Chapter V

Analysis of Assets Under Management (AUM)

5.1. Introduction

Assets under management (AUM) is a popular tool for measuring size and success of the business. It is referred to as the total value of the investments that insurers manage on behalf of their policyholders and shareholders. The carrying value of investments managed by the company fluctuates on daily basis. It comprises loans against policies and net current assets pertaining to the investments. Price performance of invested assets reflect the result of investment strategy developed by companies, which leads a significant impact on profitability. Management of the company is continuously monitors AUM and a well-managed AUM creates wealth of the shareholders. In the present chapter the financial management practices have been analysed in the context of investment pattern and yield on investment. Moreover, considering AUM as a key factor, the impact of financial management practices on shareholder's wealth has also been assessed and evaluated.

5.2. Need for Investments

Life insurance industry being dynamic in nature plays a poignant role in creation of wealth in the economy bridging the level of development of financial market and the level of development of life insurance market in an economy. Life insurance business collects premium in advance. Their average term of policies ranges from 20 to 40 years, having the longest maturity period to pay their liabilities as an investment until claims and expenses are paid. Investment is important aspect in overall operation of life insurance business.

Basically, funds available for investment are derived primarily from premium income, investment earnings and reinvestment of matured investments.

Investment earnings made by insurance firms make a valuable contribution to their operating results and enable them to reduce premiums and increase dividends and bonuses (Oppenheimer & Gary, 1983). There is a positive relationship between profitability and investment performance (Hussanie & Joo, 2019).

Investment of surplus funds offer an opportunity to the insurer in management of wealth along with creation of road map for future security. The following objective reasons become significant in this regard:

- To reduce cost of insurance to policyholders, in the settlement of claims, bonus in case of participating in profit plans.

- To meet the expectations of shareholders and to increase the wealth of shareholders
- To meet the regular operational expenses, commission expenses etc.

For the purpose of monitoring funds, most of the life insurance companies including LIC of India have a centralised investment department strategically focussing on financial instruments with long maturities in capital market and maximizing the wealth. Sometimes it is referred to as treasury.

Moreover, investment in various construction, infrastructural, civic amenities, and social welfare activities, reduce the burden of the government too.

The table 5.1 below highlights ratio of policyholders' liabilities to shareholders' fund and table 5.2 below highlights surplus / (deficit) to Policyholders' liabilities. These two ratios are prescribed by IRDA to find out the existing surplus and shareholders' funds proportion against the policyholders' liabilities.

Table 5.1 Policyholders' Liabilities to Shareholders' Fund (in %)

Years	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2007-08	1321	751	3539	1469	1693	894	1723	1704
2008-09	1514	636	3168	1572	2141	1331	2518	1701
2009-10	3401	965	4379	2077	3709	2124	2670	4396
2010-11	4014	1074	3136	1990	2610	2325	1646	5965
2011-12	3433	857	2225	1471	1860	2076	1008	1958
2012-13	2869	978	1746	1255	1729	1831	691	1293
2013-14	2471	1121	1710	1058	1875	1665	569	1022
2014-15	2497	1428	1780	1095	1870	1688	546	974
2015-16	2244	1678	1826	998	1747	1606	481	1094
2016-17	2278	1683	1802	1040	1850	1687	483	1273
Min	**1321**	**636**	**1710**	**998**	**1693**	**894**	**481**	**974**
Max	**4014**	**1683**	**4379**	**2077**	**3709**	**2325**	**2670**	**5965**
Average	**2604**	**1117**	**2531**	**1403**	**2108**	**1723**	**1234**	**2138**
CV	**32.59**	**32.8**	**37.66**	**27.8**	**29.58**	**23.86**	**68.95**	**78.44**

Source: Computed

The table 5.1 describes the ratio of policyholders' liabilities to shareholders' fund where in policyholders' liability consists of credit/debit fair value change account, policy liabilities, insurance reserves, provision for link liabilities and funds for future appropriation etc. whereas shareholders' fund consists of share capital, reserves and surplus, credit/ debit fair value change account less miscellaneous expenditure, debit balance in profit and loss account of shareholders' account.

Percentage of policyholders' liabilities to shareholders' funds ranging between minimum 481.26% to maximum 5965.31%. Average ratios in all selected companies

have posted more than 1400%. It indicates that shareholders fund is not sufficient to meet the policyholders' liabilities. It is practically not possible to increase shareholders fund to the extent of policyholders' liabilities. However, investment is the only option that can fil the gap between policyholders' liabilities to shareholders' funds. If company can generate more income from investments over and above the policyholders' liabilities, it will positively impact on wealth of shareholders.

Table 5.2 Surplus / (deficit) to Policyholders liabilities (in %)

Years	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2007-08	0.84	1.35	1.18	2.22	0.00	0.91	2.08	0.00
2008-09	1.69	0.56	2.36	2.12	1.51	0.84	1.29	0.27
2009-10	0.98	1.79	3.63	2.71	1.18	0.75	1.97	0.77
2010-11	0.26	3.87	2.81	1.13	2.57	0.99	2.85	1.14
2011-12	1.19	5.53	3.45	1.37	3.25	1.40	3.38	3.23
2012-13	1.64	6.04	3.19	1.19	2.04	1.53	3.26	4.17
2013-14	0.88	5.70	2.35	2.15	1.64	1.52	2.46	2.30
2014-15	1.27	5.49	1.78	2.11	1.53	1.04	1.16	0.89
2015-16	1.35	5.27	1.92	2.08	1.18	0.88	1.07	0.56
2016-17	1.08	5.00	1.50	2.01	0.98	0.70	1.18	0.86
Min	**0.26**	**0.56**	**1.18**	**1.13**	**0.00**	**0.70**	**1.07**	**0.00**
Max	**1.69**	**6.04**	**3.63**	**2.71**	**3.25**	**1.53**	**3.38**	**4.17**
Average	**1.12**	**4.06**	**2.42**	**1.91**	**1.59**	**1.06**	**2.07**	**1.42**
CV	**37.57**	**50.53**	**34.65**	**26.69**	**56.23**	**29.75**	**42.98**	**96.24**

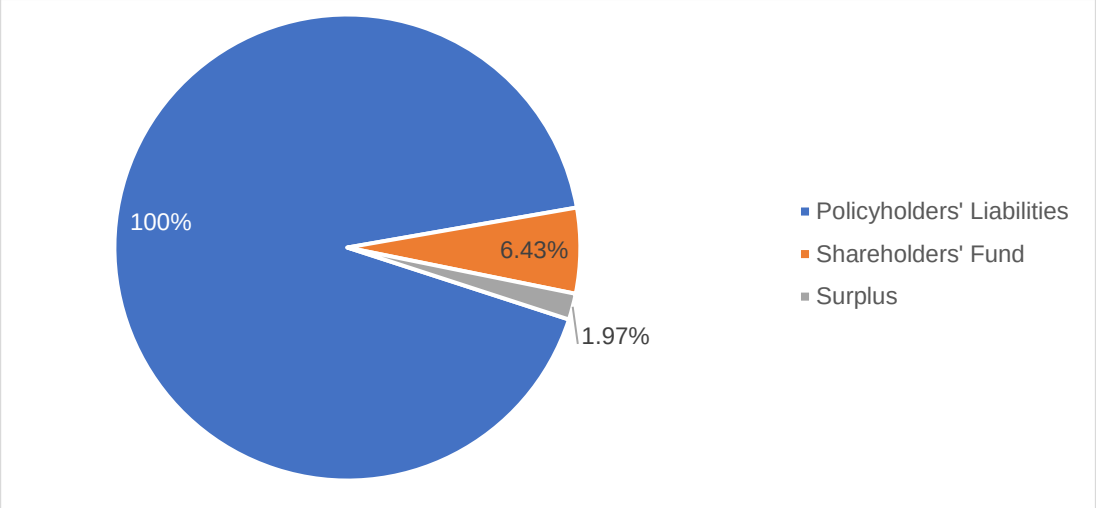
Source: Computed

The table 5.2 describes the ratio of surplus to policyholders' liabilities where in surplus/(deficit) is the outcome of the operation before appropriation whereas policyholders' liabilities consist of credit/debit fair value change account, policy liabilities, insurance reserves, provision for link liabilities and funds for future appropriation etc.

In the initial years of the study period, companies have posted lower surplus to policyholders' liabilities. Percentage of surplus/(deficit) to policyholders' liabilities ranging between minimum 0.00% to maximum 6.04%. Average ratios in all selected companies have posted less than 5%.

During the study period, all selected companies have demonstrated gradual increase in amount of surplus as compared to policyholders' liabilities. However, increased part of surplus was negligible, and it is not sufficient to meet the liabilities of policyholders.

Chart 5.1 Average % of Policyholders' Liabilities, Shareholders' Liabilities & Surplus.



Source: Computed

Chart 5.1 above depicts average picture of policyholders' liabilities, shareholders' liabilities, and surplus for the period under consideration. Shareholders' fund and surplus together contribute less than 10% to policyholders' liabilities. Companies need to plan for remaining 90% policyholders' liabilities.

It can be seen that companies are not in position to pay off its huge policyholders' liabilities from shareholders' fund and surplus only. To pay off policyholders' liabilities, companies need to invest their funds in to market applying unique investment strategies. According to Section 27 of Insurance Act 1938 every insurer shall invest and at all times keep invested assets equivalent to not less than the amount required to meet the liability of policyholders on account of matured claims.

Investment is the crucial part for the insurance business, without proper handling it, insurance companies cannot survive even. Companies should be able to earn adequate returns for policyholders to fulfil their aspiration. At the same time companies cannot recklessly invest hard earned money of policyholders who have placed their trust in the insurance companies. Therefore, to protect the interest of policyholders, regulatory body IRDA has come forward with the regulations for the first time in the year 2000 entitled as "Insurance Regulatory and Development Authority (Investment) Regulations 2000".

5.3. IRDA Regulations on investment

In exercise of the powers conferred by section 27A, 27B, 27D and 114A of the Insurance Act, 1938 (4 of 1938), the authority in consultation with the Insurance

Advisory Committee, hereby makes the regulations, namely: Insurance Regulatory and Development Authority (Investment) Regulations 2000. Since then, IRDAI has made several amendments

First Amendment: Insurance Regulatory and Development Authority (Investment) (Amendment) Regulations, 2001.

Second Amendment: Insurance Regulatory and Development Authority (Investment) (Amendment) Regulations, 2002.

Third Amendment: Insurance Regulatory and Development Authority (Investment) (Amendment) Regulations, 2004.

Fourth Amendment: Insurance Regulatory and Development Authority (Investment) (Fourth Amendment) Regulations, 2008.

Fifth Amendment: Insurance Regulatory and Development Authority (Investment) (Fifth Amendment) Regulations, 2013.

Latest in the year 2016, in exercise of the powers conferred by clause (i) subsection (2) of section 114A read with section 27, 27A, 27B, 27C, 27D and 28 of the Insurance Act, 1938 (4 of 1938), the authority, in consultation with the Insurance Advisory Committee has made Insurance Regulatory and Development Authority (Investment) Regulations, 2016. Year on year, large number of changes has been made by the IRDA. From the year 2000 to 2016 key amendments were made in investment regulations, prudential norms, disclosure part for insurer etc. Due to the constraints of study period analysis has been restricted to fifth amendment in the year 2013.

Life insurance investment is divided in three parts:

(i) Life business,

(ii) pension, general annuity & group business, and

(iii) Unit Linked Insurance Plan

Life insurers carrying on the business of life insurance shall invest, and all times keep invested their investment assets into respective category.

According to Section 2(g)(1) of Insurance Regulatory and Development Authority (Investment) (Fifth Amendment) Regulations, 2013 - Investment Assets means all investments made out of: (a) shareholders' funds representing solvency margin, non-unit reserves of unit linked insurance business, participating and non-participating funds of policyholders at their carrying value, (b) Policyholders' funds of pension, annuity business and group business at their carrying value. (c) policyholders' unit reserves of unit linked insurance business at their market value as per guidelines issued

under these regulations, from time to time. Moreover, how to invest is also a big issue for insurers companies cannot invest as they want, they need to follow proportion of investment criteria given by the IRDA under IRDA Investment Regulations 2013.

5.3.1. Life Business (Regulation 4)

In the life business, Investment of assets other than funds relating to pension and general annuity business and all categories of unit linked business must invested in following manner.

Table 5.3 Life Business: Investment Guidelines

No	Type of Investment	Percentage
i)	Government Securities	Not less than 25% of the fund
ii)	Government Securities or other approved securities (including (i) above)	Not less than 50% of the fund
iii)	Investment as specified in section 27A of the Act and other Investments as specified in section 27A(2) of the act and schedule I to these regulations (all taken together), subject to exposure / prudential norms specified in regulation 9:	Not exceeding 50%
iv)	Other investments as specified under section 27A(2) of the act, subject to exposure / prudential norms specified in regulation 9:	Not exceeding 15%
v)	Investment in housing and infrastructure by way of subscription or purchase of: A. Investment in Housing a. Bonds / debentures of HUDCO and national housing bank b. Bonds / debentures of housing finance companies either duly accredited by national housing banks, for house building activities, or duly guaranteed by government or carrying current rating of not less than 'AA' by a credit rating agency registered under SEBI (Credit rating Agencies) Regulations, 1999 c. Asset backed securities with underlying housing loans, satisfying the norms specified in the guidelines issued under these regulations from time to time B. Investment in Infrastructure (Explanation: Subscription or purchase of Bonds/ debentures, equity and asset backed securities with underlying infrastructure assets would qualify for the purpose of this requirement. Infrastructure facility shall have the meaning as given in clause (h) of regulation 2 of insurance regulatory and development authority (registration	Total Investment in housing and infrastructure (i.e.,) investment in categories (i), (ii), (iii) and (iv) above taken together shall not be less than 15% of the fund under Regulation 3(a)

No	Type of Investment	Percentage
	of Indian Insurance Companies) amendment regulations, 2008 as amended from time to time. Note: Investment made under category (i) and (ii) above may be considered as investment in housing and infrastructure, provided the respective government issues such a security specifically to meet the needs of any of the sectors specified as 'Infrastructure Facility'	

Source: Notification of IRDA Investment Regulations 2013

5.3.2. Pension and General Annuity Business (Regulation 5)

In the pension and general annuity business, investment of funds belonging to pension and general annuity business in the following manner.

Table 5.4 Pension & General Annuity Business: Investment Guidelines

No	Type of Investment	Percentage
i)	Government securities	Not less than 20% of the fund
Ii)	Government Securities or other approved securities	Not less than 40% of the fund (including (i)) above
iii)	Balance to be invested in Approved Investments as specified in Schedule I subject to Exposure/ Prudential Norms specified in Regulation 5	Not exceeding 60% of the fund

Source: Notification of IRDA Investment Regulations 2013

5.3.3. Unit Linked Insurance Plan (ULIP) (Regulation 6):

In ULIP, funds are segregated under regulation 3(c) of unit linked business as per the pattern of investment offered to and approved by the policyholders. Units are linked to the categories of assets which are marketable and easily realisable.

Table 5.5 Unit Linked Insurance Business: Investment Guidelines

No	Type of Investment	Percentage
i)	Investment in approved investments	Not less than 75% of such funds
ii)	Other investments	Not more than 25%.

Source: Notification of IRDA Investment Regulations 2013

Few articles (Dadhich, 2016), (Ghimire , 2013), (Henebry & Diamond, 1998), (Korivi & Joshi-Khamkar, 2014), (Kumari, 2016), (Mohammad, 2008), (Nagaraju & Roopa , 2017), (Pranevicius & Sutiene, 2008), are available and published on investment pattern and portfolio in the insurance sector.

5.4. Fund wise Pattern of Investments

In accordance with IRDA regulations, all selected companies invest their assets in to three different funds- Life fund, Pension & Annuity fund and linked fund. The present study comprises ten years of the study period from 2007-08 to 2016-17, which has been affected by amendment of the year 2008 and 2013. Table 5.6 to 5.8 below presents average percentage of investment made by the selected companies in particular funds. The data has been retrieved from quarterly report ending on 31st march of each years.

Table 5.6 Average Investment of Assets in Life Fund (in %)

Particulars	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
Govt. Securities	48	54	45	50	51	48	43	42
Govt Securities or Other Approved Securities (incl. 1 above)	53	63	55	59	53	55	58	55
Housing & Infrastructure	20	20	17	21	26	18	18	21
Approved Investments	25	16	24	18	17	24	23	23
Other Investments	2	1	3	2	4	2	1	1

Source: Computed & collected data from the public disclosures of the selected companies

As regards average investment of assets in Life Fund, all selected companies invest more than 50% of funds in to central, state government securities and other approved securities. MAX has invested highest average 63% of funds in the same as compared to other selected companies. IRDA is promoting the housing and infrastructural development by infusing 15% of life fund. It has been observed that all selected companies have instilled more than 15% in to housing and infrastructural developments. On the other hand, approved and other investments comprised on an average less than 30% of life fund. The figure in the table above describes that all selected companies follow the IRDA guidelines and formulate strategies to increase the wealth of shareholders and policyholders.

Table 5.7 Average Investment of Assets in Pension, General Annuity Fund (in %)

Particulars	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
Govt. Securities	37	65	49	47	38	33	37	32
Govt Securities or Other Approved Securities (incl. 1 above)	47	74	58	59	43	47	49	49
Approved Investment	53	26	42	41	57	53	51	51

Source: Computed & collected data from the public disclosures of the selected companies

According to IRDA regulations, insurers have to invest more than 40% in government securities and less than 60% in the approved investment in respect of pension and general annuity funds as abide by the IRDA regulations, all selected companies have infused their pension and general annuity fund into government securities and approved investments.

Looking at the table in more detail, it has been observed that MAX has invested on an average 74% in central-state government securities. It shows conservative approach of investment in pension & general annuity fund.

On the other hand, rest of the companies were close to IRDA guidelines no abnormality has been observed.

Table 5.8 Average Investment of Assets in Linked Funds (in %)

Particulars	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
Approved Investment	95	92	93	95	93	93	92	92
Other Investment	5	8	7	5	7	7	8	8

Source: Computed& data collected from the public disclosures of the selected companies

According to IRDA regulations, insurers have to invest 75% or more in approved investment and less than 25% in the other investment in respect of linked funds. As regards approved investment, all selected companies invest average about 92% during the period of the study. The proportion of other investment was on an average less than 10% during the study period.

From the above analysis it has been confirmed that all selected companies follow the mandatory guidelines issued by IRDA in the benefit of policyholders. Insurers need to manage their funds for policyholders and other liabilities with these constraints.

The subsequent part of the present chapter analysed fund wise returns generated by selected companies after understanding the pattern of investments.

5.5. Fund wise Return (Yield) on Investment

As per guidelines prescribed by the IRDA, companies were investing their funds in different securities. On the basis of their investments, returns have been generated by the selected companies during the period under consideration are presented fund wise as under.

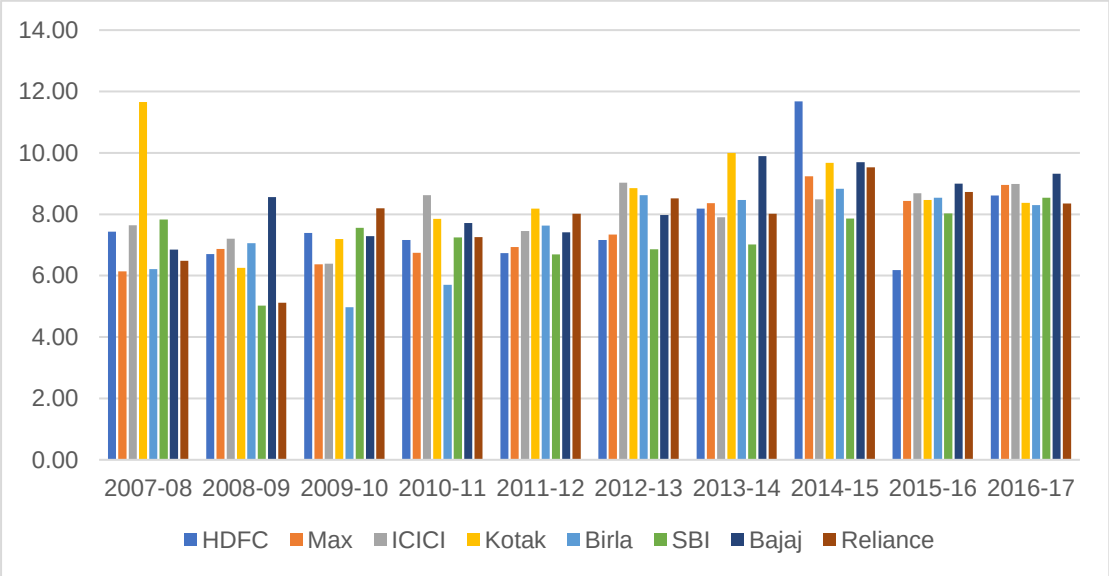
Table 5.9 to 5.11 below exhibits average percentage of yield on investment made by the selected companies funds wise.

Table 5.9 Life Fund: Yield on Investment (in %)

Years	HDFC	Max	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2007-08	7.43	6.14	7.65	11.65	6.21	7.83	6.85	6.48
2008-09	6.70	6.87	7.21	6.25	7.06	5.02	8.55	5.12
2009-10	7.40	6.37	6.40	7.20	4.97	7.56	7.28	8.19
2010-11	7.16	6.74	8.62	7.86	5.70	7.24	7.71	7.26
2011-12	6.73	6.94	7.45	8.18	7.63	6.70	7.41	8.02
2012-13	7.16	7.34	9.03	8.85	8.62	6.86	7.98	8.52
2013-14	8.19	8.36	7.90	10.00	8.46	7.01	9.89	8.02
2014-15	11.68	9.23	8.49	9.68	8.83	7.86	9.70	9.53
2015-16	6.18	8.44	8.68	8.47	8.54	8.03	8.99	8.72
2016-17	8.61	8.95	8.99	8.38	8.30	8.54	9.32	8.35
Average	**7.72**	**7.54**	**8.04**	**8.65**	**7.43**	**7.27**	**8.37**	**7.82**
CV	**20.20**	**14.78**	**10.78**	**17.55**	**18.58**	**13.41**	**12.83**	**16.01**

Source: Computed, data collected from public disclosures of different companies

Chart 5.2 Life Fund: Yield on Investment



Source: Computed

As regards average yield on investment of life fund, selected all companies have reported about 8%. All selected companies have reported their CV less than 21%, it indicates less fluctuations in the average yield.

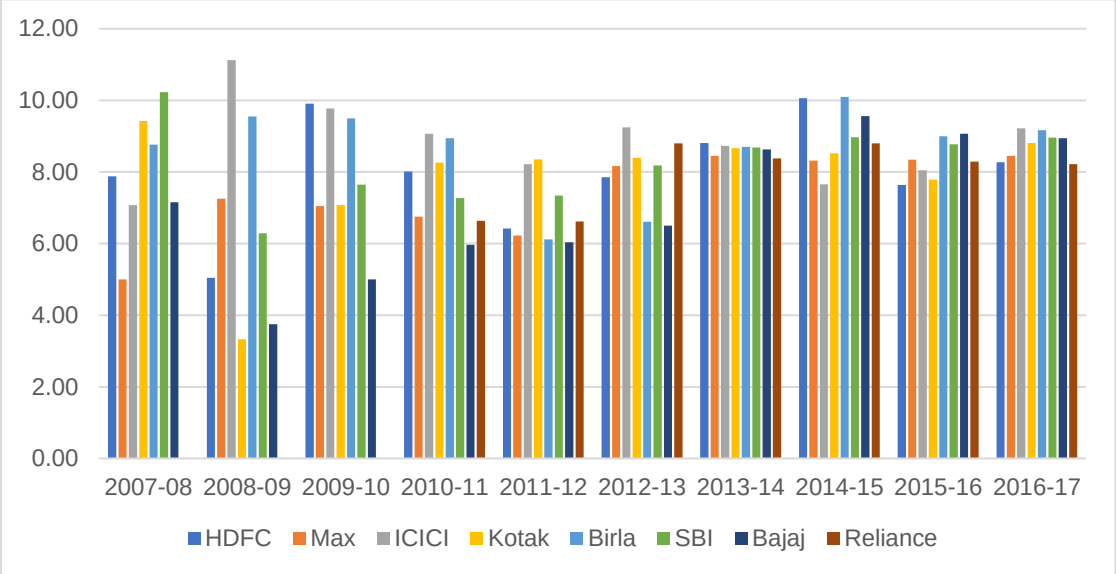
During the period of the study, almost all companies have earned less than 10% yield on investment of life fund. The reason behind similar yield on investment of life fund is identical pattern of investment. All insurers need to follow the investment guidelines prescribed by the IRDA. The chart 5.2. above confirms the identical pattern of yield on investment of life fund.

Table 5.10 Pension & General Annuity Fund: Yield on Investment (in %)

Years	HDFC	Max	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2007-08	7.88	5.00	7.08	9.43	8.76	10.23	7.16	----
2008-09	5.04	7.26	11.12	3.33	9.55	6.29	3.75	----
2009-10	9.90	7.04	9.77	7.08	9.49	7.65	5.00	----
2010-11	8.01	6.76	9.07	8.27	8.94	7.27	5.97	6.64
2011-12	6.42	6.22	8.22	8.35	6.12	7.34	6.04	6.62
2012-13	7.86	8.16	9.24	8.40	6.61	8.18	6.51	8.80
2013-14	8.80	8.45	8.73	8.67	8.70	8.68	8.63	8.37
2014-15	10.06	8.32	7.65	8.52	10.10	8.97	9.56	8.80
2015-16	7.63	8.35	8.05	7.79	8.99	8.78	9.07	8.29
2016-17	8.28	8.45	9.22	8.81	9.16	8.96	8.94	8.22
Average	**7.99**	**7.40**	**8.82**	**7.86**	**8.64**	**8.23**	**7.06**	**7.96**
CV	**18.66**	**15.76**	**13.08**	**21.72**	**14.77**	**13.67**	**27.55**	**11.80**

Source: Computed, data collected from public disclosures of different companies

Chart 5.3 Pension & General Annuity Fund: Yield on Investment



Source: Computed

As regards average yield on investment of pension and general annuity, selected all companies have reported about 8%. All selected companies have reported their CV less than 30%, it indicates less fluctuations in the average yield.

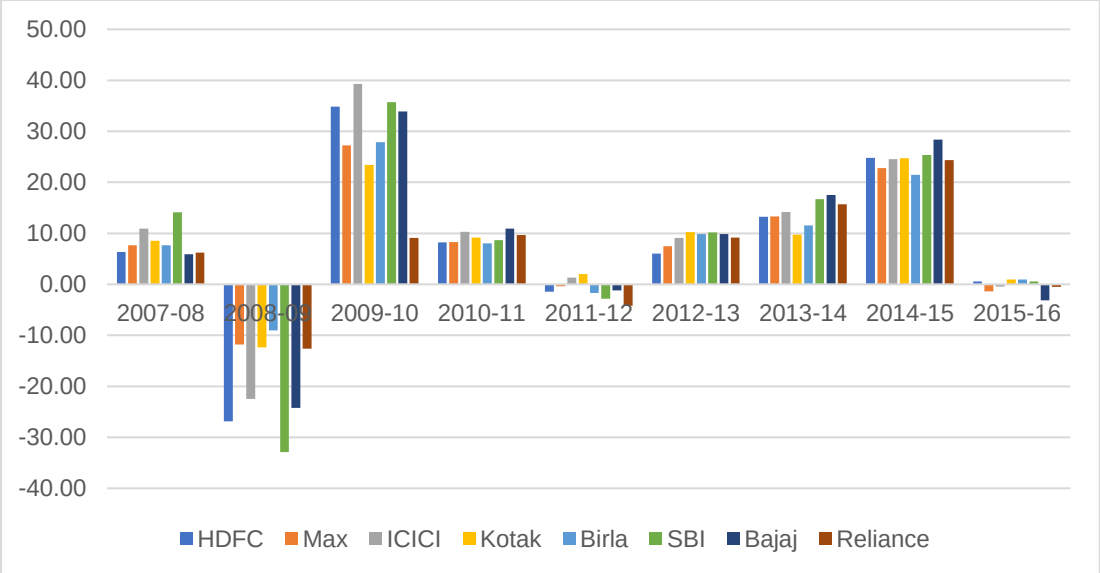
During the period of the study, almost all companies have earned less than 10% yield on investment of pension and general annuity fund. The reason behind similar yield on investment of pension and general annuity is identical pattern of investment. All insurers need to follow the investment guidelines prescribed by the IRDA. The chart 5.3. above confirms the identical pattern of yield on investment of pension and general annuity fund.

Table 5.11 Linked Fund: Yield on Investment (in %)

Years	HDFC	Max	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2007-08	6.35	7.64	10.90	8.53	7.67	14.10	5.87	6.18
2008-09	-26.85	-11.81	-22.49	-12.36	-9.02	-32.87	-24.22	-12.59
2009-10	34.87	27.23	39.29	23.40	27.87	35.73	33.93	9.10
2010-11	8.20	8.31	10.28	9.16	8.04	8.69	10.92	9.64
2011-12	-1.43	-0.40	1.32	1.98	-1.70	-2.81	-1.22	-4.22
2012-13	6.00	7.50	9.10	10.21	9.86	10.14	9.87	9.14
2013-14	13.22	13.33	14.18	9.74	11.55	16.68	17.53	15.67
2014-15	24.81	22.77	24.55	24.72	21.47	25.36	28.35	24.34
2015-16	0.56	-1.36	-0.46	0.97	0.91	0.56	-3.17	-0.49
2016-17	17.10	15.90	15.52	16.83	14.68	13.14	18.12	15.50
Average	**8.28**	**8.91**	**10.22**	**9.32**	**9.13**	**8.87**	**9.60**	**7.23**
CV	**200.37**	**130.75**	**158.40**	**117.92**	**118.73**	**207.45**	**174.30**	**148.00**

Source: Computed, data collected from public disclosures of different companies

Chart 5.4 Linked Fund: Yield on Investment



Source: Computed

As regards average yield on investment of linked funds, selected all companies have ranging between 7% to 11%. All selected companies have reported their CV more than 100%, it indicates high fluctuations in the average yield.

Looking at the table in more detail, it has been observed that selected companies have incurred losses during the period of the study. The year 2008-09 has witnessed the huge losses. The reason behind the loss is crises in Indian stock market that was affected by the subprime crises in the USA. ULIP plans are totally based on market situation (Ashraf & Kumari, 2016). To protect the interest of the policy holders IRDA has framed guidelines and continuously controlling the funds of insurance companies. The chart 5.4. above confirms the fluctuating pattern of yield on investment of linked fund.

However, Analysis of investment pattern and yield on investment fund wise have been examined statistically are as follows.

5.6. Testing of Hypothesis

Objective: To analyse and understand financial management practices with respect to investment pattern and yield on investment.

Yield on investment is the outcome of the investment pattern adopted by the companies and this outcome of the life insurance company divided in life fund, pension & general annuity and linked fund. Thus, by taking the outcome following hypotheses have been framed and analysed.

Null Hypothesis:

1. Ho: There is no significant difference in yield on investment of life fund among selected companies.
2. Ho: There is no significant difference in yield on investment of pension and general annuity fund among selected companies.
3. Ho: There is no significant difference in yield on investment of linked fund among selected companies.

Alternative Hypothesis:

1. H1: There is significant difference in yield on investment of life fund among selected companies.
2. H1: There is significant difference in yield on investment of pension and general annuity fund among selected companies.
3. H1: There is significant difference in yield on investment of linked fund among selected companies.

The hypothetical statements quantified above are required to analyse using appropriate statistical test. However, the selection of appropriate statistical test to find out significant difference in yield on life fund, pension & general annuity and linked fund among the selected companies are based on the sample characteristics of collected data.

Sample Characteristics:

Normality is one of the important aspects to decide which statistical method needs to be used for data analysis. If data is normally distributed, Parametric Test is used and if it is not, Non-parametric test is used. There are different numerical and visual methods which can be used to check the normality of data. In the present study both approaches have been used to check the presences of normality in the data.

As a part of normality test, Kolmogorov-Smirnova is more appropriate in larger sample size (≥ 50), whereas Shapiro-Wilk is appropriate in smaller as well as in larger sample sizes (Mishra et al., 2019).

In accordance with the result of Kolmogorov-Smirnov and Shapiro-Wilk, significant value of yield on life fund is greater than 0.05. It denotes that normality is presented in the data (Massey, 1951), (Shapiro & Wilk, 1965). Along with it, the visual inspection of their histograms, normal Q-Q plots and box plots demonstrate that yield on life fund were approximately normally distributed. Hence, parametric test is to be performed on data related to yield on life fund.

However, significant value of yield on pension & general annuity fund and yield on linked fund are less than 0.05 and the same was reflected in the visual inspection of their histograms, normal Q-Q plots and box plots. Altogether it demonstrates that normality is not present in the data of yield on pension & general annuity fund and yield on linked fund. Hence, non-parametric test is to be performed on data related to pension & general annuity fund and yield on linked fund. (Histograms, Q-Q plots and box plots are attached in Appendix II)

Table: 5.12 Normality Test

	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Yield on Life Fund	.065	77	.200*	.975	77	.138
Yield on Pension & Annuity	.142	77	.001	.944	77	.002
Yield on Linked Fund	.111	77	.019	.962	77	.021

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

On the basis of sampling characteristics and result of normality test the present study has used One Way ANOVA for yield on life fund and Kruskal Wallis Test for yield on pension & general annuity and yield on linked fund. It compares more than two sample groups for selected companies for 10 consecutive years.

Testing of Hypothesis 1 (Yield on Life Fund)

Table: 5.13 Descriptive Statistics

Company	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
HDFC	10	7.7240	1.55992	.49329	6.6081	8.8399	6.18	11.68
MAX	10	7.5380	1.11277	.35189	6.7420	8.3340	6.14	9.23
ICICI	10	8.0420	.86470	.27344	7.4234	8.6606	6.40	9.03
Kotak	10	8.6520	1.51790	.48000	7.5662	9.7378	6.25	11.65
Birla	10	7.4320	1.37985	.43635	6.4449	8.4191	4.97	8.83
SBI	10	7.2650	.97525	.30840	6.5673	7.9627	5.02	8.54
Bajaj	10	8.3680	1.07530	.34004	7.5988	9.1372	6.85	9.89
Reliance	10	7.8210	1.25260	.39611	6.9249	8.7171	5.12	9.53
Total	80	7.8553	1.26554	.14149	7.5736	8.1369	4.97	11.68

Table: 5.14 ANOVA Test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.792	7	2.256	1.467	.193
Within Groups	110.733	72	1.538		
Total	126.525	79			

Table 5.13 above demonstrates descriptive statistics such as mean, standard deviation, maximum, minimum etc. The mean of all selected companies in yield on life fund was about 8% with considerably lower standard deviation. However, no abnormality has been observed in minimum and maximum values of yield on life fund.

The table 5.14 above witnessed the same with significant value greater than 0.05. It accepts the null hypothesis indicating no significant difference in yield on life fund among all selected companies during the period under consideration.

Testing of Hypothesis 2 & 3

(Yield on Pension & General Annuity and Yield on Linked Fund)

Outcome of Kruskal Wallis Test

It determines statistically significant differences between eight companies for six independent variables based on mean rank.

In the present study, there are eight selected companies and number of years under consideration are ten. Accordingly, there are 80 observations in aggregate for each variable. These 80 observations have been arranged in lower to higher order and given a rank from 1 to 80. Based on the rank obtained, average rank for each company has been calculated for each variable, which can be identified as mean rank. In other words,

mean rank is the average of the ranks for all observation within each company. The company wise mean rank of each variable can be used to compare the growth of the business as presented in table 5.15.

Table: 5.15 Mean Rank

Variable	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
Yield on Pension & General Annuity Fund	36.6	26.7	50.6	38.5	52.25	41.25	29.05	36.21
Yield on Linked Fund	38.65	38.6	43.95	41.6	39.4	43.05	42.8	35.95

Source: Computed

As regards pension & general annuity fund, Birla and ICICI have witnessed higher mean rank indicating high yield. On the other hand, with respect to linked fund, ICICI, SBI, Bajaj and Kotak have witnessed higher mean rank indicating high yield.

However, marginal differences have been observed in all selected companies on the basis of descriptive statistics. The actual differences have been explained based on following test statistics.

Table 5.16 Test Statistics[a,b]

	Yield on Pension & Annuity	Yield on Linked Fund
Chi-Square	11.529	.997
Df	7	7
Asymp. Sig.	.117	.995

a. Kruskal Wallis Test

b. Grouping Variable: Companies

Table 5.16 shows test statistics of Kruskal Wallis, where in Chi-square indicates chi-square statistic, Df stands for degree of freedom of the test and the statistical significance of the test is abbreviated as 'Asymp.Sig.'. Significant value of yield on pension & annuity fund was 0.117 and the yield on link fund was 0.995. Both these significant values are greater than 0.05. It indicates accept the null hypothesis having no significant difference in yield on pension & annuity fund and yield on linked fund.

Table 5.17 Hypothesis Test Summary

No.	Null Hypothesis	Test	Sig.	Decision
1	There is no significant difference in yield on investment of life fund among selected companies.	One Way ANOVA	.193	Accept the Null Hypothesis

No.	Null Hypothesis	Test	Sig.	Decision
2	There is no significant difference in yield on investment of pension and general annuity fund among selected companies.	Independent Samples Kruskal Wallis Test	.117	Accept the Null Hypothesis
3	There is no significant difference in yield on investment of linked fund among selected companies.	Independent Samples Kruskal Wallis Test	.995	Accept the Null Hypothesis

The table 5.17 above summarised result of hypothesis testing. It clearly shows that the significant value of all funds is greater than 0.05, which indicates no significant difference among selected companies with respect to all funds. It has been verified from the descriptive statistics too. The reason behind no significant difference may be the common guidelines prescribed by the IRDA to protect the interest of policyholders. All the selected insurers follow the same pattern of investment as prescribed by IRDA and generating almost similar returns.

Hence, it is pertinent to study the extent of investments managed by the insurers on behalf of policyholders and shareholders. Carrying value of investments made by the insurers is known as assets under management which is described in subsequent part of the present study.

5.7. Assets Under Management (AUM)

AUM is the total cumulative investment sum of a particular fund managed by the insurers on behalf of their policyholders and shareholders. AUM can be considered as a performance gradient and size parameter of an insurer. Performance of assets will impact in daily figure of AUM. Increase in investors flow, capital appreciation and reinvestment dividends will increase the amount of AUM (Bawa & Dhanda, 2016). Adversely, decrease in investor flow and losses will decrease the amount of AUM. Higher AUM indicates better investment flow, quality, and management experience of an insurer in a particular fund. As regards life insurance companies, funds are divided into:

1. Life Fund
2. Pension and General Annuity Fund
3. Linked Fund

Table 5.18 to 5.20 below highlights the fund wise performance of AUM for all selected companies under the period consideration.

Table 5.18 Life Fund: Assets Under Management (Rs. In Crore)

Years	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2007-08	2,220	1,789	2,735	641	590	3,374	2,543	479
	(143.83)	(157.89)	(108.17)	(89.42)	(133.43)	(118.27)	(251.62)	(192.22)
2008-09	2,537	2,481	3,110	883	869	3,644	2,946	754
	(14.25)	(38.64)	(13.68)	(37.69)	(47.28)	(8.01)	(15.86)	(57.37)
2009-10	4,451	3,488	4,326	1,216	1,453	4,801	4,582	887
	(75.47)	(40.59)	(39.12)	(37.76)	(67.25)	(31.73)	(55.56)	(17.62)
2010-11	5,360	4,880	6,562	1,549	2,178	4,714	5,709	1,310
	(20.42)	(39.92)	(51.69)	(27.37)	(49.91)	(-1.80)	(24.58)	(47.68)
2011-12	7,464	7,230	8,954	2,100	2,664	6,129	8,154	2,694
	(39.25)	(48.15)	(36.45)	(35.56)	(22.31)	(30.01)	(42.84)	(105.67)
2012-13	10,386	9,877	12,355	2,777	2,851	8,350	10,961	5,116
	(39.15)	(36.60)	(37.98)	(32.21)	(7.01)	(36.23)	(34.42)	(89.91)
2013-14	12,332	13,137	15,475	3,771	3,003	12,062	13,870	7,142
	(18.73)	(33.01)	(25.25)	(35.81)	(5.34)	(44.46)	(26.54)	(39.61)
2014-15	16,313	16,990	19,237	5,016	3,808	17,010	17,547	5,999
	(32.29)	(29.33)	(24.31)	(33.03)	(26.82)	(41.02)	(26.51)	(-16.01)
2015-16	21,101	21,941	23,181	6,699	4,955	22,449	20,054	8,018
	(29.35)	(29.14)	(20.50)	(33.53)	(30.13)	(31.97)	(14.29)	(33.66)
2016-17	26,256	27,609	28,136	8,709	6,197	27,271	21,936	9,384
	(24.43)	(25.83)	(21.38)	(30.01)	(25.06)	(21.48)	(9.38)	(17.04)
Average	**10,842**	**10,942**	**12,407**	**3,336**	**2,857**	**10,980**	**10,830**	**4,178**
CV (%)	**75.36**	**80.76**	**71.63**	**81.17**	**61.80**	**77.63**	**66.45**	**80.37**
CAGR (%)	**39.96**	**44.54**	**35.85**	**38.37**	**37.71**	**33.25**	**40.67**	**49.89**

Source: Computed and Collected data from different years IRDA annual reports
Note: The percentage growth over the previous year is shown in brackets

Table 5.18 above shows total investments in life fund comprising investment in Govt. Securities, Other Approved Securities, Housing & Infrastructure, Approved Investments and Other Investments.

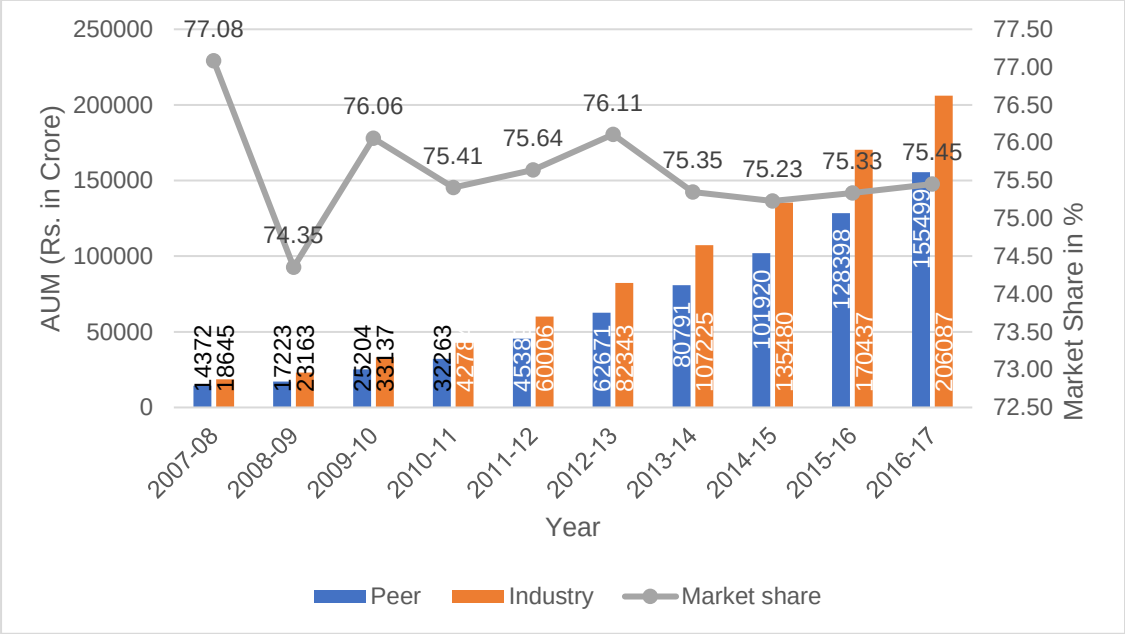
Private life insurance industry has started their operation from 2000-01. The present study has considered the period from 2007-08 to 2016-17. In the year 2007-08, all selected companies have accelerated accretion to their life fund.

Overall, during the period of the study significant growth has been observed in all selected companies with respect to life fund. All the selected companies have reported more than 30% of CAGR during the period of the study.

As regards average life fund, ICICI has reported highest Rs. 12,407 crore AUM over the study period, ranging from Rs. 2,735 to Rs. 28,136 crore. HDFC, MAX, SBI and Bajaj were almost in same line of average AUM near to Rs. 10,800 crores. On the other hand, Kotak, Birla and Reliance have reported less than Rs. 5,000 crores of average AUM.

A life fund is an investment of life insurance premiums collected by the insurers and payable at the time of the policyholder's death. Higher life fund indicates greater size of the business and greater liquidity towards the policyholders' liabilities.

Chart 5.5 Life Fund: AUM & Market Share



Source: Computed and Collected data from different years IRDA annual reports

The Chart 5.5 above depicts the comparison of absolute amount of AUM between peer companies and private life insurance industry along with its market share. Looking at the chart, increasing trend has been observed in absolute amount of AUM in peer companies as well as industry. The absolute amount of AUM in the peer companies have increased from Rs. 14,372 to Rs. 1,55,499 crores during the period of the study. Industry has also reflected increasing trend from Rs. 18,645 to Rs. 2,06,087 crores during the period of the study. The above chart clearly indicates that peer companies have managed to capture on an average 75% of market share in terms of AUM.

5.19 Pension & General Annuity Business: Assets Under Management (Rs. In Crore)

Years	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2007-08	492 (27.17)	71 (150.91)	750 (38.98)	64 (51.66)	7 (6,630)	1,587 (108.2)	74 (41.07)	- -
2008-09	575 (16.96	49 (-31.11)	967 (28.93)	40 (-37.11)	103 (1,427)	4,352 (174.12)	153 (104.96)	- -
2009-10	655 (13.85	55 (13.14)	1,168 (20.72)	48 (19.27)	110 (6.71)	6,689 (53.71)	438 (187.32)	- -
2010-11	815 (24.39	87 (57.34)	2,324 (99.05)	56 (17.66)	123 (11.89)	10,864 (62.42)	752 (71.52)	51 -
2011-12	1,404 (72.29	119 (37.59)	3,332 (43.36)	69 (23.14)	310 (152.53)	13,931 (28.23)	1,296 (72.45)	167 (228.73)

Years	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2012-13	1,724	127	3,495	121	742	16,921	2,520	295
	(22.84)	(6.10)	(4.90)	(75.05)	(139.39)	(21.46)	(94.40)	(76.33)
2013-14	4,008	166	3,614	194	1,123	17,536	3,455	858
	(132.44)	(31.19)	(3.41)	(59.67)	(51.34)	(3.63)	(37.11)	(191.32)
2014-15	5,769	571	3,862	354	1,841	18,953	3,966	1,041
	(43.93)	(244.02)	(6.84)	(82.92)	(64.00)	(8.08)	(14.77)	(21.33)
2015-16	7,421	710	3,314	527	2,459	20,985	4,609	422
	(28.64)	(24.31)	(-14.18)	(48.65)	(33.55)	(10.72)	(16.22)	(-59.47)
2016-17	11,275	854	3,520	469	3,413	25,030	5,504	236
	(51.93)	(20.30)	(6.23)	(-10.96)	(38.78)	(19.28)	(19.42)	(-43.96)
Average	**3,414**	**281**	**2,635**	**194**	**1,023**	**13,685**	**2,277**	**307**
CV (%)	**107.67**	**109.23**	**46.52**	**96.14**	**115.50**	**55.84**	**88.07**	**120.37**
CAGR (%)	**40.11**	**40.66**	**20.63**	**27.28**	**184.00**	**41.78**	**59.16**	**29.21**

Source: Computed and Collected data from different years IRDA annual reports
Note: The percentage growth over the previous year is shown in brackets

Table 5.19 above highlights total investment amounts in pension, general annuity fund which includes government securities, other approved securities and approved investments as specified in IRDA Rules.

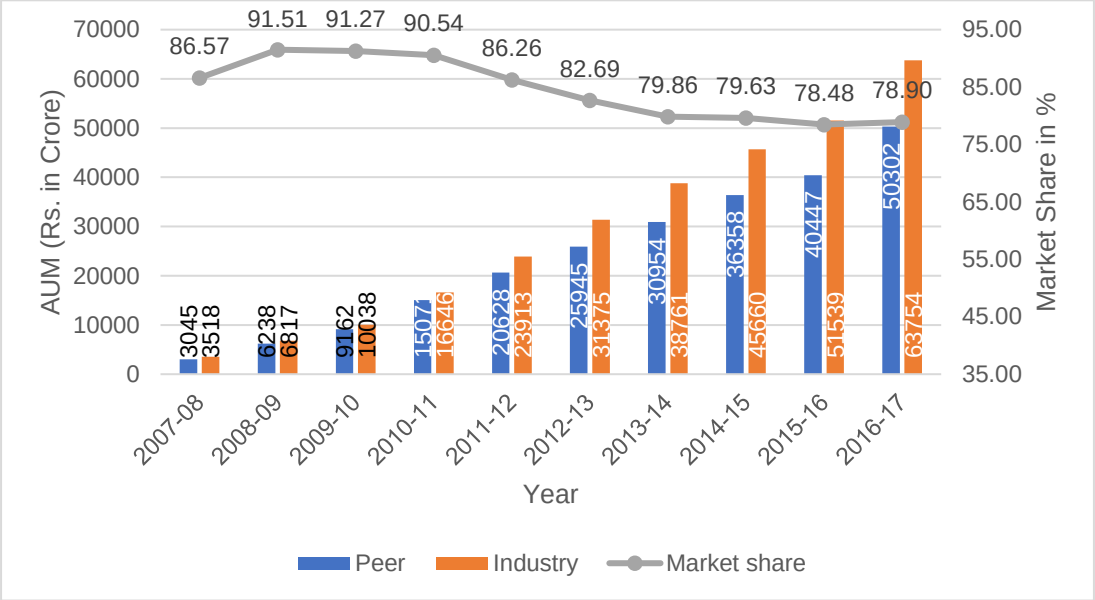
In the initial four years of the study period, investment in pension and general annuity fund was considerably lower. Gradually, after the year 2011-12 all selected companies have increased their pension and general annuity business by raising investment in respective funds.

The amount of average and CAGR shows overall growth in all selected companies with regards to AUM of pension and general annuity business. However, it was significantly lower as compare to the AUM of life business.

As regards average AUM, SBI witnessed the highest figure Rs. 13,685 crores during the period of the study. However, Kotak had only Rs. 194 crores average AUM under the period consideration. In comparison, SBI has managed to earn good amount of business in pension and general annuity business during the period of the study. On the other hand, rest of the selected companies have reported significantly low amount of business with regards to pension and general annuity business. It has been noted that Reliance has no AUM in first four years of the study period.

Pension and general annuity funds are an investment of insurance premiums collected by the insurers and paid at the time of maturity to the policyholders. Higher pension and general annuity fund indicate greater size of the business and greater liquidity towards the policyholders' liabilities.

Chart 5.6 Pension & General Annuity Business: AUM & Market Share



Source: Computed and Collected data from different years IRDA annual reports

Chart 5.6 above depicts comparison of absolute amount of pension and general annuity AUM between peer companies and private industry along with its market share. Looking at the chart, increasing trend has been observed in absolute amount of AUM in peer companies as well as industry.

As regards growth in absolute amount of AUM, peer companies have increased the same from Rs. 3,045 to Rs. 50,302 crores and industry has increased from Rs. 3,518 to Rs. 63,754 crores during the period of the study.

However, market share of peer companies went down from 86.57% to 78.90% during the period under consideration. Although, peer companies have captured on an average 84% of market share in terms of pension and general annuity AUM during the period of the study.

5.20 Linked Fund: Assets Under Management (Rs. In Crore)

Years	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2007-08	6,217 (93.98)	1,727 (165.83)	22,913 (92.12)	2,309 (78.06)	6,201 (83.58)	5,065 (207.76)	10,267 (115.21)	3,590 (291.54)
2008-09	7,184 (15.55)	3,035 (75.75)	28,614 (24.88)	3,031 (31.26)	7,842 (26.46)	6,444 (27.23)	14,065 (37.00)	5,552 (54.68)
2009-10	15,305 (113.04)	6,578 (116.74)	51,469 (79.87)	5,446 (79.68)	14,176 (80.78)	17,087 (165.16)	28,415 (102.02)	12,765 (129.90)
2010-11	20,323 (32.78)	8,870 (34.84)	58,827 (14.29)	6,986 (28.29)	17,355 (22.43)	24,529 (43.55)	32,884 (15.73)	16,486 (29.15)
2011-12	23,386 (15.07)	9,866 (11.23)	57,817 (-1.72)	7,447 (6.60)	18,022 (3.84)	26,468 (7.91)	29,984 (-8.82)	15,918 (-3.45)
2012-13	27,998 (19.72)	10,455 (5.97)	57,521 (-0.51)	7,964 (6.93)	19,187 (6.46)	26,548 (0.30)	24,497 (-18.30)	12,787 (-19.67)

Years	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2013-14	33,914 (21.13)	11,330 (8.37)	60,310 (4.85)	8,039 (0.95)	20,551 (7.11)	28,597 (7.72)	21,288 (-13.10)	10,284 (-19.58)
2014-15	44,920 (32.46)	13,400 (18.27)	74,778 (23.99)	9,680 (20.41)	24,395 (18.71)	34,810 (21.73)	21,645 (1.68)	8,788 (-14.55)
2015-16	45,727 (1.80)	13,154 (-1.83)	75,296 (0.69)	9,551 (-1.33)	23,328 (-4.37)	(36,022 (3.48)	19,221 (-11.20)	7,496 (-14.70)
2016-17	91,332 (99.73)	44,054 (234.91)	1,19,535 (58.75)	20,550 (115.16)	34,709 (48.79)	96,874 (168.93)	48,279 (151.17)	17,090 (127.99)
Average	**31,631**	**12,247**	**60,708**	**8,100**	**18,577**	**30,244**	**25,054**	**11,076**
CV (%)	**79.31**	**96.72**	**44.05**	**62.08**	**44.34**	**84.88**	**42.82**	**42.55**
CAGR (%)	**39.79**	**52.45**	**25.92**	**31.82**	**26.23**	**50.31**	**26.04**	**33.98**

Source: Computed and Collected data from different years IRDA annual reports
Note: The percentage growth over the previous year is shown in brackets

Table 5.20 above depicts total amount of investments in linked funds consisting of investment in approved investments and other investments prescribed by IRDA.

Overall, it has been observed that large amount of investments after deducting administrative charges infused by the selected companies in linked funds as compared to life fund and pension & annuity fund.

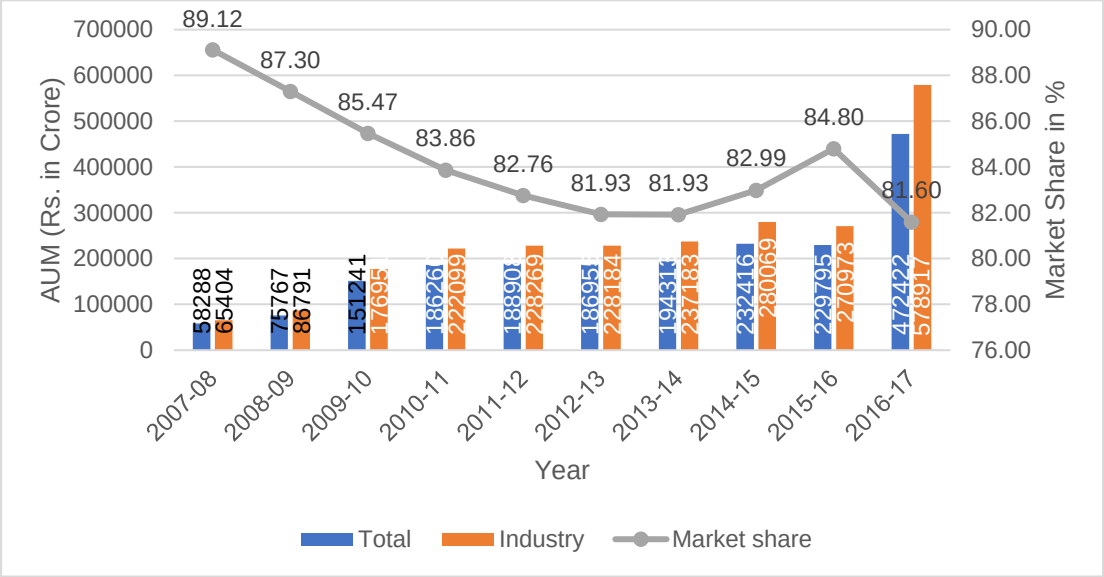
As regards average AUM, ICICI witnessed highest Rs. 60,708 crores of investment in linked fund during the study period. In contrast HDFC and SBI have reported average about Rs. 30,000 crores of AUM in linked funds, which is half that of ICICI. On the other hand, rest of the selected companies have reported average AUM less than Rs. 30,000 crores under the period consideration. However, it is to be noted that Max and SBI have reported more than 50% of CAGR during the study period.

In respect of growth in liked fund AUM, a significant growth has been observed in the year 2007-08, 2009-10 and 2016-17.

Chart 5.7 shows comparison of absolute amount of linked fund AUM between peer companies and private industry along with its market share.

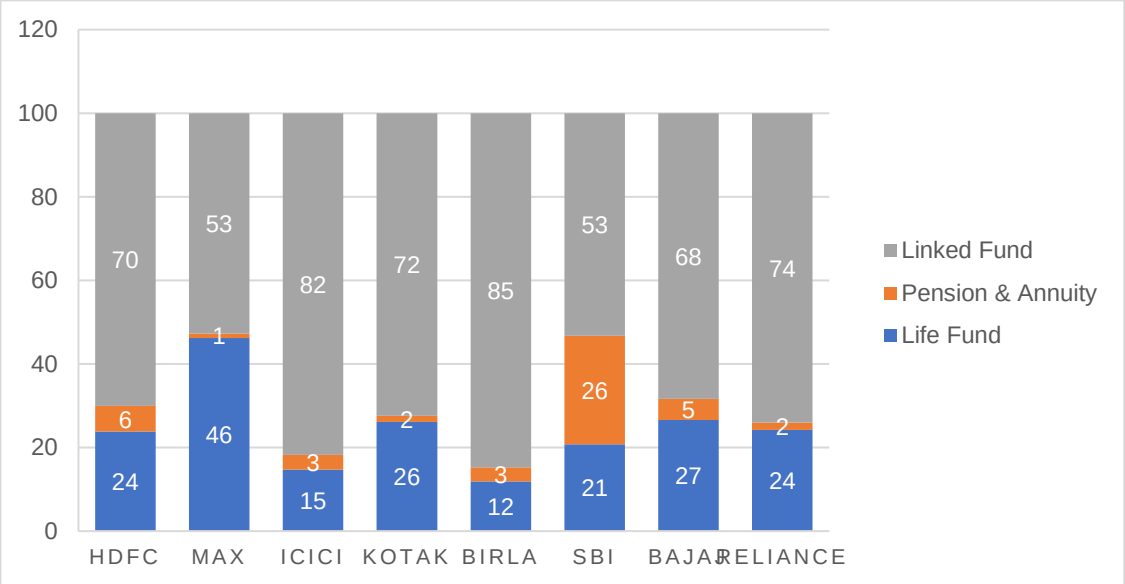
It has been clearly observed that in the initial two years of the study period, absolute amount of AUM is considerably low thereafter the growth has been observed with a small amount of fluctuations. A significant amount of growth has been observed in the year 2016-17. However, peer companies and industry have been found moving in the same direction. Moreover, the market share of peer companies ranged from 89.12% to 81.60%. Despite of gradual decline in market share, the peer companies have captured whole private market by holding 81.60% share.

Chart 5.7 Linked Fund: AUM & Market Share



Source: Computed and Collected data from different years IRDA annual reports

Chart 5.8 Average AUM Fund Wise



Source: Computed

The given chart 5.8 illustrates average % of AUM fund wise from the year 2007-08 to 2016-17. In other words, it highlights the proportion of life fund, pension & annuity fund and linked fund in percentage. Higher the percentage greater the size of the business of a company in particular business and vice versa.

Overall, in all selected companies the proportion of linked fund is substantially higher than that of pension & annuity and life fund during the period of study. It indicates that all selected companies are operating their linked business on a large scale under the period consideration.

All selected companies have managed more than 50% of their total business from ULIP. ICICI and Birla have managed on an average about 80% of their business from ULIPs. SBI has comparatively balanced fund having 53% in linked business, 26% in pension and annuity business and 21% in life business. Max has managed their business with 46% of life fund, 1% of pension & annuity fund and 53% of linked fund. HDFC has managed their business with 24% of life fund, 6% of pension & annuity fund and 70% of linked fund. Kotak and Reliance have managed their business with about 26% of life fund, 2% of pension & annuity fund and about 72% of linked fund. Bajaj has managed their business with 27% of life fund, 5% of pension & annuity fund and 68% of linked fund.

It has been clearly observed that all selected companies have managed a negligible of business from pension and annuity products. However, company wise fund analysis in percentage has been exhibited in below charts for the period under consideration

Overview of Company wise AUM

Chart 5.9 HDFC

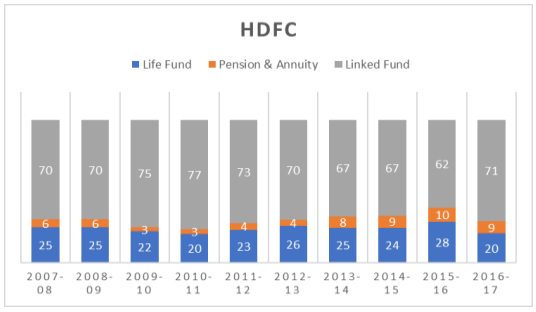


Chart 5.10 MAX

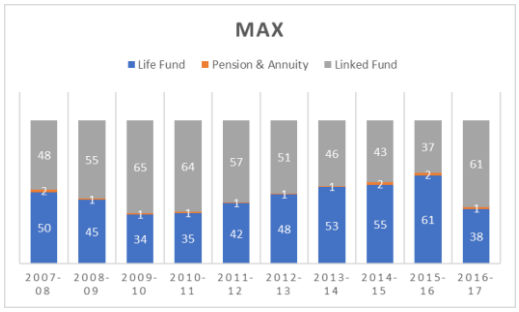


Chart 5.11 ICICI

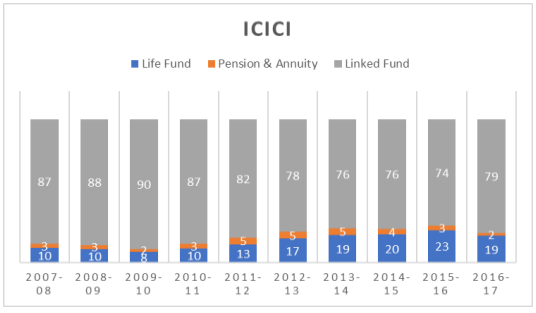


Chart 5.12 Kotak

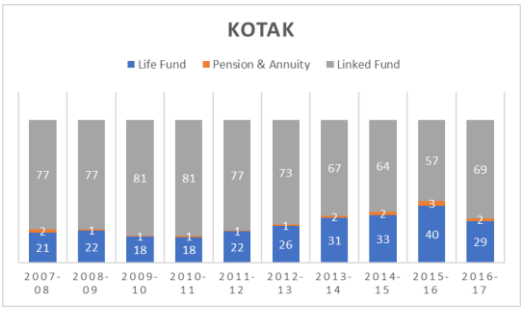


Chart 5.13 Birla

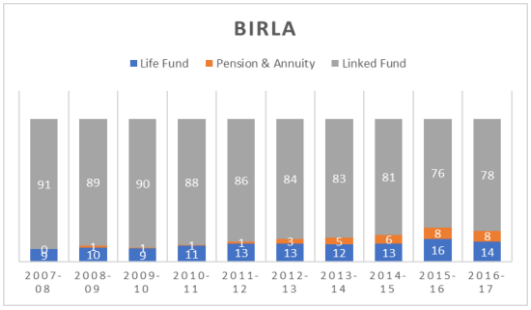


Chart 5.14 SBI

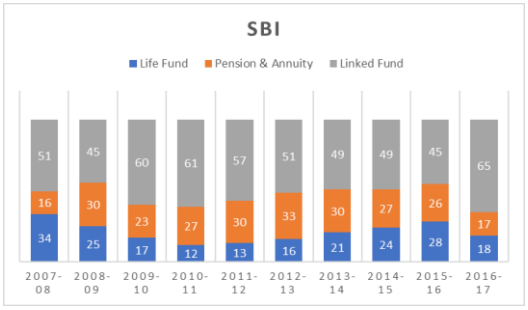


Chart 5.15 Bajaj

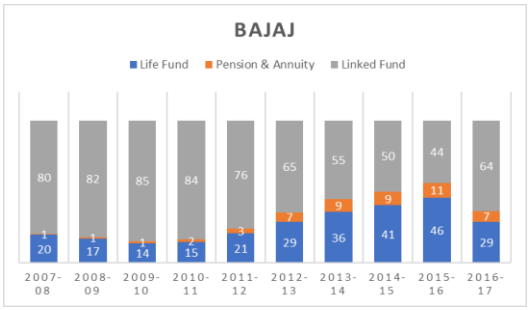


Chart 5.16 Reliance

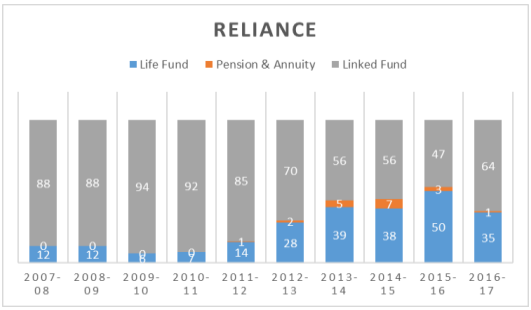


Chart 5.17 Peer Company

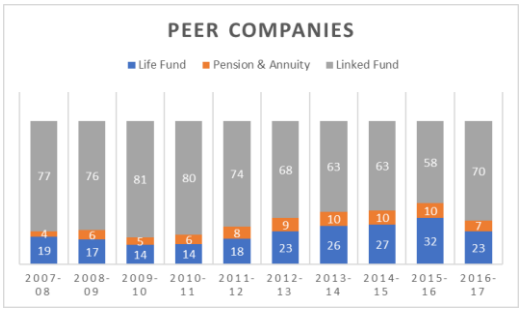
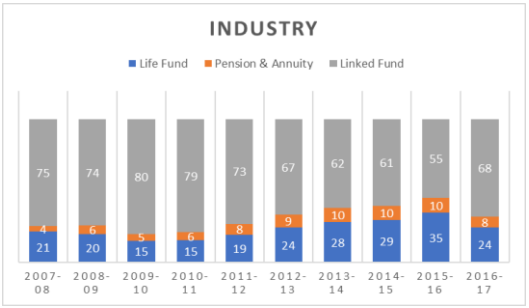


Chart 5.18 Industry



Source: Computed

5.8. Shareholders' wealth using AUM

Financial Management is concerned with planning and controlling of the firm's financial resources. In other words, it is concerned with acquiring, financing and managing assets to accomplish the overall objectives of a business. In general, objectives are divided in to two parts i.e., profit maximization and wealth maximization. In the insurance business the word profit maximization should be replaced by income maximization or surplus creation from the operation of the business. In the life insurance business premium earned is major source of income. Part II, Chapter III has analysed and discussed ways to maximize the premium income and create more surplus. Current chapter has focused on wealth of the shareholder. Shareholders' wealth is the total benefit that shareholders received from investing in a company. Shareholders

expect the benefits over their cost of investment as well as compensation against the risk taken by investing in equity. There are different measures of shareholders wealth (Rodriguez , et al., 2000), (Kakar, 2015), some of which are mentioned below:

Share Price Method: Market price of a share reflects its market value. It is easy to ascertain market value of a share of a listed company. The difference between market value and purchase price/book value is appreciation or diminution. Appreciation in market value creates the positive impact in shareholders' wealth whereas diminution will create a negative impact in shareholders' wealth.

This method is not appropriate for the life insurers in India because most of the companies are not listed on stock market. Only three companies ICICI, SBI and HDFC are listed on BSE & NSE and that too in the year 2016-17 and 2017-18. (HDFC listed on Friday, 17th November 2017, ICICI on Thursday, 29th September 2016, SBI on 3rd October 2017)**.** Hence, it is not possible to compare insurers in respect of market value for wealth maximization.

Total Shareholder Return: It will create wealth by increase in share price and dividends received during the period. Suppose a shareholder has bought a share worth Rs. 1,000 and received dividend of Rs. 100 after a year. On the day of dividend received, value of their investment is 1100 and the same has been sold at Rs. 1,500. The return received is Rs. 600 (1500+100 -1000) on his original investment. This method is not appropriate as it is related with the market value of shares.

Return on Equity (ROE): In the context of insurance business, the return on equity ratio formula is calculated by dividing net income by equity. This ratio measures effective utilisation of equity capital to generate income for equity shareholders. This method ignores cash flows and consider net income only. There may be chances of manipulation in the data as it is based on historical data.

Other measures to create wealth of the shareholders are Economic Value Added (EVA), Market Value Added (MVA), Tobins q etc.

Economic Value Added (EVA) is a measure of performance of a company which focuses more on wealth of the shareholders rather than just the accounting profit. Formula of EVA is NOPAT- (WACC × Capital Invested), where NOPAT is Net Operating Profit after tax, WACC is Weighted Average Cost of Capital. EVA figures are more meaningful as compared to accounting profit. It considers all the cost including the cost of equity capital being ignored by accounting profit. However, it is difficult to calculate precise and correct cost of equity. Although, it is not suitable for

insurance business, as life insurance business contracts are for longer period of more than 20 years. It is challenging for the insurer to calculate exact amount of profit.

Market Value Added (MVA) refers to the difference between market value of stocks and book value of stockholder's equity. In other way MVA is the difference between the equity market valuation of a listed/quoted company and the sum of the adjusted book value of debt and equity invested in the company. The major drawback of this method is that the calculation is possible only for enterprises with marketable shares.

Tobins q is a ratio developed by James Tobin of Yale University, Nobel Laureate in economics. It is the ratio between market value and replacement value of the same physical asset. It is a popular method to estimate the stock's fair value. It can be practically used by market participants to make informed decisions. However, this method is not suitable in the life insurance business as it cannot be used to base investment decisions. Exact replacement cost and valuation of investments are difficult to ascertain in this method. In life insurance business, investment is a major source to create value for the business.

As regards wealth creation for shareholders', it can be said that wealth can only be created when it exceeds all liabilities and expenses. The created wealth typically accumulated to shareholders as they are the residual owners of the company. The amount of investment made by the shareholders and wealth created by the company for the shareholders are substantial part of the business. In order to address the limitations of above-mentioned techniques to ascertain wealth of shareholders', the present study has devised a new formula to measures the wealth of shareholders in terms of per rupee investment in the company.

Conceptual note of the formula below:

A close look at the balance sheet of life insurance companies reveals that there are mainly two sources of fuds: from shareholders and from policyholders. No other borrowing appears in the liability side of balance sheet. As regards application of funds, insurers have instilled their funds in investments, loans, fixed assets etc.

Insurance companies heavily rely upon their investments to pay off obligations of policyholders and shareholders. It has been observed that the amount of funds invested in fixed assets and loans are less than investments. Although, net current asset is the part of business operation. Therefore, it can be said that the insurance companies are using their investments to pay off liabilities of policyholders and shareholders. The carrying value of these investments is known as AUM. The change in the market value

(MV) of AUM will have significant impact on the wealth of shareholders of life insurance business.

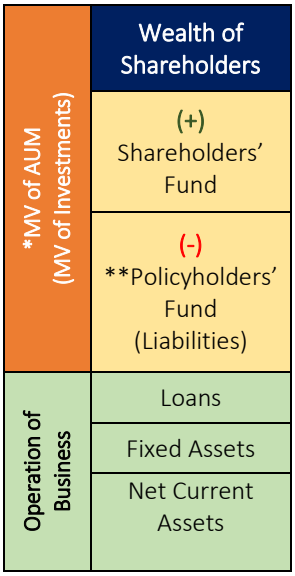
The present formula assumes that life insurance business carries out its operations with their net current assets i.e., working capital along with the fixed assets and loans given to policyholders. Suppose an insurer decides to pay off their policyholders' liabilities at the end of every financial year from the MV of AUM, remaining portion of amount is available after adding shareholders fund for the shareholders. Linked business is to be excluded from the formulation as the major portion of it is distributed to policyholders only. This formulation presents short term wealth created by the insurers every year for their shareholders.

A Brief Structure of Life Insurer's Balance Sheet

Sources of Funds	**Applications of Funds**
Shareholders' fund	Investments Shareholders' Policyholders'
Policyholders' fund	
	Assets held to cover linked liabilities
	Loans
	Fixed Assets
	Net Current Assets (Current assets- Current Liabilities)

*Exclude the assets held to cover linked liabilities.

** Exclude the linked liabilities



Following formulation has been framed to measure the wealth of shareholders per rupee invested by considering AUM as a key factor.

Shareholders Wealth per Rupee of Investment=

$$\frac{\text{MV AUM} - \text{PHL}}{\text{Share Capital}} + \frac{\text{SAMPA} + \text{ESOO} + \text{R\&S} + \text{CFVCA}}{\text{Share Capital}} - \frac{\text{DFVCA} + \text{ME} + \text{DBIPL}}{\text{Share Capital}}$$

Equation (1) — Gross Shareholders Wealth

Equation (2) — Net Shareholders Wealth after Adjustments

Equation (3)

Whereas

MV AUM = Market Value of Assets Under Management (Excluding Linked Fund)

PHL = Policyholders Liability (Excluding Linked Liabilities)

SAMPA = Share Application Money Pending Allotment

ESOO = Employee Stock Option Outstanding

R&S = Reserves & Surpluses

CFVCA = Credit Fair Value Change Account

DFVCA = Debit Fair Value Change Account

ME = Miscellaneous Expenses

DBIPL = Debit Balance in Profit & Loss Account

$$\frac{\text{MV AUM} - \text{PHL}}{\text{Share Capital}} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

In the equation (1) of the formula, MV AUM has been derived by excluding linked liabilities of policyholders' as it is exclusively invested in market and the maximum return needs to distribute the policyholders. Furthermore, part of other policyholders' liabilities is to be deducted from MV AUM. In which policyholders' liabilities consist of credit/debit fair value change account, revaluation reserve investment property, policy liabilities, insurance reserves, fund for discontinued policy and funds for future appropriation. The surplus amount after deducting PHL from MV AUM is divided by share capital. It is assumed that whatever the value created by the insurance companies that goes to the shareholders' as they are the real owner of the business. This formula gives gross shareholders wealth per rupee invested before adjustments.

$$+ \frac{\text{SAMPA} + \text{ESOO} + \text{R\&S} + \text{CFVCA}}{\text{Share Capital}} \quad \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Equation (2) shows the adjustments, to be added in the above equation (1). These adjustments are Share Application Money Pending Allotment, Employee Stock Option Outstanding, Reserve & Surplus, and Credit Fair value change account. This will increase the shareholders' funds and thereby increase the wealth of shareholders' too. Furthermore, it is to be divided by the share capital.

$$- \frac{\text{DFVCA} + \text{ME} + \text{DBIPL}}{\text{Share Capital}} \quad \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Equation (3) shows the adjustments, to be deducted from the above equation (2). These adjustments are debit fair value change account, miscellaneous expenses and debit balance in profit and loss accounts. This will decrease the shareholders' funds and thereby decrease the wealth of shareholders' too. Furthermore, it is to be divided by the share capital.

The amount derived after formulating all these three equations is known as net shareholders wealth per rupee of investment.

Table 5.21 Net Shareholders Wealth Per Rupee of Investment

Year	HDFC	MAX	ICICI	Kotak	Birla	SBI	Bajaj	Reliance
2007-08	-0.31	-0.24	-0.09	-0.43	-0.41	1.07	11.04	-0.60
2008-09	-0.53	-0.25	-0.03	-0.39	-0.54	1.60	9.21	-0.35
2009-10	-0.41	-0.04	0.28	-0.22	-0.54	2.06	17.87	-0.48
2010-11	-0.63	0.33	1.81	0.17	-0.24	2.69	29.12	-0.56
2011-12	-0.05	0.86	3.20	1.15	0.11	2.50	45.54	0.59
2012-13	0.24	1.07	4.87	2.13	0.35	4.11	62.63	1.90
2013-14	-0.14	0.80	4.35	2.54	0.00	3.39	70.45	2.56
2014-15	0.32	1.43	5.63	3.99	0.17	5.59	92.48	1.77
2015-16	1.04	1.32	4.87	5.37	-0.04	6.83	101.77	1.28
2016-17	2.18	1.94	5.71	6.83	-0.71	8.85	112.13	0.89
Average	**0.17**	**0.72**	**3.06**	**2.11**	**-0.19**	**3.87**	**55.22**	**0.70**
CV	**504.11**	**104.14**	**77.51**	**121.50**	**-189.20**	**64.66**	**69.66**	**166.09**

Source: Computed

Table 5.21 above highlights net shareholders wealth per rupee of investment at the end of every financial year from 2007-08 to 2016-17.

Overall, the shareholders wealth per rupee of investment reflects the investment strategy, capital and operational structure and management ability of the business.

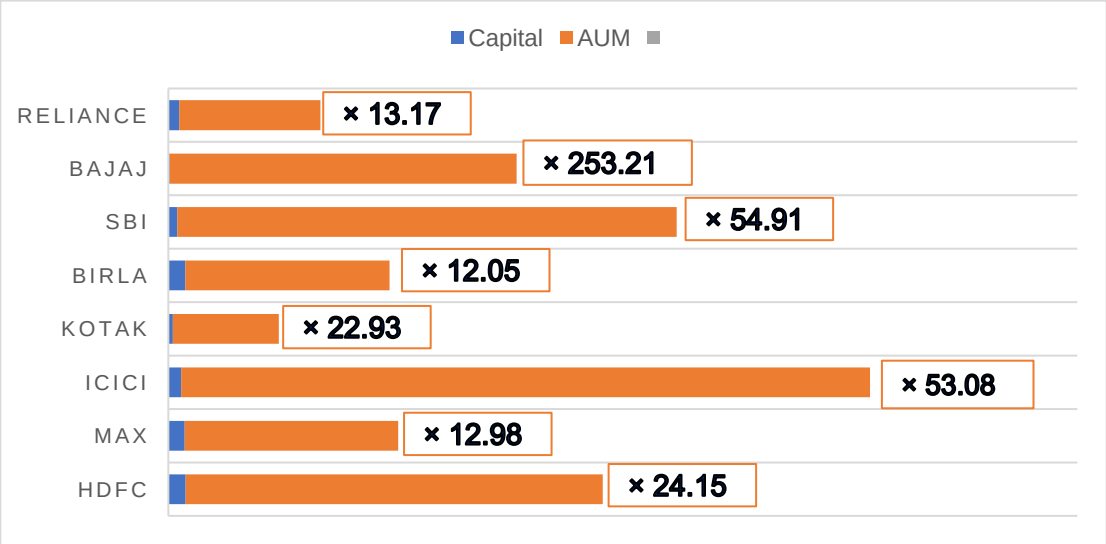
Looking at the table in more detail, it has been observed that Bajaj has created substantial amount of wealth per rupee of investment during the period under consideration. Company has created on an average Rs. 55.22 wealth per rupee invested by the shareholders during the study period.

As regards average shareholders wealth per rupee of investment, SBI and ICICI have created about Rs. 3 and Kotak has created Rs. 2.11. SBI is the only company that has consistently increased the wealth of shareholders' year on year. On the other hand, HDFC, Max, Reliance have created less than one rupee wealth on an average during the period of the study. Contrary, Birla has failed to create wealth during the period of the study.

In the initial years of the study period, it has been observed that all selected companies had less amount of AUM and reserves. Gradually all selected companies have increased

their amount of AUM and reserves during the period of the study. As a result, shareholders wealth per rupee of investment has improved slowly in the last few years of the study period. In most of the selected companies, negative to positive wealth creation has been observed under the period consideration. In short term, there may a risk of return on investment in insurance companies as the results can be volatile each year due to fluctuations in claims pay-outs and investment returns earned on the assets. Moreover, new business development, expense and withdrawal experiences may also affect. However, the above analysis revealed that except two companies remaining all have created wealth more than a double per rupee invested in the last two years of the study period and it is expected to increase in future.

Chart 5.19 AUM as a multiple of share capital: A Relative Average Build-up scale



Source: Computed

The chart 5.19 above highlights AUM as a multiple of share capital in times. The amount in multiple is derived by dividing AUM by the share capital. Overall, against the amount of share capital sufficient amount of AUM is available.

Bajaj has witnessed the higher AUM in multiple of 253.21 times of share capital, as the company has fixed capital structure and lower capital base during the period of the study. SBI and ICICI have reported more than 50 times AUM as against the amount of share capital under the period consideration. HDFC and Kotak have reported 24.15 and 22.93 times AUM as against the amount of share capital during the study period. On the other hand, Max and Birla have reported only about 12 times of AUM against the amount of share capital during the period of study.

5.9. Testing of Hypothesis

Objective: To assess and evaluate the impact of financial management practices on shareholders' wealth.

In life insurance business, financial management is measured in effective management of capital, MV of AUM, policyholders' liability, reserve & surplus, claims, Management of Expenses (MOE) and premium including first year single premium and renewal premium. The present study has made an attempt to find out the relationship of these variables on shareholders' wealth. Accordingly, hypotheses have been framed are as under.

Null Hypothesis:

1. Ho: There is no relationship between shareholders' wealth and capital among selected companies.
2. Ho: There is no relationship between shareholders' wealth and MV of AUM among selected companies.
3. Ho: There is no relationship between shareholders' wealth and policyholders' liability among selected companies.
4. Ho: There is no relationship between shareholders' wealth and reserve & surplus among selected companies.
5. Ho: There is no relationship between shareholders' wealth and claim among selected companies.
6. Ho: There is no relationship between shareholders' wealth and management of expenses among selected companies.
7. Ho: There is no relationship between shareholders' wealth and first year premium among selected companies.
8. Ho: There is no relationship between shareholders' wealth and renewal premium among selected companies.

Alternative Hypothesis:

1. H1: There is a relationship between shareholders' wealth and capital among selected companies.
2. H1: There is a relationship between shareholders' wealth and MV of AUM among selected companies.
3. H1: There is a relationship between shareholders' wealth and policyholders' liability among selected companies.

4. H1: There is a relationship between shareholders' wealth and reserve & surplus among selected companies.
5. H1: There is a relationship between shareholders' wealth and claim among selected companies.
6. H1: There is a relationship between shareholders' wealth and management of expenses among selected companies.
7. H1: There is a relationship between shareholders' wealth and first year premium among selected companies.
8. H1: There is a relationship between shareholders' wealth and renewal premium among selected companies.

Data Analysis:

Table 5.22 Descriptive Statistics

Variables	Mean (Average)	Std. Deviation	N
Net Shareholders Wealth	8.2094	22.19454	80
Capital	122993.1000	62887.05021	80
MV of AUM without Linked Fund	1157395.7336	1165986.63749	80
Policyholders Liabilities	988077.5750	1071126.84922	80
Reserve & Surplus	158115.1299	186401.20162	77
Claim	414611.5495	365993.91526	80
Management of Expenses	180682.9305	71932.66440	80
First Year Premium	363868.3875	214294.55783	80
Renewal Premium	468917.2750	312276.74002	80

Source: Computed

Table 5.22 above produced mean and standard deviation of each variables for 80 observations. There are eight selected companies and number of years under consideration are ten. Accordingly, there are 80 observations in aggregate for each variable. There are 77 observations in the reserve & surplus as three-year reserves have not been created.

Average net shareholders' wealth per rupee of investment has been reported at Rs. 8.21 indicating improved wealthy situation of shareholders. However, the high amount of standard deviation reflects the deviation in the average amount. The average capital maintained by the selected companies is Rs. 1,22,993.1 lakhs during the study period.

As regards average figure, Rs. 11,57,395.73 lakh in MV of AUM without linked fund, Rs. 9,88,077.58 lakh in policyholders' liabilities, Rs. 1,58,115.13 lakh in reserves and surplus, Rs. 4,14,611.55 lakhs in claims, Rs. 1,80,682.93 lakhs in management of expenses, Rs. 3,63,868.39 lakh in the first-year premium and Rs. 4,68,917.28 lakh in the renewal premium, have been reported under the period consideration. Standard

deviations in all these variables reflects high deviation in the figure of average. Generally, descriptive statistics are used to describe the basic features of the data in the study. The result above reveals the average volume of variables with deviation. It cannot be helpful to reach any conclusion to the research problem.

Analysis of Correlation Coefficients:

Further to achieve the objective of the study, the relationship among all variables and its impact on shareholders wealth have been calculated with using correlation coefficients. The table 5.23 computed Pearson's correlation coefficients using 2 tailed test of significance (Samuel & Lawrence , 2015).

It measures the degree to which variables are correlated. It lies between -1 to 1. Higher the value greater will be the correlation and vice versa. The values between 0 to 0.30 indicates weak positive/negative degree of correlation through a shaky linear rule, values between 0.30 to 0.70 indicates moderate positive/ negative degree of correlation through fuzzy-firm linear rule, values between 0.70 to 1.00 indicates strong positive/negative degree of correlation through firm linear rule and values +/- 1 indicates perfect positive/negative correlation through extract linear rule, as one variable increase in its values, the other variable decrease through an exact linear rule (Ratner, 2009).

There are nine variables identified for correlation in present calculation. Out of which 1 variable is independent and rest of 8 variables are dependent representing financial management practices of life insurance companies.

The Shareholders' wealth is dependent variable whereas Capital, MV AUM, Policyholders Liabilities (PHL), Reserve & Surplus, Claim, Management of Expense (MOE), First Year Premium (FYP) and Renewal Premium (RP) are independent variables. As regards relationship between independent variables, the correlation matrix above reveals strong positive correlation between MV AUM and claim, claim and renewal premium, MOE and renewal premium, FYP and RP. In contrast, capital and reserve & surplus have negative moderate correlation. On the other hand, correlation between other independent variables have been found to be moderate or weak.

The strong positive correlation among the independent variables creates the multicollinearity problem. It has been given an attention while framing the regression model.

Table 5.23 Pearson Correlation Matrix

	SHW	*Capital*	*MV AUM*	*PHL*	*Reserve & Surplus*	*Claim*	*MOE*	*FYP*	*RP*
Shareholders Wealth (SHW)	1								
Capital	-0.5515	1							
MV AUM	0.2767	0.0221	1						
Policyholders Liabilities (PHL)	0.1666	0.0863	0.9911	1					
Reserve & Surplus	0.7733	-0.4216	0.5341	0.4433	1				
Claim	0.2590	0.0280	0.7248	0.6959	0.6605	1			
Management of Expense (MOE)	-0.0898	0.2379	0.2741	0.2822	0.2840	0.3863	1		
First Year Premium (FYP)	-0.0399	0.0579	0.5995	0.6217	0.3459	0.4970	0.6714	1	
Renewal Premium (RP)	-0.0584	0.2802	0.6722	0.6885	0.3857	0.7735	0.7043	0.7364	1

Table 5.24 Test of Significance

Variables	**Pearson Correlation**	**Significant**
Capital	-0.5515**	0.000
MV AUM	0.2767*	0.013
Policyholders Liabilities (PHL)	0.1666	0.140
Reserve & Surplus	0.7733**	0.000
Claim	0.259*	0.020
Management of Expense (MOE)	-0.0898	0.428
First Year Premium (FYP)	-0.0399	0.725
Renewal Premium (RP)	-0.0584	0.607

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

As regards relationship between dependent and independent variables, capital, MOE, first year premium and renewal premium have established a negative correlation with the dependent variable. On the contrary, positive correlation has been established by MV AUM, policyholders' liabilities, claim and reserve & surplus on dependent variable i.e., SHW.

However, significance of correlation between dependent and independent variables is demonstrated in table 5.24. It reveals that MV AUM, reserves & surplus, and claims have a significant positive correlation with SHW. Conversely, capital has a significant negative correlation with SHW. On the other hand, PHL, MOE, FYP and RP have not significantly correlated with SHW. Although, MOE, FYP and RP are negatively correlated to SHW

The table 5.25 below describes hypothesis test summary which also confirms the same correlation. Positive correlation coefficient indicates that when the value of one variable increases, the value of the other variable also tends to increase and vice versa.

Table 5.25 Hypothesis Test Summary

No.	Hypothesis	Relationship	Significant
1	No relationship between shareholders' wealth and capital among selected companies.	-0.5515 Negative	0.000
2	No relationship between shareholders' wealth and MV of AUM among selected companies.	0.2767 Positive	0.013
3	No relationship between shareholders' wealth and policyholders' liability among selected companies.	0.1666 Positive	0.140
4	No relationship between shareholders' wealth and reserve & surplus among selected companies.	0.7733 Positive	0.000
5	No relationship between shareholders' wealth and claim among selected companies.	0.259 Positive	0.020
6	No relationship between shareholders' wealth and management of expenses among selected companies.	-0.0898 Negative	0.428
7	No relationship between shareholders' wealth and first year premium among selected companies.	-0.0399 Negative	0.725
8	No relationship between shareholders' wealth and renewal premium among selected companies.	-0.0584 Negative	0.607

Regression Analysis:

The result of correlation analysis reveals linear association between two variables. It does not identify the cause-and-effect relationship among variables. After obtaining the degree of association between two variables, it is necessary to estimate the value of dependent variable by changing the value of independent variable.

Multiple linear regression method is most appropriate and widely used method to measures the causality. The present study has used multiple linear regression as a predictive analysis to measure the relationship between a dependent variable and independent variables.

Table 5.26 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.817	.667	.630	13.50776
2	.921	.849	.828	.91177

The table 5.26 above presents the model summary consisting of two models. It is the key tool in predictive analysis providing information about the regression line's ability to explain the total variation in the dependent variable. Model 1 is calculated for all eight selected companies whereas model 2 is calculated for seven selected companies. In order to identify exact variation in dependent variable, Bajaj has been excluded from the model 2 on account of disparity in data of independent variable during the period of study. Disparity in the data of independent variable has been observed due to the lower capital base in the company. The result of R square, adjusted R square and Standard error in both the models confirms the significant disparity in the data.

In comparison, model 2 gives better result, 84.90% variation in shareholders' wealth, together explained by set of independent variables such as capital, reserve & surplus, market value of AUM, MOE, claim, policyholders' liabilities, first year premium and renewal premium. It indicates 84.90% multiple linear regression property is justified with this model. Their adjusted R Square is slightly below the R Square with the value of 82.80%. On these grounds, model 2 has been considered for the further testing.

Table 5.27 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	279.437	8	34.930	42.017	.000[b]
	Residual	49.880	60	.831		
	Total	329.317	68			

a. Dependent Variable: Shareholders' Wealth

b. Predictors: (Constant), Log (RP, Capital, RS, FYP, MVAUM, MOE, Claim, PHL)

Table 5.27 above shows validity of present linear multiple regression model. A significant value of this model is less than 0.05 that indicates multiple linear regression model is significantly existed.

Regression Estimation:

$\hat{Y}$= 2.867 – 3.280 X1 + 6.202 X2 – 4.427 X3 + 0.27 X4 + 0.082 X5 + 0.945 X6 + 0.031 X7 - 0.042 X8

Where

$\hat{Y}$= Shareholders' Wealth

Xi = Log Xi (i = 1,2,3,4,5,6,7,8)

X1= Log Capital, X2= Log MVAUM, X3= Log PHL, X4= Log RS, X5= Log Claim, X6= Log MOE, X7= Log FYP, X8= Log RP

The values of Xi are too large in original data set. Hence, to reduce the heteroscedasticity and skewness between dependent variable and independent variables (X values) a logarithmic transformation has been used.

Table 5.28 Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.867	3.704		.774	.442		
Lg Capital	-3.280	.397	-.672	-8.261	.000	.381	2.622
Lg MVAUM	6.202	.931	3.336	6.662	.000	.010	99.369
Lg Policyholders Liabilities	-4.427	.829	-2.627	-5.340	.000	.010	95.816
Lg Reserve & Surplus	.027	.067	.033	.401	.690	.367	2.725
Lg Claim	.082	.286	.045	.286	.776	.100	9.994
Lg MOE	.945	.670	.186	1.410	.164	.145	6.912
Lg First Year Premium	.031	.311	.009	.100	.920	.333	3.006
Lg Renewal Premium	-.042	.537	-.015	-.078	.938	.070	14.199

a. Dependent Variable: Shareholders' wealth

Table 5.28 above highlights the regression coefficient describing the size and direction of the relationship between independent and dependent variables.

It represents the change in the dependent variable associated with a change in independent variable. The result of coefficient above depicts constant value 2.867, which does not have a significant impact on dependent variable.

Further, it implies that 1% increase in capital will lead to decrease in shareholders' wealth by Rs. -3.280. It indicates that increase in capital negatively affects shareholders' wealth. Although, its P value is less than 0.05 that shows a significant impact on shareholders' wealth.

1% increase in MV AUM will lead to increase Rs. 6.202 in shareholders' wealth. It has positive and significant impact on the wealth of shareholders by signifying p value less than 0.05. Increased MV AUM in life insurance represents the investment efficiency of insurers which is directly related to the wealth of shareholders'.

Policyholders' liabilities negatively affect to the shareholders' wealth. 1% addition in policyholders' liabilities will lead to decrease shareholders wealth significantly by Rs. -4.427. Conversely, 1% addition in claim will lead to positive impact on shareholders' wealth by Rs. 0.082. It is challenging for life insurers to handle policyholders' liabilities and expected claims.

Reserves & surplus has a positive impact on wealth of shareholders'. 1% increase in reserves and surplus will lead to slight increase in shareholders' wealth by Rs. 0.027. The reason for a small increase is the use of reserves for settlement of claims by insurers. Moreover, if insurers face difficulty in settlement of claims the risk of underwriting business will increase.

1% increase in management of expenses will lead to increase in shareholders' wealth by Rs. 0.945. The increase in management of expenses will tend to increase the business of insurance which has a direct and positive impact on shareholders' wealth. It will increase the capacity of insurer to identify and invest in profitable portfolios in order to increase wealth.

First year premium has a positive influence on the shareholders' wealth, 1% increase in first year premium will lead to increase shareholders wealth by Rs. 0.031. However, increase of 1% in renewal premium has a negatively influence on shareholders' wealth by Rs. -0.042.

The correlation matrix presented in table 5.28 suggests severe collinearity problem in independent variables and the same has been confirmed by table 5.23 above.

High collinearity in independent variable is known as multicollinearity. In presence of high multicollinearity, the confidence intervals of the coefficients tend to become wide. There are different ways to find out multicollinearity.

Table 5.28 shows multicollinearity with the help of tolerance and its reciprocal, called variance inflation factor (VIF). Multicollinearity is problematic when the value of tolerance is less than 0.10 and the value of VIF is 10 and above.

The present estimation found three variables MV AUM, PHL & RP with a tolerance less than 0.10 and a VIF above 10. It implies the multicollinearity in present estimation. On account of the nature of life insurance business, highest multicollinearity has been found in MV AUM and PHL. Increase in life insurance business will lead to increase their PHL and that will positively affect the MV AUM. Although, movement of data in MVAUM and PHL are moving in the same direction.

Variables having less important and high multicollinearity in terms of tolerance and VIF needs to drop for accurate result. The present study has dropped PHL and RP to remove multicollinearity in independent variables. The re-estimated multiple linear regression model after deducting two variables is presented as follows.

Table 5.29 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	.869[a]	.755	.731	1.14158

a. Predictors: (Constant), LgFYP, LgCapital, LgClaim, LgRS, LgMVAUM, LgMOE

Model 3 above reveals that 75.50% variation in shareholders' wealth, together explained by the set of independent variables. Their adjusted R Square is slightly below the R Square with the value 73.10%. It shows, multiple linear regression property is justified with this model and considered for further testing.

Table 5.30 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	248.519	6	41.420	31.783	.000[b]
	Residual	80.798	62	1.303		
	Total	329.317	68			

a. Dependent Variable: SHW

b. Predictors: (Constant), LgFYP, LgCapital, LgClaim, LgRS, LgMVAUM, LgMOE

Table 5.30 above depicts the validity of linear multiple regression model. A significant value of this model is less than 0.05 that indicates multiple linear regression model is significantly existed.

Regression Estimation:

$\hat{Y}$= 8.437 – 2.214 X1 + 1.699 X2 + 0.604 X3 - 0.550 X4 – 0.048 X5 + 0.216 X6

Where

$\hat{Y}$= Shareholders' Wealth

Xi = Log Xi (i = 1,2,3,4,5,6,7,8)

X1= Log Capital, X2= Log MVAUM, X3= Log RS, X4= Log Claim, X5= Log MOE, X6= Log FYP.

Table 5.31 Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	5.910	4.202		1.406	.165		
LgCapital	-3.311	.492	-.679	-6.736	.000	.390	2.564
LgMVAUM	1.201	.235	.646	5.115	.000	.248	4.034
LgRS	-.014	.081	-.017	-.169	.866	.397	2.519
LgClaim	.236	.256	.131	.921	.360	.196	5.095
LgMOE	1.358	.686	.268	1.981	.052	.217	4.610
LgFYP	-.047	.379	-.013	-.125	.901	.352	2.844

a. Dependent Variable: Shareholders Wealth

Regression coefficient implies that 1% addition in capital will lead to decrease in shareholders' wealth by Rs. -3.311. It indicates that increase in capital negatively affect shareholders' wealth. Excessive use of capital indicates inefficiency of underwriters. Although, its P value is less than 0.05 that shows a significant impact on shareholders' wealth.

1% increase in MV AUM will lead to increase Rs. 1.201 in shareholders' wealth. It has a positive and a significant impact on the wealth of shareholders' by signifying p value less than 0.05. Increased MV AUM in life insurance represents the investment efficiency of insurers which is directly related to the wealth of shareholders'

1% increase in claim will lead to increase shareholders' wealth by Rs. 0.236.

1% increase in reserves and surplus will lead to decrease shareholders wealth by Rs. -0.014, which is not significant.

1% increase in management of expenses will lead to increase in shareholders' wealth by Rs. 1.358.

First year premium has a negative influence on the shareholders' wealth, 1% increase in first year premium will lead to decrease in shareholders wealth by Rs. -0.047.

Looking at the data in more detail, it has been observed that in initially two years of the study period reserves were zero in some of the companies.

This imbalance in the data can affect the result of regression analysis. Therefore, the first two years of the study period have been excluded to know the exact result and prediction. The final regression model has been extracted for 7 companies, 6 variables and 8 years, which are as follows.

Table 5.32 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
4	.910[a]	.829	.807	.99408

a. Predictors: (Constant), LgFYP, LgCapital, LgClaim, LgRS, LgMVAUM, LgMOE

Model 4 above reveals that 82.90% variation in shareholders' wealth, together explained by the set of independent variables. Their adjusted R Square is slightly below the R Square with the value of 80.70%. It shows, multiple linear regression property is justified with this model and considered for further testing.

Table 5.33 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
4	Regression	229.771	6	38.295	38.753	.000[b]
	Residual	47.433	48	.988		
	Total	277.204	54			

a. Dependent Variable: SHW

b. Predictors: (Constant), LgFYP, LgCapital, LgClaim, LgRS, LgMVAUM, LgMOE

Table 5.33 above depicts validity of above linear multiple regression model. A significant value of this model is less than 0.05 that indicates multiple linear regression model is significantly existed.

Final Regression Estimation:

$\hat{Y}$= 6.926 – 2.536 X1 + 1.734 X2 + 0.781 X3 - 0.595 X4 + 0.654 X5 - 0.612 X6

Where

$\hat{Y}$= Shareholders' Wealth

Xi = Log Xi (i = 1,2,3,4,5,6,7,8)

X1= Log Capital, X2= Log MVAUM, X3= Log RS, X4= Log Claim, X5= Log MOE, X6= Log FYP.

Table 5.34 Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	6.926	4.251		1.629	.110		
LgCapital	-2.536	.588	-.515	-4.313	.000	.250	4.006

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
LgMVAUM	1.734	.260	.781	6.662	.000	.259	3.856
LgRS	.781	.222	.457	3.522	.001	.212	4.725
LgClaim	-.595	.378	-.224	-1.577	.121	.177	5.643
LgMOE	.654	.853	.116	.766	.447	.157	6.389
LgFYP	-.612	.406	-.169	-1.509	.138	.286	3.501

a. Dependent Variable: Shareholders' Wealth

Table 5.34 above highlights the regression coefficients after removing multicollinearity problem, and imbalance of data.

It implies that every 1% additional capital is expected to result into a decrease in shareholders' wealth by Rs. -2.536. An increase in capital has a significant negative impact on shareholders' wealth and it has been confirmed by the sig. (P) value. Excess deployment of capital represents inefficiency of underwriters in life insurance business. Effective utilisation of capital is a key to the success of the life insurance business. Excess capital, if not effectively utilised, represents inefficiency of the business.

Increase of 1% in MV AUM will lead to increase shareholders wealth by Rs. 1.734. It has positive and significant impact on the wealth of shareholders by signifying p value less than 0.05. Increased MV AUM in life insurance represents the investment efficiency of insurers, which is directly related to the wealth of shareholders.

1% increase in claim will lead to decrease in shareholders' wealth by Rs. -0.595. It signifies that if claims unexpectedly increase, shareholders' wealth will get affected negatively.

1% increase in reserves and surplus will lead to increase shareholders wealth by Rs. 0.781. It has a significant positive impact on shareholders' wealth, and it has been confirmed by the sig. (P) value. Reserves and surplus have a direct relationship with the shareholders' wealth in case of life insurance companies.

As the value of management of expenses increases by 1%, the shareholders wealth will expect to increase by Rs. 0.654. The increase in management of expenses will tend to increase the business of insurance which has a direct and positive impact on shareholders' wealth. It will increase the capacity of insurer to identify and invest in profitable portfolios in order to increase wealth.

Negative coefficient in first year premium suggests that 1% increase in first year premium will lead to decrease in shareholders' wealth by Rs. -0.612. First year

premium has a negative influence on the shareholders' wealth even though premium is the main source of income for insurance companies. However, a sig. (p) value denotes that impact of first year premium is not statistically significant.

The first-year premium accelerates the life insurance business for a short period of time, but it is challenging for insurers to maintain the same business in long run and convert it into prudent portfolio with a good amount of income. A negative impact of first year premium on shareholders' wealth indicates more premium underwritten and the less income derived from their investment activities. This may happen because of overwhelming focus on various marketing activities to generate more premium without proper concentration on the management of their assets and liabilities. This can detriment their investment activities and can have a negative impact on shareholders wealth. Rapid growth of premium volume is a major cause factor in insurers' insolvency (Kim, Anderson, Amburgey, & Hickman, 1995).

Interest paid to policyholders on life products also tends to reduce investment income (Joseph & Frank, 2013). The demand to pay interest rates on life products with savings components can increase with high premium earning. This could affect negatively to the wealth of shareholders.

The outstanding premium on the books of insurers may also affect the investment activities and there by the shareholders wealth could be negatively affected.

5.10. Summing up

The present chapter has considered AUM as a tool for investment analyses which is a popular tool to measure the size and success of the business. The study examined significance of investment by using policyholders' liabilities to shareholders' fund ratio, and surplus / (deficit) to Policyholders' liabilities ratio followed by various regulations issued by IRDA. Investment pattern and yield on investment have been analysed with respect to all selected companies using descriptive statistics, ANOVA and Kruskal Wallis test. It reveals no significant difference among selected companies because of stringent regulatory norms issued by IRDA in protection of policyholders.

Later, carrying value of investment i.e., AUM has been analysed fund wise with the help of year-on-year growth, average, CAGR and CV. The result of selected companies has been compared with whole private sector. In terms of AUM, all selected companies together captured more than 75% of market share.

Moreover, the present chapter has calculated wealth of shareholders per rupee of investment by using AUM as a key factor. It presents short term wealth created by the insurers every year for their shareholders. The analysis reveals that all selected companies have created wealth more than a double per rupee invested in the last two years of the study period and it is expected to increase in future.

The purpose of the financial management is to maximize the wealth of shareholders. Therefore, the financial management practices with respect to shareholders wealth has been assessed and evaluated with the help of descriptive statistics, correlation, and multiple regression. It is worthwhile to note that an increase in the amount of capital significantly reduces the wealth of shareholders. However, adding to reserves and surpluses and MV AUMs significantly increases the wealth of shareholders. Effective management of AUM is the backbone of the insurers finance that leads to increase the wealth of shareholders.

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