Non-Standard Types of Insurance

Reducing risks and losses of unforeseen circumstances.

Modern understanding of circumstances that may impede the implementation of the contract.

Analysis of typical errors in the context of force majeure, the experience of prevailing circumstances, an obstacle to the execution of the contract

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- ***Part A –*** *Non-Standard Types of Insurance*

- ***Part B –*** *How to reduce risks and losses of unforeseen circumstances. Modern understanding of the circumstances that may impede the implementation of the contract. Analysis of typical errors in the context of force majeure, the experience of prevailing circumstances, an obstacle to the execution of the contract*

Delay in Delivery / Non-Delivery Insurance:

Non-Delivery Insurance covers appreciation of value beyond amounts insured under the Builders Risks Insurance and/or the Refund Guarantee and should be considered in a rising market or on securing of an advantageous charter.

Residual Value Insurance:

Residual Value Insurance helps manage asset value risk by guaranteeing that a properly maintained asset will have a specified value as a future date. It is a product suitable for lessors unwilling or unable to take asset risk and from investors wishing to limit their downside.

C.E.N.D. (Confiscation – Expropriation – Nationalization – Deprivation):

This insurance is to pay the difference between the vessel(s) Protection and Indemnity Club settlement, if any, and total sum insured for Hull and Machinery and ancillary interests, but only up to the sum insured hereon, in respect of loss or damage to the vessel(s), in consequence of the Insured being deprived of the free use of the vessel(s) after a period of 180 days. This period commences from date it has become apparent to the Insured and advised to Underwriters, that they cannot remove the vessel(s).

Loss of Hire for Chartered Yachts:

If the yacht is unable to undertake a previously signed and contracted charter due to a loss covered under the Hull and Machinery section of this policy, underwriters agree to pay up to the amount as stated herein for each loss of charter up to a maximum of 3 losses in the annual aggregate.

Delay in Delivery / Non-Delivery

Cover is triggered by an incident that is recoverable under the builder's risk insurance due to physical damage to the vessel or the unit.

Delay in Delivery

Covers losses due to an incident at the shipyard that causes a delay in delivering the newbuilding or conversion. The cover is offered both to the yard (for their daily penalties) or the buyer (for lost income).

Non-Delivery

Covers loss of future income if a newbuilding or conversion is not delivered as a consequence of total loss of the unit. These can either be purchased separately or as a combined product.

Cover is triggered by an incident that is recoverable under the builder's risk insurance due to physical damage to the vessel or the unit. It can be extended to cover additional perils such as damage to the yard, damage to the subcontractor's yard, certain political risks and blockades.

If an owner has entered into a contract that is due to commence as soon as a new vessel is delivered, any delay or non-delivery might be expensive in terms of lost profit or commercial penalties, especially if contract terms are above the then prevailing market level.

Residual Value Insurance (RVI)

RVI Indemnifies an Insured (usually a bank or lessor) against a loss that might occur if the sale proceeds of a properly maintained vessel are less than the vessel's insured residual value at one point in time. This is normally on maturity of a lease or when a balloon payment is due in debt financing. The cause of loss would be the unexpected decline in value due to changes in market conditions.

RVI underwriters take true asset risk and typically underwrite the entire RVI sum insured without a deductible.

Uses of RVI

RVI is an enormously flexible tool with benefits which range from asset risk mitigation to complex financial objectives related to accounting treatment, capital optimization and cashflow improvement. RVI enables a lessor to offer operating lease solutions to their clients where they are not willing or able to take any or all of the asset risk part of the transaction. Instead, Edge Group arrange RVI which underwrites this risk.
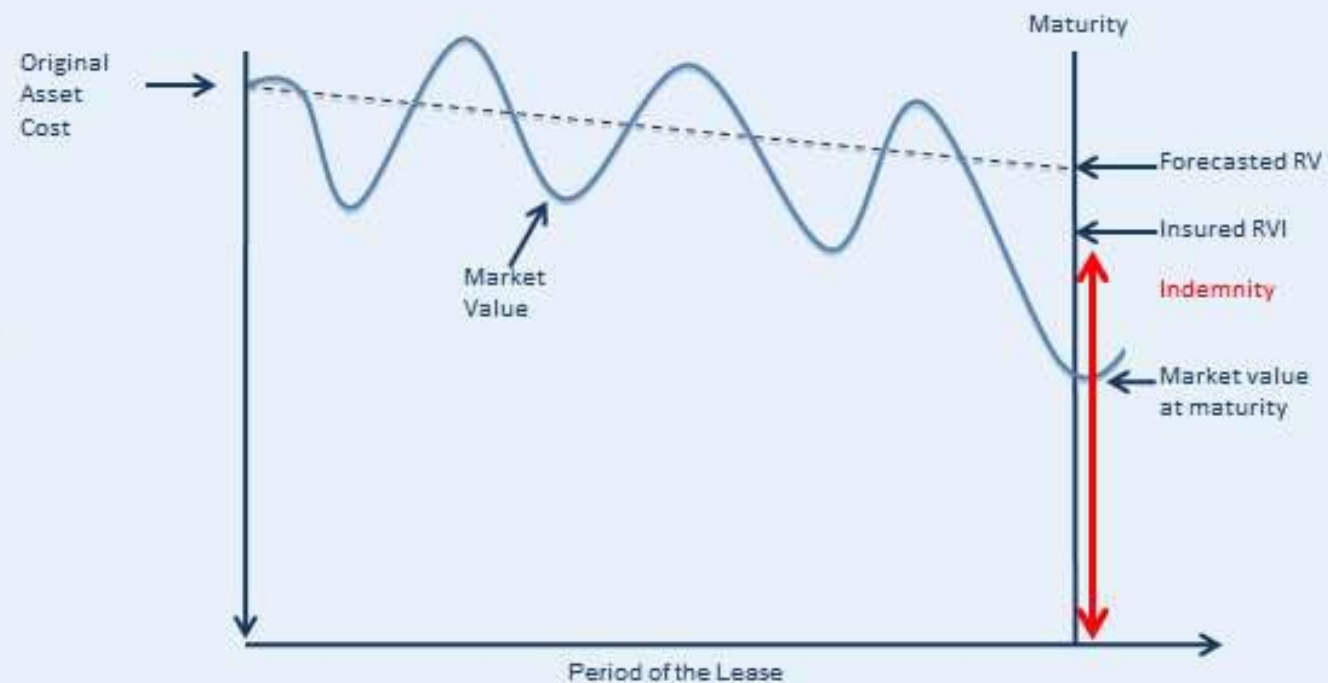
Graph of a typical RVI Structure

RVI guarantees the value of an asset at maturity of an operating lease or the balloon payment in non-recourse financing

RVI does not usually provide cover through the term of the lease/facility

Maturity

Original Asset Cost

Forecasted RV

Insured RVI

Indemnity

Market Value

Market value at maturity

Period of the Lease

C.E.N.D. (Confiscation – Expropriation – Nationalization – Deprivation)

This insurance is to pay the difference between the vessel(s) Protection and Indemnity Club settlement, if any, and total sum insured for Hull and Machinery and ancillary interests, but only up to the sum insured hereon, in respect of loss or damage to the vessel(s), in consequence of the Insured being deprived of the free use of the vessel(s) after a period of 180 days.

This period commences from date it has become apparent to the Insured and advised to Underwriters, that they cannot remove the vessel(s).

Underwriters to have full rights of subrogation.

C.E.N.D. - Questionnaire

1. Name of vessels, including number of crew onboard to be insured and their trading pattern

2. Vessel type and cargo generally carried

3. Are containers carried?

4. In which P&I Club are vessels entered?

5. Limit of cover required in USD

6. Daily indemnities required each vessel for Loss of Earnings

7. Excess / deductible required each claim (Minimum USD 5,000 deductible or 3 days franchise)

8. In respect of Quarantine Cover, it is a requirement that the vessels follow their IGA Club's "Latest Port Advices ". Confirm that vessels meet this requirement

9. Nationality of crew / officers of the vessels to be insured

Loss of Hire for Chartered Yachts

If the yacht is unable to undertake a previously signed and contracted Charter due to loss covered under the Hull and Machinery section of this Policy, Underwriters agree to pay up to the amount as stated herein for any loss of charter up to a maximum of 3 losses in the annual aggregate.

The conditions are based on the Charter agreement being in accordance with MYBA standards or similar, while the coverage is adapted to reflect the underlying Yacht Charter market rather than the conventional marine market.

Yacht: Loss of Charter – Extended

Whereas a standard Loss of Charter Hire insurance covers marine perils and loss due to physical damage to the Yacht, the extended Loss of Charter Hire policy will extend to many other external sources of interruption which are outside the control of the Yacht owner or manager, including:

- Extreme weather

- Life-saving or refugee rescuing

- Illness, death or injury to persons on board the insured Yacht(s)

- Natural disaster

Extended Loss of Charter Hire is structured in the same manner as Loss of Charter Hire. It indemnifies the Assured for an agreed number of Chartering weeks and is a natural extension where we already insure Loss of Charter Hire, but can also be written on a stand-alone basis.

According to the latest I.G. P&I Annual Review for 2017/18:

"The number and severity of pool claims currently reported for the 2017/18 policy year is similar to that for the 2016/17 policy year with 19 claims notified, five of which are precautionary notifications within the club retention. The severity of claims notified, however, is significantly up, due in the main to the costs associated with the "Kea Trader" grounding in New Caledonia in July 2017, and the "Sanchi/CF Crystal" collision in the East China Sea in January 2018".

In a recent article, an Italian Insurance Broker stated that, despite the trend from most IG Clubs, the expectation is that P&I Clubs are heading towards increases.

The insurance industry, unlike other industries, does not sell products as such but promises.

An insurance policy is a promise by the insurer to the policyholder to pay for future claims for an upfront received premium.

As a result, Insurers don't know the upfront cost for their service, but rely on historical data analysis and judgement to predict a sustainable price for their offering. In General Insurance (or Non-Life Insurance, e.g. motor, property and casualty insurance) most Policies run for a period of 12 months. However, the claims payment process can take years or even decades. Therefore, often not even the delivery date of their product is known to Insurers.

In particular, losses arising from casualty insurance can take a long time to settle and even when the claims are acknowledged it may take time to establish the extent of the claims' settlement cost. Claims can take years to materialize. A complex and costly example are the claims from asbestos liabilities, particularly those in connection with mesothelioma and lung damage arising from prolonged exposure to asbestos.

A research report by a working party of the Institute and Faculty of Actuaries estimated that the undiscounted cost of UK mesothelioma-related claims to the UK Insurance Market for the period 2009 to 2050 could be around £10bn.

The cost for asbestos related claims in the US for the worldwide insurance industry was estimated to be around $120bn in 2002.

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Thus, it should come as no surprise that the biggest item on the liabilities side of an Insurer's balance sheet is often the provision or reserves for future claims payments. Those reserves can be broken down in case reserves (or outstanding claims), which are losses already reported to the insurance company and losses that are incurred but not reported (IBNR) yet.

The analysis is based on R (Version 3.5.3 – 11th March 2019), an integrated language and environment for statistical computing and graphics. R provides a wide variety of statistical and graphical techniques.

The estimated cost of notified pool claims (in USD 000,000) is as follows:

YEAR	No.OF CLAIMS	12M	24M	36M	48M	60M	72M	84M	96M	108M	120M
2007/08	27	3032	4369	4798	4859	5154	5300	5300	5201	5252	5295
2008/09	14	876	1204	1103	1260	1240	1236	1269	1290	1285	NA
2009/10	22	2338	2294	2313	2270	2544	2759	2679	2646	NA	NA
2010/11	22	1929	2635	2916	2761	2717	2801	2803	NA	NA	NA
2011/12	14	3310	4692	4845	5121	5118	5175	NA	NA	NA	NA
2012/13	22	3753	4602	4858	4838	4641	NA	NA	NA	NA	NA
2013/14	19	2871	3403	3859	3827	NA	NA	NA	NA	NA	NA
2014/15	16	1771	1905	2013	NA	NA	NA	NA	NA	NA	NA
2015/16	15	2516	3537	NA	NA	NA	NA	NA	NA	NA	NA
2016/17	7	756	NA	NA	NA	NA	NA	NA	NA	NA	NA

The objective of a reserving exercise is to forecast the future claims development in the bottom right corner of the triangle and potential further developments beyond development age 10.

Eventually all claims for a given origin period will be settled, but it is not always obvious to judge how many years or even decades it will take.

We speak of long and short tail business depending on the time it takes to pay all claims.

Chain-ladder methods

The classical chain-ladder is a deterministic algorithm to forecast claims based on historical data.

It assumes that the proportional developments of claims from one development period to the next are the same for all origin years.

Basic idea

Most commonly as a first step, the age-to-age link ratios are calculated as the volume weighted average development ratios of a cumulative loss development triangle from one development period to the next C_{ik}, i, k = 1, . . . , n.

$$f_k = \frac{\sum_{i=1}^{n-k} C_{i,k+1}}{\sum_{i=1}^{n-k} C_{i,k}}$$

Expected Claims Development Pattern
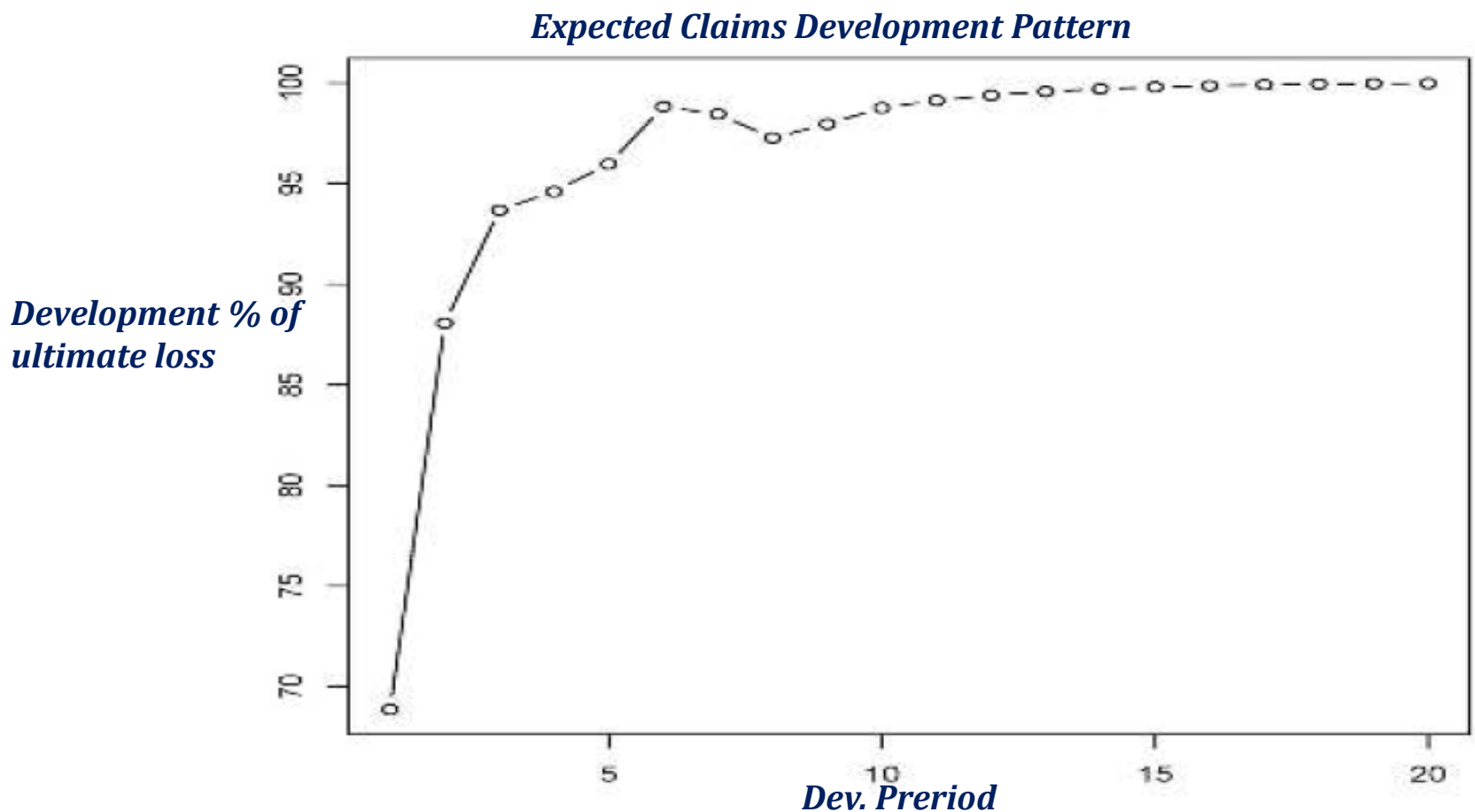
	X12M	X24M	X36M	X48M	X60M	X72M	X84M	X96M	X108M	X120M	Ult
1	3032	4369	4798	4859	5154	5300	5300	5201	5252	5295	5363
2	876	1204	1103	1260	1240	1236	1269	1290	1285	1296	1312
3	2338	2294	2313	2270	2544	2759	2679	2646	2665	2687	2721
4	1929	2635	2916	2761	2717	2801	2803	2769	2789	2812	2848
5	3310	4692	4845	5121	5118	5175	5156	5094	5130	5172	5238
6	3753	4602	4858	4838	4641	4779	4761	4704	4737	4776	4837
7	2871	3403	3859	3827	3882	3998	3983	3935	3963	3995	4046
8	1771	1905	2013	2033	2062	2123	2116	2090	2105	2122	2149
9	2516	3537	3763	3800	3855	3969	3954	3907	3935	3967	4018
10	756	967	1028	1039	1054	1085	1081	1068	1075	1084	1098

	Latest	Dev. To. Date	Ultimate	IBNR	Mack. S.E.	CV (IBNR)
1	5,295	1.000	5,295	0.00	0.00	NaN
2	1,285	0.992	1,296	10.52	9.71	0.923
3	2,646	0.985	2,687	40.57	31.13	0.767
4	2,803	0.997	2,812	8.82	58.49	6.634
5	5,175	1.001	5,172	-3.03	123.16	-40.581
6	4,641	0.972	4,776	134.99	171.94	1.274
7	3,827	0.958	3,995	168.22	277.32	1.649
8	2,013	0.949	2,122	109.25	235.71	2.158
9	3,537	0.892	3,967	429.77	392.49	0.913
10	756	0.697	1,084	328.28	318.80	0.971

Mack Chain - Ladder

	Totals
Latest:	31,978.00
Dev:	0.96
Ultimate:	33,205.38
IBNR:	1,227.38
Mack. S.E.:	782.64
CV(IBNR):	0.64
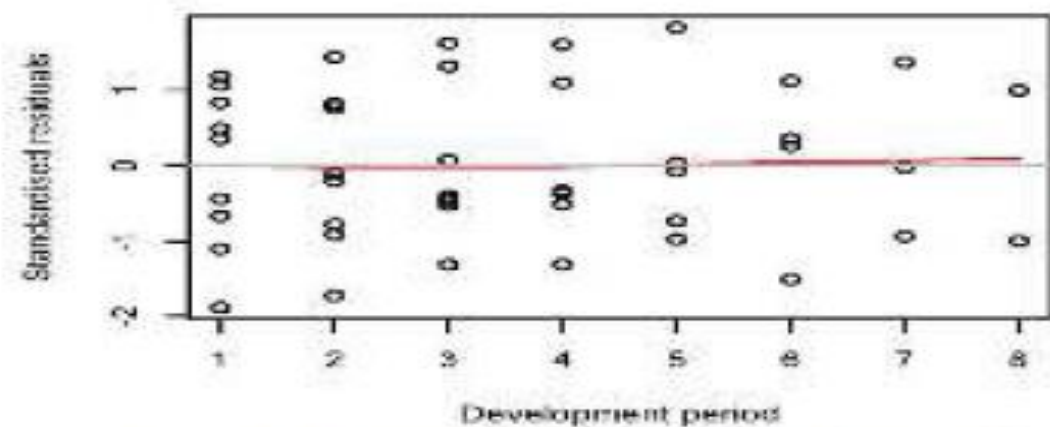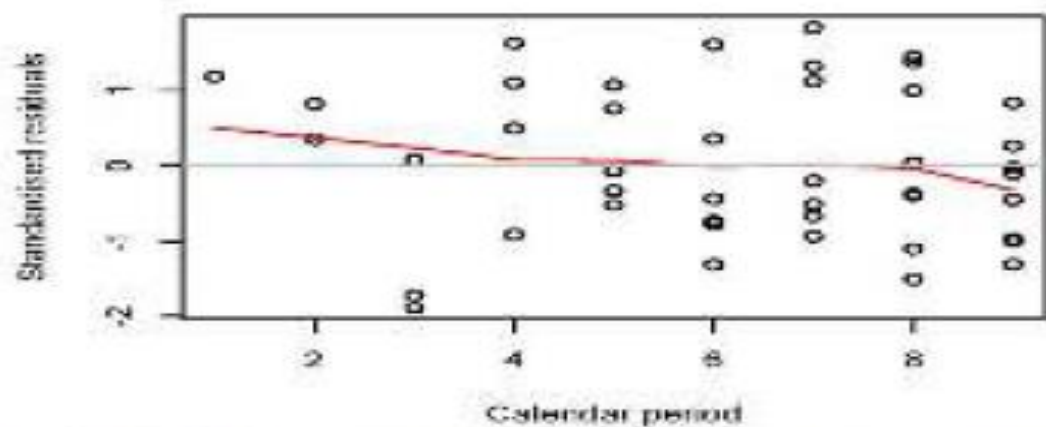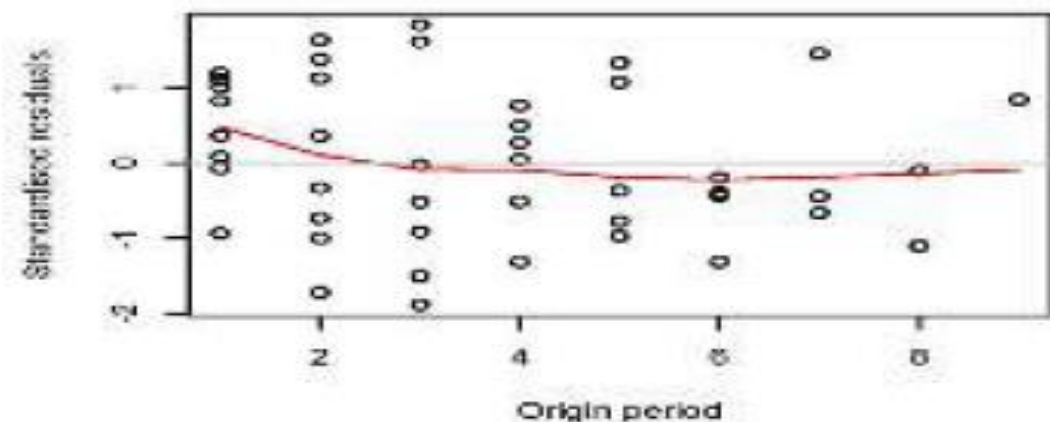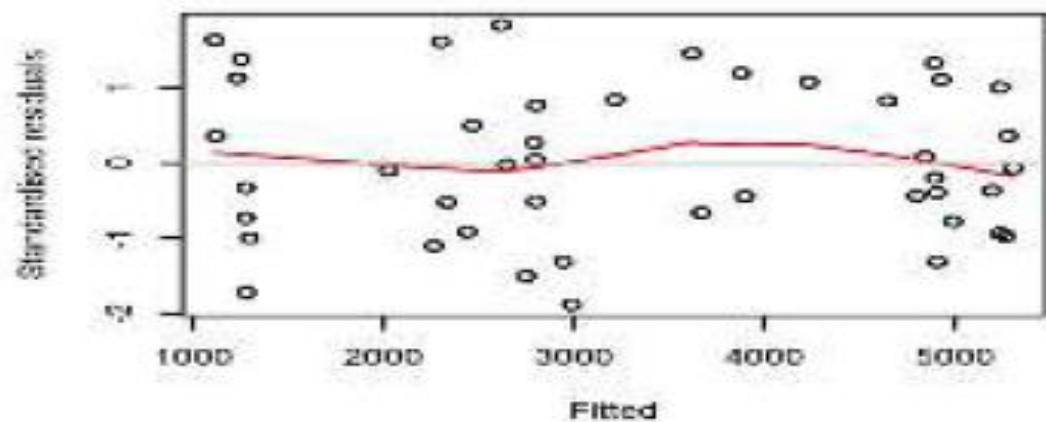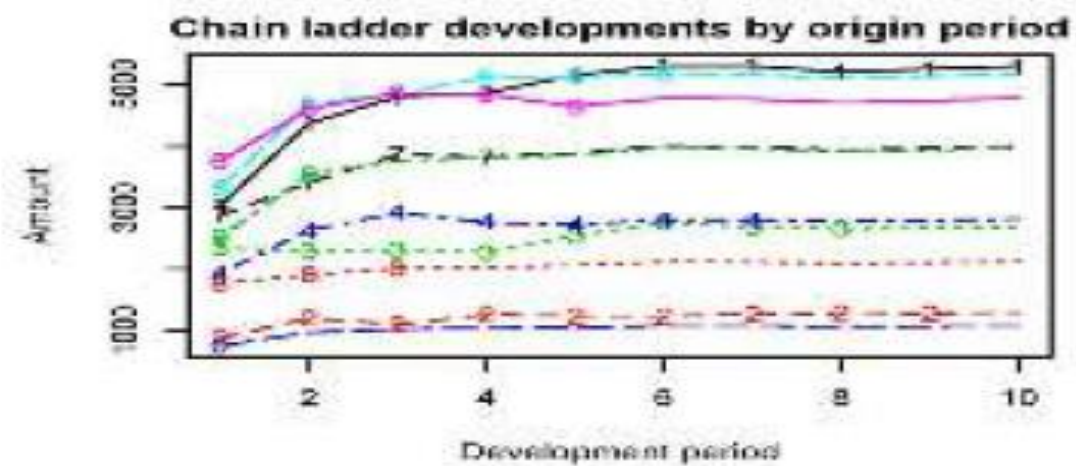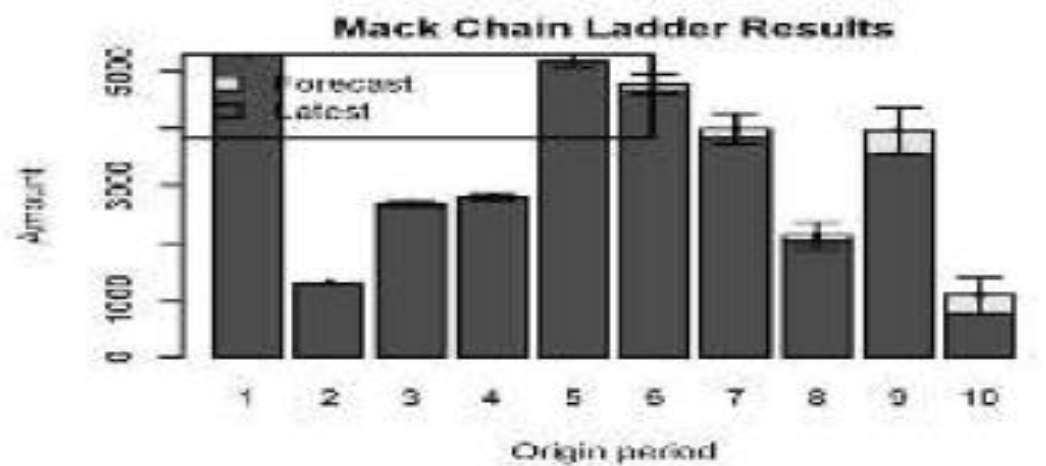
Mack Chain Ladder Results

Chain ladder developments by origin period

	Latest Mean	Ultimate Mean	IBNR	IBNR S.E.	IBNR 75%	IBNR 95%
1	5,295	5,295	0.00	0.0	0.0000	0.0
2	1,285	1,293	7.87	87.5	0.0486	59.6
3	2,646	2,699	53.26	222.0	47.2876	445.9
4	2,803	2,812	9.27	256.9	38.2066	387.1
5	5,175	5,177	2.16	426.5	120.6720	639.4
6	4,641	4,793	152.25	430.0	322.6110	952.4
7	3,827	4,010	183.06	426.4	343.0253	945.5
8	2,013	2,127	114.34	316.8	216.1157	648.1
9	3,537	3,989	451.72	593.0	685.7188	1,489.2
10	756	1,075	319.33	461.0	479.4013	1,201.4

Bootstrap Chain - Ladder

	Totals
Latest:	31,978
Mean Ultimate:	33,271
Mean IBNR:	1,293
IBNR S.E.	1,562
Total IBNR 75%:	2,177
Total IBNR 95%:	3,892
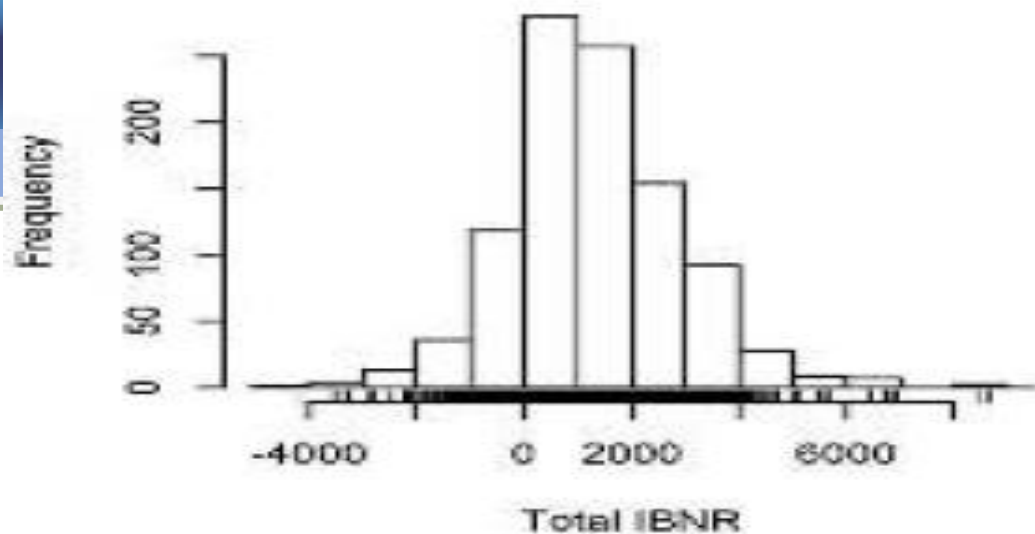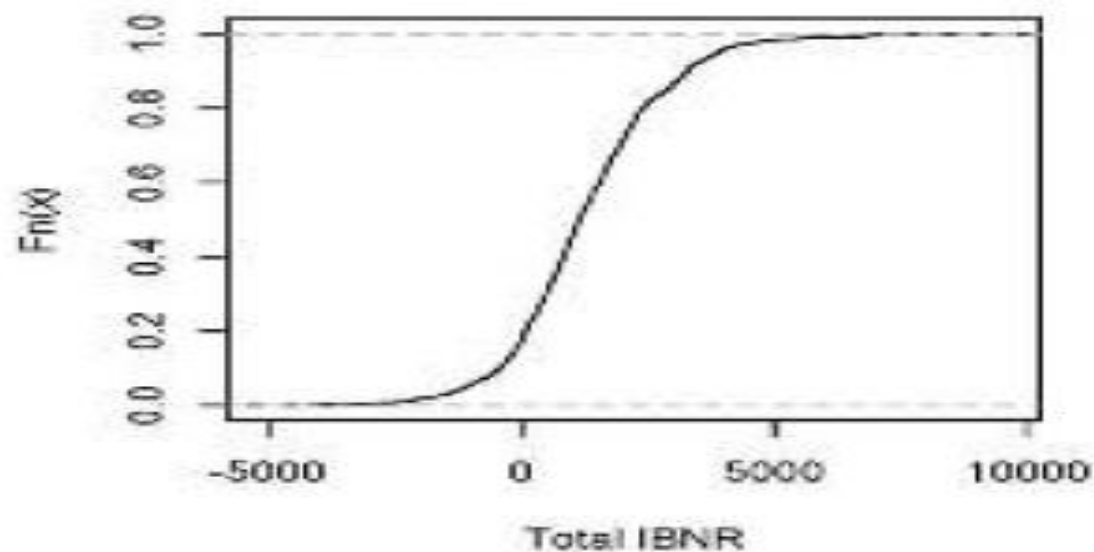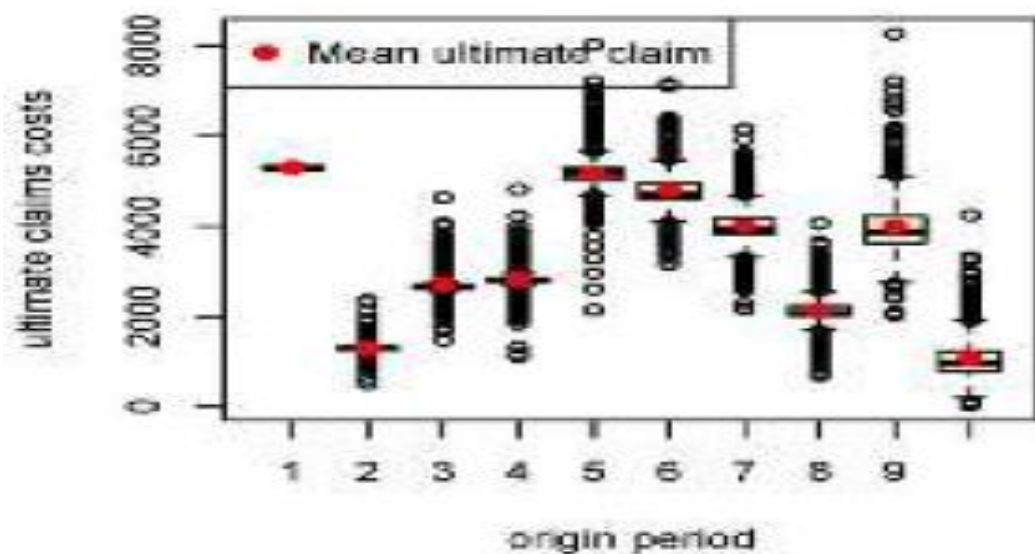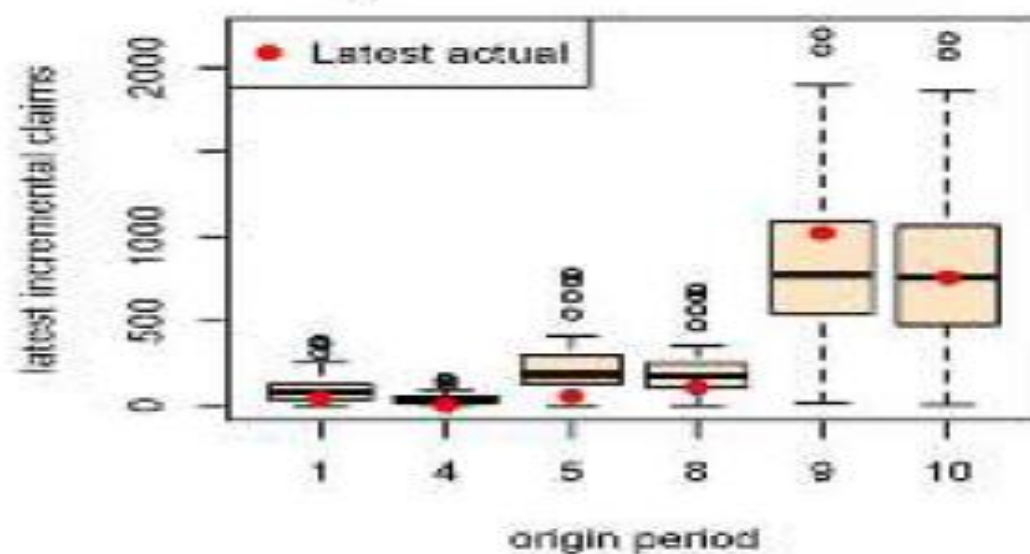
Conclusions

1. The Loss Development Factor (LDF) is above unity, i.e. 1.012789, which shows an increasingly positive trend for I.B.N.R.'s;

2. The claim amount for the last development period is estimated by both Mack and Bootstrap chain ladder methods at 31,978;

3. The predicted ultimate claim is estimated 33,630.05 under chain ladder method, Mack chain ladder estimated it at 33,205.38, while Bootstrap chain ladder method showed 33,271;

4. The predicted I.B.N.R. reserve was estimated at 1,227.38 under the Mack chain ladder method and 1,293 under Bootstrap chain ladder method;

5. Since the coefficient of variation of I.B.N.R.'s was estimated in absolute value above 25%, i.e. 64%, we followed the Bootstrap chain ladder method, which also justified the increasingly positive trend of I.B.N.R.'s.

6. Hence, the results match the recent Tradewinds article.

Thank You for Your Attention