THE ASSESSMENT OF DEREGULATIONS ON MTPL MARKET WHICH PUT ON AT RISK THE FUTURE OF THE INSURANCE SECTOR IN TURKEY

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MARCH, 2019

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BY

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DISSERTATION SUBMITED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF BUSINESS ADMINISTRATION

IN INSTITUTE OF SOCIAL SCIENCES

YEDİTEPE UNIVERSITY

MARCH, 2019

Approval of the Institute of Social Sciences

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ABSTRACT

Motor Third Party Liability (”hereinafter, MTPL”) insurance is the most important branch in the non-life insurance sector in Turkey. Common fatalistic views of the Turkish Citizens to insurance and low income level cause low insurance penetration rate in the sector and increase the weight of the MTPL in total non-life insurance production for just being a mandatory product. In light of these reasons; significance of this compulsory insurance product rises up day by day. All type of motor vehicles driving on highways like car, truck, bus or minibuses are mandated to get MTPL insurance in accordance with the Highway Traffic Law No. 2918. Despite it is a mandatory product in most of the countries, free market conditions are available on determining rates except for a few countries. Turkey was also one of them which has free market mechanism. Traffic insurance tariffs were freely determined by insurance companies within the scope of the regulation disclosed in 19.6.2013 dated and 28682 numbered official gazette. But, after 04 2017, the regulator decided to set rates and bring price cap to MTPL policies. This paper mainly underlines the impact of the deregulations related to price cap and pool business on MTPL and present the negative impacts to sectoral profitability according to panel data which cover last five years. It investigates companies’ behaviors and warns the market for any insolvency cases like Euro Sigorta. It was a vital intervention for the market and also a good example for underlining the effect of the government's intervention and companies’ reactions. The main reason for this study to present this regulative change abruptly has removed the free market conditions and devastate the long-lasting hopes for making profit from MTPL business in the sector and it changes the sector structures which highly possible could cause subtle problems in the future", In this study, we will mainly utilize TSB data, regulator disclosures and annual reports of the companies as main materials.

As a consequence; we will show some companies which described good and moderate companies share shrinking on the MTPL sector and give up their place to bad and worst companies when combined ratios rise up. Deregulations on the capital requirements open the roads to small companies to produce loss maker product so capital requirements don't deteriorate on the other hand reserves also. At the bottom line, we underline structural deterioration derived from deregulations in MTPL Market.

Key words: MTPL, Insurance, High Risk Business Pool, Turkish Insurance Market, Government Intervention and Sustainability, Solvency

ÖZET

Trafik sigortası Türk insanının kaderci anlayışı ve düşük gelir seviyesi ile birleşince Türkiyede elementer sigortacılığın en önemli branşı haline gelmiş ve elementer üretiminde payını giderek arttırmıştır. Karayolları trafik kanununun 2918 nolu maddesi uyarınca karayollarındaki tüm motorlu araçların trafik sigortasına sahip olması zorunludur. Trafik sigortası ülkelerin çoğunda sosyal sebeplerle zorunlu bir ürün olmasına rağmen serbest piyasa koşulları hakimdir ve piyasaya her hangi bir otorite müdehalesi söz konusu değildir. Turkiye de yakın bir zamana kadar bu ülkelerin arasındaydı hatta bu uğurda uzun ve zorlu bir süreci geride bırakmıştı. Fakat, 04/2017 tarihinde trafik sigortası fiyatları üzerine bir tavan uygulaması getirildi ve serbest piyasa koşulları ciddi bir yara aldı. Bu çalışma başlıca fiyat tavanı ve buna bağlı olarak getirilen havuz uygulaması ve bunun sektörel etkilerini ele almaktadır. Çalışmada ana kaynaklar olarak son beş yılın TSB tarafından yayınlanan panel verisi kullanılmış ve aynı zamanda şirketlerin yıllık raporlarından yararlanılmıştır. Çalışmanın temel amaçlarından bir diğeride havuz ve fiyat tavanı uygulamasının etkilerini dikkate alarak şirketlerin yeterliliklerinin altının çizilmesidir. Mevzuat değişilikleri ile getirilen fiyat tavanı ve havuz uygulaması zaten uzun süredir zarar eden sigortacıların Trafik branşından kar etme umudunu uzunca bir süre için rafa kaldırmıştır. Bir diğer yandan şirketler arasında branş üretim yapısı ciddi şekilde bozulmuş küçük şirketlerin bu uzun kuyruklu branşta ciddi anlamda üretim yapmaya başladığı buna karşın sektörü domine eden şirketlerin ise bu branş için iştahlarının ciddi şekilde azaldığı gözlemlenmektedir.

Sonuç olarak iyi ve orta seviyede gördüğümüz bu şirketlerin MTPL için iştahlarının azaldığı bir ortamda küçük şirketlerin kötüleşen sektörel birleşik rasyolara rağmen hızlı bir şekilde büyümeleri bir çok soruyu bereberinde getirmektedir. Diğer yandan yeterlilikle ilgili yapılan mevzuat değşiklikleride bunun önünü hızlı bir şekilde açmaktadır. Çalışmamız temelde bunları ortaya koyarak bir ön uyarı mekanizması olmaya çalışmaktadır. Dileriz ileride bu durum sektörel bir yaraya dönüşüp karşımıza çıkmaz.

*Anahtar kelimeler***:** *Trafik Sigortası, Riskli Sigortalar Havuzu, Türkiye Elementer Sigorta Pazarı, Fiyat Müdehaleleri ve Sürdürülebilirlik. Yeterlilik*

ACKNOWLEDGEMENTS

Learning is an endless journey throughout human life but it stays lack of something without practice. I believe education must be harmonize with practice. Practice stays alone without education, education stays alone without practice. These are complementary parts of life. That is why I turned to this journey after a long time interval.

I would like to express my deepest gratitude to my supervisor Assoc. Professor Dr. Can Tansel Kaya for their guidance, encouragement and feedback throughout this research.

I would also express my appreciation to the members of the thesis committee for their support and approval.

I want to dedicate my thesis to my son and my wife.

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ABBREVIATIONS

AA	Assurance Account
IRDAI	Insurance Regulatory and Development Authority of India
MTPL	Motor Third Party Liability
MOD	Motor Own Damage
SBM	Insurance Information and Monitoring Center
TARSIM	Agriculture Insurance Pool
TCIP	Turkish Natural Catastrophe Insurance Pool
TSB	Insurance Association of Turkey
TUIK	Turkish Statistical Institute

1. INTRODUCTION

Insurance has vital importance for growth and economic development. In a simple way, Insurers just sell the trust and collect money from insureds. These money invest in funds and turn back to the economy again. These funds are borrowed to investors for creating new business and these investors also buy an insurance for valuable assets and these cycle keeps on again and again. End of the day, insurer just sell trust, and feed the economy by funds in this circle. This circle creates growth, economic development and sustainability.

Figure 1. Insurance sectors' stake holders

Insurance sector has close interaction with several stakeholder as demonstrated in picture above. Sector paid compensations to consumers for their losses in tough times, existence of insurance make feel them in safe for the future, insurance create new funds to their investors and shareholders for new investment opportunities.

They also buy services from several suppliers like car services, hospitals and other service providers and support flourishing them. Insurance sector paid commissions to intermediaries like agencies and brokers, in this way; creates new employment areas as well. Also it hires thousands of employees and touch to thousands of people life. Sector paid taxes to government and these taxes turns to society as public services besides taking roles under the name of social responsibility. Insurance sector creates an enormous economy by itself beside positive psychological effects creates on the society. There is only trust in the center of the whole of this system.

The trust is the main harvest of the insurers thus the first and most important function of the insurance is to protect individuals and corporates in economic and social life cycle and making them feel in safe. In shortly, we can describe it as Gyarfas define the insurance as a social measure that builds up for sharing of measurable risks, unexpected losses between individuals, combination or just uncertainty pooling, accidental disbursement, risk transfer and damage compensated system benefited by generations (Gyárfás & Marquardt, 2001). Beside these social protection also insurance companies make the vital contribution to the economy by creating funds with the premiums they collect and transferring these funds to investment instruments such as bonds, stocks and real estates. They also strengthen the economy by ensuring the continuity of trade and the strengthening of the social structure (Çekici & İnel, 2013). When you look at to fund creation capability for nonlife insurance companies; MTPL is the workhorse of the sector due to size and time tail of the business. Because the premiums are collected in short time but loss payments came throughout in a long time interval for example some companies use their payment pattern more than fifteen years. On the other hand, weight of this cash generator branch in the market is one of the important indicator of low level of market development according to study of kozarevics. They describe it “higher MTPL share in the total premium indicate low level of market development” (Kozarevic, Kozarevic, & Šiljegović, 2011)

According to study of Ćurak “insurance development promotes economic growth. Thus, functions of insurance companies, providing means of risk management and performing mobilization and allocation of resources are vital in terms of economic growth” (Ćurak, Lončar, & Poposki, 2009)

The serious part of the engine of the economic growth, insurance has basic principle; the essence is not to prevent damage, but to make it bearable for the members of the group. As the number of people increases to have insurance, the risk is distributed more and members has less part of the liability about risks. This rule was matched with “law of large numbers (LLN)”. In this way, damage of the unlucky members distributed to whole society members who bought insurance service from providers (Güvel & Güvel, 2002)**.**

That is why, some of the branches like MTPL, MOD and health were called as mass production in the insurer’s language. Because number of policy sold is really high, so only just a few policies results cannot effect the whole portfolio results considerably.

As agree with Gyarfas, insurance is a social measures but also we should underline that; some type of insurances has spread over a wider area in terms as social effects. In this paper, we will study and analyze the most important one in Turkey which is called as Traffic insurance or another name is MTPL insurance.

Our hypothesis is that; MTPL insurance is a loss generated branch and deregulations related government price intervention and high risk business pool cause to decrease premiums and indirectly increased loss ratios in the industry and create more unprofitable MTPL market for insurance companies beside deterioration in the market structure. After these developments, there are deliberate changes on company behaviors some companies started to lost its appetite to MTPL market versus some of them increase their MTPL production in spite of deteriorated bottom lines. When we analyze the structure of these companies; we astonishingly monitor that; powerful companies avoid from MTPL sector and give up their places to weak or new companies. It is unavoidable reality to keep this powerful companies in game for wealthy insurance market.

Our primary research method was descriptive method and especially underline the some basic performance indicators for measuring the profitability. Finally, we will demonstrate that the regulative changes (price cap and high risk business pool implementation) is wounding the profitability and create some hidden liabilities due to deregulations on the capital requirements brought by the price cap and pool system. We also explain the sectoral under reserving issue in the pool business by sectoral data. We will utilize a cluster study which describe companies (best, good, moderate, bad and very bad) and analyze the companies MTPL productions and CoR results consequently. In here, we utilize another study related to clustering of the insurance companies in Turkey. Companies stayed out of the study were distributed to clusters by a basic assumptions. It was distributed to the same cluster by matching most like company available in the study.

In our paper, we present loss generated MTPL market and price intervention how could exacerbate the market profitability. As mentioned before our study will utilize panel data feed from TSB quarterly profitability figures for five years (22 Quarter) and disclosed annual reports of the companies, we use panel data analysis for presenting market structure and profitability after premium tariffs effected from intervention.

According to results; we will underline; best and good companies have given up the market to moderate, bad and worst companies. we will prove the profitability is vital problem of the sector; price cap and pool regulation change the market structure and deregulations about capital requirements falsify the calculation of the required capital and solvency in reality could be deteriorate for these companies inner or sooner. Therefore monitoring authority must be careful about to encounter again cases like Euro insurance. Regulative authority take risk by changing the solvency calculation related to excessive production risk and open the roads to smaller size companies to produce more than their capital availability. On the other hand; the inflationary environment can cause to extend claims payment due to financial income concerns of the some companies, it could cause unhappy insureds who cannot get their compensations on time or worth. So it can create an underqualified sector and highly possible to consumers could be affected by negatively due to these populist regulative changes. The regulator also should take into consideration again and again when re-regulate the market for unprofitable MTPL business. Otherwise, they ask themselves that “how many years sector could bear losses when sector dominated by

MTPL product?" and what could compensate the deterioration on the sector before irreversible point for the sector.

1.1. The Purpose of This Study

Our study differentiates from many researches on insurance business because it is an outlook to the main problem of the sector and also it is a warning to the monitoring authority which has given over market results. There are so many study which say MTPL is a loss maker product but we do not have any study which has deep dive attention to unprofitable MTPL market in Turkey.

This study analyze this product and underline the risks for the sector and underline the measures which should be taken before staying late. It is an early warning to monitoring authority in terms of the solvency concerns and pool and price cap.

1.2. Why This Study is Important

This study is a formal and written warning to the monitoring authority related to the future of the insurance sector because sector should be managed without populist approaches. Unlike it should strengthening for any kind manipulative games.

In actual statements. Deregulations creates hidden liabilities and the real deterioration on the sector were omitted by the aim of the political reasons. Monitoring authority must focus on to create wealthy and overqualified insurance sector before the insufficient companies to transfer their liabilities to public. It should also take into consideration that, approaches like this could extinguish the foreign investors' attention which is full of hope for the future of the Turkey.

2. HISTORY OF MTPL INSURANCE

We will start with the starting of the needs of MTPL insurance so first section of the study let’s look at to the history of industrialization; Cars have entered our lives with industrialization. Today’s modern car with an internal combustion engine was invented by Karl Benz and Gottlieh Daimler in 1886. Henry Ford's Model T took its place in people's world at the beginning of the 1900’s and it was very much loved. These automobiles were produced by mass production technique which allows vehicle production in large quantities with low cost. The Henry Ford’s model T and used production technique were a revolution in the automobile world and industrialization (Bedir, 2002). In fact, Hennry ford has enormous trust his production technique and said “any customer can have a car painted any color that he wants so long as it is black”. His mass production technique based on standard production cycle cut down the automobile prices to half rapidly. This technique had decreased the automobile prices when increased the number of vehicles produced and it made easier to buy a car for each family.

With the widespread use of the automobiles, humanity has faced a new problem; the dream that they lived with the cars entering their lives was turned into nightmare as a result of traffic accidents subsequently. They encounter its unbearable social and economic effects. MTPL insurance was born as a result of endeavors to compensate for these unbearable social and economic effects due to the accidents. MTPL insurance was first introduced in Denmark in 1918 for ensuring compensation of the victims of accidents on the road. Norway (1926) and Sweden (1929) followed the Denmark on introduction of MTPL insurance (Astill, 1959). After First World War, Great Britain followed these Nordic countries and introduced MTPL on January

1931. The last Scandinavian country was Finland (1937) which has started to inforce MTPL insurance. After the Second World War, the MTPL insurance began to spread rapidly in Europe. Although, USA was the homeland of the Model T and automobile industry. Only, 3 provinces have compulsory traffic insurance. These provinces are New York, Massachusetts and North Caroline. It is hard to understand the MTPL starting in Nordic countries when the center of the automobile industry is USA.

Turkey met with MTPL insurance quite late. We guess; the table below clarifies the reasons explicitly. Low income level and late industrialization had not allowed to increase the number of cars until half of the 50's. The private car number is really low in Turkey when you compare with most of the Europe countries. For example private car number is only 1,8% of the Germany and 0,8% of the United Kingdoms' in 1954. Turkey has launched to underwrite the MTPL insurance 27.09.1954 dated law which requires coverage for personal injury, motorcycles, private automobiles, commercial vehicles and property damages. MTPL is the first liability insurance which is regulated by law in Turkey. This insurance constitute according to the Swiss Highway Traffic Law (Ünan, 2006).

Table 1: *Number of Private Cars in Europe*

TRENDS IN NUMBER OF PRIVATE CARS AND OF DEGREE OF MOTORISATION													
THOUSANDS OF CARS(ROUND FIGURES)													
	Country	**1950**	**1951**	**1952**	**1953**	**1954**	**1955**	**1956**	**1957**	**1958**	**1959**	**1960**	**1961**
1	Germany	570	753	904	1.130	1.397	1.667	2.033	2.456	2.940	3.506	4.341	5.171
2	Austria	-	59	66	75	92	143	188	233	286	341	404	475
3	Belgium	274	304	320	368	440	501	537	605	633	701	753	-
4	Denmark	127	132	145	172	212	241	271	306	339	389	450	517
5	Spain	97	98	102	108	116	128	152	172	194	240	291	359
6	France	-	1.700	1.800	2.020	2.677	3.016	3.477	3.972	4.512	5.019	5.546	6.158
7	Ireland	92	104	112	114	123	133	140	140	148	158	174	190
8	Italy	342	425	510	613	744	861	1.051	1.238	1.421	1.644	1.945	2.444
9	Luxembourg	9	11	13	16	19	21	24	28	31	33	37	42
10	Norway	65	69	79	91	108	122	134	153	173	193	225	276
11	Netherlands	139	157	173	188	219	268	328	376	421	450	512	602
12	Portugal	60	66	70	77	86	93	103	112	125	139	151	158
13	U.K.	2.368	2.492	2.615	2.862	3.202	3.634	4.002	4.302	4.669	5.096	5.665	6.128
14	Sweden	253	313	361	431	536	637	735	863	972	1.088	1.194	1.304
15	Switzerland	147	168	188	211	238	271	309	347	386	430	485	550
16	Turkey	10	13	16	24	26	26	27	30	32	31	34	41

*Data acquired from 1963 council of ministers resolutions (European Conference of Ministers of Transport, 1963)

According to general clauses; the insurer must notify to provide legal liability up to compulsory insurance limits (Hazine Müsteşarlığı, 2015) . Compulsory financial liability insurance for the operators cause the death or injury of any person during the operation of the motor vehicle or something to pass through the operator. The scope of the insurance is limited to the compensation claims that given to third parties which may possible to demand from the insured under the liability coverage according to the Road Traffic Law. This insurance policy is only in force in the borders of the Turkey. That mean; if you have a car accident with your car outside of the Turkey, you cannot use your insurance policy. Because it is invalid on the international roads, there is another MTPL product which is valid in outside of the Turkey called as green card MTPL insurance. Policy were underwritten by local insurers but premium and risk directly transferred to the green card pool and risk moved by this pool. But in our study, we will omit these portion of the MTPL production. Because only 2 % of the total MTPL premiums is green card in 2017 and it just generates commission income.

MTPL insurance covers material, treatment, death and continuing disability indemnities. Within the scope of the coverage; all treatment costs of people to be injured in an accident caused by an insured vehicle like first aid, examination and control in the clinic, at the hospital and anywhere else. Beside mentioned expenses, All other medical expenses required by the treatment due to accident are also paid even if the deaths occur or not.

Death and bodily injury coverage; if the insured vehicle caused and injury by hitting any person or in an accident, damages caused by temporary or partial loss of working power in whole or in part, or cause to death, the burden of the burial of those who are deprived of help losses of deprivation payment are done. The amount of the indemnity were determined in accordance with the published tariffs and instructions by the ministry.

There is a misperception in the society about motor insurance products especially between Motor own damage and MTPL products. These products confused the peoples mind due to have same compensation subject. But it should be noted that; the MTPL insurance only covers damages given to third parties in a determined limits in contrary with MOD insurance. MOD also covers your damages beside the third parties losses.

Increase in number of vehicles and being a legal obligation cause to become the most important insurance branch in the market when described as one of the indicator of the undeveloped sector. If you look at the 2017 results. It is a vital branch in terms of weight in the total non-life GWP (Table 2). According to Insurance association of Turkeys statistics, total MTPL premiums excluding green card consist 29,1% of the total written premiums of all non-life insurance production in 2017. Currently, 39 non-life insurance player has actively are carrying out business in the market and 30 of them has the MTPL license actively.

Only, one company has canceled its MTPL license in Turkey throughout sector history. Dubai Starr cancelled its MTPL license in 2016. It is mainly related to regulative and profitability concerns. It choose not to play this dynamic product which highly dependent on frequently changing regulations. But it was a unique example for the history of MTPL.

But it seems won't be stay as unique example due to regulations because Liberty insurance were sold to German insurance group, Talanx, and new owner give back its MTPL license after sales due to have already a license actively used in HDI insurance. So market lost one more player in this way. There is another remarkable development on the sector in the current days; Turkland sigorta were sold and Maher holding acquired this company. It is remarkable because Maher holding has just established Quick sigorta 2 years ago and both of the companies has MTPL license. What will be the fate of license in this second company is arousing curiosity. We hope that, won't be another exit from market.

Table 2: *Last Five Years' MTPL and Non-Life GWP Development*

Branches	2012	2013	2014	2015	2016	2017
Non-Life GWP (mn TL)	17.119	20.832	22.712	27.068	35.450	38.400
MTPL GWP (mn TL)	3.600	4.966	5.073	6.811	12.470	11.163
Non-Life Growth		22%	9%	19%	31%	8%
MTPL Growth		38%	2%	34%	83%	-10%
Inflation		7%	8%	9%	9%	12%
MTPL/Non Life		**23,8%**	**22,3%**	**25,2%**	**35,2%**	**29,1%**

**data acquired from Insurance Association of Turkey and received MTPL pool premiums were excluded from MTPL and Non-Life premiums.

The essence of the MTPL insurance policy were public interest. That is why, it is a mandatory insurance policy in forced by government hand. Regulators are responsible with ensuring affordability, availability, and fairness for policyholders. At this point, there is a strong conflict between the insurers and the regulator. Industry players have to focus on profit maximization more than social benefit as necessity of the private sector logic. In this point, public stake conflict with insurance companies on prices. Because companies believe capital always looking for more return wherever in the world it can be obtained. Capital owners at least want to get their money back by reasonable interest income. Main concern of all companies is to maximize its profit, maximize share price and increase the wealth of its stakeholders (Gitman, 2007). This is a rational expectation.

Normally, prices never can be lower than the total cost which called as break-even point but there may be an exception to this, in some circumstances companies can bear lower prices than break-even point especially under high competition or strategical reasons like seizing the market. Although it is compulsory insurance, the prices seems to be a decisive factor of the sale of MTPL policy, price is directly affect consumer behaviors. When prices are going up, some of the car owners can give up to buy an insurance in spite of penalties. So we could explicitly define MTPL insurance is price sensitive product. As mentioned before sometimes prices could went down due to tough competition and aggressive growth strategies of the companies.

Despite this low level prices, sector never solve the uninsured drivers' problem. Actually, uninsured drivers is not just peculiar to Turkey, It is a worldwide problem. But low income level and beliefs in Turkey deteriorate uninsured car rates much more than other countries.

Uninsured driving are not understandable when you compare the cost of the penalties in logical approach. As known, MTPL insurance is compulsory and if you were pulled over in a traffic stop, you have to declare your MTPL insurance policy. If you have not, police could pull over your car and give you a penalty ticket for driving uninsured car. Beside the MTPL insurance payment, you also have to pay for penalty ticket, vehicle tow and car parking costs for getting back your car from police.

According to Turkish Statistical Institute (TUIK), uninsured vehicles consist %21 percent of the all motor vehicles and still number of uninsured vehicles increase continuously versus heavy penalties mentioned above. But government desire to reduce this rate as well. However, it should not be only way is to saddle the charge to insurance companies by price intervention as encountered implementations in forced currently.

Table 3: *Number of Uninsured Vehicles*

Year	# of Vehicle*	# of Insured Vehicle**	# of Uninsured Vehicle	Share of Uninsured Vehicle	Growth(%) of Uninsured Vehicle
2012	17.033.413	13.862.901	3.170.512	18,6%	
2013	17.939.447	14.111.306	3.828.141	21,3%	20,7%
2014	18.828.721	15.062.936	3.765.785	20,0%	-1,6%
2015	19.994.472	15.522.432	4.472.040	22,4%	18,8%
2016	21.090.424	16.502.412	4.588.012	21,8%	2,6%
2017	22.218.945	17.524.114	4.694.831	21,1%	2,3%

*data acquired from Turkish Statistical Institutes web page.

**data acquired from Insurance Association of Turkey Traffic Branches Statistics.

As we mentioned before; economic development, improvement in financial market, increased household income and global trade eventually led to purchase vehicles easily. As you see in figures above; number of vehicles are rising rapidly on the roads. But at the same time uninsured vehicles increases on the roads by increasing car numbers. Never, we could mention about sustainability of the wealthy MTPL insurance business without reversing this statement.

TUIK figures shows that the number of vehicles increased by an average of 6% per year in the last six years. According to the police departments data, more than one million property damages and more than 150 thousands death and disability accidents occur per year between 2010 and 2016. Almost 4000 citizens were died on roads in every year. Despite all this negative and depressing picture, increase on number of uninsured vehicles are still going on to rise up as a dilemma.

MTPL has enormous growth in 2016 in terms of premium production, but it is mainly come from price increases as you see in table below premium per vehicle increase from 439 TL in 2015 to 756 TL in 2016. The main reason of this; Companies aware that price war is not a true strategy and rational pricing must be done if sector desires not to bear to high losses so companies avoid price wars on MPTL product and prices rise up due to companies reasonable pricing strategy.

But government change the game in 2017 by price intervention as you see in average premium table below; premium per vehicle shrank %15 and go down to 637 TL from 756 TL in 2017.

Table 4: *Average Premium Development*

	2013	**2014**	**2015**	**2016**	**2017**
Number of Vehicle	14.111.306	15.062.936	15.522.432	16.502.412	17.524.114
Premium Per Vehicle (TL)	352	337	439	756	637
Premium Growth Per Vehicle (%)	35,5	-4,3	30,3	72,2	-15,7

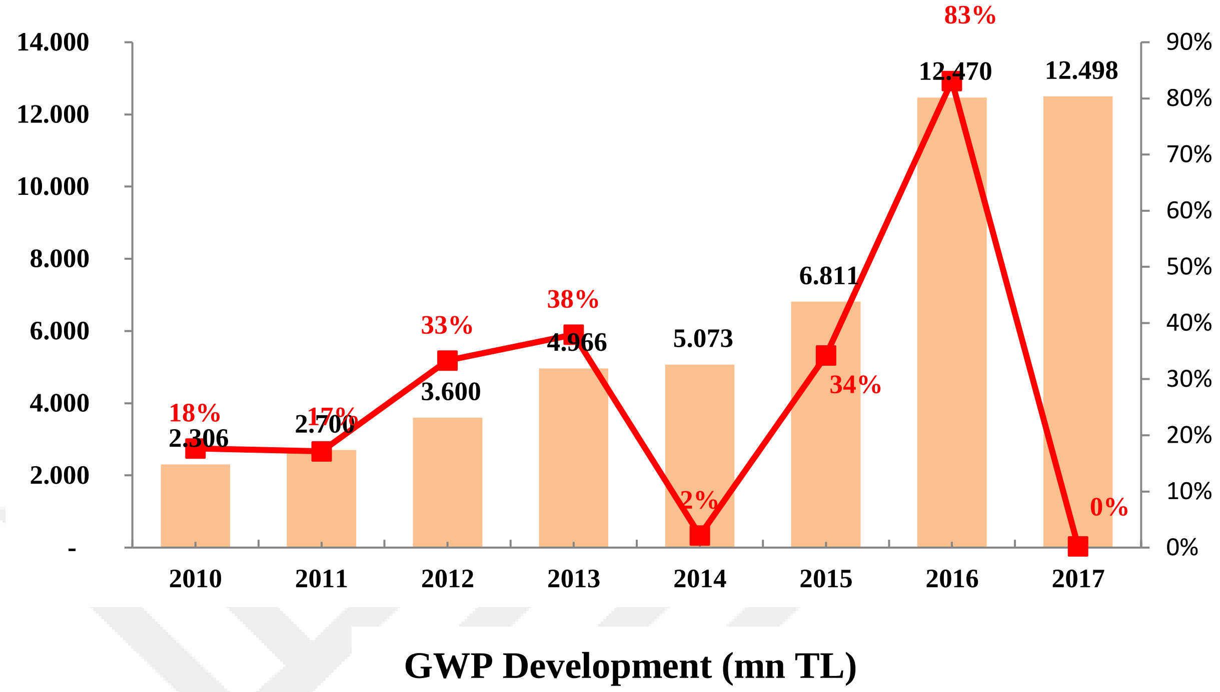


Figure 2. MTPL GWP Development in Last 7 Years

Figures don't misdirect you. Because although this sharp price increases in several consequent years, underwriting results are far away from being bearable for sector players. In table below, you could see underwriting results never reach to positive figures. Also financial income allocated to MTPL business were placed in the graph. As you see in tables sector only reach to positive figures in 2016 by financial income. Also we should underline that some of the companies has launched to calculate reserve discounting. It means UW results also worse than 204 mn TL without reserve discounting. When you checked the results in the TSB, you could not reconcile figures mentioned here. Therefore you should consider that some of the reserve discounting which is related to previous years files were reflected to balance sheet accounts so not only effect PL accounts also effect balance sheet accounts and

P&L effect. They updated their previous years' reserves 240 mn TL in 2016 Balance sheet without any reflection to P&L.

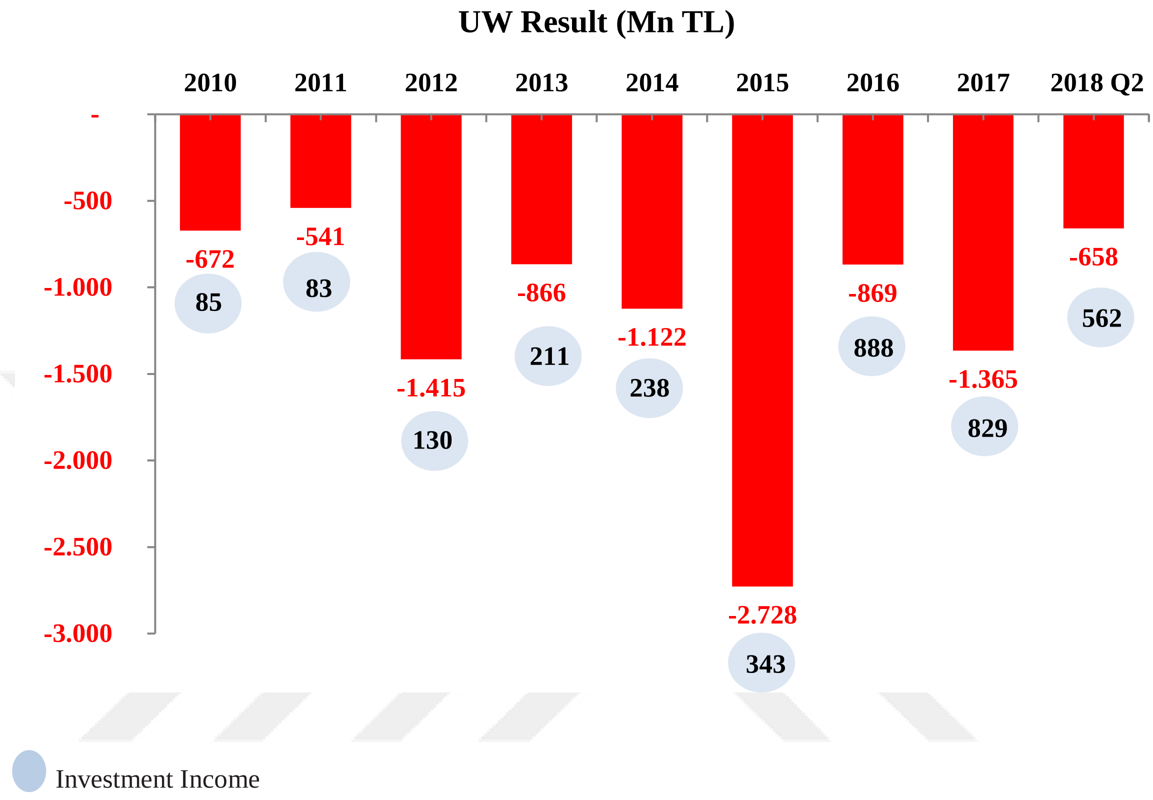


Figure 3. MTPL UW results in Last 8 Years

If government did not change the regulation the expected GWP would grow up at least inflation rate and it reaches to 14 billion TL in 2017 but regulative authority brought a price cap and high risk business pool implementation. Thus sector lost more than 1,2 billion TL premium The pricing is the most important tool for the insurance companies. It is the staminal instrument to gain profit and applying true risk selection strategies. Companies has several actuarial models and approaches backside of their pricing policy. Despite this, sometimes prices might be irrational level due to tough competition in the market. According to Mrs. Gönül Al insurance markets are very competitive without intervention and restrictions. Thus it is not possible to acquire meaningful market power by small number of insurance companies. It could not determine the prices alone due to competition. Market reach to rational prices sooner or later under free market conditions. 2016 results actually is the best example for it. Because some companies tried to implement law pricing strategy for a while in MTPL sector but they saw it is not sustainable in MTPL so finally give response to negative bottom lines together and price increases was inevitable at the end of the day. Several attempt was made to draw a picture about companies violated the competition. According to allegations. Insurance companies has hidden agreement about increasing MTPL prices. But what is the real case from insurer's eye? Traffic insurance has been generates loss since a long time. Some of losses in previous years derive from tough and irrational competition in the market. When we check last eight years figures; all results were in red as you see in table above. Therefore insurers are certainly desperate for turning these red figures to green in respect of new regulations.

Mr. Can Akın Çağlar, The general manager of the Euroka Sigorta A.Ş. summarized the statement of the MTPL after price cap.

"We have no expectation of profits from the MTPL business but we could not show that we have made any profit in the past eight years. We accept that, but we continue to be hopeful that we can carry it in a reasonable environment, along with other policies"

"The dramatic price increases realized when the profitability of other products is taken away by loss in the MTPL" said Mr. Çağlar and added "The price increases in MTPL insurances have been around 30 percent in 2012 and we have almost doubled in 2015. We wrote the biggest loss in our history. Even at the end of 2016, our profit in the MTPL was only 19 million TL despite reserve discounting" (Dünya Gazetesi, 2017).

This year's traffic will take away profits in other branches again, Çağlar said, "Price cap cannot sustain with these prices and how much more could the sector carry this losses?" He said. The words from mouth of the Eureka's' general manager supported by figures is explicitly summarize the statement. "The King is nude".

2.1. MTPL- Pricing Adventure

Turkey is a typical developing country so as encountered these types of countries, free market conditions were started to set pretty late. Turkey's motor insurance pricing adventure could be explain in four steps.

2.1.1. State determined tariff system (1953-2007).

Prices directly determined by regulative authority who drives the sector. 6085 numbered and May, 11, 1953 dated Turkey's Motorways Traffic Law obliged the motor vehicle owners to acquire an insurance to cover damages in traffic accidents. According to the mentioned law, only Council of the Ministers has right to determine the motor insurance rates. It issued decrees for rates. This has gone on until 1985. This authorization was given to the Insurance Supervisory Authority by the federal government in 1985.

2.1.2. Approved tariff system (2007-2014).

Companies was not completely free for pricing. But they are allowed to stay between a margin defined by supervisory authority, in 2007, the companies has right to develop their own tariffs by a small margin over approved prices by the Undersecretariat of Treasury. It was just first attempt to transition to free market. After July 1, 2008, insurance companies have the right to determine their own base premiums by 6. Feb. 2008 dated and 26779 numbered amendment. Pricing related clauses of mentioned regulation will be in forced in 1.07.2008. This regulation expanded the small margin to the wider range. But, still the supervisor has the right to review the company's tariff for the monitoring company's financial strength to write business.

2.1.3. Liberal tariff system (2014-2017).

Companies was totally free to determining their prices without any intervention or restriction at the beginning of 2014 (Baykal & Bülbül, 2016). Actuarial modelling, competition, and growth strategies of the companies determine the prices. This stage was defined as pure liberalization. But this pure liberalization phase only takes 2 years. 28683 numbered regulation were disclosed in 19.06.2013 which is bring a total free market conditions. The effective date for the regulation was 01.01.2014 and it explicitly defines that; companies freely determine the basic insurance premiums on a provincial basis.

As mentioned before; it did not take too much, Undersecretariat of Treasury disclosed a new declaration to companies in subsequent year (27.10.2015 dated) and bring a price cap for some special type of vehicles using for trade purposes. Price limit table is placed below which used in first intervention to liberal tariff regime after the successive developments on free market journey, this first intervention was a pioneer quake of what will happen in the market soon.

Table 5: *Price Cap Tariff in First Intervention*

Vehicle Type	Maximum Gross Premium(TL)*
Truck	6.000
Small Size Truck	2.000
Minibus(10-17 seat, driver including)	3.300
Bus (18-30 seat, driver including)	5.700
Bus (31 and more seat, driver including)	17.700
Taxi	5.400

* Including tax, commission and other expenses

In here, the most important question is why government has tried to transform sector to liberal tariff regime, what was the main motivation for taking these steps for free market According to Gönül al there are some specific reasons for the Turkish Treasury taken up to liberal tariff regime (Gönülal, 2009)

- It is based on a dilemma between supervising and monitoring. Because supervising the sector by determining prices is not compatible for insurance supervisory authority. Because it manages the sector and monitor the sector at the same time. So it creates a conflict.
- Second one is related to focus on monitoring responsibility and improving capability. It wanted to develop the monitoring muscles which is less strong than others; it can easily define which companies have good claims management procedures and rational premium rates in accordance with their actuarial principles. Beside all, it could identify the mismanaged, under

reserved and insolvent companies, Thus supervisor has started to take over a new role for ensuring solvency and accumulating data for the general public by the aim of creating high quality and strong insurance sector.

But despite all these rational reasons underlined above, the government has never completely give up to intervene to prices due to social concerns and political reasons. But it is not reasonable to give up the liberalization adventure when came up to almost end. Several country suffer extensive endeavors for liberalization on pricing. As you assume. Several country pass from this path before us. For example; EU members deliberately reach liberalization many years ago from us as mentioned below;

France: The France is the one of the first liberalized market in the E.U. Pure liberalization has been implemented since 1986. It was many years ago from declaration of European directives. It was one of the pioneer country in Europe

Spain; Free pricing environment is available since 1984 in Spain.

United Kingdom; Tariffs were completely determined by companies in the sector since several decades

Germany & Italy; these countries step up to pure liberalization in 1984.

Slovenia; after several years endeavors. It reached to liberalization on the insurance market in 1999.

In fact Bulgaria did just opposite of what we did in the liberalization adventure. It had to increase minimum prices due to prevent the negative effects of liberalization on solvency ratios by the aim of sustaining strong insurance market.

2.1.4. Price cap system (2017- undetermined).

The liberal tariff regime which partly harmed in 27.10.2015 were completely demolished last year by the intervention of the government. The Turkish regulators bring a price cap to Motor Third Party Liability product by regulation.10.04.2017 dated and 45621 numbered. The states in all over the world struggle to ensure liberalization on insurance market. In contradistinction to these endeavors, The Turkish regulator haven’t step backward from decision which abolished the liberal tariff regime acquired by extensive endeavors. The main purpose of this study is to identify the effect of these deregulations on intervention on the motor third party liability insurance market and the possible problems sector and monitoring authority will have to face off.

2.2. The Price Cap Regulation

According to 10.04 2017 dated and 45621 numbered regulation, the premium amounts to be determined for the 4th grade on the basis of each vehicle type cannot exceed the premium amounts in the table below. The maximum premium amounts included in the table will be increased 1% per month (from the maximum premium amount of the previous month) starting from May 2017. This rule was softened on 2018. Monthly rate was increased to 1.5%. And one- shot price increase of 5% was allowed at the beginning of 2018. After last disclosure of Undersecretariat of treasury. Price cap and high risk pool business will go on.

Table 6: *Price Cap Tariff for New Entries*

Vehicle Type	4'th Grade Maximum Premium(TL)*
Car	807
Van	1.055
Motorcycle	329
Tractor	165
Minibus(10-17 seat, driver including)	1.418
Truck	2.258
Vehicle tow	3.784
Bus (18-30 seat, driver including)	2.021
Taxi	2.089
Heavy Machines	690
Bus (31 and more seat, driver including)	5.007
Special Purpose Vehicles	2.200
Trailer	456
Tanker	1.436
Agriculture Machines	245

*Including SSI Share, Agency Commission, Expense shares, BITT, Traffic Services Development Fund and Guarantee Fund

The premium amounts to be determined for the other grades cannot exceed the amounts obtained after the discount and increase rates to be applied to the 4th grade in premium amounts.

The rate of intermediary commission to be applied by insurance companies cannot be less than 10%. This rate is calculated on the premium including SSI share, except BITT, Traffic Services Development Fund, and Assurance Account insured participation share. Government provide to sustain availability of the MTPL policy by this clause. It set a minimum commission rate which is %10, in this way, it prevent to reduce the commission rates too much. The main aim of this clause is to make the sales for agencies less meaningless and to maintain availability of the product on the insurance market. Otherwise insurance companies could diminish the commission rate due to maximizing their profit and agencies could avoid to sell this product for staying away time consuming operation and unremunerated income

As known. One of the most popular pricing system is bonus&malus pricing system. Turkey has also implement seven-grade basis bonus&malus pricing system as seen most of the other countries, if we explain the system basically; for the first time who attend the system with the drivers name, the 4th grade is used without deduction or increase. It means that the entrance grade is fourth grade. After each claimless year, you can get 15% discount as an award and reach to 5th grade or just the opposite in each claim your grade go down and you have to pay 50% more for your policy as a penalty.

Penalties and awards by grades as shared in below

Table 7: *Bonus &Malus Clustering Table*

Bonus & Malus table		
Grade	**Discount (%)**	**Increase (%)**
7	45	
6	30	
5	15	
4	**-**	**-**
3		50
2		100
1		150

2.3. Bonus&Malus Pricing System

Most of the developed economies has bonus-malus premium pricing system, which has more fair and drivers feel more responsible to drop his/her claim frequency for lower or affordable prices. The equation of the bonus and malus is very important for the insurers to carry on financial sustainability and health of the system. Rating systems are based on penalties given to insured for accidents which driver caused so price penalties or premium surcharges named as mali), and rewards given to insureds for each claims free year, given price discount named as boni are now really very common used implementation in several countries (Pitrebois, Denuit, & Walhin, 2003). Clustering the insureds in terms of risk level is the easier and most efficient way. Because this approach is encouraging policyholders to drive more carefully, in this way, penalties push the insurance owners to be conscious about their responsibilities and it is called as bonus-malus systems.

As mentioned before Turkey has seven- grade bonus malus system. Policy holders who attend system for the first time gets into system from 4.th grade. Drivers who has an undamaged year to go up his cluster to next grade and get discount as an award, Drivers' each claim which they have defect cause to go down one grade and pay surcharges as a punishment. Drivers' grade records always follow him/her when he/she change his/her insurance company. Grades were determined according to claim counts and each claim notification were recorded by SBM which was notified When the insured renews his / her policy the following year, the new grades as the reward or penalty rate according to the number of the damage can be determined. In here, range is so tight and severe of the claims never taken into consideration. In some countries like japan, severity is another dimension of the determining grades beside the frequency. Grade schedule in forced in 2008 is available below. .

Table 8: *Bonus &Malus Clustering Table (in forced in 2008)*

Bonus & Malus table 2008		
Grade Number	**Discount%**	**Increase%**
7	20	
6	15	
5	10	
4	**-**	**-**
3		20
2		40
1		60

Policy prices decrease by each

Policy prices increase by

Government should take into consideration when regulate the market "never harm the credibility of the bonus& malus system in terms of consumer". Otherwise, consumers do not believe system and trigger the deterioration in drivers' behaviors and it cause to increase in losses because consumer has never concern about losses. They will know there is a limit what will have to pay and it does not a big matter how many claims they bring by his policy. It has a very precision balance.

As we mentioned before MTPL is a compulsory insurance and it has very competitive market and rates determined by rational actuarial approaches. Also regulator has monitored market strictly by the mean of solvency and other violations. Companies had to bear losses several years due to aggressive competition and non-liberal pricing environment. After transition to liberal tariff system; prices reach to closest point to break-even in 2016. But, price cap regulation underline that if you want sell policy in Turkish insurance market you have to endure to write losses for an undetermined period. It is far away from basic business logic which focused on profitability.

Historical data quality is very important issue for the effective bonus&malus system. By the aim of providing this high quality, government established insurance information and supervision center (SBM) in 2003. Entity was founded by TRAMER name. It was changed in 2011 as insurance information and supervision center (SBM).

Insurance companies can easily track the damage history of the drivers with SBM system and determine his/her grade in bonus or malus schedule.

SBM works in cooperation with the General Directorate of Security, Ministry of Interior, Population Administration and Ministry of Finance. Therefore, access to the created database is restricted to the users' authority. It provides uninterrupted service to companies throughout 7 day /24 hours. Inquiry can be done with policy information, identification number, tax identification number, engine number and chassis number for new and renewed policies (Üst, 2007)

Insurance information and monitoring center is a success story of the government for increasing trust and providing high level technological infrastructure. It increased its capabilities every year for insurers. In my opinion; former General Manager, Mr. Aydın Satıcı and his team has the biggest share in this success story.

2.4. Assurance Account

It was founded in 3.05.1997 by the name of guarantee fund according to Highway Guarantee fund regulations in forced in article 108 in 2918 numbered Highway Traffic Law. This regulation were updated by Highway guarantee insurance account in 3.07.2002. But after 5854 numbered insurance law it was terminated and assurance account were established by 26594 numbered and 26 July, 2007 dated ordinance which was prepared on the basis of article 14 of the insurance law no.5684. Assurance account has wider scope then predecessors. because guarantee fund and guarantee account was only get MTPL insurance in scope but assurance account has wider scope. It covers whole mandatory insurance policies (Cicim, 2011). The main duty of the MTPL insurance is to ensure to get indemnities of third parties after damages by insurer. But in some conditions drivers has not validate MTPL insurance so there is no any insurer to compensate victims' losses. Same statement also is valid for hit-run accidents or when insurers may not fulfill its responsibilities due to financial in-capability, license cancellation or bankruptcy. Government set guarantee fund for compensating losses in this type of events. But fund need financial resources for fulfilling its role. Thus government create a resource by aiming to solve foundation problem.

The main income resources of the Assurance Account is;

- Insurance companies have to pay %1 of their MTPL production to Assurance Account as participation share.

- Insurance holders have to pay %2 of the MTPL insurance premiums defined in insurance contract as participation share for using mentioned circumstances above.
- Resources obtained through recourse
- Investment income
- Other income

However, the share of participation cannot be less than the amount of remuneration to be determined by the Undersecretariat of treasury on the basis of the insurance branches and insurance risks per year.

The main expenditures of the guarantee fund is.

- Indemnity payments or other expenses related indemnity payments.
- In the event that the Undersecretariat deems it necessary; the contribution to be made to the Insurance Information and supervision center, the Insurance Training Center and the Commission, which will be determined by the Undersecretariat by not exceeding one percent of the total amount of funds accumulated at the end of the previous year.
- Expenses related to the litigation cases were opened against the fund or the cases opened by fund,
- Expenses related to the staff working on the fund and other expenses related to the execution.
- Expenses derives from auditing of the mandatory insurance policies.
- Assurance account is a safety valve that removes the negative effects of system leaks.

Tables below shows us the importance of the assurance account.

The first table gives us the compensation payments related to article 14/c in insurance law which is for the financial and/ or physical damages that the insurance company is obliged to pay in case of cancellation of licenses or business in all branches continuously due to financial structure weakness.

When we check the web side of the assurance account, 2007 was determined as the establishment date but compensation tables begun from 2003. In my opinion they should gave more proper information about their history.

Tables also shows that guarantee fund was established on 1997 but usage was very limited until 2005. After 2005 increase its reputation and started to usage.

Table 9: *Compensation payments made according to Article 14 / C in 5684 Insurance Law (TL.)*

Year	**Material**	**Death/Burial**	**Disability**	**Treatment**	**Total**	**# of files**
2003	6.723.163	211.825	22.035	16.826	6.973.850	13.288
2004	14.172.464	2.177.941	85.935	267.947	16.704.287	19.015
2005	11.433.915	2.012.578	289.593	324.605	14.060.691	14.173
2006	2.668.539	2.036.362	695.255	423.942	5.824.099	4.113
2007	4.994.878	2.568.506	844.306	601.045	9.008.735	1.021
2008	1.085.334	1.644.796	682.720	362.527	3.775.376	612
2009	318.970	1.305.369	567.854	408.578	2.600.771	277
2010	224.841	934.709	478.239	261.216	1.899.005	184
2011	92.702	430.145	470.079	294.451	1.287.377	102

2012	92.956	774.836	425.160	61.276	1.354.228	77
2013	48.789	535.477	605.112	88.526	1.277.904	56
2014	22.940	861.398	188.137	15.480	1.087.954	42
2015	53.227.048	8.497.213	11.164.749	163.534	73.052.544	13.339
2016	163.957.298	9.127.549	14.443.060	22.020	187.549.926	29.534
2017	98.068.400	12.627.215	16.822.728	7.274	127.525.617	3.351
2018/6	45.164.641	3.218.389	8.411.822	28.459	56.823.312	1.417
Total	***402.296.878***	***48.964.308***	***56.196.784***	***3.347.705***	***510.805.674***	***100.601***

Second table gives us the compensation payments related to articles 14/A-B-Ç in insurance law which is for

- Bodily damages in the event that the insured cannot be identified(A)
- For damages, which are caused by have not been insured in the accident date(B)
- In cases where a car has been stolen or robbed and caused an accident and give bodily damages.(Ç)

Table 10: *Compensation payments made according to article 14 / A, B and Ç in 5684 Insurance Law (TL.)*

Year	Material	Death/Burial	Disability	Treatment	# of Files
1998	4.333			4.333	10
1999	40.345			40.345	50
2000	60.566			60.566	45
2001	133.590	2.093	4.949	140.632	48
2002	375.344	3.606	19.444	398.394	79
2003	683.720	43.216	25.263	752.199	93
2004	2.452.979	122.725	54.018	2.629.722	201
2005	7.348.259	1.016.337	532.612	8.897.207	567
2006	9.339.808	2.267.079	509.620	12.116.507	1.183
2007	9.952.454	4.209.770	1.302.621	15.464.845	2.644
2008	14.638.525	6.773.114	1.579.141	22.990.780	4.690
2009	22.026.106	9.569.116	3.448.669	35.043.891	7.844
2010	20.511.358	14.866.774	8.473.876	43.852.008	17.527
2011	19.168.744	16.743.930	4.458.285	40.370.960	8.361
2012	25.925.878	19.970.360	618.536	46.514.774	1.235
2013	26.374.250	29.744.861	599.886	56.718.998	1.219
2014	27.982.969	44.496.240	785.833	73.265.042	1.413
2015	32.056.335	50.308.511	1.410.743	83.775.588	1.369
2016	52.681.106	70.179.532	1.740.290	124.600.927	1.626
2017	99.424.662	111.373.407	2.159.803	212.957.871	2.765
2018/6	50.557.202	75.388.021	1.763.265	127.708.487	1.685

Total	*421.738.531*	*457.078.692*	*29.486.853*	*908.304.076*	*54.654*

Table 11: *Total Compensation Payments* TL.*)*

Year	Material	Death/Burial	Disability	Treatment	Total	# of Files
1998		4.333			4.333	10
1999		40.345			40.345	50
2000		60.566			60.566	45
2001		133.590	2.093	4.949	140.632	48
2002		375.344	3.606	19.444	398.394	79
2003	6.723.163	895.545	65.251	42.089	7.726.049	13.381
2004	14.172.464	4.630.920	208.661	321.964	19.334.008	19.216
2005	11.433.915	9.360.836	1.305.930	857.218	22.957.898	14.740
2006	2.668.539	11.376.170	2.962.334	933.562	17.940.606	5.296
2007	4.994.878	12.520.959	5.054.076	1.903.666	24.473.579	3.665
2008	1.085.334	16.283.321	7.455.834	1.941.668	26.766.157	5.302
2009	318.970	23.331.476	10.136.970	3.857.246	37.644.662	8.121
2010	224.841	21.446.067	15.345.013	8.735.092	45.751.013	17.711
2011	92.702	19.598.889	17.214.009	4.752.737	41.658.337	8.463
2012	92.956	26.700.713	20.395.520	679.812	47.869.002	1.312
2013	48.789	26.909.728	30.349.972	688.412	57.996.901	1.275
2014	22.940	28.844.367	44.684.377	801.313	74.352.996	1.455
2015	53.227.048	40.553.547	61.473.260	1.574.277	156.828.132	14.708
2016	163.957.298	61.808.655	84.622.592	1.762.309	312.150.853	31.160
2017	98.068.400	112.051.876	128.196.135	2.167.077	340.483.488	6.116

2018/6	45.164.641	53.775.591	83.799.843	1.791.723	184.531.799	3.102
Total	***402.296.878***	***470.702.839***	***513.275.475***	***32.834.558***	***1.419.109.750***	***155.255***

* Data was acquired from www.guvencehesabi.org.tr

Awareness about assurance account has increased in public in each past year and it has a very important responsibility for the future of the society. When you look at from social side. It likes to safety valve of the system. These account must continue in a healthy manner.

2.5. **High Risk Pool Business**

After price cap, premiums were reduced almost 40%. Even though it has not been more than three months since the price cap application, now the pool model started in MTPL insurance. The main reason is some insurance companies avoided making insurance for commercial vehicles that are at high risk of damage after loss of appetite, after the price cap implementation (Doğan, 2017).

The Treasury has taken a new step to solve this problems by creating a 'High risks pool' in the MTPL branch. Government took into account the feedbacks from insurance sector and public related to price cap and mentioned reasons above take one more step to alleviate the effect of the price cap. The Turkish authorities create a "Pool system" for the distribution of MTPL premiums and claims for high risk vehicles on 12 April, 2017. The pool managed by the Turkish Motor Vehicles Bureau, under the Treasury's supervision. According to regulation; Licensed MTPL insurers will undertake the loss or profit of the poll in accordance with their production share.

Pool business mainly cover whole vehicles in 1st, 2nd and 3rd grade and some of the vehicles like taxi, minibuses (10-17 seat, including driver), buses (18-30 seat, including driver), buses (31 and more seat, including driver), truck and vehicle tow in other grades.

Taxi, minibuses (10-17 seat, including driver), buses (18-30 seat, including driver), buses (31 and more seat, including driver), truck and vehicle tow which placed in 5. 6. 7. Grade will be implement %10, %20, and %30 discount rates respectively,

The rate of intermediary commissions to be differentiated from cap regulation and decreased to 8% over premium including SSI share, except BITT, Traffic Services Development Fund, Assurance Account Insured Participation Share.

The insurance company manages the claim process of the policy write by itself. Companies have %13 commission over premium including SSI share, except BITT, Traffic Services Development Fund, and Assurance Account Insured Participation Share in terms of operational cost. Companies earned 5 percent for their operational costs. But this could be crate a claim management dilemma. Companies which they haven’t proper claims management system could pay claim without detailed investigation by the reason of minimizing operational expense. So non payable claims or fraud claims could be approved easily and open the roads for insurance fraudulent. It creates weakness for fraudulent possibility. Because claims managed by company which ceded to whole claim to pool.

Premiums and claims related to policies under scope of pool shared in 2 stages, %50 of premiums, paid claims and whole other items were distributed equally between companies, the rest %50 percent were distributed according to market share of the last three years premium production. This share were calculated at the beginning of the year and stay stable throughout year.

The whole process were managed by Turkish Motor Vehicles Bureau authorized by the Undersecretariat of treasury

Table 12: *Burdens in Pool Policy*

	Burden Type	**Rate**
Collected from insurance holder	BITT premium	5%
	Assurance Account	2%
	Traffic Services Development Fund	5%
	Total	**12%**

Insurer will paid over net premium	SSI share	10%
	Assurance Account (Company Share)	1%
	Intermediary Commission	8%
	Operational Cost Share	5%
	Total	**24%**

Ceded premium= (Gross Maximum Premium/1,12)*0,76

Ceding to pool was based on car plate number. Companies' reinsurance share does not change the ceding amount calculation to pool. Reinsurance shares do not considered in pool business. Also, if companies gave price lower than approved amount in Regulation Company has to cede policy to pool from determined price in regulation no matter what it collect. Difference should be booked as other expense and company have to bear it.

Policy and claim files subject to pool were followed by insurance information and supervision (SBM) data center. Companies must reconcile their accounts by SBM data for their notifications. The sharing rates used for the year 2018 is below and each year table will be updated by motor bureau.

Table 13: *2018 Pool Shares by Company*

ŞİRKET	2015	2016	2017	TOPLAM	ÜÇ YILLIK TOPLAM PAY	ÜÇ YILLIK %50 PAY	%50 EŞİT PAY	2018 PAYI
AK	64.081.944,03	194.100.368,23	515.602.936,84	773.785.249,10	2,589026416	1,294513208	1,612903226	2,907416434
ALLIANZ	1.175.792.870,48	2.542.472.286,93	1.296.936.259,30	5.015.201.416,71	16,78048136	8,39024068	1,612903226	10,00314391
ANADOLU	882.969.255,63	1.450.776.658,53	1.075.051.991,40	3.408.797.905,56	11,40557775	5,702788877	1,612903226	7,315692103
ANKARA	57.805.273,02	117.569.379,82	170.958.709,60	346.333.362,44	1,158805011	0,579402505	1,612903226	2,192305731
AXA	1.159.593.929,92	1.704.708.559,04	670.572.218,89	3.534.874.707,85	11,82742112	5,913710559	1,612903226	7,526613785
BEREKET	46.022.223,47	73.127.541,97	126.972.371,26	246.122.136,70	0,823505894	0,411752947	1,612903226	2,024656173
DOĞA	192.767.516,08	543.239.509,22	1.018.844.342,00	1.754.851.367,30	5,871598808	2,935799404	1,612903226	4,54870263
ERGO	289.669.187,02	185.896.709,97	100.166.150,81	575.732.047,80	1,926355513	0,963177756	1,612903226	2,576080982
ETHICA	-	176.439.472,30	437.337.762,17	613.777.234,47	2,053651805	1,026825903	1,612903226	2,639729128
EUREKO	22.926.598,24	84.629.508,81	143.637.624,37	251.193.731,42	0,840475063	0,420237532	1,612903226	2,033140757
GENERALI	69.551.149,74	59.942.472,00	30.919.343,43	160.412.965,17	0,536729544	0,268364772	1,612903226	1,881267998
GROUPAMA	110.870.727,52	84.363.314,14	64.085.643,88	259.319.685,54	0,867663886	0,433831943	1,612903226	2,046735169
GULF	1.382.213,26	2.718.445,83	10.892.469,77	14.993.128,86	0,050165865	0,025082933	1,612903226	1,637986159
GÜNEŞ	223.389.595,41	245.104.666,64	319.193.712,83	787.687.974,88	2,635543876	1,317771938	1,612903226	2,930675164
HALK	430.340.315,85	589.042.898,08	755.293.604,79	1.774.676.818,72	5,937933256	2,968966628	1,612903226	4,581869854
HDI	136.117.623,51	221.665.750,88	189.505.335,06	547.288.709,45	1,831186272	0,915593136	1,612903226	2,528496362
KORU	72.857.612,59	76.143.781,21	132.306.175,40	281.307.569,20	0,941233667	0,470616834	1,612903226	2,083520059
LIBERTY	17.338.400,06	17.693.659,02	24.798.899,92	59.830.959,00	0,200189825	0,100094912	1,612903226	1,712998138
MAGDEBURGER	-	-	-	-	0	0	1,612903226	1,612903226
MAPFRE	953.439.539,43	1.479.835.127,25	1.068.779.546,84	3.502.054.213,52	11,71760625	5,858803124	1,612903226	7,471706349
NEOVA	196.542.211,58	544.155.650,47	496.916.819,00	1.237.614.681,05	4,140964312	2,070482156	1,612903226	3,683385382
ORIENT	793.552,27	7.114.119,05	40.913.197,78	48.820.869,10	0,163350904	0,081675452	1,612903226	1,694578678
QUICK	-	-	357.960.410,17	357.960.410,17	1,197708226	0,598854113	1,612903226	2,211757339
RAY	103.021.638,67	179.062.180,15	182.540.015,22	464.623.834,04	1,554595905	0,777297953	1,612903226	2,390201178
SBN	33.332.728,08	78.377.675,83	73.381.730,46	185.092.134,37	0,619304162	0,309652081	1,612903226	1,922555307
SOMPO JAPAN	371.046.705,91	1.395.450.429,63	1.142.043.593,69	2.908.540.729,23	9,731755405	4,865877702	1,612903226	6,478780928
TÜRK NIPPON	7.443.679,88	142.636.216,18	233.622.690,00	383.702.586,06	1,283839583	0,641919791	1,612903226	2,254823017
TURKLAND	20.247.217,53	8.168.082,09	41.135.634,37	69.550.933,99	0,232712119	0,11635606	1,612903226	1,729259286
UNICO	5.175.365,67	15.908.250,02	119.183.334,50	140.266.950,19	0,469322515	0,234661258	1,612903226	1,847564483
ZİRAAT	7.514.957,14	77.783.993,95	70.467.680,67	155.766.631,76	0,521183267	0,260591634	1,612903226	1,873494859
ZURICH	11.349.584,55	5.669.898,75	9.912.517,43	26.932.000,73	0,09011242	0,04505621	1,612903226	1,657959436
TOPLAM	6.663.383.616,54	12.303.796.605,99	10.919.932.721,85	29.887.112.944,38	100	50	50	100

If a company leave the sector its share allocated to other companies as encountered in the license cancellation of the Liberty insurance. For example; company produce 100 TL MTPL pool policy and its predicted ultimate loss ratios is 125%. According to implementation; company have to pay 8% agency commission. 5% claims management fee should be deducted from premium and also 11% should be paid to SSI and Assurance account only 76 % transferred to the pool from written premium. If we produce from %125 ultimate loss ratio, the company will pay 114 TL claims after the deduction of the 11% SSI and Assurance account share. So the premium ceded to pool only 76 TL and loss is 114 TL. If we added 13 tl agency commission and management expense pool combined ratio reach to %150 from motor bureau view as you see in table below.

Table 14: *Market pool CoR equation from Pool View*

Premium written by companies (A)	100
Un transferred premium due to agency commission + admin fee given by pool to companies for their running costs (B)	-13
Un transferred premium due to direct payment done by company to social security ins. & assurance account (C)	-11
Premium transferred to pool (D) = A+B+C	**76**
Expected ultimate claims (E))	-114
Expense ratio = B / A	13%
Ultimate Loss ratio = (C+E)/A	125%
CoR according to full premium view	**138%**
CoR according to company P/L's (after shifts between cost and revenue accounts) = E / D	**150%**

2.5.1. Pool reserving issue.

The true reserving is another consideration related to insurance companies in terms of having strong financial structure.

Table 15: *06 2018 Pool KPI*

Pool P/L	(06/2018)	GWP	NEP	ER	LR	CoR
Cluster	**Total**	**2.647,54**	**937,12**	**-1,2%**	**93,2%**	**91,9%**
1	Allianz	380,44	95,46	-8%	127%	119%
2	Axa	201,63	98,66	19%	117%	136%
2	Anadolu	324,21	68,96	-9%	97%	88%
4	Ak	140,82	25,62	-9%	117%	108%
4	Güneş	52,51	27,38	-10%	98%	88%
4	Ergo	39,86	25,17	0%	89%	89%
4	Groupama	24,32	20,67	-2%	64%	61%
4	Eureko	39,26	17,91	-8%	117%	109%
3	Mapfre	126,30	69,03	1%	64%	65%
5	Ankara	43,95	19,74	-4%	86%	82%
5	Unico	59,07	17,00	-12%	69%	57%
4	Halk	130,85	35,21	12%	226%	237%
5	Turkland	18,49	14,42	-2%	37%	35%
3	Sompo Japan	287,23	94,02	-2%	109%	107%
4	Generali	22,54	17,91	0%	22%	22%
4	HDI	43,86	23,53	-5%	110%	105%
5	Bereket	30,72	15,98	0%	8%	8%
5	Liberty	16,86	15,63	0%	58%	58%
5	Magdeburger	9,05	6,40	0%	48%	48%
4	Neova	81,08	39,79	-5%	135%	130%
5	Ray	51,46	15,40	-8%	115%	107%
5	SBN	55,39	31,51	-5%	41%	36%
5	Türk Nippon	38,42	14,45	-14%	186%	173%
4	Ziraat	23,84	16,29	-1%	141%	140%
4	Zurich	19,11	0,40	-33%	2402%	2369%

5	Koru	27,60	18,20	1%	58%	60%
5	Gulf	18,84	18,84	0%	53%	53%
5	Doğa	171,86	33,93	0%	-206%	-206%
5	Orient	21,06	15,37	-1%	62%	61%
5	Ethica	51,30	20,91	-4%	123%	119%

If we get the MTPL results which acquired from TSB data like above, it could be really hard to assess easily because the reserving strategy of the companies differentiate from each other because. Each company has different portfolio and different pricing strategy in previous years. In addition that, companies have almost 15 years loss portfolio in their reserves so it is not easy to say it is true or false exempt for outliers and also several dynamics available backwards of the reserving. That is why commenting peer group analysis is not easy. TSB separate MTPL product as pool and non-pool in 2018, thus you can reach pool results from TSB figures as you see in above, companies loss ratios interval dispersed to wider area in contrary with expectation. This business only 1 year history and risks ceded from the pool is same for each company. It is not understandable dispersion in wider area. Because price same and loss pattern same therefore loss ratio results must be close to each other in a basic logic. However, the results considerably differentiate from each other's. It is inevitable to have some reporting errors or meaningless data like Doğa sigorta; because there is a positive IBNR in pool results of Doğa and it is not meaningful. Results underline that; same business, same prices but different reserving strategy for each company. Actually it is not acceptable. Results explicitly define that some companies has seriously under reserving problem. It is easy to say that loss ratio couldn't be at 40%-80% range for High Risk Business when basic MTPL has almost

90% Loss ratio. Monitoring authority should be re-assess these results and take required actions before staying late. Because it falsify technical results also effect required capital calculations.

2.5.2. India experience in pool.

Turkey is not first country used pool implementation. India also has serious experience in MTPL pool. After the high losses in nonlife insurance market 2009 and 2010, the negative bottom line has become the biggest problem of the non-life insurance sector in India due to underpricing of commercial vehicles. Thus, sector players avoided to produce MTPL policies. IRDAI established the vehicles MTPL pool. All non-life insurers has to participate pool over their market share like Turkey. This pool has been generate losses constantly since 2007/08. Commercial pool has more than 150 % Loss Ratio. The authority has decided to abate the existing pool implementation in 23 December, 2011 and replaced with reclined risk pool for act only commercial vehicle third party insurance. IMF also underlined that current level of operating losses in the non-life insurance sector is not sustainable (Al, 2009).

India still endeavor to solve high combined ratio results in their motor Market. Both MOD and MTPL segments are loss making at underwriting level on accounting basis in 2018.

When we turn to the Turkey about profitability in last decade. The bottom line of the MTPL cannot draw a shiny picture when compare with experience of the India. After serious losses throughout long successive years, Industry has reached to only 19 mn TL profit in 2016 over 12,5 billion TL written premium in MTPL branch. The first time that year end results has turned to profit in the last decade. Mainly it comes from deregulations on reserve discounting and wise pricing based on actuarial modeling and risk selection policy and avoiding price wars. After several years price restrictions and aggressive competition it showed to sector; companies learned to avoid price wars. For example; Axa, one of the dominant motor branch player at the beginning of 2010. But it has to increase its capital 838 mn TL in 2012 and 2013. This value is almost equal to acquiring a company in top five rank in this years. After that Axa changed aggressive growth strategy in motor branch and trigger the change in the sector. But, changes on the pricing strategy also brought a social discontent due to high MTPL prices in fact cause to some people avoiding MTPL insurance. Some researchers like Noyan Doğan maintain that it is mostly due to high prices. After these high price levels, government increase pressure over insurance companies for decreasing prices. Competition authority launched several investigation about high level prices but consequences shows that it was result from necessities of rational pricing. There was no compromise about pricing between insurance companies for the purpose of harming the competition. All derives from nature of the business and historical data of claims. Several immaterial penalties were given to insurance companies due to high prices from regulator but these are mostly doing for make companies feel the under pressure to fall prices. After these inconclusive endeavors, Turkish regulator bring a price cap to MTPL business. That was like an earthquake in the sector. This research examines the effects of these earthquake on MTPL market and free market conditions. The main feature of the MTPL is that you can pay damages after several years from written premium and the amount of damages is unknown for a long time mainly due to bodily injuries). Therefore insurance literature has determined the MTPL insurance among “long-tail” insurance classes (Pandurics & Illes, 2015). MTPL is long tail business and if you write a MTPL policy, you have to move the liability of this policy throughout 15 years. In some resources you will encounter the insurers responsibility is ten years but it derives from previous Turkish Penalty Code no. 765, the periods of punishment for prolonged sentence, if there is a dead or wounded (5) years, more than one dead and one or more injuries (10) years.

After the Turkish Penalty Code No. 5237 entered into force on 01.06.2005, according to Article 66 of the Law, the extended periods of punishment are extended by one (15) years (m.85,66 / d), one or (8) years (m.89,66 / e) if there were multiple injuries. However, in the case of casualties as well as casualties, the upper limit of the penalty to be applied to the person who committed the accident is more than five years, and the time limit (15 years) for all of the casualties or casualties without discrimination. Although the Highway Traffic Law no. 2918 has been mentioned in the first paragraph of the 109 ’th article titled "Time Limit" (2), the time limit is limited only to vehicle damage except for very discrete situations. In the case of deaths and injuries, the extended periods of punishment (penalties) of Article 109 shall apply to all responsible persons (without distinction of driver, operator, entrepreneur, insurer) (Çelik, 2018).

So, hopes which insurance companies has in 2016 for profitability, was collapsed after only one year in 2017. Although 798 million TL case reserve discount, MTPL has write -1,37 billion TL loss in 2017 and most of the companies have to move these policies effects 15 years in reserves. In fact whispers started in the sector about some global players will give back their MTPL insurance license.

End of the day, Mr. Şimşek explained. Industry has 240 mn TL losses due to price cap and it is not a bearable for companies so introduce 5% one shot increase in

2018 prices. Also, %1 monthly increase rate raised up to 1,5 %. Beside price cap and pool system will be continued in 2018. This was a good news for insurance companies but it was still away from companies' expectations.

2.6. Key Rates on Insurance Performance Monitoring

Our study mainly examines the ratios so we will firstly introduce these rates by details and practice below.

We will start with operating ratio which is net of premium investment income and insurance operation results,

Let’s shortly formulate it

$$\text{Operating Ratio} = \underbrace{(\text{Loss Ratio} + \text{Expense Ratio})}_{\textbf{Combined Ratio}} - \text{net investment income ratio.}$$

This ratio must be below the % 100 and used in some countries actively, In Turkey, Combined ratio is came to forward from others, net investment income were monitored closely but never use as a specific value of the performance monitoring for branches. Mainly, branch performances were measured by combined ratio results.

2.6.1. Combined Ratio.

Combined ratio could be defined as sum of the claims (loss) ratio and the underwriting expense ratio (Combined ratio = Loss ratio + Expense ratio). The combined ratio simply measures premium acquired from an insurance policy is sufficient to cover its underwriting operations like claim management or other issues.

According to definition, combined ratio could be less or greater than 100%. Let's explain what it means with an example; if you write 100 TL premium and your combined ratio is 95%, you spent 95 TL for claims and all other expenses related to policy. At the bottom line you earn only 5 TL underwriting result and you make profit only 5 TL. If your combined ratio is higher than 100%, it means; you spent much more from you have earned. You spent from your pocket and you have loss in bottom line. Combined ratio is generally used in non-life operations (Kwon & Wolfrom, 2016) but as mentioned before you have also financial income part so you can write a business which is over the %100 CoR ıf you have long tail claims payment pattern for this product.

Combined ratio is the main key performance indicator for monitoring the technical contribution of the branch in practice. Lets' do deep dive the components of the combined ratio.

2.6.2 Loss Ratio:

It is the main component of the combined ratio and it was consisted from several parts related to claims. These are;

- **Paid Claims**; It refers to the claims payment to policy holders by the insurance company for accepted claims.

- **Outstanding claims reserve;** Provision for outstanding claims accrued on a file basis consists of amounts incurred or estimations on file basis for direct or indirect claims reported to the company until the balance sheet date and expenses related to these claims as well as expenses indirectly recognized after the balance sheet date, The amount of indemnification made and the provisions for expenses related to these indemnities were totally includes. Also we could classify here the files which under the legal follow up.

- **Outstanding claims rediscount for litigated files; According** to 2011/23 numbered circular for compensation claims in the litigation stage, and as a figure of outstanding claims could provisioned without any consideration of win/lose possibility but the basis of the case values along in order to reflect the real situation of financial reports within the framework of Turkey financial reporting standards and should provisioned evaluating the possibility of losing is stated. Accordingly, in order to ensure that the financial statements to be prepared by the companies reflect the actual situation, deductions from outstanding claims can be made for the files under legal proceedings according to the following principles. The win rate should be applied based on the amounts of the lawsuits filed against the company in the sub-branches according to the last five years' historical data. The total amount to be deducted from the outstanding claim cannot exceed 25% of the total amount of outstanding provisions in respect of the outstanding claims in each case. If companies do not have five years' data they could calculate deduction rate over the available data but it could not exceed %15.

- **Incurred but not reported(IBNR);** These amounts include indemnity amounts that have been incurred as of the balance sheet date but not accrued due to not reporting to the company and provisions for possible losses related to these possible indemnifications. It mainly acquired from historical triangles by actuarial techniques.

- **Outstanding Claim Reserve Discount;** 15.09.2017 dated and numbered 2017/7 circular, represent that companies can discount the future cash flows of the outstanding claim reserves which provisioned in accordance with the insurance legislation. After the price cap and pool business, Reserve discounting was brought as obligation for motor third party liability and general liability branches. The main reason of this decision is to decrease high losses in MTPL and General Liability branches. Actually decision is partly true in essence but reason to be in force is not trustworthy.

- **Earned Premium;** these items we mentioned above constitute the numerator also we have denominator which called as earned premium.

It was formulated as

Earned Premium= Written Premium- Unearned Premium Reserves-Unexpired Risk Reserves + Unearned Premium Reserves Brought Forward+ Unexpired Risk Reserves

- **Brought Forward;** Provision for unearned premiums consists of the portion of premiums accrued for the insurance contracts that are in effect at the gross basis on the day of the next fiscal period or periods without any commission or other deduction.

During the calculation of the reserve for unearned premiums, the day on which the insurance coverage starts and the end date are taken into account as a half day and the calculation is made accordingly

In the related accounting year, the "Unearned Premium Allowance" amount is included in the financial statements as of the current accounting period and the "Unearned Premium Allowance" in the financial statements of the end of the previous accounting year is included as the "Unearned Premium Reserve" the unearned portions of the premiums for the insurance contracts in effect are calculated on a day-by-day basis for the parts of the contractual period that follow the balance sheet date.

According to the provision of this article, if the amount of UPR which is set in last years unearned premiums reserve transferred in the balance to curret year.

- **Unexpired Risk Reserves**

Insurance and reinsurance companies are obliged to allocate provision for ongoing risks in the insurance branches that are considered to be incompatible with the time-dependent distribution of premiums received and the level of risk assumed during the term of the insurance contract as well as the level of risk and expected cost incurred by the company.

Provision for continuing risks is reserved for insufficiently qualified branches if it is determined that the unearned premium reserves are insufficient as a result of adequacy tests (T.C. Başbakanlık Hazine Müsteşarlığı Sigorta Denetleme Kurulu, 2016). Companies are required to conduct an adequacy test by covering the last 12 months of each accounting period

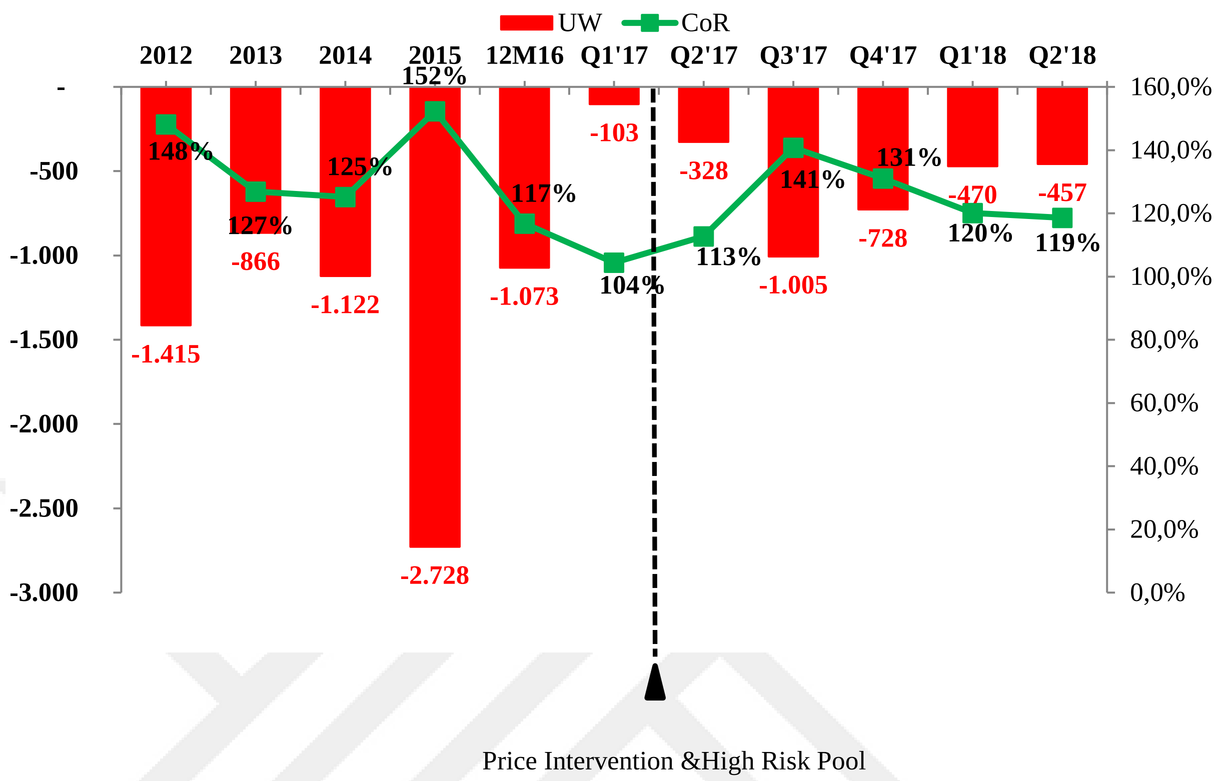
So we could formulate it;

Expected Net Loss Ratio

$$\frac{\text{Paid Claims (Net) + outstanding claims provision (Net) - OCP Brought Forward (net)}}{\text{Earned Premium (Net) (Net Premium + UPR-UPR Brought Forward)}}$$

If the expected loss ratio for the branches is over 95%, the excess amount exceeding 95% is multiplied by the net unearned premium reserve, and the branch has a net unexpired risk reserve, exceeding 95% and the amount resulting from the multiplication with the provision for premiums is included in the financial statements as unexpired risk reserve. The difference between gross amount and net amount is considered as reinsurer share.

When we checked the companies last 5 year combined ratio figures. It shows that a sharp increase in 2017. When we checked statutory financial results. As you see in graph 1. CoR was almost same with 2016 but this should not mislead you because there are several reason. First, price cap starting date was 01.04.2017 so until this date companies could apply their price policy based on their actuarial models. Also companies could write their premiums in breakeven point. And remarkable part of this premiums has been earned in 2017. Another trick treasury bring a new implementation and companies start to discount their outstanding claims otherwise they will negatively affected from it in terms of solvency. Otherwise, they could have to increase their capital.



*CoR and UW figures do not include reserve discounting effect.

Figure 4. MTPL CoR and UW Development in Last 7 Years (w/o reserve discounting)

After losses brought by the price cap and pool implementation; government change the regulation related to reserve discounting by 25.09.2017 dated circular. Companies can discount their net cash flows that are calculated over reserved outstanding claims according to the related insurance legislation, however, it is mandatory to apply discounting in General Liability and Land Vehicle Liability branches.

2017 Quarterly figures shows briefly the negative development in MTPL but as we underline above effective date of price 01.04.2017 so that graph do not show full performance of the sector which under price cap & pool.

Let's briefly comment the results in 2017. We will pay 104 TL for claims and expense per each 100 TL premium produced in Q1. ın subsequent quarter. Statement worsen than previous term. We have to pay 113 TL for claims and expense per each 100 TL premium produced in Q2. Results rapidly worsen in 3rd and 4rd quarter. Government give permit to 5% increase in prices but still we are seriously far away from expectations and 2019 will go on same manner.

High risk Pool businesses is the another main driver of these losses. Turkey's motor vehicle bureau foreseen the net Loss ratio of 115.7% for the end of 2017. The rate quoted is calculated after deducting SSI share (%10) and Guarantee Fund (%1). The most striking aspect is the rate does not include IBNR. Average % 25 IBNR should be reflected the results. Combined ratio reaches to %140. It means that when you write 100 TL from High risk pool business it will bring at least 140 TL loss end of the day.

The government is forcing the private sector to subsidize the bad drivers who should be punished under normal circumstances. It meets with government expectations in short time but it cause serious negative effects on drivers in long period. It is a dangerous approach. High risk pool business premiums differentiate from standard MTPL premiums. But results explicitly show premiums are highly underrated if you compare to insurers' liability in their publicly disclosed results.

3. LITERATURE REVIEW

Insurance is the most attractive subject of the finance world and several study have been done until know but most of them have general outlook to insurance sector. Thus, we focus on a specific product take over the main problem of the non-life insurance sector which gave harm to the sector profitability in Turkey.

Ilona kwiecien studied on polish insurance market which is MTPL product weighted market like our country. The study gave us overall information on polish insurance market and liberalization adventure of the Poland (Kwiecień & Poprawska, 2011), also it was explicit comparison to European trends and Financial issues like premium production and profitability. Our study resemble to this study as framework but we investigate same issues by deep dive in Turkish Insurance Market.

Wieczorek examined the problem of products' structure of non-life markets in the eight of European Union Countries (Estonia, Latvia, Lithuania, Czech Republic, Hungary, Slovak Republic, Slovenia and Poland). MTPL dominated market is the peculiar to young and transition markets and search the answer of the question "Is the share of MTPL insurance premiums in the non-life markets of the EU-8 declining?" The study examine the branch distribution of 2004-2008-2012 and 2015 years. As conclusion, this study reached that the share of the MTPL insurance was declining in there was a a visible growth in non-motor branches in these mentioned countries (Kosmola, 2016). Beside it shows explicitly the MTPL dominated market is not a problem just for the Turkey. It is a common problems of the insurance markets especially developing or undeveloped countries.

Another study prepared by Anett Pandurics, Pandurics investigate Hungarian MTPL market according to Micheal porters' five forces framework for industry analysis. This study mentioned about the main features of the sector according to five forces framework as mentioned below;

- Substitute products,
- Barriers to entry to market
- Development of rivalry within the industry
- The bargaining power of buyers
- The bargaining power of suppliers

At the en of the analysis. Study came to conclusion on mentioned aspects above

The Bulgarian insurance industry has intense competition

From the buyers 'side, the bargaining power is moderate/strong,

From supplier side, the bargaining power is moderate,

There is no threat of substitute products exist,

The threat of new players is important but the effect will be less than previous years due to regulation changes on the market (Pandurics & Illes, 2015).

As mentioned below, there are several study on the Poland for instance kozak has a study on the determinants of the profitability on non-life insurance companies. And His study has predictable finding about profitability. "The share of motor insurance in the company's insurance portfolio negatively impacts its profitability and efficiency" (Kozak, 2011), the study shortly explain that more share on motor branches cause higher marketing and higher compensations. So it has negatively affect the company's technical result, and managing this kind of losses it necessitate more operational expense and cause to less profitability.

Tomeski also has study on MTPL business in the European Union's Member States. He analyzed the advantages and disadvantages of the changing to liberal tariff regime from state regulated tariff regime for MTPL business. Tomeski define that "Regulatory authority chose the unrealistic pricing for MTPL by the aim of reducing uninsured vehicles number. Therefore this approach causes many problems in the market: slow liquidation due to mistrust and low valuation of damages, financial results do not allow to increase the minimum amounts of insurance, reduced solvency of insurance companies and inadequate technical reserves". (Tomeski, 2012). He described actually what is happening in our country right now and what is waiting for us in coming soon.

Also Acar took over the harmonization of Turkish market to European insurance market. He saw that in his study; the most of the attendees of questionnaire do not want to penetrate into motor insurance market (neither MTPL nor MOD) which is the biggest insurance market in Turkey (Acar, 2011). Because, motor insurance market is a loss maker branches and insurers has to bear large losses. Therefore, foreign entries prefer more profitable by higher income motivation.

4. METHODOLOGY

Our study has acquired data from officially disclosed TSB figures by company level. Firstly we clustered the companies by their statement on the sector. Study investigates the change on MTPL production weight between the clustered companies on the market. Companies clustered in five classes as best, good, moderate, bad and worst. Study investigate the MTPL productions of the clusters in the last five years.

4.1. Company Based Analysis

In our study we used hierarchically clustered companies market figures. You can find the company list and definition of the company below

Table 16. Companies Cluster Breakdown

Company name	Cluster	Description
Allianz Sigorta AŞ	1	Best
Anadolu Anonim Türk Sigorta Şirketi	2	Good
Axa Sigorta AŞ	2	Good
Mapfre Sigorta AŞ	3	Moderate
Sompo Japan Sigorta AŞ	3	Moderate
Aksigorta AŞ	4	Bad
Ergo Sigorta AŞ	4	Bad
Eureko Sigorta AŞ	4	Bad
Generali Sigorta AŞ	4	Bad
Groupama Sigorta AŞ	4	Bad
Güneş Sigorta AŞ	4	Bad

Halk Sigorta AŞ	4	Bad
HDI Sigorta AŞ	4	Bad
Neova Sigorta AŞ	4	Bad
Ziraat Sigorta AŞ	4	Bad
Zurich Sigorta AŞ	4	Bad
Ankara Anonim Türk Sigorta Şirketi	5	Worst
Unico Sigorta AŞ	5	Worst
Turkland Sigorta AŞ	5	Worst
Dubai Starr Sigorta AŞ	5	Worst
Bereket Sigorta AŞ	5	Worst
Liberty Sigorta AŞ	5	Worst
Orient Sigorta AŞ	5	Worst
Ray Sigorta AŞ	5	Worst
SBN Sigorta AŞ	5	Worst
Doga Sigorta AŞ	5	Worst
Koru Sigorta AŞ	5	Worst
Gulf Sigorta AŞ	5	Worst
Türk Nippon Sigorta AŞ	5	Worst
Ethica Sigorta AŞ	5	Worst
Quick Sigorta AŞ	5	Worst

This clusters cited from grading and evaluation of the insurance companies in Turkey (Altuntaş, 2018) authored by Eda Altuntaş but this study did not include whole companies actively operating in the non-life insurance sector so companies not included in the mentioned study were assessed in the same class as companies in a similar financial structure.

Table 17. Market Share Development

Terms(Quarterly)	*Best*	Good	Moderate	Bad	Worst
2014-03	*15%*	41%	12%	23%	6%
2014-06	13%	38%	12%	29%	6%
2014-09	11%	38%	13%	28%	6%
2014-12	14%	41%	12%	23%	6%
2015-03	14%	39%	11%	24%	6%
2015-06	17%	32%	15%	33%	7%
2015-09	18%	28%	20%	27%	8%
2015-12	19%	27%	26%	17%	10%
2016-03	19%	29%	23%	21%	9%
2016-06	21%	32%	21%	17%	9%
2016-09	24%	23%	24%	19%	11%
2016-12	19%	19%	25%	20%	17%
2017-03	22%	28%	24%	17%	9%
2017-06	11%	15%	17%	28%	29%
2017-09	10%	16%	20%	23%	31%
2017-12	9%	17%	18%	26%	29%
2018-03	10%	17%	15%	27%	31%
2018-06	11%	15%	14%	29%	31%

If you look at the market share development table above there is serious deterioration on the companies' type on the MTPL market. Production weights seriously shift to bad and worst companies from best and good companies. It creates a dilemma. Companies with wealthy financial structure have not preferred to produce MTPL when other companies could go on to produce this loss generated product. Actually this is a mandatory product, price cap and pool prevent consumer selection. Because MTPL is price sensitive product and the only way to attract the consumers is lower prices than other companies. Results bring mind that these worst and bad companies gave lower prices under price cap. High interest rates a little bit tell something about these risk appetite. But we never forget that MTPL product is a long tail business and claims come through sooner or later. Thus it is inevitable to say these companies will have serious solvency problems in the upcoming days. Shortly high interest income and changes on financial environment encourage them to produce MTPL without thinking tomorrow. On the other hand, some companies never has insurance operation before so they have no experience about MTPL so this high liquidity in MTPL might be attractive for them ıf they don't debriefed about dynamics of the branch.

Also, their combined ratios have caused serious question marks about their results because when combined ratios highly deteriorated after price cap and pool business in the best and good companies but deterioration is not enough deep in the bad and worst companies when their share increasing.

It brings minds that "there is under reserving problem about these companies and how they could keep up to increase their MTPL production versus best and good companies decreases their production". We saw the same example in the pool. The monitoring authority must ask this question before too late. “Are they take into account the solvency requirements when increase MTPL product volume”

Table 18. CoR Development

Term(Quarterly)	Best	Good	Moderate	Bad	Worst	Market
2014-03	115%	118%	111%	130%	178%	124%
2014-06	116%	107%	115%	137%	207%	124%
2014-09	115%	101%	123%	126%	197%	119%
2014-12	138%	125%	111%	142%	173%	134%
2015-03	109%	154%	123%	236%	197%	168%
2015-06	113%	142%	127%	160%	344%	145%
2015-09	108%	138%	119%	162%	191%	140%
2015-12	145%	154%	116%	185%	186%	156%
2016-03	102%	147%	102%	165%	175%	135%
2016-06	97%	129%	102%	137%	133%	119%
2016-09	98%	104%	93%	118%	130%	104%
2016-12	100%	104%	108%	128%	92%	108%
2017-03	93%	108%	98%	116%	101%	103%
2017-06	104%	128%	93%	121%	111%	111%
2017-09	88%	188%	85%	121%	105%	117%
2017-12	113%	171%	98%	133%	106%	124%
2018-03	110%	130%	102%	118%	109%	114%
2018-06	109%	129%	96%	118%	110%	113%

As you see in table below companies in first and second cluster have favorable solvency ratio. Although, these companies has high rates on solvency, they prefer to decrease their MTPL market shares due to profitability consideration, But bad and worst companies could increase their MTPL shares versus they have lower solvency ratios than best and good companies Ratios in dangerous area were colored by red and companies need to self-assessment colored in purple in the table. The one of the reason is that deregulations on the required capital calculation opens the road to produce more MTPL business. It explained with all details how changed the capital requirement after price cap and pool business.

Table 19. Solvency Rates by company

Cluster	Company Name	Available Capital	Required Capital (Dipnot)	Local Solvency Ratio (12/2017)
1	Allianz Sigorta AŞ	2.311.088.329	1.363.108.661	169,5%
2	Anadolu Anonim Türk Sigorta Şirketi	1.693.960.630	1.212.911.829	139,7%
2	Axa Sigorta AŞ	1.150.100.216	943.156.168	121,9%
3	Mapfre Sigorta AŞ	876.931.074	706.468.524	124,1%
3	Sompo Japan Sigorta AŞ	874.814.039	452.750.610	193,2%
4	Aksigorta AŞ	699.805.125	501.881.859	139,4%
4	Ergo Sigorta AŞ	241.888.756	198.646.463	121,8%
4	Eureko Sigorta AŞ	610.126.313	367.393.679	166,1%
4	Generali Sigorta AŞ	94.354.519	64.874.264	145,4%
4	Groupama Sigorta AŞ	384.531.572	265.015.697	145,1%
4	Güneş Sigorta AŞ	694.849.188	377.063.936	184,3%
4	Halk Sigorta AŞ	255.474.509	307.453.113	83,1%
4	HDI Sigorta AŞ	423.239.276	222.040.876	190,6%
4	Neova Sigorta AŞ	319.453.386	211.470.680	151,1%
4	Ziraat Sigorta AŞ	453.656.708	182.647.003	248,4%
4	Zurich Sigorta AŞ	277.419.061	136.134.502	203,8%
5	Ankara Anonim Türk Sigorta Şirketi	158.838.301	81.944.671	193,8%
5	Unico Sigorta AŞ	123.954.135	90.305.991	137,3%
5	Turkland Sigorta AŞ	525.217	18.619.771	2,8%

5	Dubai Starr Sigorta AŞ	41.037.142		out of scope
5	Bereket Sigorta AŞ	92.165.328	43.040.860	214,1%
5	Liberty Sigorta AŞ	88.645.017		out of scope
5	Orient Sigorta AŞ	13.144.649	N/A	insolvent
5	Ray Sigorta AŞ	196.763.235	130.213.117	151,1%
5	SBN Sigorta AŞ	67.061.035	42.902.593	156,3%
5	Doga Sigorta AŞ	181.834.797	167.577.323	108,5%
5	Koru Sigorta AŞ	9.756.248	30.328.965	32,2%
5	Gulf Sigorta AŞ	181.630.914	123.756.472	146,8%
5	Türk Nippon Sigorta AŞ	73.373.228	66.090.020	111,0%
5	Ethica Sigorta AŞ	100.164.135	73.412.361	136,4%
5	Quick Sigorta AŞ	46.841.563	58.705.654	79,8%

12/2017 company based solvency ratios are available above. As you see in table. Turkland, Halk, Koru and Quick has considerable capital deficit and still to produce MTPL product which has 15 years tail in indemnity payment. On the other hand, owners of the Quick sigorta has just acquired Turkland sigorta. Related group has no experience before insurance sector and companies has serious MTPL production. When you look at the results both of the companies has capital deficit.

It also must be a serious question mark for the monitoring authority when they assessed both table in below.

Table 20. GWP breakdown as of 062018

Cluster	Company Name	MTPL	Pool	Non Pool
1	Allianz Sigorta AŞ	788,06	380,44	407,62
2	Anadolu Anonim Türk Sigorta Şirketi	703,00	324,21	378,79
2	Axa Sigorta AŞ	505,49	201,63	303,86
3	Mapfre Sigorta AŞ	435,89	126,30	309,59
3	Sompo Japan Sigorta AŞ	630,72	287,23	343,50
4	Aksigorta AŞ	497,06	140,82	356,24
4	Ergo Sigorta AŞ	88,06	39,86	48,20
4	Eureko Sigorta AŞ	75,33	39,26	36,07
4	Generali Sigorta AŞ	48,70	22,54	26,16
4	Groupama Sigorta AŞ	55,44	24,32	31,13
4	Güneş Sigorta AŞ	222,48	52,51	169,98
4	Halk Sigorta AŞ	509,27	130,85	378,42
4	HDI Sigorta AŞ	185,37	43,86	141,51
4	Neova Sigorta AŞ	337,95	81,08	256,87
4	Ziraat Sigorta AŞ	47,88	23,84	24,03
4	Zurich Sigorta AŞ	31,89	19,11	12,78
5	Ankara Anonim Türk Sigorta Şirketi	149,04	43,95	105,08
5	Unico Sigorta AŞ	72,39	59,07	13,33
5	Turkland Sigorta AŞ	48,40	18,49	29,91
5	Bereket Sigorta AŞ	59,28	30,72	28,56
5	Liberty Sigorta AŞ	23,96	16,86	7,09
5	Orient Sigorta AŞ	34,22	21,06	13,15
5	Ray Sigorta AŞ	137,42	51,46	85,97
5	SBN Sigorta AŞ	83,23	55,39	27,84
5	Doga Sigorta AŞ	608,11	171,86	436,25
5	Koru Sigorta AŞ	156,58	27,60	128,98
5	Gulf Sigorta AŞ	20,71	18,84	1,87
5	Türk Nippon Sigorta AŞ	167,26	38,42	128,84
5	Ethica Sigorta AŞ	357,48	51,30	306,18
5	Quick Sigorta AŞ	368,64	95,62	273,02
5	Magdeburger	9,27	9,05	0,21

4.2. Required Capital Calculation and Solvency Ratio

According to the regulation on measurement and assessment of capital adequacy of insurance, reinsurance and pension companies, they must have sufficient equity to cover their current liabilities and potential risks. The main reason of the solvency regulations is to protect the rights of policy owners and endorses beside provide stability on the financial market

Two type of required capital calculation were done by companies. Regulation defines the method as first and second method. Required capital is the highest one of the results calculated as first and second method. It is a note that usually second method is higher than first method.

The available capital must be higher than required capital according to determined threshold in regulations. This method is akin to risk based capital approach applied in USA **(Gür, 2009).** According to second method; the required capital is sum of the amounts calculated for asset risk, reinsurance risk, excessive premium increase risk, outstanding claims risk (including IBNR), underwriting risk and foreign exchange rate risk.

4.2.1. Asset risk.

Called as market risk in practice. Balance sheet asset accounts were multiplied with rates risks defined in the related regulation and sum of the multiplication results consist the amount of the asset risk. Mentioned rates in multiplication were defined in the regulation by balance sheet account basis.

4.2.2. Excessive premium increase risk.

Increase rate were calculated by dividing total gross written premium to previous years gross written premiums. If the growth is higher than 10% from market growth in MTPL or 50% from market growth in other branches.

The exceeding part was multiplied with 0,2 risk factor and calculated excessive premium increase risk amount. The market growths for MTPL and other branches were announced by the Undersecretariat of treasury on accounting period basis. It was cancelled in 2017

4.2.3. Reinsurance risk.

Reinsurance risk calculated over ceded premiums to the reinsurance companies. The amount of ceded premium were multiplied with the risk factors. But there is an important diversification related to type of the reinsurance agreements.

Reinsurance agreements were separated three parts as proportional, non-proportional and facultative reinsurance agreements. According to regulation; premiums were ceded to pools established in Turkey do not consider to risk multiplier. Premiums were ceded to reinsurance companies which has license in Turkey has 0,03 risk multiplier, premiums were ceded to reinsurance companies in the list of the Undersecretariat of treasury which prepared according to the financial and technical qualification criteria has 0,06 multiplier (If company is a group company risk multiplier increase to 0,09). Premiums were ceded to reinsurance companies not included the list of the Undersecretariat of treasury has 0,12 risk multiplier (If company is a group company risk multiplier increase to 0,15)

If under the circumstance of the excess of the rates mentioned below related to reinsurance types, excess part multiplied with 0,15 risk multiplier if company is placed in the list of the treasury otherwise risk margin increase to 0,3

- **Proportional Agreement,**

The ceded amount to the reinsurance company according to proportional agreement. The excess of the 40% percent in the group companies or 60% percent of the other companies determined by Undersecretariat of the treasury. The excess of the 15% for the other reinsurance companies

- **Non -Proportional Agreement,**

The ceded amount to the reinsurance company according to non-proportional agreement. The excess of the 40% in the group companies or 60% of the other companies determined by Undersecretariat of the treasury. The excess of the 15% for the other reinsurance companies

- **Facultative agreement,**

The ceded amount of the insurance coverage to the reinsurance company according to facultative agreement. The excess of the 40% in the group companies or 60% of the other companies determined by Undersecretariat of the treasury. The excess of the 15% for the other reinsurance companies

Another important issue in here. List were prepared according to the globally accepted rating results but after the increase in the political tension with global rating agencies this approach were removed and bring a self-assessment by Undersecretariat of the treasury.

4.2.4. Outstanding claims risk.

The risk factors by lob basis determined in the regulation were multiplied with net outstanding claim reserve amount. IBNR also were taken into consideration in the calculation of outstanding claims reserve risk.

4.2.5. Underwriting risk.

In calculation of the underwriting risk; the premium of the last twelve months by excluding premiums ceded to reinsurance companies by proportional agreements were multiplied by Lob based risk factors disclosed in the regulation.

DC based results were multiplied by rates.

Premiums transferred to the SSI, TARSİM, TCIP and green card pool are not taken into consideration in calculation of the underwriting risk.

After the establishment of the High Risk Business Pool; Premiums were ceded to this pool was also added to above list by the 30121 numbered and 11.07.2017 dated regulation. This point especially must be underlined. Pool premiums were ceded to pool excluded from calculation of the required capital so small companies can easily produce MTPL. Because they don’t care about the loss. The premium directly ceded to pool and claims also directly ceded to pool in this way companies don’t care the business and capital issues. On the other hand this negatively affect claims management because companies just care about the claims management fee and financial income expectation. So some of these type of companies don’t have proper claims management system or don’t treat so sensitive in claims investigation process.

4.2.6. Foreign exchange risk.

The Total TL value of the currency based assets and liabilities were calculated at the end of the accounting period and absolute difference between assets and liabilities were multiplied with a risk factor determined in the regulation (0,075)

As you see in table below; the sum of the risks explained above equals to the required capital amount of the company calculated according to the second method. Calculated required capital divided to shareholders equity and acquired solvency ratio of the company.

Table 21. Local Solvency Calculation Table

Name of The Table	**SOLVENCY**
1- ASSET RISK (AR)	**468.000.000**
2- REINSURANCE RISK (RR)	**196.000.000**
3- EXCESSIVE PREMIUM INCREASE RISK (EPR)(Cancelled)	**0**
4- OUTSTANDING CLAIMS RISK (OCR)	**252.000.000**
5- UNDERWRITING RISK (UWR)	**615.000.000**
6- FX RISK (FXR)	**130.000.000**
Required Capital according to Second Method = AR + RR + EPR + OCR + UWR + FXR	**1.661.000.000**
Required Capital Amount for The Company	**1.661.000.000**

SHAREHOLDERS EQUITY (TL)	
Paid Capital = E (500+ 501)	600.000.000
Capital Adjustment Positive Differences = E (502)	120.000.000
Capital Adjustment Negative Differences = E (503)	0
Profit Reserves = PR (540+ 541+ 542+ 543+ 545+ 549)	1.200.000.000
Capital Reserves=CR (520+ 521+ 524+ 525+ 529)	-20.000.000
Sum of Profit before Tax and Previous Years' Profits = P (570 +590)	850.000.000
The gains and losses recognized in equity according to Turkey Accounting Standards	-350.000.000
Equalization Reserves (359.011 + 459.011)=ER	120.000.000
Subordinated Loans (%30) = SR	0
Sum of Current Year Losses and Prior Year Losses = L (580+ 591)	0
SHAREHOLDERS EQUITY (YTL) = E+PR+CR+P+ER+SR+L	**2.470.000.000**
The amount calculated by multiplying the paid-up capital of subsidiaries, affiliates, affiliate securities and joint ventures with the share of the parent company in such	50.000.000
Solvency Result	**809.000.000**
Local Solvency Ratio	**148,70%**

Solvency is a safety threshold against unforeseen risks such as high loss levels or negative investment results of insurance companies. It is an important KPI related to company has sufficient capability to cover its debts or liabilities (Yanık, 2001).

Capital adequacy ratio between %100 and %115 define as self-assessment pace. In this case, the company must declare own assessment on the basis of risks within 45 days from the date when tables should be sent to the Undersecretariat of treasury and shared a detailed report by the Undersecretariat treasury with including the reasons for the solvency ratio why between %100 and %115 and the expectations for the future

If ratio is between %70 and %99,99 this pace define as taking measures. In this a case, the Company must prepare a plan to decrease shortage within 30 days from the date when the capital adequacy tables should be sent to the Undersecretariat of treasury, and capital deficit compensate in 1 year.

If ratio is between 33% and 69.99%. This pace define as “taking urgent measure phase. In such a case, the Company should present a plan to the Undersecretariat of treasury related to closure of the capital deficit within 20 days from the date on which the capital adequacy tables should be sent to the Undersecretariat of treasury, company must complete at least 70% required capital within 6 months and complete rest in 1 year.

Under %33 means it necessitate the intervention. in this case, intervention made by Undersecretariat of treasury in accordance to 20’th article of 5684 numbered insurance law and 14’th article of the 4632 numbered Private Pension Savings and Investment System Law

When look at the good and best companies. They mostly has higher solvency ratio. Because companies with global shareholders usually has management reserve over required capital it is a strategic approach. They implement their possible risk scenarios and define a management reserve over required capital because when you approach logically. It is not reasonable to hold more capital higher than required capital. Because holding more capital has additional cost so the important point. Your shareholder ready to hold a reasonable margin as management reserve or not.

5. IN CONCLUSION

Turkish insurance sector suffering pain for liberalization. Government has never showed enough courage to give up its authorizations to private sector. As a natural result of the liberal industry, companies measure their risk by rational techniques and start to increase their price to upside, But in this point, higher prices creates social discontent and negative pressures on government. Thus government immediately turn to the industry and wrapped its price gun. First time used this gun for some special vehicle owners from carrying trade. But this cap was not enough to make everyone happy. Complaints were raising and government again using the price gun. But this time price gun were fired for all type of vehicles. The government intervention, which moved the stones from its place, completely destroyed all of endeavors to liberalization. Maybe, government solve the higher prices problem when you look at from consumer side but it creates question marks in the sector. Also the regulative changes caused deterioration on the market structure. Because strong companies avoid to produce MTPL insurance as seen on the market share results. The weak companies started to produce MTPL just get more cash flow they need but their CoR ratios did not increase as encounter in the strong companies. If we think about that whole of the companies operate in the same sector and prices are fixed so how could they get better risks with lower prices because their CoR did not deteriorate. Firstly these statement brings mind the under reserving issue otherwise they could never reach these lower Combined Ratios. As seen in the pool example there is a deliberate under reserving problem in the sector and monitoring authority don’t get any measure right now at least. They could see easily what we saw in this thesis. Sooner or later, these companies have to face off with insolvency matter (some of them has already have). Beside all of these, regulator allow to produce MTPL which has 15 years liability, although company has low solvency ratios These companies may cannot pay the compensations to customers and we encounter same scenarios as live in Euro Sigorta A.Ş. The Treasury seized the Euro Sigorta A.Ş. by serious losses and MTPL weighted production. Its solvency ratios had been deteriorated and treasury had to take over companies' responsibility due to MTPL growth of the company. There was a several allegations about treasury stay late to do it. We hope don't live again the same scenario in our market.

Insurance sector in Turkey is one of the major factors attracting foreign capital to our country due to high potential. In addition to provide a source of additional financing also important bringing new technologies, transferring of know-how of the incoming professionals, and increasing in management ability (Gözlemen, 2008). Unprofitable market will be obstacle for the attracting foreign capital. Unprofitable MTPL change the rules on the market from investor sides. If companies don't bear to these losses they exit from market. For example on of the biggest insurance group in USA, Liberty mutual ended up its operations in 2018 and sold its rights to Talanx. Allianz sale its subsidiary named as Magdeburger A.Ş. because Magdeburger has MTPL license but don't have any significant production but after new regulation company gets serious amount of share from pool due to its license so the cost of the being ownership of the Magdeburger Sigorta has ridiculously increase therefore Allianz has found the remedy to sell this subsidiary.

Also there is a structural error about pool. It could highly possible to encourage fraud cases due to pool implementation. Because if companies don't have an effective claims management system, they can skip examination of cases due to consideration of decreasing operational cost and just paid claim without detailed examination. And directly ceded the claims to motor bureau. So it could minimize its operational cost in this way. But this approach could increase risks and attracts the attentions of sharks.

According to last disclosure of treasury; price cap and pool implementation will go on throughout 2019. It means; profit from MTPL will stay to next spring for insurance companies. We hope companies could manage this year by minimum loss.

Table 22. *Claims Type Breakdown as of 12 2017*

As of 2017 Q4	**MTPL**	**Material**	**Death**	**Disability**	**Treatment**
indemnity (TL)	5.921.848.867	3.670.280.102	976.223.747	1.221.945.313	53.399.705
# of	1.367.845	1.288.443	26.217	46.069	7.116
Indemnity per claim(TL)	4.329	2.849	37.236	26.524	7.504

Government should call back the price cap and pool implementation. It must gave up price gun and start to think about how could accidents rates decreased, what kind of preventive actions could be done. Because the important part of the claims death and disability and it effected companies more than one year. It constitute 37% of the claims and severities are very higher Also material claims has only 1 year claim pattern but death and disability has 15 years tail so it undetermined part of the their losses and solving this issues will reduce the share of uncertainty in the claims. Average claim amount increase 52 % from 2.849 to 4.329 by BI claims and companies has to endure 37.236 TL per each death and 26.524 TL per each disability case. I do’ touch the negative effects of these claims in society. Double roads could be a good idea to increase safety on roads. But not enough for it. Because roads were used by drivers, unfortunately we all see ourselves not less than Schumacher in driving. But reality and figures shows us it is just a dream. Therefore, we should touch human. Gave more importance to drivers and train them. Beside set alternative structures for MTPL insurance like pay how much you drive or completely changed the MTPL structure as managed for TCIP.

References

Acar, O. (2011). Integration prospect of the Turkish insurance Market with the European Single Insurance Market: A Survey amonmg Turkish Market Players. *Marmara Journal of European Studies, 19*.

Altuntaş, E. (2018). Türkiyedeki Sigorta Şirketlerinin Derecelendirilmesi ve Değerlendirilmesi. *Başkent Üniversitesi Sosyal Bilimler Enstitüsü Yüksek Lisans Tezi*. Ankara.

Astill, F. (1959). Compulsory Automobile Insurance in Europe. *Proceedings May 20-22, 46(1)*.

Baykal, K. B., & Bülbül, S. E. (2016). Türkiye'de Trafik Sigortalarında Optimal Ödül-Ceza Sistemi Tasarımı:İyi Risk/Kötü Risk Modeli. *Finansal Araştırmalar ve Çalışmalar Dergisi, 8*(14), 19. doi:10.14784/jfrs.95682

Bedir, A. (2002). *Türkiyede Otomativ Sanayi Gelişme Perspektifi.* Devlet Planlama Teşkilatı İktisadi Sektörler ve Koordinasyon Genel Müdürlüğü.

Cicim, İ. U. (2011). Sigorta Hukukunda Güvence Hesabı Kavramı. *Akdeniz Üniversitesi Hukuk Fakültesi Dergisi, 1*(1), 105-117.

Ćurak, M., Lončar, S., & Poposki, K. (2009). Insurance Sector Development and Economic Growth in Transition Countries. *International Research Journal of Finance and Economics*(34), 39.

Çekici, M., & İnel, M. (2013). Türk sigorta sektörünün direkt prim üretimlerinin tahmin teknikleri ile incelenmesi. *Marmara Üniversitesi İİB Dergisi, 34*(1), 141.

Çelik, A. Ç. (2018). *Tazminat ve Alacaklarda Sorumluluk ve Zamanaşımı* (Cilt 3). Seçkin Yayıncılık.

Doğan, N. (2017, 07 10). *Hürriyet Gazetesi*. www.hurriyet.com.tr: http://www.hurriyet.com.tr/yazarlar/noyan-dogan/trafik-sigortasina-havuz-modeli-40514936 adresinden alındı

Dünya Gazetesi. (2017, 08 03). *Dünya Gazetesi*. www.dünya.com: https://www.dunya.com/sektorler/sigortacilik/tsb-trafikten-23-milyar-lira-zarar-yazacagiz-haberi-376051 adresinden alındı

European Conference of Ministers of Transport, . (1963). Council of Ministers Resolutions., (s. 154).

Gitman, L. J. (2007). *Principles of Managerial Finance.* Pearson.

Gönülal, S. O. (2009). *Motor Third-Party Liability Insurance in Developing Countries - Raising Awareness and increasing safety*. Washington: Te International Bank for Reconstruction and Development/Te World Bank.

Gözlemen, E. (2008). *Türk Sigorta Sektöründe Doğrudan/Dolaylı Yabancı Yatırımlar.* İstanbul: Yapıkredi Sigorta Raporu.

Gür, E. O. (2009). *Avrupa Birliği'nde Solvency 2 Projesi ve Türkiye Sigorta Sektörünün Uyum Süreci.* T.C. Başbakanlık Hazine Müsteşarlığı.

Güvel, A. Ö., & Güvel, E. A. (2002). *Sigortacılık.* Ankara: Seçkin Yayıncılık.

Gyárfás, G., & Marquardt, M. (2001). Pareto Improving Transition From a Pay as you go to a fully funded pension system in a model of endogenous growth. *Journal of Population Economics, 14-3,* 445.

Hazine Müsteşarlığı, B. (2015, 05 14). *Resmi Gazete.* http://www.resmigazete.gov.tr: http://www.resmigazete.gov.tr/eskiler/2015/05/20150514-5.htm adresinden alındı

Kosmola, M. W. (2016). Non-life insurance markets in CEE countries– Part I: Products' Structure. *Journal of Economics and Management, 25,* 3. doi:10.22367/jem.2016.25.08

Kozak, S. (2011). Determinants of Profitability of Non- life Companies in Poland During Integration with the European Financial System. *Electronic Journal of Polish Agricultural Universities, 14*(1).

Kozarevic, S., Kozarevic, E., & Šiljegović, E. (2011). Development of the insurance sector in the Western Balkan countries: the drive towards the European Union insurance system. *International Journal of Economic Policy in Emerging Economies, 4*, 287-302.

Kwiecień, I., & Poprawska, E. (2011). Motor Third Party Liability Insurance– Polish Market in Connections to European Trend. *International Journal of Economics and Finance Studies, 3*(2), 125.

Kwon, J. W., & Wolfrom, L. (2016). Analytical tools for the insurance market and macro-prudential surveillance. *OECD Journal: Financial Market Trends, 2016/1*, 24.

Pandurics, A., & Illes, C. B. (tarih yok). Ups and Downs: How to Five Competitive Forces of Porter Shape Strategiesin the Hungarian MTPL Market. doi:10.17626/dBEM.ICoM.P00.2015.p015

Pitrebois, S., Denuit, M., & Walhin, J. F. (2003, 4 4). Marketing and Bonus-Malus Systems. Bruxelles.

T.C. Başbakanlık Hazine Müsteşarlığı Sigorta Denetleme Kurulu. (2016). Teknik Karşılıklar Denetim Rehberi.

Tomeski, B. (2012). Development of Motor Third Party Liability Insurance Market in Terms of Changing Regulation. *Procedia Social and Behavioral Sciences, 44*, 200-209.

Ünan, S. (2006). Türk Sigorta Hukuku Bakımından Sorumluluk Sigortalarının Değerlendirilmesi. *Sorumluluk Sigortaları Semineri* (s. 33). İstanbul: İktisadi Araştırma Vakfı .

Yanık, S. (2001). *Bayındır Sigorta A.Ş. Yayınları* (Cilt 1). Bayındır Sigorta A.Ş. Yayınları.