR and RBNP methods.

Valuation Year	PAE Assumption	ULAE Assumption
2018	9.800 %	4.521 %

Valuation Year	Method	Rate
2018	IBNR	100.000 %
2018	RBNP	50.000 %

Under the Reserving Assumptions tab, the user can click on the “Expenses” button.

This will take the user to a screen which the user can select the Expense assumptions. These assumptions are used by GIRRS to determine reserves (i.e. expense allowance) and the unexpired risk loss component.

At the top left side, the user can select the “Valuation Year” and “Portfolio” for the data. As the user scrolls down the page, the first table displays the actual incurred PAE and ULAE amounts (from data inputs) are in the first table. The second table is where the user can select the PAE and ULAE assumption for each Portfolio. The third table is where the user can input what proportion of the ULAE assumption to apply for RBNP and IBNR.

GIRRS User Guide – Reserving Assumptions (5/6)

The screenshot shows the 'Reserving Assumptions' dropdown menu. The 'Discount Rates' option is circled in red. The left sidebar also has '2019', 'GI HK', and 'EC' buttons circled in red.

The screenshot shows the 'Discount Rates Assumption' table. The right-hand columns for editing 'Risk-Free Rate' and 'Illiquidity Premium' are circled in red.

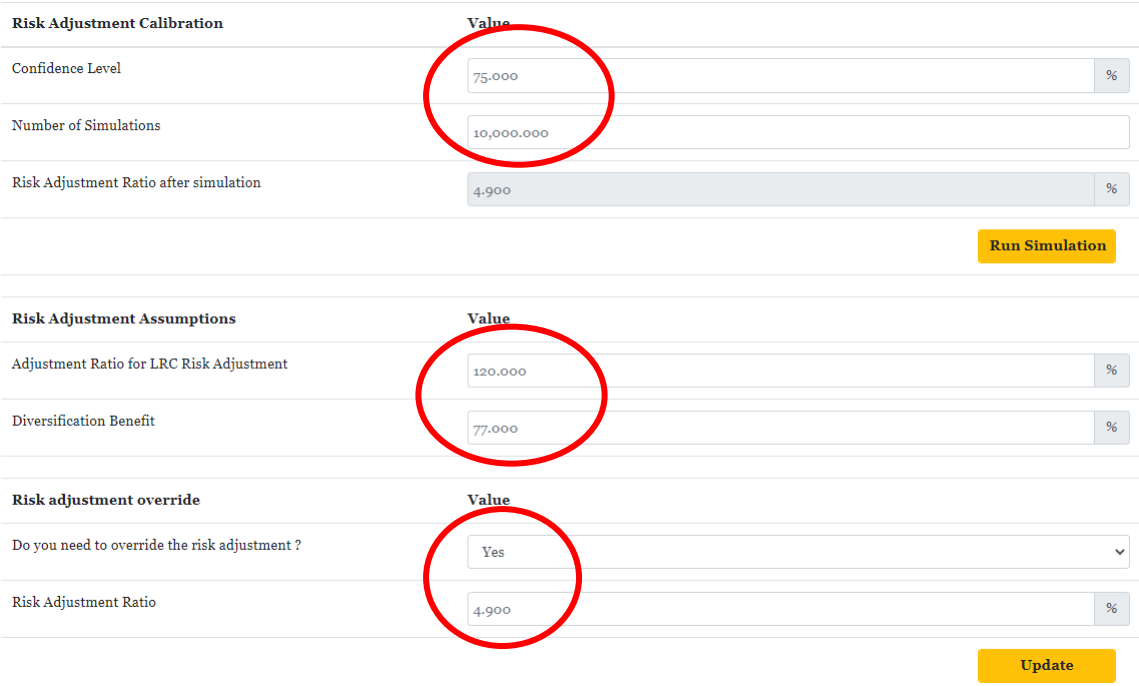
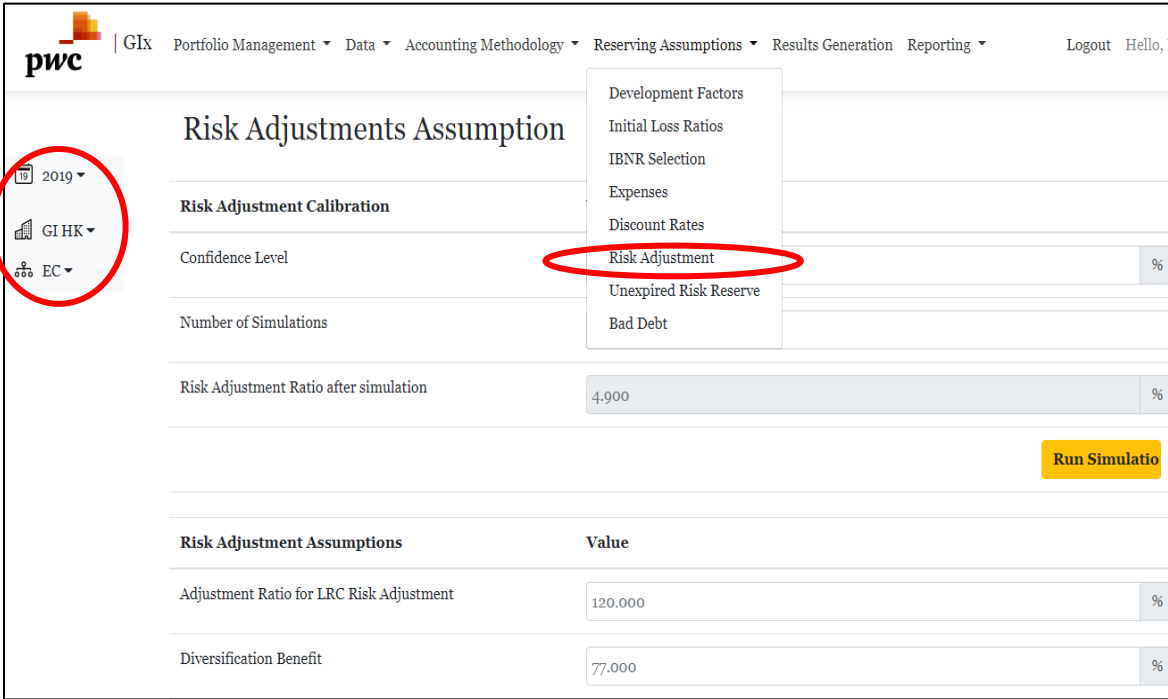
Term	Type	Risk-Free Rate	Illiquidity Premium
1	Spot	0.497 %	0.000 %
2	Spot	0.504 %	0.000 %
3	Spot	0.534 %	0.000 %
4	Spot	0.562 %	0.000 %
5	Spot	0.583 %	0.000 %
6	Spot	0.611 %	0.000 %
7	Spot	0.631 %	0.000 %
8	Spot	0.653 %	0.000 %
9	Spot	0.669 %	0.000 %
10	Spot	0.682 %	0.000 %
11	Spot	0.727 %	0.000 %
12	Spot	0.799 %	0.000 %

Under the Reserving Assumptions tab, the user can click on the **“Discount Rates”** button.

This will take the user to a screen which the user can select the Discount Rates assumptions. These assumptions are used by GIRRS to discount future cashflows.

At the top left side, the user can select the **“Valuation Year”** and **“Portfolio”** for the data. As the user scrolls down the page, the right column is where the user can edit the discount rates (risk free rate and/or illiquidity premium) for each term. GIRRS will come with pre-populated risk-free free rates for HKD from data input and the default term is yearly.

GIRRS User Guide – Reserving Assumptions (6/6)

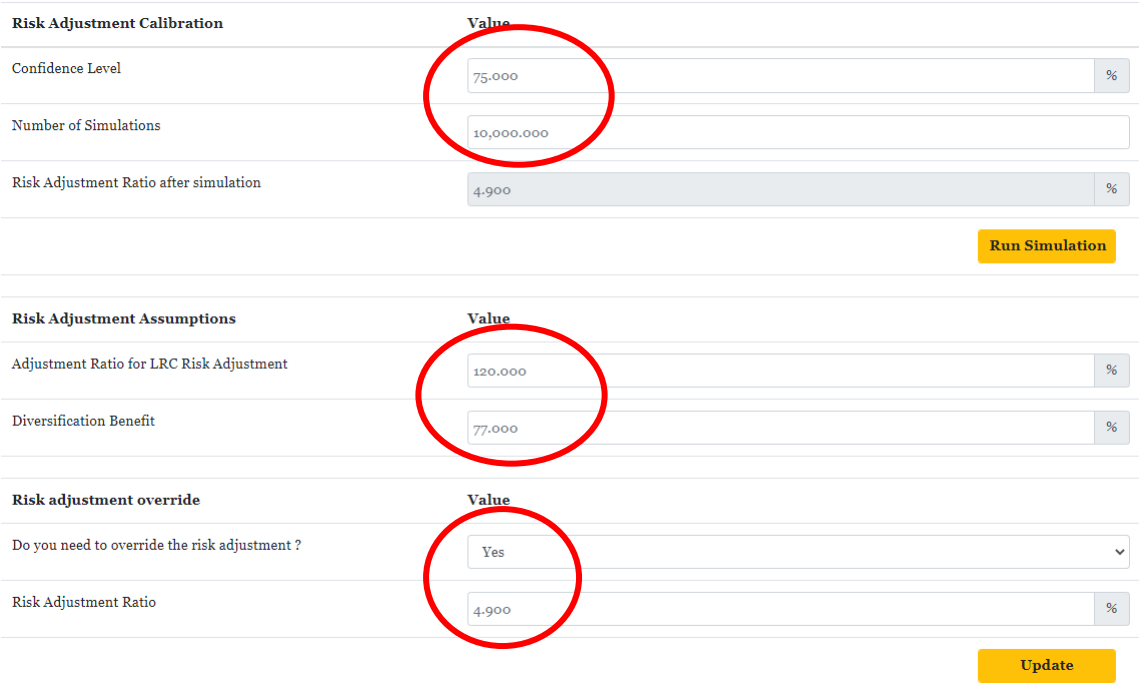
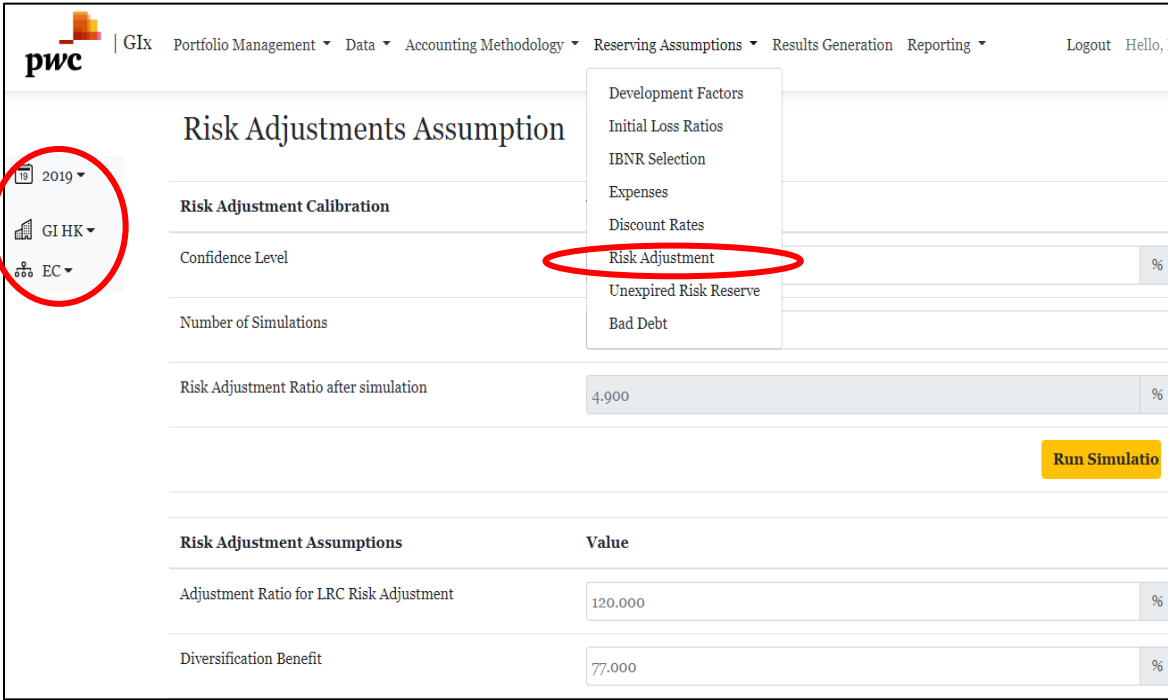


Under the Reserving Assumptions tab, the user can click on the **“Risk Adjustment”** button.

This will take the user to a screen which the user can run the Risk Adjustment assumptions. These assumptions are used by GIRRS to calculate the risk adjustment for non-financial risks.

At the top left side, the user can select the **“Valuation Year”** and **“Portfolio”** for the data. As the user scrolls down the page, the first table allows the user to select the confidence interval and number of simulation to calibrate the risk adjustment to. Then the user can press the **“Run simulation”** button to simulate the risk adjustment assumption. The second table allows the user to enter the adjustment ratio for LRC and diversification benefits. The third table allow the user to select whether to override the risk adjustment from the drop down list and manually enter the risk adjustment ratio. Then the user can press the **“Update”** button to save the risk adjustment assumptions.

GIRRS User Guide – Reserving Assumptions (6/6)

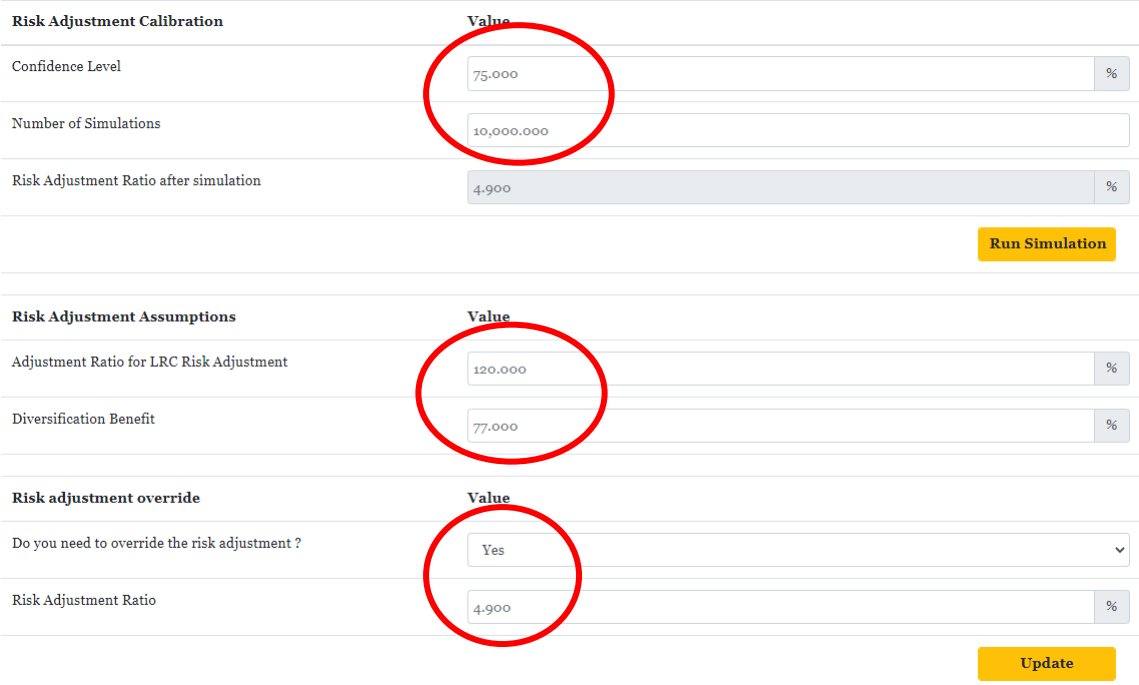
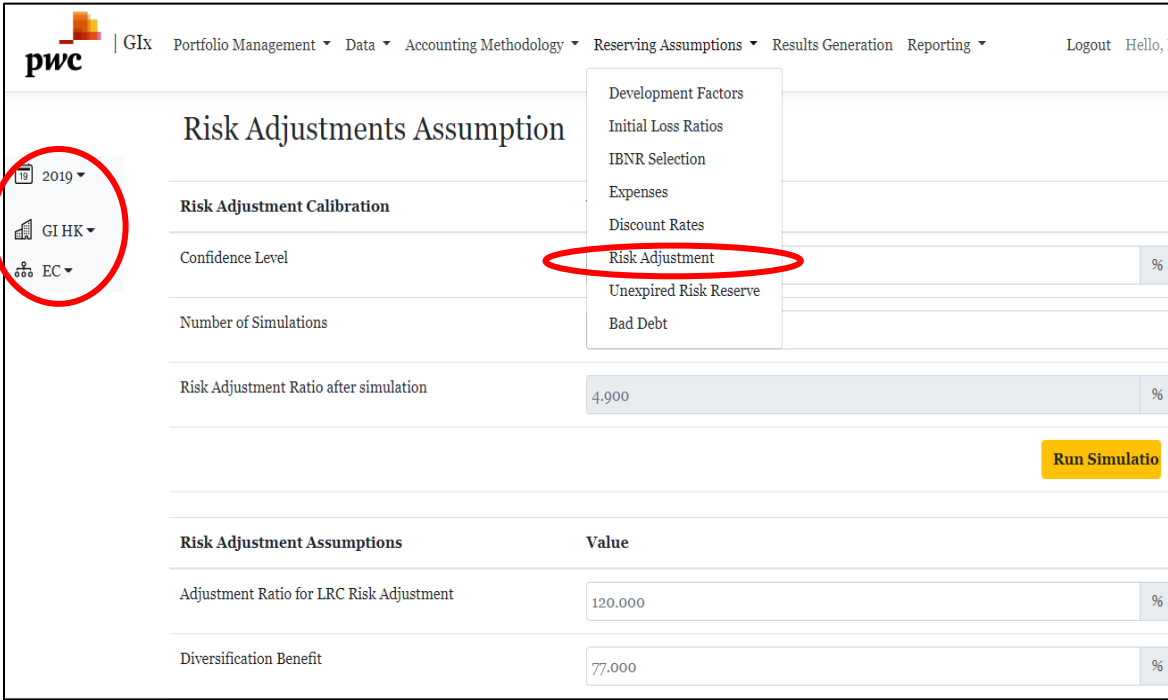


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At the top left side, the user can select the “Valuation Year” and “Portfolio” for the data. As the user scrolls down the page, the first table allows the user to select the confidence interval and number of simulation to calibrate the risk adjustment to. Then the user can press the “Run simulation” button to simulate the risk adjustment assumption. The second table allows the user to enter the adjustment ratio for LRC and diversification benefits. The third table allow the user to select whether to override the risk adjustment from the drop down list and manually enter the risk adjustment ratio. Then the user can press the “Update” button to save the risk adjustment assumptions.

GIRRS User Guide – Reserving Assumptions (6/6)



Under the Reserving Assumptions tab, the user can click on the “Risk Adjustment” button.

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GIRRS User Guide – Reserving Cashflows

The left screenshot shows the 'Reserving Cashflows' tab in the software. The 'Run' section has two buttons, 'Generate CFs' and 'Calculate RA', which are circled in red. Below this, the 'Run Name' is 'GI PAA Analysis', 'Comments' is 'GI PAA Analysis (December 2018)', 'Module' is 'GI Reserving & PAA Valuation', 'Org Unit' is 'Hong Kong', 'Last Modified' is '30/03/2021', 'Owner' is 'Nymph L Qiu', 'Status' is 'Not Started', and 'Valuation Date' is '31/12/2018'. There is an 'Add New Parameter' button. The 'Run Steps' section is empty with a search bar and a '+' icon.

The right screenshot shows the 'Run' details for 'GI PAA Analysis'. The 'Run Name' is 'GI PAA Analysis', 'Comments' is 'GI PAA Analysis (December 2018)', 'Module' is 'GI Reserving & PAA Valuation', 'Org Unit' is 'Hong Kong', 'Last Modified' is '30/03/2021', 'Owner' is 'Nymph L Qiu', 'Status' is 'Not Started', and 'Valuation Date' is '31/12/2018'. There is an 'Add New Parameter' button. The 'Run Steps' section contains a table with two entries, circled in red:

Run Order	Step	Status	Completed Date	Time Taken	Executed By	Actions
1	GI: Generate CFs using Python	●	06/04/2021 19:31:27	00:00:01.44	Stephen S Dong	⏪ ⏩ 🔄 🗑️ ✎
2	GI: Risk Adjustment Python	●	06/04/2021 18:04:25	00:00:05.12	Stephen S Dong	⏪ ⏩ 🔄 🗑️ ✎

Showing 1 to 2 of 2 entries. Navigation: Previous 1 Next. A search bar is also present above the table.

Under the Reserving Cashflows tab, the user can click on the **“Generate CFs”** and **“Calculate RA”** button.

This will take the user to a screen which the user can run the projected cashflows and the risk adjustment (which has an inbuilt stochastic simulation engine).

The user just needs to press the triangle button to re-run the any updated assumptions and output the revised cashflows and risk adjustment. These calculations will then flow through to the Reporting Module.

GIRRS User Guide – Reporting (1/3)

Portfolio Management ▾ Accounting Policy ▾ Reserving Assumptions ▾ Reserving Cashflows ▾ Reporting ▾

Estimated Combined Loss

2019 ▾ Motor ▾

- Cashflow Triangles
- Loss Ratios
- Onerous Testing
- Subledger
- Financial Statements
- Movement Disclosure

Accident Year	Earned Premium	Paid to Date	Cashflows					Total Liability	Estimated Combined Loss Ratio
			Case Estimate	IBNR	Expense (ULAE)	Risk Adjustment	Discount Impact		
2009	2,148,875,171	1,188,247,954	-	-	-	-	-	1,188,247,954	55.296%
2010	2,258,361,975	1,249,834,160	-	-	-	-	-	1,249,834,160	55.343%
2011	2,379,221,306	1,325,934,700	-	-	-	-	-	1,325,934,700	55.730%
2012	2,589,043,576	1,473,575,610	5,950	-	144	220	(30)	1,473,581,893	56.916%
2013	2,798,777,708	1,582,050,679	23,334	-	564	861	(118)	1,582,075,320	56.527%
2014	2,907,585,012	1,591,615,268	36,880	-	892	1,361	(187)	1,591,654,214	54.741%
2015	3,184,559,264	1,736,685,204	23,191	-	561	856	(117)	1,736,709,694	54.535%
2016	3,471,243,980	2,000,871,129	10,122	(1,172,019)	(56,445)	(43,805)	8,314	1,999,617,297	57.605%
2017	3,492,147,351	1,922,999,336	239,046	(5,013,950)	(236,740)	(180,144)	35,492	1,917,843,041	54.919%
2018	3,132,066,585	1,891,162,515	1,186,157	(25,943,912)	(1,226,202)	(934,578)	167,872	1,864,411,852	59.527%
2019	2,972,532,933	1,706,377,893	312,061,965	(95,028,543)	2,950,645	7,933,555	(833,437)	1,933,462,078	65.044%
Total	31,334,414,863	17,669,354,448	313,586,645	(127,158,424)	1,433,419	6,778,325	(622,211)	17,863,372,203	57.009%

management ▾ Accounting Policy ▾ Reserving Assumptions ▾ Reserving Cashflows ▾ Reporting ▾

Onerous Testing

2019 ▾ Motor ▾

- Cashflow Triangles
- Loss Ratios
- Onerous Testing
- Subledger
- Financial Statements
- Movement Disclosure

IFRS 17 Combined Loss Ratio

Estimated Loss Ratio	Discounted Loss Ratio	PAE Ratio	ULAE Ratio	Risk Adjustment	IFRS 17 Combined Loss Ratio	Profitability Grouping
120.0%	119.6%	9.8%	4.8%	3.6%	139.7%	Onerous

Loss Component

UPR	DAC	UPR less DAC	URR	Loss Component
245,000	-	245,000	342,327	97,327

Under the Reporting tab, the user can click on the “Loss Ratios” and “Onerous Testing” button.

For both screens, the user can select the “Valuation Year” and “Portfolio” to look at the respective outputs.

The Loss Ratios screen summarizes the outstanding claim liability (i.e LIC) by accident year, showing a breakdown of items such as paid to date, case reserves, IBNR and risk adjustment.

The Onerous Testing screen summarizes whether each portfolio is onerous under IFRS 17 and if so, the calculation of the Loss Component. Note the Loss Component is a simplified calculation under PAA (details in functional specs).

GIRRS User Guide – Reporting (2/3)

Subledger

Posting Date	Transaction ID	Account Code	Account Description	Debit/Credit	Posting Amount	Org Unit
12/31/2018	79	4800000000	Release of Risk Adjustment	Credit	9	Motor
12/31/2018	80	4800000000	Release of Risk Adjustment	Credit	-	Motor
12/31/2018	81	4700000000	Unwind	Credit	1,625,685	Motor
12/31/2018	82	4700000000	Unwind	Credit	26,919	Motor
12/31/2018	83	4800000000	Release of Risk Adjustment	Credit	(11,317,438)	Motor
12/31/2018	84	4800000000	Release of Risk Adjustment	Credit	(187,403)	Motor
12/31/2018	85	4800000000	Release of Risk Adjustment	Credit	24	Motor
12/31/2018	86	4800000000	Release of Risk Adjustment	Credit	-	Motor
12/31/2018	87	4700000000	Unwind	Credit	(316)	Motor
12/31/2018	88	4700000000	Unwind	Credit	26	Motor
12/31/2018	89	4700000000	Unwind	Credit	(16)	Motor

Movements in insurance contract balances for 2019

	Excluding loss component	Loss component	Estimates of the present value of future cash flows	Risk adjustment for non-financial risk	Total
Assets	-	-	-	-	-
Liabilities	228,593,189	97,327	239,830,834	9,166,194	477,687,544
Net opening balance	228,593,189	97,327	239,830,834	9,166,194	477,687,544
Changes in the statement of profit or loss and other comprehensive income	-	-	-	-	-
Insurance contract revenue	(363,468,217)	-	-	-	(363,468,217)
Insurance service expenses	-	-	-	-	-
New incurred claims and benefits	-	-	1,969,046,306	7,933,555	1,976,979,861

Under the Reporting tab, the user can click on the “Subledger” and “Movement Disclosure” button.

For both screens, the user can select the “Valuation Year” and “Portfolio” to look at the respective outputs. The user can also press the “Export Results” button to download the outputs in either CSV or Excel format.

The Subledger screen lists out all of the IFRS 17 accounting debit/credit journal entries that can be extracted and integrated to the client’s general ledger system. The journal entries have been produced using the accounting rules engine (i.e. CoA) set up in GI Suite.

The Movement Disclosures screen produces the insurance liability movement disclosures that are required under IFRS 17. The user can select either the LRC, LIC or Combined movement disclosures to extract.

GIRRS User Guide – Reporting (3/3)

Financial Statements for Year 2019

2019 Motor 0 0 Export Results

	Actual Years	
	2018	2019
Liability for Remaining Coverage (UPR)	256,492,169	225,042,149
Liability for Remaining Coverage (DAC)	(27,898,980)	(24,019,950)
Loss Component	-	97,327
Liability for Remaining Coverage	228,593,189	201,119,526
Case Estimate (RBNP)	331,299,880	313,586,645
IBNR	(93,840,497)	(127,158,424)
Expense (ULAE)	3,246,542	1,433,419
Discount Impact	(875,090)	(622,211)
Risk Adjustment	9,166,194	6,778,325
Liability for Incurred Claims	248,997,028	194,017,755
Cash	15,859,067,335	17,717,399,539
"Technical" Equity	16,336,657,552	18,112,536,820

Financial Statements for Year 2019

2019 Motor 0 5 Export Results

	Actual Years		Projected Years				
	2018	2019	2020	2021	2022	2023	2024
Liability for Remaining Coverage (UPR)	256,492,169	225,042,149	-	-	-	-	-
Liability for Remaining Coverage (DAC)	(27,898,980)	(24,019,950)	-	-	-	-	-
Loss Component	-	97,327	97,327	97,327	97,327	97,327	97,327
Liability for Remaining Coverage	228,593,189	201,119,526	97,327	97,327	97,327	97,327	97,327
Case Estimate (RBNP)	331,299,880	313,586,645	(12,463,945)	(3,803,509)	(1,691,630)	(825,075)	-
IBNR	(93,840,497)	(127,158,424)	(31,503,975)	(5,720,057)	(1,080,272)	-	-
Expense (ULAE)	3,246,542	1,433,419	(843,842)	(201,588)	(57,464)	(11,217)	-
Discount Impact	(875,090)	(622,211)	(842,299)	(891,330)	(907,898)	(913,231)	(913,231)
Risk Adjustment	9,166,194	6,778,325	6,770,358	6,766,583	6,767,983	6,767,790	6,767,790
Liability for Incurred Claims	248,997,028	194,017,755	(38,883,703)	(3,847,901)	3,030,719	5,018,267	5,854,559
Cash	15,859,067,335	17,717,399,539	17,950,072,941	17,914,986,333	17,908,090,545	17,906,097,472	17,905,261,179
"Technical" Equity	16,336,657,552	18,112,536,820	17,911,286,566	17,911,235,759	17,911,218,591	17,911,213,066	17,911,213,066

Under the Reporting tab, the user can click on the **“Financial Statements”** button.

The user can select the **“Valuation Year”** and **“Portfolio”** to look at the respective outputs. The user can also press the **“Export Results”** button to download the outputs in either CSV or Excel format.

The Financial Statement screen summarizes the liability breakdown for LRC and LIC balances, and the resulting Profit and Loss results from the change in insurance balances. The user can also select the backward or forward years button to show projects of the LRC and LIC balances, based on business planning assumptions. Note these projected liability balances will be needed for Hong Kong RBC, and is a future development of GI Suite.