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Forecasting of Gold Prices Volatility with Symmetric and Asymmetric Volatility Models

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ABSTRACT

With this paper the author forecasts the out-of-sample volatility of gold price changes in Turkey. Looking at the both the symmetric and the asymmetric evaluation criteria, GJR-GARCH model is the best fitted model for forecasting gold price volatility in Turkey. The GJR-GARCH model findings reveal a negative shock asymmetry for gold prices. Thus, it shows that positive news in the market affects the volatility of gold prices in the next period more than negative news.

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1. INTRODUCTION

The volatility estimation is used by researchers with the fluctuation of international financial markets and for hedging and speculative income. It also has a significant place in the application of asset pricing models, including foreign exchange rate risk, policymaking, and regulation, hedging, financial risk management, option pricing, international portfolio diversification. Although there is sufficient evidence to assess the volatility estimation performance on international stock exchanges and foreign exchange markets, there is little evidence for the volatility estimation on commodity prices (Kroner et al., 1995). The statistical characteristics of financial time series play a key role in the development of volatility forecasts. The studies of Mandelbrot (1963) and Fama (1965) indicate that financial returns do not act together over time, but are not independent of each other. At the same time, they point out that large amounts of changes in prices of financial assets traded in financial markets are followed by large amounts and small amounts of changes, and that volatility clusters are formed with another statement. It is also known that the financial returns series do not show normal distribution characteristics, but show features such as excessive kurtosis around the mean, volatility clustering, asymmetric response, and leverage.

According to the simple volatility model, the basic assumptions that the return series are independent of each other and have the same distribution, their means are zero, and their variance is constant are not

valid for financial return series. With the Autoregressive Conditional Heteroscedasticity (ARCH) model published by Robert M. Engle in 1982, he revealed the existence of heteroscedasticity in financial time series and argued that heteroscedasticity should be modeled. This model was later developed by Bollerslev (1986) and named as Generalized ARCH (GARCH) model. After these studies, ARCH models have been used frequently in volatility modeling in finance literature.

ARCH models have revealed successful and more complex ARCH derivatives as there are financial return series with different statistical properties in volatility modeling. For this reason, comparing the performance of various volatility forecasting models by looking at the in/out of sample performance of the model when choosing the volatility forecasting model has given more accurate results in practice.

The focus of this study is on forecasting volatility in gold prices in Turkey. In this context, it is aimed to find the best performing model among a lot of volatility models(random walk, simple moving average models, exponential smoothing model, ARCH, GARCH, GJR-GARCH and E-GARCH) for gold prices. Thus, it will be discuss the findings of the best performing model. The remainder of this paper is organized as follows: The second section presents the existing literature on gold price volatility forceasting. The Third section describes symmetric and asymmetric volatility forecasting methodology, data, and discusses the forecast evaluation methods. The empirical results are presented in the fourth section. Finally, in the fifth section the paper is concluded.

2. RELATED LITERATURE

Kutan and Aksoy (2004) directly used the GARCH (1,1) model to examine the effect of the consumer price index on gold market returns and volatility. However, there is no investigation of the most suitable model. As a result, it is concluded that gold does not react significantly to consumer price index news and is not good protection against inflation. Capie et al. (2005) examine how gold behaves as a hedging instrument for exchange rate risk. GARCH, threshold GARCH, exponential GARCH methods are used in the study. Among these, the GARCH (1,2) model is found as best model for volatility structure. Erer (2011) used weekly data for the sale price of gold (TL / gr) between the 2001-2011 periods in his study, which examined the volatility in the gold market. During this analysis, symmetric and asymmetric conditional volatility modeling of the volatility of the gold bullion sales price logarithmic return series is performed. The most successful result was obtained in the TARCH (2,2) model. Cihangir and Ugurlu (2018) examined the volatility in gold prices in Turkey by using daily data for the period 2004-2012. In the study, GARCH, GJR-GARCH, and EGARCH models were used and the GJR-GARCH model was selected as the best fitted model for the data according to the model determination criteria. As a result of the GJR-GARCH model, there is no leverage effect Istanbul Gold Market. Aksoy (2013), using the Istanbul Gold Exchange gold and silver prices for the period 2008-2011, investigated the day-of-week effect on returns and volatility. In the study using GARCH models, a day-of-week effect is found in yield and volatility for gold. It is also concluded that gold prices are more volatile than silver prices.

3. METHODOLOGY AND DATA

The observed volatility of gold prices is considered monthly for use in forecasts and estimations. In this context, the data on gold prices evaluate between the periods 1985: 01-2018: 01. The observed volatility for use in forecasting and estimation define as the standard deviation of logarithmic return data, similar to Balaban (2004). Logarithmic return series calculate as follows;

$$R_t = \ln(P_t / P_{t-1}) \tag{1}$$

where $P_{t,}$ and R_t are price and return in month *t*. Monthly volatility is defined as within-month standard deviation of all periods returns:

$$\sigma_{a,t} = \left\{ \left[1/n-1 \right] \sum_{t=1}^{n} \left(R_t - \mu \right)^2 \right\}^{0.5} \tag{2}$$

providing volatility 397 estimations ($\sigma_{a,t}$). Of these, 1985:01-2001:12 period refers to estimation period(a) and 2002:01-2018:01 period refers to forecast period(f). It has been paid attention to the fact that the estimation and forecast period is a close number of periods (in half) while determining these periods. There exist a broad range of potentially useful models for forecasting volatility. However, it is impossible to employ all models in a single study. In study will be used a wide range of time series forecasting techniques from a naive benchmark of the random walk to the more sophisticated conditional heteroscedasticity models like in Brailsford and Faff (1996) and Balaban, Bayar, and Faff (2006). Besides, it will be excluded the models that regime-switching specifications. While a regime-switching model is a good one for in-sample modeling, it is not readily amenable to an out-of-sample volatility forecasting exercise(Balaban, Bayar and Faff, 2006).

This study's models include a random walk, simple moving average models, an exponential smoothing model, a regression model, and symmetric and asymmetric conditional volatility models.

Random walk (RW) model:

The RW model foresees that the best forecast of this month's volatility ($\sigma_{f,m}$) is the last month's realised volatility.

$$\sigma_{f,t} = \sigma_{a,t-1} \tag{3}$$

*Moving average (MA-a) models:*The MA-α model tells that the best forecast is an equally weighted average of realized values in the last α months:

$$\sigma_{f,t} = (1/\alpha) \sum_{j=t-\alpha}^{t-1} \sigma_{a,j} \tag{4}$$

where α = 3, 12, 30.

Exponential smoothing (ES) model:

Forecast under the ES model is a function of the immediate past forecast and immediate past observed volatility:

$$\sigma_{f,t} = \theta\sigma_{f,t-1} + (1-\theta)\sigma_{a,t-1} \quad (5)$$

The smoothing parameter (θ) is restricted to lie between zero and one. The optimal θ is estimated through minimizing the mean squared error, with an annual update.

Regression model:

In the regression model, I use parameter estimates of c and β from the monthly rolling autoregressions

$$\sigma_{a,t} = c + \beta\sigma_{a,t-1} + u_t \quad (6)$$

to forecast next month's volatility.

It should be noted that as this study performing an investigation of out-of-sample forecasts, all parameter estimates for all competing models employ data from estimation windows only.

3.1. Symmetric Conditional Volatility Models:

The use of conditional heteroscedastic models has been a common tool for modelling and forecasting volatility of financial asset returns following the introduction of the ARCH model and its generalized version, the GARCH model.

Note that the previous models use monthly volatility series. However, with the conditional volatility models, mothly price changes are first modelled as a *p*-order autoregression:

$$R_t = c + \delta_1 R_{t-1} + \ \ldots \ + \delta_p R_{t-p} + u_t$$

The autoregressive terms account for the economically minor but statistically significant autocorrelation in price changes. The monthly prediction errors (u_t) are assumed to be conditionally normally distributed with a zero mean and variance σ_t^2 based on the information set Ψ available at time *t-1*.

$$u_t \,|\, \psi_{t-1} \sim N(0, \sigma_t^2)$$

Then the following conditional variance specifications are estimated using the quasi-maximum likelihood technique with the Bollerslev and Woolridge (1992) standard errors. Since

$var(u_t \mid u_{t-1}) = \sigma_t^2$, the conditional variance can be modeled as AR (p) process by using the squares of the estimated residual lag;

$$\sigma_t^2 = c + \phi_1 u_{t-1}^2 + \phi_2 u_{t-2}^2 + \ldots + \phi_q u_{t-q}^2 + v_t$$

where v_t is white noise process. If $\phi_1 = \phi_2 = \ldots \phi_q = 0$, variance will homoscedastic.

ARCH(1) model

Autoregressive conditional heteroskedasticity ARCH (1) process can write as:

$$\sigma_t^2 = c + \phi_1 u_{t-1}^2 + v_t \qquad (7)$$

As can be seen, the conditional variance of u_t depends on the actual value of u_{t-1}^2. The higher the actual value of u_{t-1}^2, the higher the conditional variance in the t period.

GARCH(1,1) model:

Bollerslev (1986) developed Engle's ARCH model to allow the conditional variance to be modeled as an ARMA (p, q) process. In this model, the conditional variance defines as a function consisting of the terms autoregression and moving average, and conditional variance is transformed into an ARMA process. The superiority of this model to the ARCH model is that it can model the volatility resistance without the need for a large number of variables. The most commonly used GARCH model in finance literature is the GARCH (1,1) model. For instance, in a GARCH (1,1) model, the conditional current period volatility depends on the previous period‘s conditional volatility and the previous period’s squared prediction error:

$$\sigma_t^2 = \alpha_0 + \alpha_1 u_{t-1}^2 + \beta \sigma_{t-1}^2 \qquad (8)$$

3.2. Asymmetric Conditional Volatility Models:

When the ARCH and GARCH models are examined, the signs of the shocks disappear because the errors are squared. Only their magnitude can be interpreted. In other words, in the model, the effects of positive shocks of the same magnitude and negative shocks on volatility are calculated the same. This, however, does not fully reflect a reality that exists in the financial asset series. This fact is that a negative shock of the same magnitude (bad news) has a greater impact on volatility than a positive shock (good news). Such asymmetries in stock returns are called the leverage effect. The decrease in the firm's stocks will cause an increase in the debt equity ratio. According to Dijk and Franses (2000), the behavior of conditional variance of time series for financial assets is generally asymmetrical compared to the

previous return. Also, during the recession periods, the volatility of financial assets is high. In short, asymmetric volatility is the characteristic feature of financial time series (Li and Li, 1996). The most used asymmetric GARCH models Threshold ARCH models (TARCH - Threshold ARCH) or the GJR-GARCH model, which is very similar to the TARCH model, were identified by Zakoian (1994) and Glosten, Jaganathan, and Runkle (1993), respectively, and the E-GARCH (Exponential GARCH) model is developed by Nelson (1991).

E-GARCH(1,1) model:

The leptokurtic structure and volatility cluster, which exist in financial time series, can be effectively determined with the GARCH model. However, GARCH models fail to capture the asymmetry that serves to distinguish between negative and positive shocks in the variance structure. The exponential GARCH (EGARCH) model is developed by Nelson (1991) to eliminate the weaknesses of the GARCH model that takes into account the asymmetry in the volatility structure. .In the EGARCH model, the possibility that the up and down movements in the financial markets may not have the same effect on the predictability of the future volatility of financial assets is taken into account. Downward movements are more effective than upward movements in predicting volatility. This effect, called the "Leverage Effect", was first put forward by Black (1976). This situation, in which it is claimed that negative news coming to the market has more impact on the volatility of financial assets than positive news is modeled as follows:

$$\ln(\sigma_t^2) = \alpha + \gamma(\frac{u_{t-1}}{\sigma_{t-1}}) + \lambda\left[\left(\frac{|u_{t-1}|}{\sigma_{t-1}}\right) - (\frac{2}{\pi})^{0.5}\right] + \beta\ln(\sigma_{t-1}^2) \quad (9)$$

As seen in Equation 9, the conditional variance of a time series in the E-GARCH model is a nonlinear function of the magnitude and sign of its historical values and lagged residuals. The $\frac{u_{t-1}}{\sigma_{t-1}}$ in the conditional variance equation are standardized error terms. The use of standardized error terms instead of historical values of error terms in the E-GARCH model provides information about the magnitude and permanence of the shock. Concerning the γ parameter in the conditional variance equation, the $\frac{u_{t-1}}{\sigma_{t-1}}$ variable gives the E-GARCH model an asymmetric character. The γ parameter is the asymmetric leverage coefficient that defines the "Leverage Effect" in volatility. The most important sign showing that this model works is that the y parameter is statistically significant.

Accordingly, the statistically significant negative γ parameter indicates that positive return shocks generate less volatility than negative return shocks. For example, the volatility of gold prices tends to

increase after negative returns and to decrease after positive returns. As a result, the presence of asymmetric volatility in the EGARCH model depends on the statistical significance of the γ parameter.

GJR-GARCH(1,1) model:

Glosten Jagannathan and Runkle (1993) developed a GARCH model that takes into account the different effects of good and bad news on volatility. That's why the threshold GARCH model is also called GJR-GARCH. The GJR-GARCH model or threshold GARCH model is actually the asymmetric ARCH process used in modeling volatility. In this model, $u_{t-1} = 0$ acts as a threshold. The effects of shocks above and below this threshold on volatility are different. The threshold GARCH model can be written as:

$$\sigma_t^2 = \alpha_0 + \alpha_1 u_{t-1}^2 + \gamma u_{t-1}^2 D_{t-1}^- + \beta \sigma_{t-1}^2 \tag{10}$$

$$D_{t-1}^- = \begin{Bmatrix} 1, u_{t-1} < 0 \\ 0, u_{t-1} \geq 0 \end{Bmatrix}$$

The u_t in equation 10 represents the shocks that occur in the markets. $u_{t-1} < 0$ represents negative shocks (news), and $u_{t-1} \geq 0$ represents positive shocks. On the other hand, D_{t-1}^- refers to the dummy variable that takes the value 1 and 0 depending on whether the shocks are positive or negative. While the effect of positive news on conditional variance is α_1, the effect of negative news on conditional variance is equal to $\alpha_1 + \gamma$. The leverage effect is related to the γ parameter and the $\gamma \neq 0$ state expresses the asymmetry. If $\gamma = 0$, the model becomes the GARCH model. The most important sign showing that this model works is that the γ parameter is statistically significant. Accordingly, if $\gamma > 0$ and statistically significant, there is a leverage effect. Finally, It should be noted that all conditional volatility models fulfil the standard requirements for non-negativity of conditional variance and parameter restrictions.

3.3. Forecast Evaluation

In this study employed the four commonly used symmetric error statistics: the mean error (ME), the mean absolute error (MAE), the mean squared error (MSE), and the mean absolute percentage error (MAPE). Monthly forecast error is forecast volatility ($\sigma_{f,t}$) minus realized volatility ($\sigma_{a,t}$).

$$ME = \left(\frac{1}{193}\right) \sum_{t=204}^{397} \left(\sigma_{f,t} - \sigma_{a,t}\right)$$

$$MAE = \left(\frac{1}{193}\right)\sum_{t=204}^{397}\left|\sigma_{f,t} - \sigma_{a,t}\right|$$

$$MSE = \left(\frac{1}{193}\right)\sum_{t=204}^{397}\left(\sigma_{f,t} - \sigma_{a,t}\right)^2$$

$$MAPE = \left(\frac{1}{193}\right)\sum_{t=204}^{397}\left|\frac{\sigma_{f,t} - \sigma_{a,t}}{\sigma_{a,t}}\right|$$

The symmetric criteria give an equal weight to under predictions of volatility of similar magnitude. However, under prediction of volatility is primarily important for traders with long and short positions as well as option buyers and sellers. Although Poon and Granger (2003) suggest that using the asymmetric evaluation criteria is advisable, there are only a few papers with this feature in the literature (Brailsford and Faff, 1996; Balaban, 2004; and Balaban, Bayar and Faff, 2006).

Besides, in this study also employed asymmetric error statistics: the mean the logarithmic error (LE) metric (Pagan and Schwert, 1990), for discrimination between under/over-predictions.

The LE statistic reads as follows:

$$LE = (\frac{1}{193})\sum_{t=204}^{397}\left(\ln\sigma_{f,t} - \ln\ \sigma_{a,t}\right)^2$$

Descriptive statistics for all periods of the gold price, return and volatility data are given in Table-1 and the graphs of the series are given in Figure-1.

Table 1: Descriptive statistics

	Gold Price(P_t)	**Return(R_t)**	**Sigma($\sigma_{a,t}$)**
Mean	31.57452	0.026461	0.00172
Median	11.985	0.025771	0.00132
Maximum	162.09	0.298575	0.01366
Minimum	0	-0.12645	3.77E-06
Std. Dev.	42.36527	0.048526	0.00172
Skewness	1.297838	1.178447	2.63796
Kurtosis	3.499842	7.831218	13.8363
Jarque-Bera	115.2917	476.7777	2396.8
Probability	0	0	0
Observations	396	396	396

The return series derivate with the $R_t = \ln(P_t / P_{t-1})$ formulation. When the JB statistics of the return series examine, it is seen that it shows the feature of a leptokurtic.

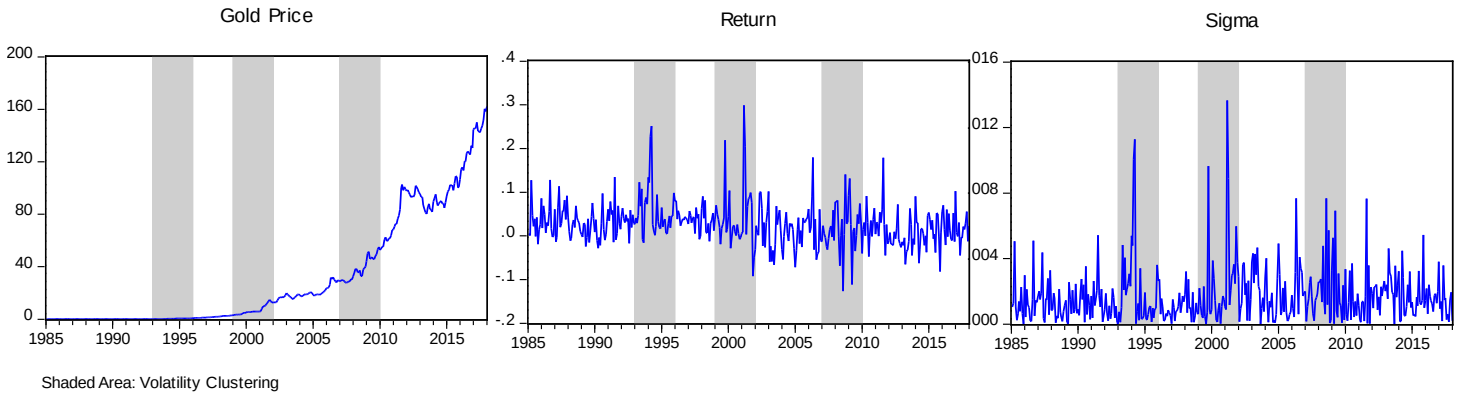

Figure 1: Evolution of Series

Table 2: ARCH LM Test Results

	ARCH-LM(1)	ARCH-LM(3)	ARCH-LM(6)	ARCH-LM(9)	ARCH-LM(12)
Stats.	5.841652	7.243126	7.572382	15.04835	16.52032
Prob.	0.0157	0.0645	0.2711	0.0896	0.1685

Note: $R_t = c + \delta_1 R_{t-1} + \ldots + \delta_p R_{t-p} + u_t$ is estimated to obtain the optimal lag length, and it determined that the optimum lag is 1.

Accordingly, at the 10% significance level, there is an ARCH effect in the 1st, 3rd and 9th delay of the Gold return series, but no ARCH effect is found in the 6th and 12th lag.

4. EMPIRICAL RESULTS

Table 3 presents the comparative results of the symmetric evaluation criteria and the summary statistics.

Table 3: Forecast Evaluation: Symmetric Error Statistics

Forecast Competitors	ME	MAE		MSE		MAPE	
	Actual	Actual	Rank	Actual	Rank	Actual	Rank
MA3	3.42E-05	0.001319	9	3.05E-06	9	5.499082	9
MA12	9.92E-05	0.00122	8	2.63E-06	8	4.782915	8
MA30	0.000136	0.001195	7	2.42E-06	7	4.742886	7
ES	0.000119	0.00118	6	2.4E-06	6	4.595469	6
Random Walk	1.86E-05	0.001556	10	4.59E-06	10	5.852174	10
Regression	-8.8E-05	0.001143	5	2.39E-06	5	4.162858	5
ARCH	-0.00011	0.001137	3	2.35E-06	3	4.02876	3
GARCH	-0.00011	0.001136	2	2.35E-06	4	4.020307	2
Gjr-GARCH	-0.00011	0.001136	1	2.35E-06	2	4.013842	1
E-GARCH	-9.1E-05	0.001139	4	2.35E-06	1	4.075958	4

Mean	-1.1E-05	0.001216	2.69E-06	4.577425
Median	-3.5E-05	0.001162	2.4E-06	4.379164
Std	0.000104	0.000133	7.03E-07	0.658005
Std/Mean	-9.59454	0.108977	0.261405	0.14375
Std/Median	-2.9904	0.114086	0.293058	0.150258

Mean error (ME), mean absolute error (MAE), mean squared error (MSE), mean absolute percentage error (MAPE).

Table 3 shows the comparative results of symmetrical evaluation criteria and summary statistics. The ME statistic shows as a mean whether a model is under/over-predicted. All models overpredict volatility except regression and unsymmetrical volatility models (ARCH, GARCH, GJR-GARCH, and E-GARCH). According to ME statistics, the MA30 model has the highest over-predict figure, while the GJR-GARCH model has the lowest under-predict figure. However, it should not be given too much weight to ME, as negative and positive forecast errors can cross each other. When i ignore the ME results, the mean and median adjusted standard deviations of the error statistics show that the MSE statistic produces the most variable performance results among the models.

Looking at other symmetrical criteria, the GJR-GARCH model has the best performance according to MAE and MAPE criteria. It is followed by GARCH and ARCH models, respectively. According to the MSE criteria, the E-GARCH model has the best performance, followed by the GJR-GARCH, ARCH, and GARCH models, respectively. When all symmetrical criteria consider, the model with the worst performance consistently is the random walk model. This model follows by MA3, MA12, and MA30, respectively.

It should be noted that irrespective of the error statistics, the performance of the MA-α models is almost undistinguishable from each other for any α. Thus, the weighting approach does not seem much value-added. Table 4 shows the results of the asymmetric evaluation criteria where positive and negative forecast errors are differently treated.

Table 4: Forecast evaluation: asymmetric error statistics

	LE	
Forecast Competitors	**Actual**	**Rank**
MA3	1.928428	9
MA12	1.765173	8
MA30	1.760148	7
ES	1.745899	6
Random Walk	2.957185	10
Regression	1.637487	5
ARCH	1.616858	3
GARCH	1.615265	2

GJR-GARCH	1.614226	1
E-GARCH	1.625991	4
Mean	1.826666	
Median	1.691693	
Std	0.410021	
Std/Mean	0.224464	
Std/Median	0.242373	

LE is logarithmic error statistic.

Our second asymmetric criterion, the LE statistic, favours the GJR-GARCH model among the other competitors, and particularly over the GARCH model, another asymmetric conditional volatility specification. ARCH, E-GARCH, and regression models follow them, respectively.

According to Tables 3 and 4, it is seen that the optimal model for forecasting gold price volatility is the GJR-GARCH model. This finding also correspondence with Cihangir and Ugurlu (2018). Erer (2011) also stated that the best performing model for gold price prediction is TARCH. If I ignore the model denomination, our results correspond. However, I think it is important to interpret the GJR-GARCH model forecast results since it contains leverage (Asymmetry) information for gold prices. Thus, the estimation results of all period GJR-GARCH model gives in table-5.

Table 5: GJR-GARCH Results for Gold Prices

Dependent Variable: σ_t^2

Variables	**Parameters**	**Std Error**	**z stat.**	**Prob Value**
$Cons.$	0.001457***	0.000183	7.954262	0.0000
σ_{t-1}^2	0.143639	0.092246	1.557129	0.1194

Variance Equation

Variables	**Parameters**	**Std Error**	**T stat.**	**Prob Value**
$Cons.$	1.73E-06***	5.03E-07	3.437046	0.0006
u_{t-1}^2	0.158442**	0.065270	2.427488	0.0152
$u_{t-1}^2 D_{t-1}^-$	-0.315230**	0.143027	-2.203986	0.0275
σ_{t-1}^2	0.306338	0.208270	1.470865	0.1413
R-squared	0.037099			
Log likelihood	1976.046			
Durbin-Watson stat	1.895192			

Included observations:	395

Notes: ***, ** and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Estimation Method is ML ARCH - Normal distribution (BFGS / Marquardt steps) and convergence achieved after 25iterations.

According to Table 5, the γ parameter estimate as -0.315230, and this value is statistically significant. Therefore, I can say that the model works. The α_1 parameter 0.158442, which expresses the effect of positive news on conditional variance, has been estimated and is statistically significant. In asymmetric models, good news will collect on the α_1 parameter, and bad news will collect on the $\alpha_1 + \gamma$ parameters. There is a negative shock asymmetry with a larger effect on volatility in models with a leverage effect (i.e., $\gamma > 0$) and whose parameter is statistically significant. In other words, bad (negative) news means that the next period will affect the volatility of gold prices more than positive news. However, the asymmetry coefficient of -0.315230 was estimated in the model in our study. So, $\gamma < 0$. In models with a statistically significant asymmetry coefficient $\gamma < 0$ and this parameter, there is a positive shock asymmetry with a greater effect on volatility. In other words, it means that good (positive) news will affect the volatility of gold prices more than bad (negative) news in the next period (Brooks, 2008: 408).

5. CONCLUSIONS

In this paper, the author analyses a wide range of volatility forecasting techniques using both symmetric and asymmetric evaluation criteria, for gold prices in Turkey. To our best knowledge, there has been no evidence for the out-of-sample predictive accuracy of a broad range of time series models of volatility using gold price(gr/tl) data. The following points are worth emphasizing.

The overall rankings of the symmetric error statistics clearly assert that the GJR-GARCH model is significantly superior over the other competitors while both the symmetric and the asymmetric conditional volatility models better perform. The GJR-GARCH model findings reveal a negative shock asymmetry for gold prices. Thus, it shows that positive news in the market affects the volatility of gold prices in the next period more than negative news. This results are of importance for gold price forecasting, spot and derivatives pricing and risk management.

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The Interpretation Principle in Favour of the Employee in the Turkish Individual Labour Law[b]

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ABSTRACT

The application of the law in terms of meaning is called interpretation. If there is doubt or conflict in determining the meaning of a legal rule or contract, or if there is a gap in the law, interpretation becomes inevitable. There are many methods of interpretation in general law. However, based on the principle of protecting the employee in labour law, the principle of "interpretation in favor of the employee ", which is a special form of interpretation, has emerged. In the study, the place and application of this method in individual labour law are discussed. While examining the principle of "interpretation in favor of the employee" examples from relevant judicial decisions are given. It is understood that the principle of interpretation in favor of the employee has turned into a settled form of interpretation with judicial decisions in labor law. In the study, it was revealed that there are factors and boundaries that should be considered while applying this interpretation method. Conclusions: As a result of the study, it is understood that the principle of interpretation in favor of the employee, which emerged as a result of the obligation to protect the employee who is weak against the employer, is widely applied in the courts. But, making decisions that disrupt the delicate balance between the employee and the employer by completely ignoring the general principles of the law will prevent the realization of the purpose expected from this method of interpretation. In the article, the factors that should be taken into consideration while applying the principle of "interpretation in favor of the employee" are also examined.

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1. Introduction

Legal rules are rules put forward by official authorities to ensure social order. If a legal rule can be clearly understood when applied to the concrete case, there is no need for interpretation. But; Interpretation becomes inevitable in order to determine the meaning of the legal rule in cases such as spelling error, ambiguity, lack of regulation, inability to adapt to current conditions. Interpretation is a mental activity to determine the meaning and scope of the abstract legal rule in order to apply it to the concrete case (Aktaş, 2011)[1] . The meaning of the legal rule to be applied to the concrete case or

whether such a legal rule exists is determined in this way (Aybay&Aybay, 1995)[2]. The Constitutional Court used the following statements in a decision [3]. *"It is obligatory to make use of all the relevant provisions of the Constitution while checking the conformity with the Constitution. Because, like every law, the Constitution is a whole, and in cases where a single rule does not clarify enough, the whole text should be taken into consideration. In other words, when there is no clarity in her words, it is necessary to go to the essence and examine all the rules for this, and to follow a forward-looking and realistic way when making comments about the essence"*. Therefore; while commenting, the written text (law, regulation, contract, etc.) should be handled as a whole, and in cases where meaning cannot be determined through words, the essence (spirit of the text) should be looked at.

When interpreting a legal rule, the interpreter should take into account some basic elements. These elements can be listed as "legal text", "process of emergence of legal text", "systematic of legal text" and "purpose of legal text". Regardless of the method used while making an interpretation, it will be appropriate to consider these factors in order to reach a healthy result. In this context, the question arises of how and by whom the interpretation will be made. According to the person or institution making the interpretation, it is possible to list the types of interpretation as follows.

The Legislative Interpretation It is also expressed as authentic interpretation or official interpretation. It is the interpretation of a legal text by the official authority that issued that law. This means the interpretation of the law, on the basis of the principle of "a majori ad minus" (who can do more, can also do less) by the legislative authority. In this type of interpretation, the meaning of a rule is clarified by giving an independent value to the interpretation, without the condition of applying it to a concrete event (Bădescu, 2017) [4]. In order for this type of interpretation to be applied, the legislative authority must be given the power to interpretation. Legislative interpretation is not allowed in Turkish Law.

The Judicial Interpretation: It is the interpretation made by the courts (judges) applying the legal rules. According to Article 1 of the Turkish Civil Code no 4721, "*The law is applied in all matters that it refers to with its word and essence. If there is no applicable provision in the law, the judge will decide according to the customary law, otherwise he will decide according to whatever rule he would have made if he was a lawmaker*". With the provision of this article, the judge has been given the power to interpretation. In this type of interpretation, the legal rule is applied by the judge. The decision made as a result of this application is binding only for the relevant case and the parties to the case. As a rule, the decision of the judge does not bind other courts or even herself/himself. In other words, in another case, the judge will be able to interpret the same event differently (Gözler, 1998) [5]. While making a decision, the judicial authority should also take into account the specifics of the concrete case (Edis, 1997) [6].

Gözler (2012) [7] argues that because of this situation, individuals become subject to the judge, not the legal rule. In order to prevent this, it emphasizes that the judge must comply with certain principles of interpretation when making a decision. If the interpreter follows these principles in determining the meaning of the text, the interpretation will become objective. Thus, it will be prevented from making different decisions in different cases on the same issue.

The Doctrinal interpretation: This type of interpretation is non-binding. Because it is an interpretation made by scientists through scientific works such as scientific articles, studies, textbooks, monographs on the subject. It is accepted as a type of source that the judge can refer to while interpreting the legal rules (Aslan et al 2007) [8] .

Different interpretation methods come into play when it comes to how to make an interpretation. These interpretation methods can be listed as follows:

The Grammatical Method: It is one of the basic methods of interpretation. In this method; The legal norm is interpreted by morphological and syntactic analysis methods, based on the meaning of the terms and expressions used in the text, the connection between them and the structure of the sentence (Bădescu, 2017) [9]. In the interpretation of a legal rule, it is necessary to start with the text it contains. Because the legislator has embedded the thought she/he wants to express in words and sentences. For this reason, interpretation without considering the meanings of the concepts used in the law may lead to wrong conclusions. However, when interpreting the legal rule, it is not always sufficient

to act only on the words and the language used. According to the 19th article of the Turkish Code of Obligations no 6098; "*In determining and interpreting the type and content of a contract, the real and common will of the parties are taken as basis, regardless of the words they use by mistake or to hide their real purpose*".

The Historical (Subjective) Method: In this type of interpretation, the will of the legislator is investigated by taking into account the justification of the law, the minutes regarding the negotiations made while the law is adopted and the social, economic and political situation of that period (Bădescu, 2017) [10]. Although researching the will of the legislator gives important clues in interpretation, it will never be enough to rely entirely on this method. Because, once the legal law is accepted, it gains an independent quality **(**Güriz, 1999) [11]. The objective historical interpretation put forward to complete this missing aspect of historical interpretation. While taking into account the will of the legislator, it emphasizes that this will should be evaluated within the changing and developing conditions over time (Süzek, 2015) [12] .

The Teleological Method: In this method, instead of the aim pursued by the legislator while creating the legal rule, the purpose of today's conditions is taken into consideration. Because the legal system has a living and developing structure. Therefore, it should be able to respond to the conditions and needs of the day (Süzek, 2015)[13]. The judge should be based on objective reasons (for example, the mistake made by the body that issues the legal rule, the change in the balance of interests, the meaning that honest and concerned persons can give) while making interpretation. (Karayalçın, 1997) [14] .

The Logical Method: According to this method of interpretation, a relationship is established between the legal rule and other elements within a logical framework. Accordingly, the place of that rule in the law, how it relates to other rules and what it wants to regulate, and what the rule is based on, is tried to be determined by taking into account the margins of that article provision. At this stage, the preparatory work of the law is also used (Gözler, 1998) [15].

The Systematic Method: Instead of evaluating the legal rule alone, it is an interpretation method that aims to evaluate this legal rule within all rules of law. In this method, it is considered that all legal rules are part of a system. (Can&Güner, 2006) [16] .

The Conceptual Method: According to the view defended by this method, the legal rule has been consicious revealed by the legislator. The duty of the judge is to enforce the law. In case of any uncertainty in the law, what needs to be done is to investigate the will of the legislature. For this, the positive law of the country, the legal logic in the legal regulation, the principles of logic underlying the law and the possible development direction of the law should be taken into account (Güriz, 1996) [17].

The Interests Case Law: The purpose of this method is to provide the decision-making body with the necessary material for decision-making, systematization, regulation and clarification of various conflicting interests and providing the judge with the best environment in which to make the best decision. The main purpose of the judge is to ensure the balance of interests between the parties (Can&Güner, 2006) [18] .

While interpreting, the judge will follow certain methods. However, there are also rules of logic that he uses in doing so. These can be listed as the analogy, the application first (argumentum a fortiori) and the evidence with contrary (argumentum a contrario).

The analogy is the application of the legal rule that regulates a similar event in an event that has no legal regulation. According to the application first, it is also true for parts that are correct for the whole (Gözler 1998) [19]. Evidence to the contrary is that when resolving a legal case, a provision that is contrary to the legal rule is taken into account.

The fact that general legal rules guide in determining the meaning of the legal rule in labor relations is a result of the legal dimension of labor law. However, acting from the general rules of law may not always produce results in line with the "protection of the employee" purpose of labor law. In this context, it is more appropriate to apply the principle of "interpretation in favor of the employee" in the light of the general principles of interpretation.

2. Literatüre Review

In the literature review on the subject, first of all, the opinions of various authors on the concept of interpretation in law were conveyed. Then, opinions on the "principle of interpretation in favor of the employee" were given.

According to Patterson (2005) [20], Law is a practice of argument. When legal arguments (laws, regulations, etc.) conflict, the answer to the question of what to do is "interpretation". The principles of minimum harm, consistency and generality are interpretive tools of legal interpretation. According to Barak (2005)[21], interpretation is to shape the content of the norm "trapped" in the text. The text subject to interpretation can be general (such as constitution, law, case law or custom) or individual (such as contract or testament). According to Fiss (1982)[22] , interpretation is neither purely creative nor purely mechanical. The interpretation is the product resulting from the dynamic interaction between the reader and the text. Dworkin (1982) [23] , does not see legal practice only as the interpretation of specific laws and documents by lawyers and judges, but as an interpretation exercise in general. He advocates the necessity of comparing legal interpretation with interpretation in other fields, especially in literature, in order to develop an understanding of law. Dworkin pointed out that the better the law is understood, the better the interpretation will be understood. According to Gözler (2012)[24], "interpretation" is the determination of its meaning by reading the text containing the legal rule. Aktaş (2011) [25]says that with the interpretation of the legal rules, it is aimed to find the correct / real meanings of the rules. Yılmaz (2011) [26] emphasizes that there is a need for interpretation if the laws are not clear enough or there are gaps in the laws. Kim (2009) [27], states that the legal text is both an end point in setting the rule and a starting point for interpretation. According to Baude and Sachs (2017) [28], the words that make up the legal text should be considered within their usual meanings, unless it is certain that the legislator aims to treat them in another sense. However, if the intention of the legislator is known; the interpretation should not be made according to the words of the law, but according to this intention even if it seems to have another meaning.

Considering the emergence process of Labor Law (industrial revolution period), it is seen that the idea of protecting the employee is of great importance. The employee is dependent on the employer both economically, technologically and legally. Therefore; It is important to protect the physical and mental integrity of the employee (personality, dignity, private life) against the employer, who is the strong side of the business relationship. Based on the Statute of the International Labor Organization and the Preface to the Philadelphia Declaration, Çenberci's (1986)[29] statements regarding employee protection are as follows: "*To establish a lasting peace that includes all humanity by avoiding injustice, poverty, deprivation and powerlessness around social justice and moral concerns, protecting the employee from the dangers of dependency*". The Court Of Cassation[30]; in its 1958 decision to unification of case law, it clearly set out the principle of protecting the employee. The sentences used by The Court of Cassation in the decision are as follows: "*Historical reasons that impose labor laws to the legislator and the aim of ensuring social balance and peace of the society (social balance and social peace) that will protect the employee who is weak in economic situation against the stronger employer....*". In the following decision, The Court Of Cassation[31] emphasized the principle of interpretation in favor of the employee. " *One of the principles of labor law is undoubtedly the principle of protecting the employee, and it is imperative to act in the light of this principle in interpreting both the regulatory rules imposed by the law and the declarations of will of the parties".* According to İzveren and Akı (1998)[32], interpretation in labor law is the process of investigating and determining the most appropriate norm that should be applied to the individual cases of business relations in the working order. This determination is possible by explaining the purpose that shapes the rules that make up the working order, which should be sought in the working order of the society. According to Süzek(2017)[33], it is a generally accepted principle to resort to the principle of interpretation in favor of the worker in cases where there is no clarity in the legislation in labor law. Sümer (2017) [34] emphasizes that since the main purpose of labor law is the protection of the employee, the benefit of the employee should be considered in the interpretation. Tunçer (2015) [35] states that when there is uncertainty in the contracts, the judicial authority should resort to the principle of interpretation in favor of the employee, taking into account the powerlessness of the employee before the employer. According to Serozan (2013) [36], there is a principle in criminal

procedure law that the defendant benefits from suspicion. In the constitutional law, in case of doubt, the principle of interpretation favoring freedom is valid. Regarding labor law, the principle of interpretation in favor of the employee is valid in this branch of law. According to Çelik et al.(2017)[37], as emphasized in the 1982 Constitution (Article 49 title A), the protection of the employee is one of the basic principles of the Constitution in the context of protecting employees. In this context, it is important to observe the principle of interpretation in favor of the employee during the interpretation to be applied both in the regulation of the legislation and in the implementation of the legislation. Kar (2013)[38] states that while interpreting, it is necessary to act on the protective principle of labor law.

3. Interpretation Principle in Favor of Employee in Individual Labor Law

It is understood from the review made so far that when applying for interpretation in labor law, it is necessary to accept the validity of a method of interpretation specific to this branch of law. This method of interpretation is called "interpretation in favor of the employee". It is inevitable to resort to interpretation if the meaning of a law clause or contract clause cannot be understood or if there is a regulation gap. When a similar situation is encountered in labor law, the comment is made in favor of the employee. Because, as stated in Article 1 of the Civil Code, a written legal rule is applied not only with its word but also with its spirit. In the spirit of labor law, there is the aim of protecting the employee (Şakar 2000) [39] .

Interpreting in favor of the employee does not mean that the general rules of law will be completely violated. When interpreting on labor law, it will be correct to follow the interpretation rules prevailing in general law. The first of these is the right of personality. Rights of personality are protected with the statement "Nobody can partially give up his rights and actions. Nobody can give up his liberty, cannot restrict it contrary to law and morality" in the 23rd article of the Turkish Civil Code. It is stated in Article 417 of the Turkish Code of Obligations that "*The employer is obliged to protect and respect the personality of the employee in the service relationship and to ensure an order in accordance with the principles of honesty in the workplace*". Rights of personality have an important place in labor law, especially in the interpretation of labor agreements and collective agreements. The second is the honesty rule. In a legal transaction, when there is a problem in determining the will of the parties, the principle of honesty (objective goodwill) is used. If there is uncertainty in the declaration of will of one of the parties and causes suspicion, interpretation is made based on the meaning that a reasonable person with medium intelligence can derive from this declaration of will (Bilgili ve Demirkapı, 2012)[40]. According to Article 2 of the Turkish Civil Code, "*everyone has to abide by the rules of honesty (objective goodwill) while exercising their rights and fulfilling their debts*". The objective goodwill rule is important in terms of framing the mutual rights and obligations in the business relationship. The Court of Cassation drew attention to the rule of honesty in the following decision[41]. "I*n a situation like our country struggling with inflation and where the minimum wage is determined once or even twice a year, it is incompatible with the principle of honesty that the employee's wage is not increased on the ground that it is not below the minimum wage".*

The method of interpretation primarily used in labor law is teleogical interpretation. It is important to evaluate the purpose of the interpreted legal rule. Because, it cannot be said that every regulation in the labor law aims only to protect the employee. However, if the results cannot be reached with teleogical interpretation and other helpful interpretation methods, it is necessary to resort to the method of interpretation in favor of the employee, based on the general spirit of labor law (Süzek 2015) [42]. The Court of Cassation[43] emphasized this situation in its decision. "*Although the Labor Law essentially aims to protect the employee, all the rules in the labor legislation are not put in place to protect the worker. Therefore, when interpreting a legal provision, an interpretation should be made in accordance with the concrete purpose of the provision. If the result could not be reached with the teleogical method of interpretation and the hesitation could not be resolved, then the principle of interpretation should be applied in favor of the worker".* The Court of Cassation[44] included the following statements in a decision regarding the damage caused by the employee to the machines in the workplace. While determining the thirty-day wage concept of the employee, there is no clarity in the legislation regarding whether the calculation will be made on the

gross wage or net wage. In this case, in accordance with the principle of interpretation in favor of the employee, it would be appropriate to take the gross wage as the basis. In individual labor law, it is the employment contracts concluded between the employee and the employer that are subject to interpretation outside the legislation. Apart from this, internal regulations of the workplace (prepared before the employment contract is made and submitted to the approval of the worker) in accordance with the conditions are also an annex to the employment contracts (Süzek, 1995)[45]. According to the abrogated Turkish Code of Obligations No. 818, the condition of submitting the internal regulations to the approval of the employee in writing before the employment contract is made has been abolished with the Turkish Code of Obligations No. 6098. However, when a dispute arises, the employer will need to prove that the worker is aware of the internal regulations. Because the validity of the internal regulation depends on the condition that the worker is informed. Therefore, it would be appropriate for the employer to obtain a signature that the internal regulation has been read and accepted by the worker before the contract is made. Otherwise, general transaction conditions will be deemed not written in accordance with Article 21 of the Turkish Code of Obligations (Ertürk, 2013) [46] .

Another concept that can be considered as an annex to the employment contract is workplace practices. There are some necessary conditions for workplace practices to be transformed into an employment contract provision. First of all, this application should have a general nature. On the contrary, special arrangements made for a single worker cannot be considered as a workplace practice as they cannot be considered as a general business condition. Workplace practices are general regulations that will be applied to all employees in the workplace (Süzek, 2011) [47]. Another condition is the continuity of the actual situation applied in the workplace. If a benefit provided by the employer continues over time and the employees accept it implicitly, this practice will become a business condition (Ertürk, 2013)[48]. Workplace internal regulations and workplace practices can only contain regulations in favor of the employee. In the interpretation of internal regulations, different from concrete events, general abstract practices are used. Therefore, the interpretation should be general, uniform and objective. In cases where the provisions of the workplace internal regulation have more than one meaning, the interpretation should be made against the employer in accordance with the trust theory (meaning given by reasonable, well-intentioned and honest persons under the same conditions). Because the workplace internal regulations are unilaterally arranged by the employer. In this case, the party making the arrangement (employer) should take responsibility for the problem (Süzek, 1995)[49] .

Despite the interpretation of abstract will in the legal rules, the concrete wills of the parties are interpreted in the employment contracts. Therefore, the aim is to eliminate the doubts and conflicts that arise in the implementation of the contract. Article 19 of the Turkish Code of Obligations has brought the following regulation. "*In determining and interpreting the type and content of a contract, the real and common will of the parties are taken as basis, regardless of the words they use by mistake or to hide their real purpose*". An important question arises here. Is it the real will of the parties to be considered? Or is it the statements they conveyed to the other party (Ayan, 1998; Eren, 1998) [50-51]. In this case, if there is a dispute between the parties regarding the meaning of the declaration of intent; the meaning of the contractual provision should be demonstrated by researching the true will of the parties on the basis of the theory of trust.

In many cases related to individual labor law, the judiciary has emphasized the principle of interpretation in favor of the employee. Below are examples of The Court of Cassation decisions on the subject.

The Court of Cassation in a decision regarding the annulment contracts regulated in the Turkish Code of Obligations and which includes the termination of employment contracts by mutual agreement; since the annulment agreement is closely related to labor law, the interpretation of this agreement stated that the principle of interpretation in favor of the employee will be applied, just as in the interpretation of employment contracts [52]. According to the decision of The Court of Cassation, although the employee was under the age of 15, he/she was employed unlawfully. However, ignoring

this study by showing the contradiction between the age and the plaintiff's witness statements is against the principle of interpretation in favor of the employee [53] .

The Court of Cassation[54] drew attention to the following points in its decision regarding whether there is a debt between the employee and the employer due to the existing bonds and whether the bills are filled in accordance with the agreement between them. Labor law differs from contract law due to the principle of protecting the employee. Therefore, witnesses can be heard in favor of the employee against the documents regulated in labor law. In a decision of the The Court of Cassation of 2015, a dispute regarding the content of the contract was discussed[55]. In the case in question, although there is a provision in the current employment contract that the employer may change the job of the worker temporarily or permanently, there is no provision that the place of duty or workplace can be changed. Therefore, unless there is a clear provision in the employment contract, an interpretation that the worker's place of duty can also be changed will not be compatible with the principle of interpretation in favor of the worker. For this reason, the Court of Cassation concluded the case in favor of the employee.

The Court of Cassation [56], made the following statements in an incident regarding the severance pay right of the employee according to the Law No. 5580 on Private Education Institutions. ccording to the Law No. 5580; Employment contracts for managers, teachers, expert trainers and master trainers working in institutions are signed for at least one calendar year. In the ILO Convention No. 158 (Termination of Employment Convention), it is emphasized that "sufficient guarantees should be obtained against making a fixed term employment contract in order to avoid the protective provisions of the contract". Based on both this regulation in the ILO agreement and the principle of interpretation in favor of the employee, the Court of Cassation; It has ruled that the employer, who will not renew a legally definite term contract, is liable to pay severance pay if the conditions are met.

The Court of Cassation[57] found it controversial that the employee's employment contract should be terminated shortly before the employee fulfills the 6-month seniority requirement, which is one of the job security conditions. "*While determining whether the 6-month seniority requirement has been fulfilled in recent years, our department evaluates by taking into account the nature of the concrete event, based on the principles of narrow interpretation of restrictive provisions, honesty and interpretation in favor of the employee*". As can be seen in the expressions used, the principle of interpretation in favor of the employee is emphasized.

4. Limits of the Interpretation Principle in Favor of the Employee

The principle of interpretation in favor of the employee cannot be applied unlimitedly in all cases. In addition to the aim of protecting the weak employee, the presence of delicate balances that need to be maintained should also be considered. As a matter of fact, The Court of Cassation[58] listed the factors that should be considered while making comments as follows. It should be in accordance with the conscience of the society, especially the parties, do not contradict with precedent decisions, and not to be arbitrary in judgment. In this context, it is possible to list the limits of "the principle of interpretation in favor of the employee" as follows.

The Limit Determined by Legislation: As mentioned before, if there is a problem or contradiction in determining the meaning of the rule to be applied to the concrete case, the method of interpretation in favor of the employee will be used. However, if the provision is unambiguously clear and unambiguous, the provision should not be given a new meaning for interpretation in favor of the employee. The Court of Cassation[59] explained this situation as follows. "If contradictory rules are included in a contract of employment, the rule for the benefit of the employee should be taken into account as per the principle of protecting the employee in labor law". The Constitutional Court[60], in its decision which is the basis for this issue, clarified the situation under which the interpretation would be applied. "*If a text is not understood when it is read and it causes pauses that will cause different meanings or if the mistake is obvious, then a comment can be made*".

Preserving the Balance of Interest Between the Parties: Considering that the general purpose of the labor law is the protection of the weak worker, it is inevitable to observe the benefit of the worker in this branch of law. However, maintaining the balance between the worker and employer and reconciling the conflicts of interest between the parties is the most important step in reaching common and social goals (production, income, income distribution, economic development). The unilateral handling of the system and the increase in practices against the employer will lead to the deterioration of the balance of interest. It is important to improve working conditions (occupational health and safety, wages, job security, working hours) for workers. For the employer, it is important to reach production and profit targets (national and international competition, optimum production conditions, overcoming economic bottlenecks) (Süzek, 2015)[61]. In this case, it is even more important to observe the mutual interest balance. The Court of Accounts [62] used the following statement regarding the employer in a decision on labor legislation. "Another situation that should be taken into consideration while making comments in favor of the employee is to avoid comment that will lead to the destruction of the employer".

The Court of Cassation [63] made the following statements regarding the protection of the balance of interest between the parties. The behavior of the employee that does not comply with the accuracy and loyalty by using the materials obtained from the workplace without permission is one of the situations that gives the employer the right to terminate according to the 25 / II clause of the Labor Law no 4857. The emergence of the opposite view will go beyond the "principle of interpretation in favor of the employee" in labor law practice, it will be against the principle of justice and the balance of interests, and will damage the feelings of justice. The aim is to establish a delicate balance between the social (employee) and the economic (employer, business). While maintaining this balance, it is not easy to draw the boundaries of employee benefit. Therefore, it is necessary to evaluate the event in its own terms and make a decision without prejudice, taking into account the purpose of the legal rule, without disturbing the delicate balance between the employee and the employer. (Çenberci, 1986) [64]. Legislation; In terms of ensuring this delicate balance, while protecting the worker with legal rules, it protects the employer in terms of rapidly adapting to economic and technological changes with the atypical employment forms (flexibility) regulated in the Labor Act (Süzek, 2015) [65] .

The Benefit of Society: The main purpose of the legal rules is to maintain the social order. In labor law, this purpose appears as the protection of the worker who is weak against the employer. While the absolute imperative rules in labor law bring regulations for the benefit of society or the country, it is clear that the relative imperative rules aim to protect the employee. Therefore, going beyond the legal limits in the interpretation of the absolute mandatory rules will result in the damage to social interests. For example, the purpose of prohibitions and restrictions on the employment of foreigners is to protect the society interest (Özdemir,2005)[66]. While interpreting the legal rule in labor law, the delicate balance between the benefit of the society and the country and the protection of the employee must be observed. It should not be forgotten that the ultimate goal is to achieve labor peace.

5. Conclusions

It is not always possible to apply the legal rules to the concrete case. Especially in the following cases, it becomes inevitable to resort to interpretation.

- The meaning of the legal rule is ambiguous
- Incomprehension of the words and sentence structure used
- Conflict of legal rule with other legal rules
- Lack of a legal rule regulating the concrete case or leaving the discretion to the judge by law

The ultimate aim of the rules regulating labor law is to ensure labor peace. This is the only way to ensure individual and social peace and development. When we look at the spirit of labor law, it is necessary to protect the worker in order to achieve social balance between the parties. As a natural consequence of this, a method of "interpretation in favor of the worker" specific to labor law emerged,

apart from the interpretation methods in general law. It is seen that this method of interpretation is reflected in many judicial decisions.

There are some factors that need to be taken into account when using the method of interpretation in favor of the employee. These can be listed as follows.

• First of all, this method should be used in cases where the meaning of the legal rule cannot be determined and when there is doubt or there is no regulation on the subject. If the meaning of the legal rule is clear and certain, it is not suitable for general legal principles to interpret even if it is for the benefit of the employee.

- In cases where interpretation is applied, although methods valid in general law are used, the principle of interpretation in favor of the employee should be taken into account due to the peculiar nature of this branch of law.

• Especially, in the interpretation of the employment contract and its annexes, it would be more appropriate to reach a conclusion by evaluating the entire contract rather than making a decision based solely on the contractual provision.

- While applying for interpretation in labor law, firstly the labor legislation, collective labor agreement, if any, and finally the labor agreement should be looked into. If no solution is found despite this, general rules of law should be used.

• While interpreting in favor of the employee, the principles of "protection of the rights of personality " and "objective goodwill" which are valid in general law must be taken into consideration.

• While making interpretation in labor law, the principle of interpretation in favor of the worker should be applied within the framework of the Constitution, the imperative rules in the legislation and the complementary law rules.

• It should not be thought that the principle of interpretation in favor of the worker can be applied unlimitedly. The benefit of the society and the country, the boundaries drawn by the legislation and the protection of the social balance between the parties constitute the limits of this method of interpretation.

• Finally, while using this method of interpretation, it is necessary to make decisions without prejudice, objectively and by considering the social balance between the parties.

It should not be forgotten that the stronger party in the established business relationship is the employer. It is inevitable that the employee, who is dependent on the employer in economic, technical and legal terms, needs protection during the implementation of the legal rules. This is possible with the method of interpretation in favor of the worker. However, the principle of worker protection does not mean that the worker will be justified in all cases. Achieving social and economic balance, increasing economic welfare and making it permanent depends on "preserving and maintaining the delicate balance in the employee-employer relationship". Taking decisions that will leave the employer in an economically difficult situation in order to protect the worker will eventually lead to the damage to the employee. Therefore, although the basic method of interpretation used in labor law is "interpretation in favor of the worker", it will be beneficial for both parties, society and the country to make interpretations considering the above-mentioned factors.

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Do the Developments in Telecommunication Leads to the Solow Paradox on Economic Growth in Turkey?

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ABSTRACT

Telecommunications infrastructure is critical not only for domestic growth, but also for combining credit with international commodity and financial markets, such as the smooth flow of foreign investment, facilitating the positive value of net exports, and increasing the added value in the economy's GDP. In this study, fixed telephone lines in the period since the Republic of Turkey, is to investigate whether mobile phone and affect the economic growth of the telecommunications sector showing growth in internet connection. In our study, the penetration rate represents the development of telecommunications industry. Penetration rate is defined as the number of fixed line and mobile phone subscribers per 100 people. In order to measure the penetration rate in Turkey, we have used the ratio of the total number of fixed line, mobile subscribers and internet users to the population, taking into account the dates when mobile communication and the internet started. Economic growth is represented as the rate of change to Gross Domestic Product. The data used in this study cover an annual period 1935-2017. After investigating the stationarity of the series of variables, a causal relationship between the Toda-Yamamoto causality test and the penetration rate and GDP change rate series was examined. The findings of the analysis, the development of telecommunications in Turkey revealed that does not affect economic growth. According to this result, the Solow paradox is valid in the period examined in Turkey.

ARTICLE INFO

Keywords: Telecommunication Developments, Economic Growth, Solow Paradox, LM Unit Root Tests, Toda-Yamamoto Causality Test

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1. INTRODUCTION

Telecommunications infrastructure is critical not only for domestic growth, but also for combining credit with international commodity and financial markets, such as the smooth flow of foreign investment, facilitating the positive value of net exports, and increasing the added value in the economy's GDP. Recent developments in telecommunications technology are seen as an important tool for developing a solid commodity market and making information easy to use. All over the world, the telecommunications industry has made rapid progress since the 1980s. Countries that have completed the progress stages of Rostow have started and continue to develop in the field of telecommunications. Developing countries accelerated their infrastructure works after realizing the importance of telecommunications in economic growth. On the other hand, the Solow paradox highlights the dilemma

between information and telecommunications technologies, although they are predicted to have growth-enhancing effects, but statistical data do not support this.

We can divide the effect of telecommunication on the economy of the country into two as direct and indirect. Direct impact can be listed as high-gain business opportunities, increase in demand for technical labour, transfer of technical skills to the local population, increased trade, market expansion with liberalization, diversity in purchasing preferences of consumers. In addition, service providers, mobile phones and wireless companies have created a competitive equipment market and accelerated technological development. With the establishment of call centres, customer service centres and mobile phone franchises, indirect employment has increased and a competitive labour market has emerged. In addition, telecommunication is a basic infrastructure component that enables the development of different sectors such as agriculture, education, industry, health, banking, defence, transportation and tourism. It is indispensable for daily activities promoting economic growth.

In this study, fixed telephone lines in the period since the Republic of Turkey, is to investigate whether mobile phone and affect the economic growth of the telecommunications sector showing growth in internet connection. The result of this study aims to make an important contribution to literature.

2. LITERATURE REVIEW

The relationship between telecommunications and economic growth has received wide attention from researchers in recent years. Ricketts (2002) states that telecommunication helps the coordination of information flow, provides opportunities to increase the efficiency of interaction and coordination, and thus affects the success of economic activities. It argues that a significant level of interaction and coordination is required for economic activities to be carried out successfully and efficiently. Alleman et al. (1994), on the other hand, argues that a modern telecommunications infrastructure is a precondition not only for local economic growth, but also for participating in increasingly competitive world markets and attracting new investments. All in all, to increase productivity in all sectors of telecommunications; facilitating the expansion of markets beyond borders to increase the efficiency of economies of scale; facilitating access to services by reducing the costs of services in the fields of management, education, health and banking; providing access to research positively influences economic growth through contributing to governance, which is a precondition for growth with greater participation, accountability and transparency.

The use of telecommunication services provides positive externalities, enhances creativity, learning and problem solving skills. The short-term impact is on employment and the long-term on connectivity, access, network security, talent/skills, market structures and firm governance. It certainly determines whether firms in developing countries can participate effectively and efficiently in the knowledge economy and compete in global e-markets.

In research on economic growth and telecommunications development in developed economies; Jipp (1963); Wellenius (1972); Marsh (1976); Shapiro (1976); Hardy (1980); Moss (1981); Norton (1992); Saunders et al. (1994); Lichtenberg (1995); Greenstein and Spiller (1996) found that there are positive

relationships between telecommunications and economic growth. Moreover, these studies investigated the relationship between telecommunications and economic growth without considering the direction of causality between telecommunications development and economic growth. Although telecommunications development is found to be one of the factors affecting economic growth, its contribution varies between countries at different stages of development.

Cronin (1991); Cronin et al. (1993) investigated the causality relationship between telecommunications and economic growth using US data. The findings revealed that there is a two-way relationship between telecommunications infrastructure and economic growth. In a causality analysis conducted by Madden and Savage (1998), it was stated that there is a two-way relationship between telecommunications investment and economic growth in Central and Eastern European countries. Canning and Pedroni (1999); Jorgenson and Stiroh (1999); Triplett (1999); Schreyer (2000); Colecchia and Schreyer (2002); Pohjola (2002) have also conducted a series of studies revealing that the long-term economic growth of the United States has been realized by information and telecommunication technologies.

In their study, Roller and Waverman (2001) revealed that the contribution of telecommunications to economic growth is not independent from the level of telecommunications development. Roller and Waverman (2001) studied how telecommunications infrastructure affected economic growth over a 20-year period using data from 21 OECD countries. They predicted a micro model with a macro production function for telecommunications investment. They have reached a significant positive causal link in the presence of a critical mass of telecommunications infrastructure.

Dutta (2001) conducted a Granger causality test with the data of 1970-1993 period of 15 developed countries and 15 of them belonging to the variables of telecommunication and economic growth represented by the number of fixed and mobile lines per 100 people. It found a positive relationship between telecommunications infrastructure and economic growth. Pohjola (2002) did not find a positive and significant relationship between telecommunications investments and GDP growth in his study with the data of 42 developed and developing countries for the years 1985-1999. Chakraborty and Nandi (2003) showed that there is a two-way relationship between the intensity of use of telecommunication systems and GDP in both the short and long term in 12 developing countries in Asia. When these countries were divided into two groups with high and low degree of privatization, causality was bidirectional only for countries in the group with high degree of privatization.

Cieslika and Kaniewsk (2004) found in their study that a positive and statistically significant causality relationship between the telecommunications infrastructure and income at the regional level in Poland is from the telecommuni cations infrastructure to the income. Datta and Agarwal (2004) analyzed the relationship between telecommunications infrastructure and economic growth using the dynamic fixed effects model using the 1980-1992 data of 22 OECD countries. The findings revealed that telecommunications infrastructure indicators positively affect real GDP growth.

While Yoo and Kwak (2004) has found a two-way relationship between information technology investment and economic growth in South Korea during 1965-1998, Wolde-Rufael (2007), found a two-

way relationship between information technology investment and economic growth in the USA during 1947-1996. Pazarlıoğlu and Gürler (2007) studied the relationship between telecommunications infrastructure investments and economic growth between 1990 and 2004 using the dynamic panel data method for the European Union core countries, member countries and candidate countries. It has been determined that the effect of telecommunication infrastructure investments on real GNP per capita is positive and significant. Sridhar and Sridhar (2007) investigated the relationship between telecommunications and economic growth using data from 28 developing countries. The study reveals that landlines and mobile phone use have a positive impact on national output. It turns out that the impact of telecommunications penetration rate on total output is significantly higher for developing countries than for OECD countries.

Shiu and Lam (2008) found a one-way relationship from GNP to telecommunications development in China. While the negative relationship from telecommunications to economic growth is achieved only in the rich eastern region of China, no relationship has been found in the low-income middle and western regions. Zahra et al. (2008) found that telecommunications infrastructure increased economic growth by using dynamic panel data analysis for 24 low, medium and high-income countries during 1985-2003, with an index for the number of fixed and mobile lines per 1000 inhabitants and internet users for telecommunications infrastructure. Yıldız (2012) searched the effect of OECD countries' investments in the telecommunications sector on economic growth in the period of 1990-2009 with panel data analysis. It has been found that telecommunications increase economic growth. Zeren and Yurtkur (2012) analyzed the impact of telecommunications infrastructure on economic growth in Turkey using the Geographical Weighted Regression Model. They found a positive relationship between telecommunications and economic growth.

Chavula (2013) analyzed the number of fixed lines per 100 people, the number of mobile lines and internet usage, which represent the development of telecommunications within the framework of the endogenous growth model with the data of the years 1990-2007 from 49 developing countries. They are concluded that the most important variable affecting economic growth is mobile lines. Güvel and Aytun (2013) studied the relationship between telecommunications infrastructure and economic growth for the period 1991-2009 using data from 138 countries included in five different income groups. They found that information and telecommunications technologies are a positive and significant factor on growth in all income groups except the non-OECD high income group. Kaur and Malhotra (2014) analyzed the relationship between the telecommunications infrastructure and GDP in India with the data for the period 1976-2012. As a result of the analysis, they determined a causality from telecommunications to GDP.

Pradhan et al. (2014) found a two-way relationship between the use of fixed lines, mobile lines and internet per 1000 people and the change in GDP per capita, representing the development of telecommunications with the panel Granger test for the G20 countries for the period 1991-2012. Özcan (2015) analyzed the relationship between the telecommunications industry and economic growth with

panel causality analysis using the data of 24 OECD countries between 1975 and 2013. A causality relationship was found between variables in the countries studied.

It is clear from these studies that studies investigating how the developments in telecommunications lead to economic growth using Turkey data are rare. This is the main point of departure for this article.

3. DATA

In our study, the penetration rate represents the development of telecommunications industry. Penetration rate is defined as the number of fixed line and mobile phone subscribers per 100 people. In order to measure the penetration rate in Turkey, we have used the ratio of the total number of fixed line, mobile subscribers and internet users to the population, taking into account the dates when mobile communication and the internet started. Considering the rapid development of mobile communication and the internet in the last two decades, including the number of mobile phone subscribers and internet users to our definition of telecommunications is thought to be important to reflect the development of telecommunications in Turkey.

Economic growth is represented as the rate of change to Gross Domestic Product. The data used in this study were obtained from TÜİK and World Bank databases over an annual period covering the period 1935-2017. It has been made ready for econometric analysis by applying logarithms to the series in order to reduce the difference between the values of the data of the variables and to bring the series closer to the stationary. The GDP rate of change variable representing economic growth has negative values. After converting negative values to positive values, logarithms can be taken. The absolute greatest positive observation value in the series was added to all the values that make up the series and transformed into positive.

4. METHODOLOGY

The econometric analyses in the study were carried out in phases. First, volume root problem was investigated using ADF unit root test. The unit root problem requires a stationarity test and is very important for econometric analysis. Because time series data of many variables are faced with unit root problem. If the mean and variance of the observation values of a variable are independent of time, then the time series is considered to be stationary. If the time series consisting of observation values is not stationary, it means that it has a unit root. The fact that time series contains unit root causes traditional regression analysis to produce false results. In order to save a non-stationary time series from the unit root, it can be made stationary by taking the difference or differences of the series.

In unit root tests with structural break developed by Lee and Strazicich (2003, 2004), the alternative of the basic hypothesis should not be stationary with structural break. If the alternative to the basic hypothesis is determined as the existence of structural breaks, it means that the unit root with structural break in the series may exist. In other words, rejecting the basic hypothesis does not result in the rejection of the existence of the unit root, but the rejection of the unit root without a structural break. The rejection

of the basic hypothesis causes the trend to be considered as static with structural break, while the difference is in fact stable with the series breakages.

Lee and Strazicich (2003, 2004), using the Lagrange Multipliers (LM) unit root test of Schmidt and Phillips (1992), developed an alternative to the Zivot-Andrews unit root test, the single-break, two-break unit root test as an alternative to the Lumsdaine-Papell unit root test. They solved the problem of evaluating the series as trend stationary with structural break.

For LM unit root test ; $y_t = \delta Z_t + e_t \quad e_t = \beta e_{t-1} + \varepsilon_t$ (1) the regression equation is used. Z_t; vector of exogenous variables, ε_t; *iid N (*0, σ^2) It represents the remains that show their characteristics.

Model A for unit root test with single break at level, D_t, $t \geq T_B + 1$ as 1, in other cases, for the shadow variable that takes a value of 0, in model number (1), it is created by typing $[1, t, D_t]'$ instead of Z_t. T_B is the time to break.

Model AA for unit root test with two break at level, D_{jt}, for j = 1, 2 $t \geq T_{Bj} + 1$ as 1, in other cases, for the shadow variable that takes a value of 0, in model number (1), it is created by typing $[1, t, D_t, \mathrm{DT_t}]'$ instead of Z_t.

Model C that allows single break at level and slope, $\mathrm{DT_t}$, $t \geq T_B + 1$ as $t - T_B$ in other cases, for the shadow variable that takes a value of 0, in model number (1), it is created by typing $[1, t, D_t, \mathrm{D_t}]'$ instead of Z_t.

Model CC, which allows two breaks in fixed term and trend, for j = 1, 2 DT_{jt}, $t \geq T_{Bj} + 1$ as $t - T_{Bj}$ in other cases, for the shadow variable that takes a value of 0, in model number (1), it is created by typing $[1, t, D_{1t}, \mathrm{D_{2t}}, \mathrm{DT_{1t}}, \mathrm{DT_{2t}}]'$ instead of Z_t.

Data generation, with breaks under basic hypothesis ($\beta = 1$), alternative hypothesis is β<1. LM unit root test statistic takes the form of $\Delta y_t = \delta' \Delta Z_t + \phi \tilde{S}_{t-1} + u_t$.

The structural break point is thus located in the clipping region (0.15*T - 0.85*T). Critical values for single break LM unit root test are provided from Lee and Strazicich (2004), and critical values for double break LM unit root test from Lee and Strazicich (2003). If the calculated test statistic is greater than the critical value, the unit root base hypothesis with structural break is not accepted.

The causality relationship between economic growth and penetration rate variables was determined by Toda-Yamamoto test. The Toda-Yamamoto causality test can conduct a causality research regardless of the same stationarity levels between time series and the cointegration relationship between variables. This method is used because it is suitable for the standard VAR model at different levels of the variables and minimizes the possibility of incorrectly determining the degree of integration of the series (Mavrotas and Kelly, 2001).

Two steps must be taken to implement the Toda-Yamamoto causality test. The first step is to determine the lag length (m) and the other is to choose the maximum degree of integration (dmax) for the variables in the system. Akaike Information Criterion (AIC), Schwarz Information Criteria (SC) and Hannan-Quinn (HQ) Information Criteria are used to determine the degree of delay of the VAR. Then the VAR

model is estimated with the sum of the p = (m + dmax) lags. The standard Wald test is applied to the mVAR coefficient matrix (without applying to all delayed coefficients) to draw conclusions to the Granger causality test (Awokuse, 2003).

5. INTERPRETING THE FINDINGS

5. 1. ADF Unit Root Test Findings

ADF unit root test was applied to variables for the stationary test, which is the first step of econometric analysis. The findings of the ADF unit root test are given in Table 1.

Table 1: ADF Unit Root Test Findings

Variables	ADF		Results
	Trend-Intercept Level Value	Trend-Intercept 1st Difference Value	
lngrowth	-5.373214 (0.0001)	-	I (0)
lnpen	-2.042896 (0.5691)	-4.788488 (0.0011)	I (1)

lngrowth variable according to Table 1; stationary at the trend-intercept level value i.e. I (0), lnpen variable; trend-intercept is stationary at the 1st difference value, i.e. I(1).

5. 2. Lee - Strazicich Unit Root Test Results with Structural Break

The findings of the lngrowth and lnpen variables of the LM unit root test investigating the intrinsic single break are as in Table 2.

Table 2: Single Break LM Unit Root Test Results

	lngrowth Model A	lnpen Model A	lngrowth Model C	lnpen Model C
Test Statistics	-5.429299	-2.018410	-5.776237	-4.350204
Lag Length	1	6	2	7
Date of Breaking	1976	1959	1961	1984
Critical Values (%5)	-3.48700	-3.48700	-4.23111	-4.34371

The gross domestic product rate of change break dates are 1976 for Model A, 1961 for Model C, and the penetration rate breakage dates are 1959 for Model A and 1984 for Model C. When the test statistics of the variables are examined, it is seen that the test statistics for both models are greater than the critical value except for lnpen Model A. At the 5% significance level, the breakage dates in both models and the unit root base hypothesis with structural break are not acceptable except for lnpen Model A. This means that the unit root without structural break is rejected except for the Inpen Model A. The series of the variables of the study are stationary, with breaks except for lnpen Model A. This result reveals that the variables are I (1), except for Inpen Model A. Without structural break it means rejecting the unit root. The series of the variables of the study are stationary with the breakage, except for lnpen Model A. This result reveals that the variables are I(1).

Table 3: Single Break LM Unit Root Test Results

	lngrowth Model AA	**lnpen Model AA**	**lngrowth Model CC**	**lnpen Model CC**
Test Statistics	-6.2378	-2.0763	-7.5505	-6.0257
Lag Length	2	6	6	8
Date of Breaking	1947 1972	1959 2009	1945 1956	1985 1996
Critical Values (%5)	-3.5630	-3.5630	-6,1080	-6,2010

Table 3 contains the results of the LM unit root test investigating two structural breaks according to the basic and alternative hypothesis. The test statistics calculated in Model AA and Model CC of the variable lnpen are less than 5% critical values. In this case, the unit root base hypothesis with LM two break is not rejected. The calculated test statistics of the other variable, lngrowth, are absolutely greater than the 5% critical value. In this case, since the unit root base hypothesis with structural break cannot be accepted, it means rejecting the unit root without structural break. lngrowth series, the difference is stable with breaks. As a result of the LM unit root test, it is revealed that the lnpen variable is I(0) and the lngrowth variable is I(1).

The results of the ADF and LM structural break unit root tests prevent traditional cointegration tests to investigate the relationship between variables. Because traditional cointegration tests argue that the variables should be stationary at the same level. On the other hand, the ARDL test is applied to the stable states of the variables in the level and 1st difference, unlike traditional cointegration tests. However, in order to be able to apply the ARDL test, the dependent variable must be first aware, i.e. I(1) independent variable must be stationary at the level. Especially according to the ADF test findings of the variables of the study, this condition cannot be met.

5. 3. Toda-Yamamoto Causality Test Findings

The variables in our study were stationary at different levels as a result of the stationarity tests and the dependent variable was determined as I(0), requiring Toda-Yamamoto causality analysis. For this analysis, it is necessary to first determine the maximum lag length. Table 4 contains the maximum lag length determined according to the information criteria. The criteria in this table chose the ideal maximum lag length as 2.

Table 4: Determination of Maximum Lag Length Belong to lngrowth and lnpen Variables

Lag	**LogL**	**LR**	**FPE**	**AIC**	**SC**	**HQ**
0	-146.6395	NA	0.171326	3.911565	3.972900	3.936078
1	122.9565	517.9081	0.000158	-3.077802	-2.893797	-3.004265
2	139.6822	31.25060	0.000113*	-3.412689*	-3.106013*	-3.290126*
3	140.6795	1.811023	0.000122	-3.333672	-2.904327	-3.162085
4	142.5012	3.211810	0.000130	-3.276346	-2.724331	-3.055734
5	148.5211	10.29729*	0.000123	-3.329503	-2.654817	-3.059866
6	153.2784	7.887033	0.000121	-3.349431	-2.552075	-3.030769
7	155.3159	3.270782	0.000128	-3.297787	-2.377761	-2.930100

After determining the maximum lag length, the standard VAR model was established by using the level values of the series of variables.

$$lngrowth_t = \beta_0 + \beta_{lnpen} lnpen + \mu_i$$

$\partial lngrowth_t$ / $lnpen$ > 0 ; the development in telecommunications affects economic growth,

$\partial lngrowth_t$ / $lnpen$ < 0 ; the development in telecommunications does not affect economic growth.

When determining the VAR model for economic growth and telecommunication variables, the lag length of the standard VAR model was determined as 2, since the lag length represents 2 lags. The degree of integration (dmax) is 1 since the economic growth variable is I(0) and the telecommunications variable is I(1). By adding the degree of integration (dmax) to the standard VAR model, the lag length is 3.

The new VAR model created by changing lag lengths was estimated by Seemingly Unrelated Regression (SUR) method. The SUR method was preferred because it takes into account the heteroskedastic (changing variance) in the error terms of the equations for causality analysis estimated in the model estimation part and the correlation between the error terms (autocorrelation).

The findings of the Toda-Yamamoto causality test for economic growth and telecommunications variables are shown in Table 5.

Table 5: Toda-Yamamoto Causality Analysis Findings of the lngrowth and lnpen Variables

Dependent Variable	**Direction of Causation**		
	lngrowth	**lnpen**	
lngrowth	-	1.338738 (0.7200)	lnpen ↛ lngrowth
lnpen	1.667546 (0,6442)	-	lngrowth ↛ lnpen

The values in Table 5 shows that there is a relationship between variables telecommunications and economic growth in Turkey. According to the results of economic growth and developments in telecommunications in Turkey and mutually influence each other. While our study findings support the results of Pohjola (2002), it is not compatible with the findings of the studies indicating that the developments in telecommunications in the literature will cause economic growth.

6. CONCLUSION

Wireless and fixed telecommunications are a service of general economic interest. It improves the knowledge, skills and personal environment of individuals and increases private sector productivity. Telecommunications is important as a technology to increase investment returns in other sectors, facilitate service trade and globalization, increase the national business environment and competitiveness, and improve public services.

Telecommunications infrastructure in Turkey, especially as a result of the increasing number of Internet users and mobile telecommunications, has made rapid development despite low incomes and high population density, especially in the 2000s. This development is even more pronounced for rural areas.

With the rapid development of the wireless band, mobile communication has evolved from simple voice communication services and text messaging with a widespread application network where traditional services are not available. Smartphones now allow users to surf the Internet, download music, access information services and organize events via teleconferencing. Despite these developments, the communication density over fixed telecommunications has dropped dramatically.

Although telecommunication development is found as one of the factors affecting economic growth, its contribution varies between countries at different stages of development. In this study, the development of telecommunications in Turkey focused on identifying the impact on economic growth. In order to measure the development of the telecommunication sector, the penetration rate, which is defined as the ratio of the total number of fixed lines, mobile phone subscribers and internet users per 100 people to the population, was used. Also, economic growth is represented by the rate of change to the Gross Domestic Product.

In our study, after investigating the stationarity of the series of variables, a causal relationship between the Toda-Yamamoto causality test and the penetration rate and GDP change rate series was examined. The findings of the analysis, the development of telecommunications in Turkey revealed that does not affect economic growth. This result with together, telecommunication development is not a factor that increases directly economic activities in Turkey. In the light of the literature and our findings examined in the study, while the effect of advances in telecommunications on economic growth is evident in developed countries, the effect in underdeveloped countries is not entirely clear.

The Solow paradox has been included in the literature in the 1980s when the effects of telecommunications technologies on economic growth began to be taken into account. This paradox points to the dilemma that statistical data do not support this effect, although it is thought that the growth-enhancing effects of information and telecommunication technologies will emerge. Results of our study revealed that the Solow paradox occurs in Turkey. This result is an important contribution to the literature.

Moreover, within the scope of the Regulatory Scorecard-2017 study conducted by the European Competitive Telecommunications Association (ECTA), where the effectiveness of the regulatory framework and market competitiveness in the telecommunications market is evaluated, Turkey is ranked 19th among the EU members and candidates from 22 countries. It shows that there is not a competitive telecommunications market in Turkey that will affect the extent of economic growth. The findings of our study overlap within this report. It is clear that the share of the sector in GDP will increase if a fast-paced infrastructure work in the telecommunications sector continues to increase. It is thought that with the infrastructure investments that will increase over time, the telecommunication sector will contribute to the economic growth.

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Implications of the Bank Recovery and Resolution Directive on Non-Core Banks and Investment Firms in Malta**

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ABSTRACT

Through this research study, the authors set out to analyse the implications of the BRRD on non-core domestic banks as well as investment firms. The main aim behind this study is researchersto gain an insight into how such institutions are managing in view of the requirements of the BRRD. Besides building a thorough understanding of the impact of BRRD provisions on these institutions, this study also sets out to explore the potential challenges that might arise following the application of said provisions. Purposive sampling was applied, whereby the researchers collected the data by holding semi-structured interviews with representatives from a select number of non-core domestic banks and investment firms. The findings converge on a number of points. The institutions under study lacked the necessary guidance, largely because the BRRD was implemented rather quickly to immediately address the weaknesses of resolution and supervision that came to light after the 2008 financial crisis. In this respect, the institutions concerned were not able to invest adequate time in their preparation process. In line with previous local research, an ambivalent approach was also observed in relation to the benefits of the measures under the BRRD, especially in the case of small-sized institutions. These outcomes show that the BRRD might be too recent of a regulatory framework to bear concrete results. Although it has generally been welcomed as a constructive measure bent on bringing improvements in the spheres of recovery and resolution, there needs to be further time, and understanding and work by both authorities and institutions to fully realise its benefits. Given that the BRRD is an important step towards further maintaining financial stability and fighting against financial calamities, this study carries the value of bringing together the existing research done already in this area, further extending the research to cover more domestic institutions and ultimately contributing to a more holistic understanding of the implications of the BRRD in Malta.

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1. Background information

The 2008 financial crisis has accentuated the need for a structured framework to be developed in response to the major weaknesses exposed in the financial sector. Chief among these weaknesses, was the threat to financial stability posed by the size, complexity and interconnectedness of financial institutions in distress if allowed to go bankrupt (also known as the ‘too big to fail’ problem). What

typically followed was the bailout of failing firms, which inappropriately shifted most of the losses to taxpayers.
The regulatory response taken on an international level was aimed to reduce both the likelihood and the impact of failure, with the main focus being on enhancing resolution regimes (Freudenthaler, et al., 2016). In fact, the 'Key Attributes of Effective Resolution Regimes for Financial Institutions' adopted by the Financial Stability Board (FSB) and endorsed by the G20 in 2011, set out the powers and tools that allow for an orderly resolution of financial institutions while in turn ensure the continuity of operations.
In line with the FSB recommendations, considerable efforts have been made by legislators and supervisors within the European Union (EU) aimed at ensuring that EU institutions are well supervised and better capitalised, as well as establishing orderly resolution processes which secure market discipline (European Banking Authority [EBA], n.d.). This resulted in a new EU legal framework, the Bank Recovery and Resolution Directive (BRRD), Directive 2014/59/EU, which primarily stipulates that in those scenarios where financial instability prevails, the shareholders and creditors of the failing institution, rather than the taxpayer, should bear the losses incurred. The BRRD provides for a harmonised framework whereby it lays out a set of rules that should be consistently applied in those instances when credit institutions and investment firms from all EU Member States face potential or actual resolution (EBA, n.d.). Further complementing the introduction of the BRRD is additional EU legislation, including the capital adequacy requirement for banks (CRR/CRD), the European Market Infrastructure Regulation (EMIR), the Deposit Guarantee Scheme Directive (DGSD), and EU state aid rules (Freudenthaler, et al., 2016).
The BRRD outlines a number of measures carrying the following objectives. Firstly, national authorities are supplied with the necessary tools that would enable them to take pre-emptive action to fend off the resolution of troubled institutions. Secondly, firms and authorities are obliged to prepare in advance against crises scenarios. Thirdly, national authorities are empowered with harmonised resolution tools to enable swift action from their part in the advent of bank collapse. Lastly, authorities are enabled to draft out plans for effective coordination when faced with a failed cross-border bank.
The BRRD framework accounts for the global nature of several institutions. This explains why it supplies the tools which enable and encourage strong collaboration between the national authorities concerned. This way, resolution tools are applied coherently across different borders and across different jurisdictions.

1.2 Financial institutions covered by the BRRD

The main financial institutions falling under the scope of the BRRD include credit institutions and certain investment firms. As will be further explained in the following sections, this study principally focuses on non-core domestic banks and investment firms, hereinafter collectively referred to as 'institutions'. These are respectively defined as outlined below.

1.2.1 Credit institutions

Point (1) of Article 4(1) of Regulation (EU) No 575/2013 defines a 'credit institution' as "an undertaking the business of which is to take deposits or other repayable funds from the public and to grant credits for its own account".
According to the *Banking in Malta 2016/2017* report issued by KPMG (2016), there are 26 licensed credit institutions operating in and/or from Malta (as at September 2016), seven of which are core domestic banks, six are non-core domestic banks and the rest are international banks.
For the purpose of this study, a distinction between the two main types of banks needs to be drawn. 'Core domestic banks' have a "wide spread branch network, provide a full spectrum of banking services and are core providers of credit and deposit services in the local market" (KPMG, 2016, p.23), whereas 'non-core domestic banks' are defined as "banks which play a more restricted role in the economy as they cater mainly for non-residents, with some activity in the local market" (KPMG, 2016, p.23).

The following is a list of Maltese licensed non-core domestic banks[1]:

1. FCM Bank Limited
2. FIMBank plc
3. IIG Bank (Malta) Ltd
4. Izola Bank plc
5. MFC Merchant Bank Ltd
6. Sparkasse Bank Malta plc

1.2.2 Investment firms

Article 2(1) of the Recovery and Resolution Regulations, 2015, under the Malta Financial Services Authority (MFSA) Act, Cap. 330 of the Laws of Malta, provides that an 'investment firm':

> has the same meaning as that assigned to it in point (2) of Article 4(1) of the CRR that is subject to the initial capital requirement of €730,000, excluding firms which are not authorised to provide the investment service falling within points (3) [dealing on own account], (7) [underwriting of instruments and/or placing of instruments on a firm commitment basis] and (9) [operation of a multilateral trading facility] of the First Schedule to the Investment Services Act.

In this respect, the investment firms falling under the scope of the BRRD are those in possession of a Category 3 Investment Services Licence (MFSA, 2015).
The following is a list of Category 3 investment services licence holders[2]:

1. Binary Investments (Europe) Ltd
2. Calamatta Cuschieri Investment Services Ltd (incorporating Crystal Finance Investments Limited)
3. Charts Investment Management Service Limited
4. Domino Europe Limited
5. Finco Treasury Management Limited
6. FXDD Malta Limited
7. NSFX Limited
8. Rizzo, Farrugia & Co (Stockbrokers) Ltd
9. RTFX Limited *(licence surrendered voluntarily)*
10. TMS Brokers Europe Ltd

1.3 Rationale for research

The BRRD is regarded as a potential game changer, empowering national authorities with the necessary tools to intervene early enough in order to ensure stability in the financial system.
Given that previous local research about the BRRD was primarily centred on core domestic banks and a few investment firms, the researchers will be further contributing to what has been hitherto studied by analysing the implications of the BRRD on non-core domestic banks as well as investment firms. This will allow the researchers to gain an insight into how such institutions are faring in view of the requirements of the BRRD.

1.4 Objectives of the study

The aim of this study is to inquire into and obtain an understanding of the impact of BRRD provisions on non-core domestic banks and investment firms in Malta. In order to fulfil the aim of this study, the objectives are:

[1] As per *Banking in Malta 2016/2017* (KPMG, 2016, p.25); confirmed via the Financial Services Register on the MFSA website <http://www.mfsa.com.mt/pages/licenceholders.aspx>
[2] As per the Financial Services Register on the MFSA website <http://www.mfsa.com.mt/pages/licenceholders.aspx>

a. to gain an in-depth understanding of the impact of BRRD provisions on non-core domestic banks and investment firms in Malta in both the performance of ordinary business and/or in the event of financial distress; and
b. to explore the potential challenges that might arise following the application of BRRD provisions.

1.5 Scope and limitations

The scope of this research study was to examine how non-core domestic banks and investment firms were impacted by the BRRD.
A potential limitation can be attributed to the limited number of qualitative studies researched through the literature that explore the implications of the BRRD on financial institutions. Since the BRRD is quite a recent directive, it might be expected that the literature is somewhat limited, especially in larger countries where more financial institutions need to be taken into consideration in order to be able to analyse the impact of the BRRD on such institutions.
Due to the nature of the study, purposive sampling was used. This resulted in a small sample size, hence limiting the study's findings to a certain extent.

2. Literature

2.1 Introduction

The aim of this literature review is to understand what led to the establishment of the BRRD, Directive 2014/59/EU, its provisions, and its implications on banks and investment firms. The introduction of the BRRD put an end to the disorderly bailouts and set new principles by revamping the way of how crisis situations are to be dealt with. This has been primarily achieved by shifting the burden of losses from taxpayers to shareholders and creditors, thereby making shareholders responsible for their investment decisions (Gatti, 2016).
This chapter presents a review together with a critique of the literature available on the impact of the Directive in EU Member States. Literature searches carried out using EBSCO Research Database, HeinOnline Law Journal Library, SSRN, Google Scholar and the EBA search feature, identified various research studies in this area. The available literature was then thoroughly analysed and the most relevant material in relation to this study's aims and objectives is presented in this chapter.

2.2 Background – What led to the establishment of the BRRD

Deemed the worst financial shock since the Great Depression of the 1930s, the 2008 global financial crisis acted as a catalyst for major reforms in banking regulation. Indeed, the crisis brought to light several deficiencies in financial regulation, consequently emphasising the need for urgent and extensive repair (Hadjiemmanuil, 2015).
The widespread failure of notable banks during the crisis heightened the awareness of systemic risk across the financial services industry. The degree of power and influence that banks have on the industry at large does not only correspond to the size of the institution but also to the connections between banks (European Commission [EC], 2012). Such interlinkages demeaned the overall financial stability as the failure of one bank led to cross-border spillovers.
Corresponding to what Mervyn King, the former Governor of the Bank of England, rightly pointed out earlier on during the crisis that "global banks are global in life but national in death" (Turner, 2009 cited in Hadjiemmanuil, 2015, p.10), the affected banks had no choice other than to turn to their national governments for support (Hadjiemmanuil, 2015). Despite it being the easiest solution at that time, the process of bailing out troubled firms not only had its negative repercussions on taxpayers' money but it also put at further risk the stability of the financial system (Attinger, 2011).
In its impact assessment (IA) document addressing the 2008 crisis, the EC (2012) sets forth a number of problems related to the bailout of banks. One main problem is the distortion of competition between banks, which brings with it the creation of moral hazard. Systemic institutions have an advantage over their non-systemic competitors since they are perceived to benefit from an implicit state guarantee and are thus able to raise funds in the market at a low cost. Subsequently, systemic firms are bound to take on more risk if there is the prospect that the state will make up for the losses when things go wrong.

Therefore, rescuing banks with public funds can potentially manifest itself to be in support of the wrong incentives (Attinger, 2011).
The real problem hence lay in the lack of adequate measures in resolving distressed financial institutions. The fact that the majority of European authorities did not possess the tools to intervene early enough in a banking crisis was already troubling. Still, the diverging approaches adopted by those few authorities which had some kind of procedures in place hardly improved the overall situation. This lack of cross-border harmonisation was likely to complicate and hinder the efficient handling of a crisis between the different states, thereby weakening the functioning of the Internal Market (EC, 2012).
As a result, it was essential to come up with a better way to effectively deal with the recovery and resolution of financial institutions. Eventually, the EC (2012) issued a proposal for the establishment of a framework for the recovery and resolution of credit institutions and investment firms – this being included within the previously mentioned IA report published in June 2012. Such a proposal led to the introduction of the BRRD, which came into force on 2 July 2014, with its provisions becoming applicable from 1 January 2015.

2.3 What is the BRRD?

Attinger (2011) observes that the establishment of a feasible resolution framework must ultimately be based upon definite objectives which address the shortcomings discussed above. These include the protection of financial stability, depositor protection, and protection of public confidence, public funds and human rights. Therefore, in order to achieve these objectives, who should bear the losses in the event of bank resolution?
The BRRD and the Single Resolution Mechanism (SRM) within the Banking Union ensure that the burden of resolving unsound or failing institutions does not unfairly fall on taxpayers. Rather, shareholders should be the first to bear the losses, duly followed by creditors. However, it should be noted that, in accordance with the 'no creditor worse off' principle, creditors cannot suffer greater losses than they would have incurred under normal insolvency proceedings.
Essentially, the BRRD lays out a comprehensive set of measures which revolve around four key elements (EC, 2014): (i) preparation and prevention of resolution via recovery and resolution plans; (ii) early intervention by the supervisor; (iii) the application of resolution tools in cases of actual bank failures; and (iv) cooperation and coordination between national authorities.
Each bank and investment firm that falls under the scope of the BRRD is required to draw up a detailed and credible recovery plan. This plan sets out the actions to deal with situations that could threaten the financial viability of the institution. The resolution authority within each Member State is in turn responsible for ensuring the appropriateness and effectiveness of the plan. If it is deemed that a plan does not satisfy the requirements under the BRRD, the respective institutions are required to take the necessary measures for them to be in line with the objectives of the Directive. Resolution authorities are also responsible for preparing a resolution plan for each firm.
Meanwhile, in the case that a bank shows any warning signs of financial distress, the BRRD empowers resolution authorities to be able to intervene sufficiently early and quickly enough in order to ensure the protection of the firm. This typically involves dismissing current management and putting the bank into administration, as well as requiring the bank to carry out a debt-restructuring plan supported by its creditors.
Should the bank's situation continue to deteriorate, the resolution authority will be obliged to step in once again to resolve the issue through the application of resolution tools. These include the power to either sell a part of or the whole bank, or else merge the business with another bank; to establish a bridge bank to take on and thus ensure the continuity of the failing bank's critical functions; to separate bad assets from good ones by transferring them to a 'bad bank'; and to convert the bank's debt into equity or write it down.
The BRRD also allows for harmonisation of powers across national authorities within EU Member States. This promotes cooperation especially in cases of failing institutions that have a cross-border presence. Resolution authorities will therefore be able to collaborate closely in resolving the institution in an orderly manner without leaving a drastic impact on the financial sector.

2.4 Implementation of the BRRD

The BRRD brought about a number of changes in existing legislation, as well as the implementation of new requirements among EU Member States. According to Article 130 of the Directive, Member States were required to adopt the necessary regulations by 31 December 2014 in order for these to come into effect from 1 January 2015. The provisions on the bail-in tool were, however, held back until 1 January 2016. As per IP/15/5057 and IP/15/5827 issued by the EC (2015a; 2015b), eleven EU countries, including Malta, failed to meet this deadline, with six of these countries eventually referred to the EU Court of Justice after failing to comply with the renewed deadline.

BRRD provisions were subsequently transposed into Maltese law around mid-September of 2015 through the enactment of the Recovery and Resolution Regulations, 2015, under the MFSA Act, Cap. 330 of the Laws of Malta. The MFSA, which is primarily responsible for regulating the financial services industry, was designated as the national resolution authority in Malta. More specifically, the Board of Governors of the MFSA has been entrusted with resolution powers. This is in line with Article 3 of the BRRD which calls for the appointment of a public administrative authority or an authority entrusted with public administrative powers as a resolution authority.

Stanghellini (2016) notes that such a concentration of powers has its advantages and disadvantages. Whereas it allows for the effective exchange of information between supervisory and resolution functions, thus enhancing coordination, it is likely to give rise to conflicts of interest between these two functions. In order "to ensure operational independence and avoid conflicts of interest" between the different functions of the appointed authority, Article 3(3) of the Directive provides for structural arrangements to be put in place.

Accordingly, the MFSA has gone a step further and set up the Resolution Committee and Resolution Unit to maintain independence from the supervisory function, while also allowing for better delegation of roles. As laid down in the First Schedule to the Malta Financial Services Authority Act, the Resolution Committee is composed of three persons appointed by the Central Bank of Malta, the MFSA, and the Ministry for Finance. These positions are currently held by Mr Emanuel Ellul, Mr Paul Spiteri and Mr Alfred Sladden.

Conforming to the provisions under the BRRD, paragraph 3(2) of the First Schedule to the Malta Financial Services Authority Act sets out the objectives of the Resolution Committee. The resolution of an institution aims to safeguard the continuity of essential banking operations; to protect depositors, client assets and public funds; to minimise risks of financial instability; and to avoid the unnecessary destruction of value. Therefore, the Resolution Committee is entrusted with the task of applying any of the resolution tools in cases of financial distress.

Meanwhile, the main duties of the Resolution Unit are identified in paragraph 8(4) of the First Schedule to the Act. These include:

a. Assessing whether an institution is failing or is likely to fail after consultation with the Resolution Authority;
b. Drawing up resolution plans on how to handle financial stress of an institution;
c. Carrying out resolvability assessments of institutions; and
d. Cooperating as well as exchanging information with other units within the MFSA, particularly the Supervisory Council which is primarily responsible for the supervision of banks and investment firms.

It is also the responsibility of the Resolution Unit to stop banks and investment firms from engaging in any form of practice that might hasten their collapse. This can either take the form of adopting highly complex business structures, exposing the business to excessive risks, or of holding insufficient convertible capital instruments.

The following section will discuss in more detail the process that institutions go through to prepare, and eventually submit, their recovery plans to the Resolution Authority.

2.5 Recovery planning

Article 5 of the Directive provides a general introduction to recovery planning. As mentioned earlier, the BRRD requires every institution that falls under its scope to prepare and maintain a recovery plan to restore its financial position in the event of significant deterioration.

The purpose of a recovery plan is therefore to identify the appropriate actions to be taken to counter those factors which put at risk the stability of the institution. This also involves assessing whether such recovery actions are robust enough to deal with a wide range of shocks of different nature. In other words, recovery plans must be detailed and credible, and include plausible actions that, if applied in a timely manner, would prevent a firm's unstable situation from further deterioration.
In Malta, the respective institutions were informed of this emerging obligation to draw up a recovery plan by way of a circular issued by the MFSA in September 2015. Provisional recovery plans were to be submitted by the end of the same year for reviewing. This entails close cooperation between the Resolution Authority and the Resolution Unit, which are responsible for analysing the adequacy of the submitted plans. If it is concluded that a particular recovery plan does not satisfy the requirements under the Directive, the respective institution will be notified to submit a revised plan.

2.5.1 Content

In preparing their recovery plans, banks and investment firms are to abide by a set of guidelines and technical standards issued by the EBA (2014a; 2014b; 2015a). It is important to understand that recovery planning is not a one-time process. Rather, it involves ongoing assessment and analysis, which reflects the changing profile of the institution.
Pursuant to Article 5(10) and Section A of the Annex to the BRRD, the draft regulatory technical standards (RTS) specify the information to be contained in the recovery plan. Technically, the plan is divided into five main headings: (i) a summary of the recovery plan; (ii) information on governance; (iii) a strategic analysis; (iv) a communication plan; and (v) a description of preparatory measures.
The recovery plan starts off with a summary of each key component which is subsequently described in further detail as the plan progresses. Moreover, should there be any material changes to the recovery plan once an updated version is submitted to the resolution authority, such changes are to be documented within the summary.

2.5.1.1 Governance

The governance arrangements within the recovery plan principally identify the relevant people within the firm who are responsible for developing, implementing and updating the plan. In this regard, this section also describes the process of approval and the procedures taken to integrate the plan within the corporate governance of the firm.
Most importantly, it focuses on the indicator framework – a crucial element of the recovery plan. Each institution is required to establish recovery indicators which provide early warning to the top management of any arising issues that threaten the stability of the firm. It must be noted here that recovery indicators do not prompt the automatic application of recovery options in response to particular scenarios. Rather, they trigger an escalation and decision-making process that aims to resolve situations of distress. These recovery indicators should eventually be assessed for their effectiveness by the competent authorities. The authorities should also ensure that appropriate arrangements are in place to regularly monitor these indicators.
In accordance with Article 9(2) of the Directive, the responsibility fell upon the EBA to issue specific guidelines that assist banks and investment firms in establishing indicators. The EBA (2015a) Guidelines do not specify a fixed set of indicators which each and every institution must apply. Instead, it is acknowledged that the risks faced by each institution vary in nature and in size relative to the business, its operations, and its interconnectedness to other businesses and the financial system as a whole. Therefore, a well-structured indicator framework is built upon the business model of an institution, making it in line with its strategy and risk profile.
Moreover, institutions should have an adequate number of indicators covering a wide range of vulnerable areas, as per the institutions' size and complexity. This makes it possible for firms to be in control of deteriorating conditions. Even so, institutions should be cautious not to put in place too many indicators that might in the end prove difficult to manage and monitor. Institutions typically monitor some performance indicators that are in place as part of regular risk management. Such a framework will help in embedding recovery planning into the ongoing business of an institution by aligning the recovery indicators with the existing indicators.

The EBA (2015a) Guidelines recognise that institutions should include a mix of qualitative and quantitative indicators that they deem the most relevant for their own business. In this respect, the guidelines set down the minimum list of categories that should be considered in the preparation of the recovery plan. These include capital, liquidity, profitability and asset quality indicators.

- Capital indicators should be able to alert the institution of any actual or anticipated significant negative effects to the quality and quantity of capital in a going concern.

- Liquidity indicators should be able to warn the institution in cases of a current or a predictable poor liquidity position. These indicators should see to the liquidity and funding needs, both in the short and long terms. Additionally, they should gauge the extent to which the institution depends on wholesale markets and retail deposits.

- Profitability indicators should attend to income-related aspects which are likely to result in lower profits or even losses, thus impeding the financial position of the firm and affecting its own funds. These indicators should point at operational risk-related losses which might potentially affect the profit and loss statement. Such losses could include conduct-related issues and external/internal fraud.

- Asset quality indicators should assess and control the institution's asset quality development. Particularly, these should detect those occurrences where asset quality deterioration necessitates the institution to resort to the actions outlined in the recovery plan.

Two other categories include market-based and macroeconomic indicators. What makes these indicators different from the above-mentioned is that it is possible for the institution to omit these indicators within its plan, on the condition that it justifies to the resolution authority why and how these indicators are not relevant to its legal structure, risk profile, size and complexity – thus making these two categories subject to rebuttable presumption.

- Market-based indicators draw on the expectations from market participants in order to detect declining financial conditions that could possibly disturb access to funding and capital markets.

- Macroeconomic indicators cover a larger scale, aimed at capturing signs of deterioration across the economy in which the institution operates. They are hence based on prevailing conditions which are related to the geographical area where the business is located and/or the sectors it is exposed to.

2.5.1.2 Strategic analysis

The strategic analysis maps out the key operations of the institution along with its critical functions, while also describing the internal and external relations of the firm. This essential component of the plan also sets out the actions to be taken by the institutions concerned if and when stress scenarios arise. Such recovery options would typically include capital and liquidity actions. They also ensure quick access to contingency funding in cases of emergency.

Recovery options fulfil their intended purpose if suitably linked to governance and stress scenarios. For one, the institution needs to assess the feasibility of the options with respect to their implementation, and seek to overcome possible obstacles. Meanwhile, it is crucial for the institution to design scenarios against which to test the effectiveness of the established options, and in turn, prevent a crisis from happening.

Article 5(7) of the BRRD conveys to both the EBA and the European Systemic Risk Board (ESRB) the authority to issue guidelines which specify the range of scenarios to be included in the recovery plan.

Institutions need to ensure that the designed stress scenarios are severe enough to threaten the firm's financial stability, if they do indeed materialise and no timely measures are taken to prevent complete failure. Nevertheless, these scenarios should be limited to portray only 'near-default' situations and go no further to consider the downfall of the firm, this being in line with the plan's purpose of proving the effectiveness of the actions taken to restore the viability of the firm.

According to the EBA (2014b) Guidelines on recovery plan scenarios, the plan should include at least three macroeconomic scenarios which respectively cover a system-wide event, an idiosyncratic event, and a combination of system-wide and idiosyncratic events. Systemically important institutions are then required to design at least four scenarios rather than just three.
A system-wide event is defined as one which leaves a significant adverse impact on the financial system or the economy. Meanwhile, an idiosyncratic event is not as far-reaching as a system-wide event, implying that negative consequences are limited in impact to an institution, a group or an institution within a group.
The EBA (2014b) Guidelines go on to specify a number of factors and events which are typically conducive of financial instability. This is in order to make sure that institutions consider the main types of stress events. The guidelines highlight the following system-wide events: the failure of significant counterparties, which affects financial stability; a decrease in liquidity available in the interbank lending market; an increase in country risk; adverse movements in the price of assets in the market; and a macroeconomic downturn. With regard to idiosyncratic events, these include: the failure of significant counterparties; reputational damage; severe outflow of liquidity; adverse movements in the prices of assets to which the institution is exposed; severe credit losses; and severe operational risk losses.
It is important to note that such events should be nonetheless chosen on the basis of the firm's risk profile, while also having regard to any identified vulnerabilities or weaknesses. This hence allows for different events to be taken into account which might prove to be more relevant than the ones specified in the guidelines.
Additionally, the establishment of stress scenarios would involve assessing the impact of such events on a number of factors of the institution. These include, but are not limited to the following: available capital, available liquidity, risk profile, profitability, operations and reputation.
In this respect, a number of respondents participating in the EBA's (2014a) open public consultation with regards to the content of recovery plans, argued that it would be less demanding to include generic stress scenarios instead of specific scenarios since "the relevant economic environment in a recovery situation is difficult or virtually impossible to predict" (EBA, 2014a, p.24). However, the EBA (2014a) explained that the scenarios should serve to closely test the effectiveness of the recovery options and indicators. Therefore, generic scenarios would be inadequate.

2.5.1.3 Communication plan

Communication is key to ensuring that both internal and external stakeholders acknowledge the implementation of the recovery plan and any related issues. Therefore, the recovery plan should also contain a communication and disclosure plan which describes how significant matters are to be effectively communicated to internal staff as well as to shareholders, investors, and the financial market in general.

2.5.1.4 Preparatory measures

The recovery plan should also include an analysis of any preparatory measures which might be undertaken to facilitate the implementation of the plan itself, and a timeline for the application of such measures. This may include structural changes in the institution to: enable the process of updating the plan and its implementation, to oversee recovery indicators, and to avert against problems which might complicate said implementation. Such an analysis of the preparatory and follow-up actions should be detailed in the recovery plan to better assess the feasibility of the plan, and to successfully monitor its implementation.

2.5.2 Impact – Benefits and costs

The main benefit of the RTS is that these standards ensure consistency among institutions by setting down the information that the recovery plan should contain, thereby establishing common minimum standards for banks and investment firms (EBA, 2014a).
It could be the case that the requirements to draw up a recovery plan within certain Member States would have been less demanding than those stipulated by the RTS (EBA, 2014a). Consequently, the RTS are

bound to induce additional compliance costs in these Member States. Such costs may arise as a result of changes in the information technology (IT) or system frameworks, increased staff training or recruitment of new employees, and will probably be incurred by both competent authorities and institutions. However, and as will be further explained later on, Article 4 of the Directive alleviates the effects of RTS requirements, in that it allows simplified obligations for less significant institutions.
Meanwhile, in the case of those institutions which already have a plan in place, the RTS are likely to generate only minimal extra costs. This is because many institutions would have met most of the RTS requirements through their risk management framework. In other words, the establishment of such a framework is likely to have already implemented certain processes and IT systems necessary for the preparation and execution of the recovery plan.

2.6 Resolution

2.6.1 Resolution plan

In Malta, the Resolution Unit, in consultation with the Resolution Authority, is tasked with the responsibility of preparing and executing resolution plans for the relevant institutions. Using the recovery plans submitted by each firm as a basis, the resolution plans are prepared *ex ante*. Article 11 of the BRRD requests institutions to cooperate with and provide the authorities with all relevant information in order to draw up and implement resolution plans. These plans should also consider a range of scenarios to illustrate the different actions that would be taken to resolve a failing firm. An effective resolution plan thus ensures the protection of the firm's critical functions and prevents severe disruption to the whole financial system.

2.6.2 Resolution tools

Pursuant to Article 37 of the Directive, the resolution tools available to the competent authorities include the sale of business tool, the bridge institution tool, the asset separation tool and the bail-in tool. These tools are not entirely new (Thole, 2014), in that they effectively replace or build upon existing law provisions in Member States.

2.6.2.1 Sale of business tool

The sale of business tool allows resolution authorities to effect a sale of part of or the whole institution under resolution, with or without obtaining consent from shareholders, to a private buyer which is not a bridge institution. This involves transferring to the purchaser shares or similar instruments of ownership held by the institution, as well as its assets, rights and liabilities. The value of the entity is determined by using an asset-based approach, and any sale proceeds are either distributed to the owners of the entity being sold, or else used to cover resolution costs. When only assets, rights and liabilities are sold to a buyer, the residual entity will be liquidated under normal insolvency proceedings. This should take place within a reasonable timeframe to ensure that resolution objectives are met, that the assets or liabilities transferred do not potentially lead to an adverse spillover effect, and that depositors, client funds and assets are protected (Freudenthaler, et al., 2016).

2.6.2.2 Bridge institution tool

The bridge institution tool aims to ascertain the continuity of all or part of the critical functions of a failing institution. It enables authorities to transfer the 'good' parts of an institution. This transfer may take the form of either a share transfer or a property transfer, to a bridge institution with or without shareholders' consent, and without complying with any requirements that would otherwise apply under company or securities law. In terms of the BRRD, a bridge institution is a legal person which would normally be an institution established by the resolution authority, whose main scope is to take over and hold the transferred instruments for up to two years until a sale is effected. Meanwhile, any remaining parts of the institution which would not have been sold are to be wound down in an orderly manner. A

bridge institution can also be established in advance in order to allow for a quicker response in critical situations (Freudenthaler, et al., 2016).

2.6.2.3 Asset separation tool

The asset separation tool is similar to the bridge institution tool, in that it enables the transfer of underperforming or impaired assets and liabilities to a separate asset management vehicle (AMV) or 'bad bank'. The AMV is also controlled by the resolution authority and is temporarily created to manage the instruments transferred from the failing institution or bridge institution. This hence allows the institution under resolution to continue with its critical functions rather than being wholly dissolved. This tool can only be used in cases where the bad assets would negatively impact the financial market if liquidated under normal insolvency procedures, or where the transfer is necessary to ensure the proper functioning of the distressed firm, or even to maximise liquidation proceeds through the maximisation of the assets' value through eventual sale. Unlike the three other resolution tools, the asset separation tool can only be applied together with another tool (Freudenthaler, et al., 2016).

2.6.2.4 Bail-in tool

The bail-in tool is considered the most innovative of the tools the Directive has empowered resolution authorities with. This tool ensures that the losses of a failing bank are borne by the firm's owners and unsecured creditors, rather than imposing such a burden on taxpayers as happens under a bailout. Losses are hence absorbed by either converting the debt into common equity, such as shares, or writing down the principal amount of the debt (Freudenthaler, et al., 2016). Consequently, the bail-in tool was also introduced in an attempt to break the bank-sovereign 'doom loop', which was particularly damaging during the 2008 financial crisis.

In this regard, institutions might decide to restructure their liabilities by avoiding issuing eligible liabilities in order to minimise the impact of bail-in in the event of resolution (Hadjiemmanuil, 2015). This led to the introduction of the minimum requirement for own funds and eligible liabilities (MREL), which requires banks and investment firms to hold a percentage of total liabilities and own funds eligible for bail-in. The MREL is determined on a case-by-case basis by resolution authorities upon individual assessment of each relevant institution.

In July 2016, the Florence School of Banking and Finance organised an executive seminar on banking resolution (Gatti, 2016). This enabled participants, including academics, EU policy-makers, investors and industry practitioners, to put forward their views on the introduction of the new banking resolution regime. With respect to the bail-in tool, although the general consensus was that the introduction of such a tool is a step in the right direction, criticisms still remained.

One of the issues noted was that bail-in rules might pose a risk of contagion throughout the whole financial system in cases where significant bail-inable debt is held by pension funds, insurance companies or other undercapitalised banks which might end up insolvent in the event of resolution of the bank. Therefore, there should be clear rules on who can hold bail-inable debt, thereby limiting cross-exposures (Gatti, 2016).

2.7 Proportionality

The EBA recognises the importance of the principle of proportionality. This principle ensures that "existing and new legislation and regulations are applied to banks and financial institutions in a proportionate way" (EBA, 2015b, p.7). Disproportionate regulation might hinder the activity of small institutions by offsetting the benefits of regulation due to the large costs incurred.

Article 4 of the BRRD states that national authorities may determine simplified obligations for small institutions, implying that the recovery and resolution plans of such firms would not necessarily include all elements discussed in the technical standards issued by the EBA. The now director of the Resolution Unit, Aldo Giordano, remarked that in the early days of the BRRD, the relevant authorities were considering exemptions for smaller institutions (Brincat, 2015). However, this proposal was scrapped since it was difficult to distinguish between small and medium institutions. Moreover, what is considered to be a small-sized firm in one country might be regarded as a larger firm in another country.

As a result, such an issue of proportionality was clarified by way of Article 4 of the Directive (Brincat, 2015).
This issue of small firms in respect of the BRRD was further examined by the Deutsche Bundesbank in the monthly report of June 2014. It may at first seem unsuitable to require small institutions to comply with the requirements of the Directive since it is highly likely that they do not pose a danger to financial stability. However, overall financial stability sustained by an effective resolution regime is beneficial to all institutions, including small firms. Additionally, cases of financial crisis abroad have illustrated that a large number of small interconnected institutions can indeed become a systemically important institution through forced mergers (Deutsche Bundesbank, 2014).
The impact of an institution's failure depends on a number of factors inherent to the business. Thus, recovery and resolution plans are bound to differ from one business to another since they are ultimately proportionate to the size, business model and interconnectedness of the institution to other firms.

2.8 Criticism

In his paper, Thole (2014) argues whether the introduction of recovery and resolution planning, otherwise referred to as living wills, was indeed the right step in meeting the objectives of the Directive. The author firstly points out that drawing up such plans requires an iterative process that is likely to place an increased burden on management in terms of both time and effort. Recovery and resolution plans are often criticised for the large amount of paperwork they involve, and may eventually be regarded as routine reports that do not fulfil their purpose until it is too late (Thole, 2014). Similarly, Lauha, Jaatinen and Tenhunen (2015) state that living wills tend to be quite extensive documents which might prove to be an additional burden on investment firms in particular. As a result, these plans might have the contrary effect from their objective of reducing complexity (Thole, 2014).
Thole (2014) further adds that there are no clear incentives which prompt management to consider early intervention and resolution proceedings, or assist resolution authorities by providing the necessary information. Senior management is generally replaced if the firm goes into resolution – Thole (2014), however suggests that managers naturally tend to disregard such a scenario. Therefore, managers may be hesitant about being involved in the process of constantly updating these plans. Clearly, authorities would not allow this kind of behaviour and can always impose sanctions for failing to comply. In this respect, the author still claims that national authorities might nevertheless find it difficult to regulate the system. It may be hard to determine the accuracy of the submitted plans considering that the authorities are only able to assess these plans on the basis of the information they are provided with.
The author further challenges the feasibility of this Directive by posing the major question as to the credibility of these plans. Whether the Directive "produces only a paper tiger largely depends on whether the plans are actionable" (Thole, 2014, p.9). He further states that moral hazard would not be adequately addressed if ad hoc solutions, including bailouts, persist regardless of the envisaged recovery and resolution actions.
However, despite the fact that the content of the plans might be too detailed or even inaccurate, and irrespective of the outlined limitations, these plans still prove useful to resolution authorities (Thole, 2014). As has been explained earlier on, planning partly involves preparing for scenarios that threaten the stability of the institution. Hence, this helps the authorities to take quick action when required (Thole, 2014). At the same time, unlike ordinary insolvency proceedings, recovery and resolution plans enable institutions to effectively handle crisis situations once these arise. This offers a degree of certainty, particularly to creditors, since it is expected that both resolution authorities and institutions will act upon the measures described in the plans, hence ensuring orderly management of the failing institution. Above all, planning needs to be given sufficient attention to obtain the desired outcome (Thole, 2014).
Thole (2014) concludes that, despite the issues of credibility and enforcement of the plans, the introduction of the recovery and resolution tools was a step forward in moving away from bailout procedures. They indeed reflect "a shift from the ex post perspective to the ex ante perspective" (Thole, 2014, p.21).

2.9 Situation in Malta

From the local scenario, Sammut Buontempo (2015) focused on the impact of the BRRD on the capital and liabilities of Maltese-registered core banks. She concluded that overall, there seems to be a lack of knowledge among banks with respect to how their liabilities will be affected by the introduction of the Directive. Moreover, the interviewed banks were all of the opinion that BRRD provisions do not bring about an increase in share capital. However, banks may still need to increase other types of capital, such as subordinated debt, to ensure that sufficient capital will be available in the case of resolution (Sammut Buontempo, 2015). The author also pointed out that the Maltese banking sector's preparedness with respect to implementing the requirements under the Directive leaves a lot to be desired, especially in terms of lack of awareness and dissemination of information, and uncertainty on regulatory procedures and resolution plans (Sammut Buontempo, 2015).

In his study, Xuereb (2015) looked at the impact of the Directive from the Maltese banking sector's perspective. One key conclusion observed was that despite the compliance costs incurred by the institutions within scope, the BRRD proves to be beneficial from both a local and European perspective. Analysing the same subject but this time focusing on investment firms, Brincat's (2015) study illustrated that, as opposed to banks, investment firms displayed an apathetic attitude towards implementing the provisions under the BRRD. The main reason behind this is that such firms consider themselves to be small in size compared to larger investment firms within the EU. Consequently, the investment firms participating in the author's study believed that if they were to fail, their failure could not possibly leave any significant impact on the financial industry. The compliance manager at FXDD Malta Ltd., an investment firm in Malta, was also of the opinion that the costs incurred to comply with the Directive impose additional and unnecessary pressures, and are not relative to the firm's size (Brincat, 2015). Brincat (2015), however, argues that despite the fact that Maltese investment firms are small when compared to those in other Member States, they are still considered to be quite large in our country. Therefore, if Maltese investment firms were to fail, this can still harm the Maltese financial industry, which in turn could indirectly affect the corresponding EU sectors (Brincat, 2015).

As has been presented here, this fairly new regulation is an important component of the Banking Union (Freudenthaler, et al., 2016). It is a step forward in safeguarding financial stability by ensuring the orderly resolution of failing institutions. The studies conducted in Malta, however, show that both credit institutions and investment firms had mixed views with respect to the introduction of the BRRD (Brincat, 2015; Sammut Buontempo, 2015; Xuereb, 2015).

This study intends to contribute further to what has been locally studied by analysing the implications of the Directive on non-core domestic banks and investment firms two years onwards in view of the requirements these institutions need to abide by.

3. Methodology

3.1 Preliminary research

The first stage involved a basic literature search to broaden the researchers' knowledge on the chosen topic. The topic was discussed with peers knowledgeable about the area, in order to assess the validity of the study. A comprehensive literature search across key databases was subsequently carried out to identify the relevant literature. The respective people working within the non-core domestic banks and investment firms located in Malta were also contacted beforehand to obtain sufficient support from the interested participants.

3.2 Research design

According to Saunders, Lewis and Thornhill (2012), the choice of the research design, which is the researchers' general plan for answering the research question, is an important step of the research process for it influences the subsequent stages of research. For the purpose of this study, a qualitative approach using semi-structured interviews was used to analyse the research question and achieve the identified objectives.

3.3 Data collection method and tools

Semi-structured interviews were used as the study's research tool for the following reasons. The main advantage of interviews is that they provide in-depth answers (Saunders, Lewis and Thornhill, 2012). This makes them an appropriate method of data collection where detailed insights about a particular topic are required (Saunders, Lewis and Thornhill, 2012). Semi-structured interviews consist of a number of predetermined questions which help to explore the main themes of the study (Saunders, Lewis and Thornhill, 2012). Moreover, unlike structured interviews, semi-structured interviews enhance flexibility of data collection since both the researchers and the participant are able to divert their attention to other ideas that further contribute to the topic under question (Gill, et al., 2008).
Two separate interview schedules were self-designed by the researchers following a review of the literature, one was used for representatives of non-core domestic banks and investment firms, and the other one for MFSA representatives. The interview schedule for the participants representing the institutions under study[3] is divided in three main sections. It starts with a number of general questions related to the research topic and then hones in specifically on recovery and resolution. The questions listed in this interview schedule mainly include open-ended questions, although not to the exclusion of a few closed-ended ones. Meanwhile, the interview schedule for MFSA representatives[4] only contains open-ended questions. These were mainly based on the questions listed in the other interview schedule. The reason for conducting an interview with MFSA representatives (holding the respective roles of director of the Resolution Unit, legal advisor within the Resolution Unit, and analyst within the Securities and Markets Supervision Unit [SMSU]) was to enable the researchers to collect the relevant data from the perspective of the Resolution Authority appointed for the purposes of the BRRD, responsible for the resolution of local banks and investment firms, and compare it with the data collected from the institutions under study.

Open-ended questions enable respondents to discuss the topic under question in detail, possibly giving rise to other topics on which the researchers might probe the interviewee to elaborate further (Mathers, Fox and Hunn, 2002). In this study, the closed-ended questions were in the form of rating questions. A Likert-style rating scale was used in which respondents were asked to specify the level of preparedness or unpreparedness with respect to a number of aspects. This was a five-point rating scale, ranging from 'very unprepared' to 'very well-prepared'. The Likert scale is able to measure a wide array of perceptions (Polit and Beck, 2006) by allowing respondents to decide on a specific degree of preparedness rather than giving neutral answers.

3.4 Sample selection

An appropriate sample size in a qualitative study is mostly dependent on the study objectives, credibility of data and resources available (Patton, 2002 cited in Saunders, Lewis and Thornhill, 2012, p.283). There are indeed no specific rules with regards to the size of the sample in qualitative research. Rather, the validity, understanding and insights of the data are attributed to the data collection and analytical skills of the researchers (Patton, 2002 cited in Saunders, Lewis and Thornhill, 2012, p.283). In this respect, Saunders, Lewis and Thornhill (2012) recommend proceeding with data collection until data saturation is reached. This occurs when additional participants provide few, if any, new perspectives or information (Saunders, Lewis and Thornhill, 2012).
The study's sample was selected by non-probability purposive sampling, whereby those who are most knowledgeable about the area being researched were selected as the study participants (Cresswell and Plano Clark, 2011 cited in Palinkas, et al., 2015, p.2). Despite its inherent bias, this sampling method is in this case the most practical, considering that only a limited number of people could be identified as primary data sources due to the nature of the study.
A list of licensed credit institutions and another list of Category 3 investment services licence holders in Malta were respectively drawn up from the Financial Services Register on the MFSA website as at

[3] Vide *Appendix 1.1,* p.80
[4] Vide *Appendix 1.2,* p.84

September 2016[5]. Reference was also made to the *Banking in Malta 2016/2017* report issued by KPMG (2016) to identify the non-core domestic banks from the core domestic and international banks operating in Malta.

In the current study, the participants had sufficient and relevant work experience within the banking and/or investment services industry. Within this context, the respondents held varying positions, these mainly being the role of a chief financial officer (CFO), risk manager and director of the respective firms. These different roles account for the fact that a high-level employee within a small-sized institution is typically responsible for a number of areas, including that of compliance, due to the nature and limited resources of the firm.

3.5 Research process

The respective people employed with the non-core domestic banks and investment firms operating in Malta were contacted and invited to participate in the research study through an e-mail, and where necessary, by phone. Despite several reminders, certain institutions did not respond to the invitation to participate. Only seven institutions accepted to participate in the study, obtaining a response rate of 50% (7/14). It is important to note here that although sixteen institutions (six non-core domestic banks and ten investment firms) were eligible to participate in this study[6], the study sample is equal to 14 institutions because of the following reasons: RTFX Limited had its licence surrendered voluntarily, whereas Binary Investments (Europe) Ltd, upon being contacted, confirmed that the firm does not require to follow the BRRD.

The seven respondents include four non-core domestic banks: MFC Merchant Bank Ltd, FCM Bank Limited, FIMBank plc, and IIG Bank (Malta) Ltd; and three investment firms: Rizzo, Farrugia & Co (Stockbrokers) Ltd, Calamatta Cuschieri Investment Services Ltd (incorporating Crystal Finance Investments Limited), and FXDD Malta Ltd.
All respondents were provided with the interview schedule by e-mail, sent in advance of the interview to allow ample time for preliminary analysis. The interviews were conducted throughout February 2017, in the form of six one-to-one interviews and one electronic interview through email.

One-to-one interviews were conducted on a face-to-face basis at the offices of the respondents and each interview lasted around thirty minutes to one hour. According to Saunders, Lewis and Thornhill (2012), it is beneficial for the researchers to establish personal contact with the interviewee since the latter is more likely to provide sensitive and confidential information in a personal interview than if s/he had to complete a questionnaire. With this being said, obtaining the right data is ultimately a question of whether the researchers possesses the appropriate interview skills (Saunders, Lewis and Thornhill, 2012). The location of the interviews was chosen by the participants themselves, considering that interviewees would feel more comfortable in a familiar environment, thereby enhancing data collection. Besides, permission was initially sought from the participants to audio-record the interview. Despite the main risk of technical default, audio-recording allows the interviewer to focus more on listening while taking note of the non-verbal behaviour of the interviewee (Saunders, Lewis and Thornhill, 2012). Brief notes were also kept during each interview to facilitate the analysis of the gathered data.

Meanwhile, electronic interviews prove to be more time-efficient for the researchers since there is no transcription involved if the respondents send back their answers through e-mail. The use of email during data collection may, however, raise ethical concerns due to confidentiality and anonymity (Saunders, Lewis and Thornhill, 2012).

[5] Vide *Section 1.2* for the respective lists of Maltese licensed non-core domestic banks and investment firms falling under the scope of the BRRD, pp.4-5
[6] Ibid.

3.6 Pilot study

The pilot study is a preliminary study carried out before the actual study to identify problems, if any, with the research tool (Gerrish and Lacey, 2010). This might subsequently require alterations to be made to the data collection instrument.
For the purpose of this study, a draft interview schedule was discussed with two banking specialists who possessed sufficient knowledge with respect to the regulation of banks, including the BRRD. The pilot study revealed that most of the questions were clear to understand and appropriately worded. Minor changes were done to some of the questions for a better understanding, while new questions were also added to help the researchers inquire further on key topics.

3.7 Data analysis

The data collected in this study was analysed through content analysis, that is the "process of organizing and integrating narrative according to themes and concepts" (Polit and Beck, 2006, p.497). This initially involved manually transcribing the audio-recordings in detail to enable the researchers to focus on the key constructs presented in the data and determine the trends of the respondents' perspectives (Vaismoradi, et al., 2016). In doing so, it is important that the researchers remains objective since otherwise, there is the risk of missing out on important data. Moreover, content analysis involves comparing and linking the recognised themes to each other and to existing literature in order to develop a coherent account of data (Vaismoradi, et al., 2016).

3.8 Analysis procedure

A description of the steps taken in the process of deriving the themes and sub-themes from the data is provided hereunder to ensure transparency.

Initially, the researchers read the interview transcripts several times in order to obtain a comprehensive understanding of data and become familiar with the main emerging issues. The purpose of this repeated reading is for the researchers to become aware of and focus more on the important constructs presented in the data (Vaismoradi, et al., 2016). A colour coding scheme was used to highlight recurring and meaningful items of interest, such as words and phrases, according to their relevance to the research question. This coding process served as a process of data reduction (Vaismoradi, et al., 2016) in that it helped the researchers break down the large amount of raw data into more manageable sections (Polit and Beck, 2006). In order to describe all aspects of the content presented in the transcripts, as many codes as necessary were assigned accordingly.

During this stage, research notes were also taken alongside the highlighted content. This enabled the researchers to make meaning of and in turn question the data (Vaismoradi, et al., 2016), while nevertheless ensuring that the participants' perspectives are fully captured and preserved (Mills, Bonner and Francis, 2006; Birks, Chapman and Francis, 2008 cited in Vaismoradi, et al., 2016, p.105). This process was carried out manually.

Following the process of organising the primary data into codes, the researchers analysed these categories of data and subsequently grouped them under higher-level headings as part of developing themes in relation to the research question. Vaismoradi, et al. (2016) claim that this aims at decreasing the number of categories by connecting them together and grouping similar codes into broader categories. These categories were subsequently labelled to capture the main ideas.
When the labelling process was finalised, the designated labels were reassessed in order to confirm the relevance of the developed themes to the research question.

3.9 Research limitations

Due to the nature of the study, a potential limitation can be attributed to the limited number of people that were available to participate, thus the size of the sample was relatively small. Additionally, given

that a 100% response rate was not obtained, the study findings could be potentially biased. However, the qualitative approach taken in this study enabled the researchers to collect sufficient information to form the research study, since, once data saturation was reached, the data collection could be stopped because further sampling would have yielded no new results.

.4.0 Findings

The main themes and sub-themes developed from data analysis are the following: 1) the general perspective about the BRRD; 2) the feasibility and necessity of the BRRD in the non-core banking and investment firms sectors; 3) the degree of preparation by the MFSA and by the respective institutions under study; 4) the recovery action undertaken in case of distress with respect to governance, 5) stress scenarios, communication and preparedness; 6) the nature of resolution planning, and resolution tools; 7) the main challenges faced in the implementation process of both recovery and resolution plans; 8) the bail-in of unsecured debt instruments and contagion risk; 9) the impact on the institutions' structures; and 10) the impact of the BRRD on investors.
The participants representing the non-core domestic banks have been coded by the researchers as B-A, B-B, etc., while those representing the investment firms are coded as IF-A, IF-B, etc. Meanwhile, where not specified, the participants who hold positions within the MFSA are collectively referred to as the MFSA. This was done to preserve anonymity and to promote better analysis. It is also important to note that the views expressed by the MFSA professionals are solely their opinion and do not represent the stand of the Authority. Additionally, verbatim quotes were included to substantiate the key arguments presented in the findings. As Fossey, et al. (2002) note, this enables the reader to assess the authenticity of the researchers' claim about the findings.

4.1 General perspectives of the BRRD

Asked about the general opinion they hold of the BRRD, almost all of the participating investment firms and banks agreed that the introduction of the BRRD was a positive development in further regulating investment firms and banks.

Indeed, IF-C believed that the establishment of this Directive in response to the 2008 financial crisis was a step in the right direction. It was paramount for the regulators to take immediate action and shift the burden of the failure of an institution from taxpayers to the firm's shareholders and creditors. The latter parties are ultimately expected to be responsible for the risk they are taking on and hence they should bear the greatest losses in the event of failure. Meanwhile, IF-A held that the BRRD is very important with respect to developing further the Internal Capital Adequacy Assessment Process (ICAAP). Being introduced as a result of Pillar 2 of the Basel II framework, the ICAAP requires institutions to ensure that they hold adequate capital in the long term to cover their respective material risks by implementing the necessary internal procedures and processes. Therefore, considering that the measures of capital adequacy and gearing have recently become more integral to institutions, the BRRD is believed to be a positive development in this respect.

Conversely, a different view was held by IF-B, having claimed that, since the modern market economy is mainly based on capitalism, there should not be as much regulatory intervention from supranational authorities. The participant believed that the introduction of the BRRD only adds to the list of existing regulations that institutions are required to comply with, and thus this amounts to unnecessary intervention. It was pointed out that the industry does require the rules pertaining to the prevention of business failure. The respondent, however, was unsure as to whether there really is the need for regulation in this case. Rather, he believed that it is the firms' responsibility to ensure that their risk officers are competent enough to prepare for and ultimately deal with distressing scenarios. The participant attributed this to the fact that, over his relatively long experience in the financial services industry, he had handled a number of instances involving the resolution of distressed institutions.

IF-B hence viewed the introduction of the BRRD as another regulation which the firm has to follow only because it is required to do so. In this respect, IF-A also maintained that regulations are clearly

imposed on institutions. However, institutions should perceive the BRRD as a positive approach to recovery and resolution.

Notably, a comparison can here be made with regards to the perception of the BRRD between investment firms and non-core domestic banks. All of the banks interviewed deemed that the BRRD is, in most respects, quite demanding of small-sized banks (such as themselves) to comply with. The participants agreed that despite the fact that the BRRD seems to be beneficial from a banking industry perspective, the Directive puts unwarranted pressure on them. B-A was concerned that the BRRD is creating additional costs and administrative burden in terms of the drawing up of the recovery plan, without being of much benefit to the bank. According to B-B, the guidelines issued concerning the obligations placed on the institutions falling under the scope of the BRRD, are vast, and there is no hard and fast rule to the implementation of the respective provisions.

B-C further adds to this by stating that the Directive is basically "one size fits all across all the different banks" and it is thus quite unfair to small-sized banks as opposed to larger systemically important banks. Meanwhile, although B-D believed that the BRRD is overall an effective directive if given the due importance, the respondent was wary of whether it would actually identify the real issue in practice, thus dismissing the Directive as more of an academic exercise with little relevance to the financial services industry.

From an MFSA standpoint, it was noted that although the BRRD is a very complex directive, its introduction was an imperative step forward in obtaining a harmonised approach of recovery and resolution at an EU level. It was explained that prior to the establishment of the BRRD, certain provisions within the respective acts regulating credit institutions and investment firms (namely the Banking Act, Cap. 371; Investment Services Act, Cap. 370; and MFSA Act, Cap. 330) empowered the competent authority to take control of cases where institutions are facing financial difficulties. However, these provisions were not as extensive as those under the BRRD. In fact, as was pointed out, the Authority has now obtained better access to more information about local institutions as a result of the submission of recovery plans. Moreover, national provisions only dealt with the recovery aspect and not resolution. In this respect, it was noted that the introduction of the resolution tools under the BRRD was a crucial improvement for the industry.

4.2. The feasibility and necessity of the BRRD: Was the BRRD the best step forward?

The respondents were asked whether they considered the establishment of the BRRD as an effective action aimed at dealing with the prevention of failure of credit institutions and investment firms.
The majority of the interviewees were ambivalent about whether the introduction of the BRRD was the right step taken in response to the negative repercussions of the 2008 financial crisis.

Corresponding to the above statements, B-D held that acting upon the lessons of the crisis by establishing the BRRD was a positive approach. However, he believed that it is definitely not enough. According to B-D, "it's not what you say you would do but what you do that makes a difference."

Similar views were put forward by the rest of the participating banks, which mainly distinguished between the theoretical and practical aspects of the Directive. B-C expressed his concern as to whether the regulators as well as the individual people working in the industry possess the experience and the right knowledge of what the process of recovery and resolution exactly entails, stating that "whilst the plans look good on paper, whether those plans can actually be executed correctly remains to be seen." This corresponds with the view held by B-A. The interviewee observed that the introduction of the BRRD had undoubtedly been an important step forward at the European level, though to what degree is yet to be gauged. B-A suggested that the effectiveness of the key provisions of the BRRD will remain unclear if such provisions are not tested out in practice.

Moreover, both participants IF-A and IF-B said that the basis of the Directive was already acknowledged and implemented within the institutions operating in Malta. Therefore, according to IF-A, the BRRD

only served to set the tone at the European level and further strengthen the existing policies and procedures. In this respect, B-B also noted that "the [BRRD] framework only complements and does not substitute market discipline and supervisory vigilance."

Meanwhile, IF-B stated that the establishment of the BRRD only helped in structuring better the existing framework that the firm had in place. He explained that the firm had over the years adopted more or less the same internal policies and procedures which have emanated from the BRRD with respect to the recovery and resolution of institutions. Therefore, upon the introduction of the Directive, IF-B was merely required to rearrange the existing manuals and internal rules. This is in line with was previously mentioned, namely that IF-B regarded the BRRD as a directive which the firm could do without.

Looking at the introduction of the BRRD from a wider perspective, and from a more positive standpoint with regards to the Maltese sector, IF-C believed that the BRRD will have less of an impact at the Maltese level when compared to the European level. This is due to the fact that the banks operating in Malta are sound institutions, each with a healthy liquidity and capital position. Moreover, according to IF-C, the risk of failure of Maltese-licensed banks is much less than that of foreign banks, primarily because the systemic banks in Malta are mainly funded by local retail deposits. Hence, it is fairly unlikely that core domestic banks will go down at some point.

4.3 Preparedness

4.3.1 Was the MFSA prepared?

Being designated as the national resolution authority in Malta, the respective units within the MFSA had the responsibility to communicate the provisions of the BRRD to Maltese licensed credit institutions and investment firms.

When asked how they would assess the preparedness of the respective units within the MFSA, all four banks stated that there was minimal guidance from the MFSA. B-D said that the only communication between the bank and the MFSA consisted of a circular which briefly informed the institution of the requirements that have emanated from the BRRD, emphasising the obligation to prepare a recovery plan by a set date. The circular also included a number of links which directed the bank to the relevant guidelines issued by the EBA in terms of the BRRD. Therefore, although the bank was given direction, the participant felt that there was little hand-holding.

As to the other three bank respondents, they were given a briefing on the BRRD during one meeting and a couple of information sessions conducted by the MFSA. B-B observed that the sessions held did not explore the Directive in as much detail as was considered ideal, stating that "the impression was [that] there are areas that would require in depth assistance and further consultation of the local regulator with the EU council." The participant added that further assistance and clearer guidelines are thus essential for institutions to familiarise themselves with and prepare for what is really required of them.

Additionally, B-C noted a big change in the outlook of the supervisory authority and the way it operates. The participant believed that in previous years when Malta was not yet part of the EU and the Central Bank of Malta (CBM) was the regulator at the time, there was more forewarning and guidance with respect to any arising issues, when compared to the present day. Therefore, the interviewee believed that banks were previously guided better by the regulator. By contrast, nowadays, the MFSA follows the steps of foreign regulators and thereby leaves banks on their own to research and interpret regulatory legislation.

Contrary to the above claims, IF-A strongly held that the MFSA does a good job in updating itself and in providing sufficient guidance. Yet, the respondent further claimed that it is typical of the firm to also turn to assistance from its auditors in such similar cases. IF-B also stated that the guidelines provided by the MFSA were sufficient for effectively implementing BRRD provisions within the firm's policies and processes. However, it must be noted here that, according to IF-B, the firm already had a rigorous

framework in place. He stated that "in respect to our company and with our experience, everything was clear enough." Thus, the participant was only required to re-adapt the existing framework so as to bring it in line with the terms of the Directive. This might indicate that the provided guidance was deemed to be adequate only because the firm was already in line with most recovery and resolution processes before the BRRD came into force.

Meanwhile, IF-C explained that the guidance that the firm received was sufficient within the context of what it was obliged to do with the introduction of the BRRD. Unlike the other respondents, IF-C explained that the firm was not required to draw up a recovery plan. In fact, the MFSA only required the institution to inform those clients who hold securities subject to the BRRD about the increased risks attached to such instruments, and this did not require any particular assistance.

In order to be able to better determine the extent of guidance provided in this respect, the interviewees were also asked to compare the guidance provided by the MFSA with respect to the BRRD and that provided with respect to the ICAAP. Similar to the BRRD, the ICAAP also required firms to make the necessary changes to their existing frameworks in order to ensure capital adequacy.

The majority of the participants agreed that there was more and clearer guidance on the ICAAP in terms of how well-documented it is in the MFSA Banking Rules. In addition, B-C stated that when the ICAAP concept was introduced, there existed greater knowledge and awareness of the requirements that institutions had to follow. In contrast, the respondent stated that:

> With respect to the BRRD, it was a hurried process, in the sense that we were expected to obtain an understanding of what was expected from us, look at the drafts and submit the necessary documents over a period of around a year.

B-C said that the establishment of the BRRD at European level was a rushed process to address the several shortcomings stemming from the financial crisis, and he believed that this justifies the seemingly lack of preparation on the part of the MFSA.

Similarly, according to B-D, the difference in the nature of guidance provided with respect to the BRRD and the ICAAP is attributable to the fact that the Directive is fairly new not only to the relevant institutions but also to the MFSA itself. The respondent claimed that even the Authority needs sufficient time to carefully go through the provisions of the BRRD in order to be subsequently able to communicate the relevant information to the respective institutions. This explains the Authority's poor guidance at the initial stage.

In fact, the MFSA indicated that the respective authorities had limited time for preparation considering that the Directive was completely new. The professionals therefore agreed that it is a learning curve for them in order to become familiar with and gain appropriate knowledge about the BRRD. With respect to the guidance provided to banks, it was explained that a team was formed within the Banking Supervision Unit to help the various institutions in the drawing up of the recovery plan and in acknowledging any questions that these firms might have, through the resolution authority's close cooperation with the Single Resolution Board (SRB) at EU level. Meanwhile, two circulars[7] were sent to investment firms to communicate the obligation to submit a recovery plan as laid down in the BRRD and further explain the application of simplified obligations. It was also mentioned that several meetings were held with the respective firms, individually at times, to essentially discuss the recovery plans.

4.3.2. Were the banks and investment firms prepared?

In line with what has just been mentioned above, four out of seven participants (all banks) argued that the lack of time available was the main hindrance to initially prepare for the BRRD.

[7] Vide <http://www.mfsa.com.mt/pages/announcements.aspx?id=30> for circulars dated 17/09/2015 and 08/10/2015

B-A pointed out that the MFSA exacerbated this issue by taking on a strict approach that did not simplify the implementation of the BRRD in the available time. He explained that the Directive did not require institutions to draw up a recovery plan by a fixed date. However, "as they [referring to the MFSA] tend to do, they went with the strictest approach" by requiring institutions to draw up a recovery plan shortly after the BRRD came into force. B-A claimed that this was quite demanding on small-sized firms, especially in the short span of time they were allowed to do so.

Besides the lack of time available, all four participating banks also claimed that they had insufficient financial resources. Meanwhile, most of the interviewees stated that they were 'somewhat prepared' to 'fairly well-prepared' in terms of possessing the skills and the knowledge vis-à-vis preparing the recovery plan.

4.3.3 Were consultancy firms prepared?

It is paramount of consultancy firms to keep abreast of the current developments in the financial services industry. All respondents stated that they sought professional advice from their internal auditors and legal firms, and the majority claimed that the guidance provided was clear and adequate. Even in terms of the knowledge held by such firms, most interviewees felt that these firms were well-prepared.
B-A, however, did not wholly share this positive view. Once again, the participant attributed the poor guidance initially provided by consultancy firms to the lack of time available for preparation. This said, he added that the consultancy firm which the bank works with has since then organised a number of informative sessions with respect to the BRRD.

4.3.4 Content of recovery plan

The respondents were asked to briefly describe the content of the recovery plans they have respectively drawn up in terms of governance and recovery indicators, stress scenarios, communication and preparatory measures. It is important to note here that IF-C explained that the MFSA did not require the firm to draft a recovery plan. Although the firm is a Category 3 investment services licence holder and trades on its own account, this constitutes a very minor activity of its overall business. As a result, IF-C clarified that the firm was only obliged to notify those clients who are holders of securities subject to the BRRD, about the new risks of such instruments.

4.3.4.1 Governance

The participants were required to identify the relevant people within their firms who are responsible for developing and maintaining the recovery plan. All of the identified responsible people hold varying senior positions within each institution, including the roles of chief executive officer (CEO), deputy CEO, CFO, risk officer, subsidiary CEOs, and heads of departments (including operations, treasury, IT, advisory and compliance). B-B stated that the contribution of the different departments within a firm is vital in identifying the critical activities pertaining to their unit for the preparation of the recovery plan. As for approval policies, most respondents stated that the recovery plan is subsequently subject to an internal or external audit, then reviewed by the institution's risk oversight committee, and ultimately submitted to the board for approval.

The component of governance within the recovery plan also includes the identification of recovery indicators which trigger the escalation and decision-making process to ensure the timely implementation of the firm's recovery plan. The majority of the participants said that these indicators are developed as per the EBA guidelines, and this process specifically involves including those indicators which are relevant to the business. B-D explained this by stating that certain indicators which were specified in the EBA guidelines were altered in accordance with the nature of the bank. In this respect, B-A highlighted the importance of developing indicators that reflect the monitoring activities already employed as part of the capital and risk management framework of the bank.

Additionally, B-B said that the recovery indicators are qualitative and quantitative in nature, and are ultimately based on the firm's risk appetite. The participant further explained that it is the responsibility of each department of the bank to assimilate the relevant data and regularly monitor its established indicators. Moreover, she added that there is a two-stage approach for each indicator. The management early warning trigger sets a target which gives management an indication of the bank's position in the area that requires close monitoring as this moves towards the indicator threshold, which is the minimum level of the indicator as agreed by management. Once such a threshold is reached, the escalation process comes into effect and this requires management to decide on the corrective actions which need to be taken with respect to the area with poor performance.

Similarly, both B-A and B-C use a traffic light approach for each of their designed indicators. The participants explained that this approach includes three stages of alert - green, orange and red/amber. If only one indicator is within the orange threshold, the executive management is advised to take the necessary action to restore the situation, whereas if more than one indicator is within the orange or red threshold, the bank enacts its recovery options.

Moreover, in order for the indicators to be effective, the participants stressed the importance of having a prompt communication system which informs the relevant people within the bank of any warning signals.

4.3.5 Stress scenarios

The participants identified a range of stress scenarios based on events arising from the vulnerabilities of the institutions. B-A stated that the identified scenarios were based on the bank's existing ICAAP analysis since such stress events were deemed to be relevant to the bank over its years of operation.
The following list provides a breakdown of the respective system-wide and idiosyncratic events designed for the purpose of the institutions' recovery plans (Table 4.1).

System-wide events
- Failure of a significant counterparty
- Political/economic instability in a significant country of operation
- **Natural disaster in the country of operation**
- Macroeconomic downturn
- Shortage in market liquidity
- Low volatility markets
Idiosyncratic events
- Failure of a significant branch within the group
- Outflow of liquidity
- Adverse movements in the prices of assets to which the institution is exposed, including oil and steel
- Defaulting clients
- Internal fraud and the post-incident reputational impact in terms of withdrawn client assets
- Effect of impairment losses on the bank's market in terms of deposits

- **Table 4.1 system-wide and idiosyncratic events (authors' compilation)**

4.3.6 Communication and preparatory measures

Most participants were not detailed about how situations of alert are to be communicated internally and externally. B-A stated that if the board decides to implement the plan in a situation of distress, the internal staff is to be informed accordingly. Meanwhile, the bank would also communicate the necessary

information to external bodies, including the MFSA, the CBM, the Malta Bankers' Association, and the public in general. Additionally, B-B identified the people authorised within the bank to inform staff, internal bodies, authorities and media, as the head of corporate communications and the CEO of the bank.

Moreover, most of the participants briefly described a number of preparatory measures which were taken to facilitate the implementation of the recovery plan. The following extracts identify the measures taken by the respective institution.

> One of the recovery options that we've identified is to get in a new investor at the shareholder level. So, we have set up a relationship with an investment banker, so that if we are to require a new investor, we can quickly get this investment banker to work on sourcing the right investor.
>
> (Respondent B-A)

> The three main preparatory measures identified include enhancement to the risk management framework, increased the diversification of liquidity, and enhancement to the financial model used for projections.
>
> (Respondent B-B)

> Since this is a small bank and we didn't have everything in place as per BRRD…these measures include the reporting systems that we have to put in place. In order to reduce credit losses, we are also considering establishing a credit insurance policy. And other measures.
>
> (Respondent B-D)

> …branch network, security in terms of server, access to the place of work, back up, disaster recovery plan.
>
> (Respondent IF-A)

> …it means going back to the manual and procedures in my department and inputting the necessary changes, training the staff and then implement the reporting process within the reporting and the risk monitor system after the staff is trained.
>
> (Respondent IF-B)

4.3.7 Assessment of the content

The MFSA was asked to briefly describe the main considerations which were unveiled upon assessing the recovery plans submitted by banks and investment firms. It was noted that the recovery plans submitted in 2016 "were quite crude and not detailed enough". The approach taken thereafter was that the authority "asked [the institutions] to amplify on the plans to make them more detailed…and give more credible solutions." It was explained that the plans had their weaknesses considering that this was the institutions' first time to prepare such a plan and it was felt that guidance was perhaps lacking. The Authority hence expects firms to update accordingly the plans submitted the previous year, and "[not] just invent strategies to appease the regulator." It is important that recovery plans are credible since it is the responsibility of the Authority to subsequently draw up the resolution plans on the basis of the information provided in the recovery plans.

4.3.8 Resolution

Participants were also asked whether they were familiar with the resolution section of the BRRD, specifically in respect of resolution planning and what it constitutes, and the resolution tools set out in the Directive.

Three participants (all banks) outright said that they were not quite aware with the concept of resolution. B-C and B-D respectively explained that "we are trying to solve the problems which are immediate rather than the ones which haven't cropped up yet" and it is "for the simple reason that I do not have time to be familiar with things that I do not need to do now."

On the other hand, IF-A said that the resolution side of the BRRD is "part and parcel of the recovery plan" and this required the respective people within the firm, including himself, to work through the Directive and familiarise themselves with the respective provisions. Meanwhile, IF-B claimed that he was licensed as administrative executive to be appointed by a regulating body in case of a company going insolvent, and thus he was aware of the resolution regime because of his involvement.
The MFSA representatives were also asked to comment on the level of awareness with respect to resolution planning within the local industry. It was explained that there is a balanced focus on both recovery and resolution planning. However, the industry is clearly more exposed to the recovery side of the Directive considering that the responsibility of resolution planning mainly falls on the Authority.
It was also claimed that the local systemic institutions were more likely to be familiar with the resolution regime than non-systemic ones. The director of the Resolution Unit explained that up to this date, the priority was always on systemic entities, even in the case of the BRRD. Therefore, there was more hand-holding between the Authority and the core institutions in Malta. However, he also stated that the next step is to shift the focus on the less significant institutions.

4.3.9 Main challenges faced

Overall, it was identified by the MFSA that the BRRD is quite complex in itself and although both the recovery plans and resolution plans are quite comprehensive, they are nevertheless tough documents to draft. In fact, the professionals working within the Resolution Unit explained that there is ongoing consultation with the SRB with respect to the resolution plans that the unit has to draft on behalf of the respective institutions. With regards to banks, it was pointed out that the establishment of a resolution fund has noticeably created additional costs to the bank, along with costs related to employing more people, and the administrative expenses incurred.

Moreover, the interviewed analyst from the MFSA also pointed out that the recovery indicators that were provided in the guidelines to the BRRD were not always relevant to the business model of local investment firms and thus they had to apply simplified obligations. This said, it was noted however that such simplified obligations do not really make the course of action that institutions need to take more straightforward. The professionals explained that if an institution is eligible for simplified obligations, it is still required by the Authority to provide its justified reasons for non-compliance within the recovery plan. Therefore, this still remains a challenge as institutions still have to go into a lot of detail to prove that they are eligible for simplified obligations.

4.3.10 The implications of the bail-in tool

Participants were asked to what extent they agreed with the statement that the bail-in of unsecured debt instruments will effectively lower contagion risk on other financial institutions and the financial system as a whole.

Various views were put forward by the participants. B-D described the bail-in tool as a double-edged sword. Although it might prove to be an effective tool, a bail-in situation is probably to have unfavourable consequences as well. The respondent explained that a bank's bail-inable liabilities might include liabilities towards another institution. Therefore, if these liabilities are actually bailed-in in the event of resolution, the counterparty would be negatively impacted as well. This challenges the effectiveness of such a tool. B-D, however, stated that he was not well-informed to form a concise opinion and it is not easy to determine whether bailing-in a failing institution will mitigate contagion risk.

A rather similar view was put forward by B-C. He believed that the bail-in tool is theoretically effective since the holders of unsecured debt instruments would be making good for the losses that the bank incurs in case of distress. However, he believed that contagion risk would still pertain considering that "the biggest contagion risk will always be the assumption that the banks are no longer able to sustain their business and the resulting loss of confidence." Therefore, no immediate financial bail-in will make good for the potential damage done to a bank's reputation and the loss of public confidence that ensues.

Meanwhile, IF-B was of the opinion that those on the public level, including the regulators, are not fully aware of what truly goes on in the private sector, and hence they usually fail to realise that transferring risk is not the best approach to wholly reduce it. Rather, this creates additional risks for the institution as it would be undertaking counterparty risk, which is even more difficult to manage.

From another standpoint, IF-C is hopeful that the bail-in tool is effective in containing failure problems within one bank and stop this from spreading out and affecting other institutions. He emphasised the fact that he is hopeful that the Directive has been established in a way to ultimately meet one of its key objectives of protecting the stability of the financial system.

4.3.11 Impact on the institution's structure

4.3.11.1 The requirement of MREL

Four out of the seven respondents stated that they were not required to adapt the institution's liability structure in order to meet the MREL, whereas the remaining three said that the MREL is not applicable in their case. The former participants explained that it is for the simple reason that they do not hold unsecured liabilities and the MREL is therefore based on the own funds of the institution. In this respect, B-A remarked that there has been some discussion around whether own funds can make up for the lack of unsecured liabilities. If otherwise, he added, this would pose a problem for small banks. In fact, B-C cast his doubts on the ability of a small-sized bank to issue unsecured debt, especially if the shareholders would not want to take the institution public.

4.3.11.2 The internal risk management and governance structure of the firm

The majority of participants agreed that the risk management framework and the governance structure of the institution have been relatively enhanced with the introduction of the BRRD. According to B-A, new processes were set up in the bank's risk reporting framework with respect to the established recovery indicators. Moreover, B-D noted that the process of introducing new internal processes, as well as strengthening existing ones, helped the institution in focusing more on the risk and compliance side, an aspect which is not always given the importance it merits by shareholders. This was also emphasised by both IF-A and B-B who both stressed on the importance of investing on time to have an appropriate governance structure and risk framework in place.
B-C, however, observed that the bank's governance structure and risk framework was not impacted by the introduction of the BRRD. He explained that the bank is fairly new and thus the frameworks in place and the way the bank is governed are in line with what one would expect of a small-sized bank.

4.3.12 Investors and the BRRD

Participants were firstly asked to describe the measures taken to inform investors of the potential risks and consequences relating to the write-down of the relevant financial instruments in case of the institution's resolution.

IF-C said that both investment firms and banks were legally obliged to communicate to their clients the necessary information about the new risks attached to held instruments impacted by the Directive. He explained that those existing clients who held unsecured instruments subject to the resolution regime were sent a letter describing the implications of the Directive on such instruments. Meanwhile, the firm was also required to explain this to any potential investors in its account opening documentation. In fact, the participant explained that in this document, a whole section has been dedicated to the BRRD and its implications to enable the firm to assess whether the potential client has demonstrated adequate knowledge with respect to instruments subject to the BRRD. Moreover, IF-C mentioned that the firm also made sure to add the words 'BRRD' to every corporate bond, subject to this Directive, that is listed on its website.

Likewise, IF-A explained that the House View Committee within the firm meets on a weekly basis in order to analyse the securities available for investment. This exercise enables the firm to inform its clients at an early stage about any emerging risks attached to their investments, such as in the case of the BRRD. According to IF-C, it is essential to build a solid relationship with investors and take early action to keep them updated with what is happening in the market.

Meanwhile, B-D was of the opinion that it is primarily the investors' responsibility to assess and evaluate the features of the securities they are investing in, and do their due diligence. Adding to this, B-C also believed that besides the fact that issuers are obliged to make explicit the risks inherent to investments in specific instruments, it is also the investors' responsibility to possess the right knowledge and expertise with respect to these securities. In this respect, B-A emphasised the importance of providing more investor education since he believed that certain retail investors are still unaware of the risks involved when investing in these complex securities.

Furthermore, participants were also asked whether investors require a risk premium for the elevated loss probability resulting from the introduction of the resolution regime under the BRRD, particularly the bail-in provisions. All interviewees agreed that investors do certainly require a higher risk premium on complex instruments subject to the BRRD. In fact, IF-C noted that spreads on these instruments have recently widened.

4.4 Perception

The 2008 financial crisis has brought to light the importance of developing a harmonised approach to recovery and resolution at the EU level. From the interviews held with the professionals coming from the Resolution Unit and the SMSU within the MFSA, it was highlighted that the introduction of the BRRD served to encompass the varying existing provisions relating to the failure of institutions within the different Member States. In addition, the BRRD empowered the Resolution Authority within the MFSA with extensive powers to effectively and cohesively deal with situations of instability of banks and investment firms from an early stage. It also put the Authority in an even better position to assess and monitor the respective institutions on account of the information provided by the institutions themselves in their recovery plans.

Additionally, prior to the introduction of the BRRD, the respective authorities in Malta were not equipped with the appropriate measures to resolve a failing institution. Therefore, the establishment of the resolution tools was central to the process of securing financial stability in the local scenario.
It is important to note here that, unlike Malta, other Member States had implemented various measures prior to the BRRD to maintain stability of their financial markets. In fact, Thole (2014) notes that the resolution tools introduced under the BRRD were not entirely new for some countries such as Germany, which put into force the *Restrukturierungsgesetz* (Restructuring Act) in 2011 with the aim of moving away from normal insolvency proceedings.

Focusing on the local scene, the institutions participating in this study generally agreed that what has been achieved to date in terms of preserving financial stability and minimising costs for taxpayers, is substantial progress. Additionally, it was held that the BRRD has, to a certain extent, contributed to effective risk management, following the introduction of the ICAAP and ILAAP (Internal Liquidity Adequacy Assessment Process) frameworks, as well as better governance structures within the respective institutions. In this respect, participant B-D observed that the BRRD also enabled him to emphasise the importance of risk and compliance management within the bank - an area which is typically underestimated by shareholders in particular.

Therefore, the general perception of the BRRD was a positive one among non-core domestic banks and investment firms, in that the introduction of the Directive was perceived as an imperative step in the wake of the financial crisis. In spite of this, the research findings also show that all banks under study believed that it is still too early to determine whether the recovery and resolution plans are indeed

feasible, thus suggesting that the Directive might be a paper tiger (Thole, 2014), and more of an academic exercise which might not, after all, run along the same lines as initially intended.

Some concern was also expressed by the respondents in relation to the extent of knowledge and experience held by people at regulatory level and at individual bank level for the proper execution of the BRRD provisions. Firstly, this implies that regulators might not necessarily understand precisely how an institution's failure could unfold. Secondly, the respective people within banks and investment firms need to hold a good understanding of what the process of recovery and resolution entails in order for the Directive to have its intended effect. With respect to this last point, IF-B in fact argued that the regulatory intervention taken at EU level is unnecessary to a certain degree, and it is more a question of having the right people doing the right job. However, one can argue that a lack of regulation is likely to result in disorganisation, which is in truth one of the main issues that the regulators are keen to resolve with the establishment of the BRRD. According to the EBA (2015b), the lack of harmonisation among institutions was complex and challenging to manage, especially in cross-border situations. This thereby emphasises the importance of regulation.

Previous local research (Brincat, 2015) observed that the Maltese licensed investment firms under study, which accounted for 30% of the Category 3 investment services licence holders at that time, held that the relevant provisions under the BRRD were costly to implement. They also believed that the Directive was unnecessary for small-sized firms like themselves.

In the present study, a similar perception is shared by the non-core domestic banks, which maintained that the BRRD put unwarranted pressure on them. They described the obligations emanating from the Directive as vast and complex, and this clearly requires a great deal of time and resources. Adding to this, the banks seemed to carry unsettled opinions about the benefits that could be gained from the development of recovery plans. This could indicate that since the BRRD has not yet been clearly tested in practice, there is no understanding on how these new provisions will prevent and mitigate financial chaos. Hence, banks might fail to acknowledge the benefits of the recovery and resolution regime under the BRRD unless it is tested. Moreover, the issue of bank size is also stressed upon in the current study given that B-C believed that the BRRD does not really make allowances for small-sized banks and is thus more applicable to larger systemically important banks.

Unlike the ambivalent perception held by investment firms in Brincat's (2015) study, the research findings in the current study show that the participating investment firms believed that the BRRD is constructive in itself. These differing views can be attributable to the fact that two of the firms under study had already implemented most of the internal processes required for drawing up recovery plans, whereas the other firm was only compelled to notify its clients about the new risks attached to instruments subject to the BRRD (as explained in *Section 4.3.3*). Therefore, given these reasons, one can deduce that the implementation of the provisions of the BRRD was not extremely challenging for the investment firms under study, thus explaining the firms' rather positive approach to the BRRD.

4.5 Preparedness

It primarily transpired that the implementation of the BRRD was a hurried process to address the shortcomings of supervision brought to the fore by the financial crisis. The banks under study claimed that this short time frame was the main deterrent to the institutions' preparation. This also did not bode well for the MFSA. The participating banks stated that they were briefed about the BRRD by way of circulars, meetings and information sessions held by the Authority. This was considered to be quite limited in nature, especially when compared to the guidance provided by the MFSA with respect to the previous case of the ICAAP. However, it was indicated that when the ICAAP was introduced, the institutions already possessed adequate knowledge on the subject and had greater awareness of what the process entailed. This emphasises further the fact that the institutions were at a bigger disadvantage when the BRRD came into force, considering the several new provisions that were introduced and the lack of time to get acquainted with such requirements.

With respect to this, the MFSA representatives claimed that the respective units within the Authority were indeed pressed for time to obtain a thorough understanding of the BRRD prior to communicating the Directive's requirements to banks and investment firms. As the director of the Resolution Unit commented, "new things are always on the way and the industry simply tries to keep up." In this regard, Xuereb (2015) also observed that at the initial stage after the BRRD came into force in 2015, the guidance provided by the MFSA to local banks was limited in nature due to the fact that the EBA's technical standards were still in process of being finalised.

It is also interesting to note here that one of the participating banks in the present study believed that there was a change in the way the supervisory authority started operating after Malta became a member of the EU, claiming that there was more hand-holding in the pre-EU days. This is warranted given that the regulator at the time (the CBM) was granted greater autonomy since Malta did not form part of a supranational union. Upon entering the EU, the then established MFSA, although still a fully autonomous institution (MFSA, n.d.), came to be under the auspices of supranational bodies, and it thus operates accordingly.

In this respect, it was also identified in the study findings that another participating bank was of the opinion that the MFSA did not allow enough time for institutions to submit their recovery plans, and that this limitation could have been prevented. However, although the Directive did not specify a date by when recovery plans should be drawn up, it is still the responsibility of the Authority to ensure that this is carried out at the earliest possible for the provisions of the BRRD to come into effect.

Unlike non-core domestic banks, the investment firms in the present study held that the guidance provided by the MFSA was sufficient for their needs. In this case as well, this can also be linked with the same reasons given in the previous section - the internal processes within two of the firms under study were already of a high standard and only slight improvements were required when the BRRD was introduced, while the other firm was not required to perform extensive work due to the nature of its business.

It is true indeed that, as the research findings show, the banks had insufficient financial resources to undertake this change. However, it was also identified that both banks and investment firms possessed most of the skills and knowledge with respect to recovery planning.

The majority of participants under review further observed that the internal auditors and legal firms they have worked with for the preparation of their recovery plans held adequate knowledge and provided clear guidance in this respect. As one bank indicated, consultancy firms are likely to draw on the expertise from firms abroad which fall under the same global network and are therefore more prepared. It is also to the benefit of such firms to keep abreast of the latest developments in the industry if they want to reach new clients and boost the firm's image.

4.6 Content of recovery plan

Given that two years have passed from the introduction of the BRRD, the researchers was able to obtain a succinct understanding of what is included within a local non-core bank and investment firm's recovery plan. Pursuant to the technical standards on the content of recovery plans issued by the EBA (2014a), the institutions' plans deal with the following four main categories.

4.6.1 Governance

As identified in the research findings, the persons involved in the development and continued maintenance of the recovery plan all held senior roles within the respective institutions. It was also noted that where the bank or investment firm was divided into various departments, the heads of these departments were responsible to contribute to the drawing up of the plan.
Such delegation of responsibility is primarily important to ensure coordination between the key areas of the firm. In this regard, Troiano (2015) notes that the in-depth analysis which is required to complete

and assess the recovery plan demands specialised expertise and extensive knowledge. Therefore, the departments' individual input to the plan is also of significant importance since it enables management to understand the institution's position, and in turn remain mindful of any circumstances which might jeopardise its stability. In other words, a credible and complete recovery plan requires the full involvement of the responsible people within the institution.

The governance component of the recovery plan also focuses on the indicator framework. Research findings show that the majority of institutions designed their indicators in accordance with the EBA (2014a; 2014b; 2015a) guidelines and altered them accordingly if they were not meaningful to the particular characteristics of the institution. It should be noted that none of the participants identified any difficulties in developing such indicators. Additionally, one bank under study stressed the importance of developing further any existing indicators which had been implemented within the capital and risk management frameworks of the institution, including ICAAP procedures.

The aim of these recovery indicators is to trigger the internal escalation and decision-making process within the institution, which in turn ensures that management takes timely corrective action to resolve the distressed area/s. As illustrated in the findings, three out of four participating banks clearly described two similar approaches: a traffic light approach that includes three stages of alertness depending on the colour of the threshold, and a two-stage approach that requires the necessary action to be taken by management once the indicator threshold is reached.

4.6.2 Stress scenarios

The recovery plan further requires institutions to set out the actions to be taken in the event of distress. In so doing, the effectiveness of these recovery options is subsequently tested against different scenarios. In the present study, the majority of the system-wide and idiosyncratic scenarios identified by the banks and investment firms are identical with the events laid down in the EBA (2014b) Guidelines on the range of scenarios to be used.

4.6.3 Communication and preparatory measures

The research findings further show that the majority of the institutions' recovery plans did not go into too much detail with respect to the communication plan. This could suggest that rather than elaborating on the communication process for each recovery option, the institutions might opt for an overall communication strategy. The EBA (2014a), however, affirms that it is imperative of an institution to set out in advance how it will internally and externally communicate the implementation of its recovery options since it would otherwise be too late for such considerations to be taken into account once crisis strikes.

Meanwhile, the majority of the institutions under study went more into detail with regards to the preparatory measures taken to implement the recovery plan. Evidently, all such measures related to the particular characteristics of the institution.

4.7 Resolution

The current study's findings indicate that while investment firms were fairly aware with the concept of resolution, non-core domestic banks were far less informed. This moves in line with what Sammut Buontempo (2015) had observed, namely, that the core domestic banks held little knowledge and were quite oblivious about resolution plans.

Banks attributed such lack of awareness to the fact that they have not yet been required to perform anything in connection with resolution planning and therefore, they would rather focus their attention towards the bank's immediate problems. It is true that the BRRD primarily entrusts the competent authorities with the preparation and execution of resolution plans. Nevertheless, institutions are required to cooperate with the authorities and provide the necessary information.

Adding to this, the study's findings indicate that the Resolution Authority within the MFSA has, at first, largely worked in close liaison with the local systemic institutions, and it is only now that it is directing its focus on less significant institutions, including non-core domestic banks, with respect to resolution planning. This hence explains why the banks under the current study exhibited lack of awareness with regards to what resolution is actually about. This said, the findings of Sammut Buontempo (2015) do not correspond with the above noted finding regarding the precedence given by the MFSA to core banks, and hence their expected preparedness. The 2015 study had noted on the contrary that the core domestic banks lacked adequate knowledge on the BRRD. This discrepancy might be due to the possibility that Sammut Buontempo's (2015) study was undertaken at what was still an early stage and before the Resolution Authority had taken the necessary measures to work closely with the respective banks.

4.8 The implications of the bail-in tool – risk of contagion

As was identified by the EC (2012), public bailouts of failing institutions pose serious problems to the industry as they are a source of moral hazard that lead to excessive risk-taking, and put an unfair burden of losses on taxpayers. The bail-in approach introduced by the BRRD thereby serves to counter such deficiencies by shifting the costs of bank failures from taxpayers to the responsible parties, these being the shareholders and creditors.

At the same time, the bail-in tool may still be a problematic approach due to its various systemic implications (Eliasson, Jansson and Jansson, 2014). In the current study, two out of the four participating banks held that while the bail-in tool seems to be effective enough, it could still have contagion effects on the industry. One bank stated that where the bail-inable liabilities of a bank include liabilities towards another institution, the bail-in tool would not prevent other institutions from being negatively impacted. Meanwhile, the other bank was of the opinion that the bail-in tool has an indirect contagion effect since it is highly likely that this will result in a loss of public confidence. In this respect, Eliasson, Jansson and Jansson (2014) observed that there is a greater degree of contagion risk if the banks in a country are closely interlinked with each other.

4.9 Impact on investors

The research findings show that banks and investment firms were required to inform investors about the increased risks of instruments subject to the resolution regime under the BRRD.

An additional measure taken by one investment firm under study involved amending the firm's account opening documentation to include a section on the BRRD to inform potential clients about the new risks that particular bonds might carry. Another investment firm explained that it is part of their work to analyse the securities available for investment on a frequent basis to be able to promptly inform their clients of any emerging risks. Meanwhile, the participating banks emphasised that it is also the investors' responsibility to possess sufficient knowledge to assess the risks of the instruments they hold. In this respect, it was emphasised that locally, there should be more investor education to increase the level of financial literacy among retail investors.

The research findings also pointed out that investors definitely demand a risk premium on bail-inable instruments. It is clear that higher risks come with higher returns, and this could possibly increase funding costs for banks. The participants, however, did not elaborate on this.

5.0 Conclusions and Recommendations

In line with previous local research, the non-core bank participants under study believed that that the BRRD puts unnecessary pressure on small-sized institutions which are not as significant to the industry when compared to the larger, systemic banks. Moreover, the implementation of the BRRD happened too quickly for the banks to sufficiently prepare for what was required of them in terms of drawing up of recovery plans. The problem of lack of time was further exacerbated by the lack of sufficient guidance provided both at EU and Maltese levels. As observed by the MFSA, the recovery plans submitted to the Authority lacked credibility and plausibility. Nevertheless, the BRRD is believed to be beneficial if

sufficient attention is given to it. Meanwhile, the investment firms under review were more positive with the way forward of the BRRD.

It was also concluded that most institutions were not yet aware of the resolution part of the BRRD. Another conclusion observed is that there seems to be mixed views on the effectiveness of the newly established bail-in tool under the BRRD. Considering that the introduction of the BRRD has increased the risks on unsecured instruments eligible for bail-in, more attention should be given to the professional knowledge and expertise held by holders of such instruments. The risk premiums required on these complex instruments might also potentially increase funding costs for banks.

Overall, from this study's findings, it is apparent that the institutions under study, especially the non-core domestic banks, show an ambivalent approach towards the introduction of the BRRD. The establishment of an improved resolution regime within the EU was indeed a big step in the pursuit of securing financial stability in the local scenario, especially in terms of the advance planning that was subsequently required to be taken by both the institutions and the Resolution Authority within the MFSA.

However, scepticism prevailed among banks as to whether the BRRD is just an academic exercise or is actually effective in its objectives. In contrast, the investment firms under study were rather positive in their approach towards the BRRD.

The main reason behind this is that the banks believed that it is too early to determine whether the application of the recovery and resolution plans, along with the resolution tools, would indeed be effective in maintaining financial stability. Considering that the benefits are not yet clear to the banks, it was felt that the BRRD was placing unwarranted pressure on them. It was also believed that the BRRD is more applicable to larger systemic institutions considering that the provisions of the Directive seem to be catered more towards such institutions. In this regard, the MFSA was also of the opinion that although Article 4 of the BRRD allows simplified obligations for less significant institutions, these do not particularly alleviate the complexities that small-sized banks face in drawing up their recovery plans. This is because these banks would still need to provide detailed information to justify the application of simplified obligations.

The non-core domestic bank participants also attributed the pressure put onto them to the fact that the implementation of the BRRD was a rushed process at EU level. In fact, they even lacked adequate guidance from the MFSA and were insufficiently prepared in terms of financial resources.

The findings have also shown the content of the recovery plans drawn up by the institutions. In this respect, the key points of how the plans are developed, who is responsible, and what indicators and stress scenarios are used were duly established. To this end, the MFSA noted that the submitted recovery plans were not detailed enough and were lacking in terms of credibility and plausibility.

Additionally, while there is a lot of focus on recovery plans and the related provisions, there is still lack of awareness on resolution planning, once again among banks in particular. This is clearly due to the fact that resolution planning is still at an early stage, considering that such plans are mainly based on the information submitted in the recovery plans. Moreover, not much attention has been given to the less significant institutions.

With this study the authors show that it is important that the objectives of the BRRD are clearly interpreted among the respective institutions. This is also a matter of allowing enough time for such institutions to be able to smoothly and aptly prepare and implement the provisions of the BRRD. In line with the studies conducted in Malta two years ago, this study highlighted the point that further hand-holding is essential for the industry.

5.1 Recommendations

The authors therefore make the following recommends:

- **Better planning by the authorities concerned**
  If institutions are pressured in implementing certain provisions within a short period of time, the likelihood is that not enough importance will be given to such provisions, thus demeaning the effectiveness of the Directive. Better planning on the affected areas will allow for a smoother and more effective implementation of the respective requirements.

- **More focus on guidance**
  It is evident that the institutions under study believed that more information and guidance with respect to the planning of the recovery plans would have been of great help. More specific guidance can be provided by way of circulars on the individual components of the recovery plan. Moreover, more frequent meetings could be held with the respective professionals within the institutions to enable better follow-up.

The extent to which the BRRD legal framework has been successful among non-core domestic banks and investment firms needs to be assessed in the light of its relative novelty and recent introduction. Time, and hence more practice, shall be able to point out more clearly how much relevant and effective the preparatory and preventive measures endorsed by the BRRD really are. With this being said, this study has nevertheless illustrated that even if in its early stages, the BRRD has introduced those instruments that are bound to play a fundamental role in helping advance corporate governance arrangements and mechanisms, and in promoting a culture of risk awareness and control among banking and financial companies.

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LEGISLATION

Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council.

Malta Financial Services Authority Act 1989. (Cap. 330 of the Laws of Malta).

Recovery and Resolution Regulations 2015, L.N. 301 of 2015 under the Malta Financial Services Authority Act. (Cap. 330 of the Laws of Malta).

Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012

Appendix 1 Interview schedules

A1.1 Interview schedule to representatives from non-core domestic banks and investment firms

1. How long have you been in your current position within the firm?
   - ☐ Less than a year
   - ☐ 1 - 5 years
   - ☐ 5 - 15 years
   - ☐ More than 15 years

2. Did you hold this position when the BRRD was implemented?

3. What is your general opinion of the BRRD?

4. Do you think that the establishment and implementation of the BRRD was a good move in effectively dealing with the prevention of failure of credit institutions and investment firms:
   a. At the European level?
   b. At the Maltese level?

5. a. In what ways has the Resolution Authority within the MFSA prepared the respective institutions in implementing this directive?
   b. Was the provided guidance sufficient for the firm to get acquainted with the directive and subsequently abide by its provisions?

6. How would you rate the firm's preparedness for the BRRD and its requirements with respect to the following aspects? *(Please rate from 1 to 5, where 1 = very unprepared, 2 = fairly unprepared, 3 = somewhat prepared, 4 = fairly well-prepared, 5 = very well-prepared)*

Preparation of the relevant documents

1	2	3	4	5

Knowledge and skills

1	2	3	4	5

Time available

1	2	3	4	5

Financial resources

1	2	3	4	5

7. How would you rate the overall preparedness of the financial services industry in Malta with respect to the following aspects? *(Please rate from 1 to 5, where 1 = very unprepared, 2 = fairly unprepared, 3 = somewhat prepared, 4 = fairly well-prepared, 5 = very well-prepared)*

Guidance from the MFSA (including information sessions)

1	2	3	4	5

Guidance provided by consultancy firms

1	2	3	4	5

Knowledge held by consultancy firms

1	2	3	4	5

8. Did the BRRD regulatory implications impact the internal risk management framework and governance structure of the firm?

- *Recovery*

1. Can you briefly describe the arrangements and measures adopted to restore the financial viability of the institution in case of distress as set out in the recovery plan, with respect to each of the following:

   a. Governance (how the plan is developed, by whom it is approved, how it is integrated in the overall corporate governance of the firm);

   b. Recovery plan indicators (how these are determined);

   c. Recovery options (what type of stress scenarios were considered in identifying recovery options);

   d. Communication (how it is to be communicated);

e. Preparatory measures taken to implement the recovery plan

- *Resolution*

1. Chapter I of the BRRD is dedicated to both recovery and resolution planning. I understand that currently, institutions based in Malta are only required to submit their recovery plans to the MFSA for review, in accordance with the EBA guidelines.
   However, from the perspective of the BRRD, are you aware of the requirements that deal with the resolution part of the directive?
2. Under the BRRD, the EU introduced a minimum requirement for own funds and eligible liabilities (MREL). The MREL requires firms to hold a percentage of total liabilities and own funds which are eligible for bail-in. This percentage is determined on a case-by-case basis by resolution authorities upon individual assessment of each relevant institution.
   In order to meet the MREL, was there the need to adapt the firm's liability structure to increase unsecured liabilities?

3. Do you agree that the bail-in of unsecured debt instruments is an effective way to lower contagion risk on:
   a. Other financial institutions?
   b. The financial system as a whole?

   Why?

4. How are investors made aware of the potential risks and consequences relating to the write-down of the relevant financial instruments in case of resolution?

5. Do investors require any risk premium for the elevated loss probability?

A1.2 Interview schedule to representatives from the MFSA

1. Briefly explain your current position within the MFSA.
2. Did you hold this position when the BRRD was implemented?
3. What is your general opinion of the BRRD?
4. Do you think that the establishment and implementation of the BRRD was a good move in effectively dealing with the prevention of failure of credit institutions and investment firms:
   a. At the European level?
   b. At the Maltese level?
5. In what ways has the Resolution Authority within the MFSA prepared the respective institutions in implementing this Directive?
6. What were the main challenges faced by banks and investment firms in implementing the provisions under the Directive?
7. Article 4 of the BRRD states that national authorities may determine simplified obligations for small institutions, implying that the recovery and resolution plans of such firms would not necessarily include all elements discussed in the technical standards issued by the EBA.
   In what ways has this been applied in Malta?
8. a. Upon assessing the credibility of the recovery plans submitted by the respective institutions, briefly describe the main considerations which were unveiled from such an analysis (in terms of content and compliance).
   b. Are there any areas for improvement?

Appendix 2
List of Abbreviations

AMV	Asset Management Vehicle

BRRD	Bank Recovery and Resolution Directive
CBM	Central Bank of Malta
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CRR/CRD	Capital Requirements Regulation and Directive
DGSD	Deposit Guarantee Scheme Directive
EBA	European Banking Authority
EC	European Commission
EMIR	European Market Infrastructure Regulation
ESRB	European Systemic Risk Board
EU	European Union
FSB	Financial Stability Board
IA	Impact Assessment
ICAAP	Internal Capital Adequacy Assessment Process
ILAAP	Internal Liquidity Adequacy Assessment Process
IT	Information Technology
MFSA	Malta Financial Services Authority
MREL	Minimum Requirement for Own Funds and Eligible Liabilities
RTS	Regulatory Technical Standards
SMSU	Securities and Markets Supervision Unit
SRB	Single Resolution Board
SRM	Single Resolution Mechanism

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The Use of Strategic Policy Statements on the Basis of Concepts, An Evaluation in Logistics Businesses

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ABSTRACT

Introduction: Strategic management and its most important component, the strategic policies, and the expression of these policies and the implementation of the stated policies are very important. The purpose of this study is to examine the policy statements of the enterprises operating in the field of logistics, which is an important sector for the economy of countries, to examine whether they are current and industry-appropriate statements, and to discuss the reasons. Categorization and interpretation were preferred as methods. As a scope, only policy statements among the strategic concepts shared by the Logistics Association (LODER) member enterprises in the logistics sector have been discussed and studied. Especially in logistics enterprises, the establishment of strategic management and strategic policies, their expression, sharing and their implementation, the concepts emphasized and prioritized in the policies, and whether these concepts are up-to-date and appropriate to the sector should be seen as a problem. According to the findings, an important part of the policy statements are about customers and customer-related concepts. It has been observed that the concepts prioritized in policy statements are not specific to the business, which are popular and shared in most businesses. The fact that the concepts examined are not up to date causes businesses to stay away from the concepts they really need. The fact that the stated policies are not specific to the business will not benefit the strategic management of the business in details. This study is expected to be beneficial to academics and administrators working in this field.

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1. INTRODUCTION

Turkey and other countries in foreign trade, especially exports, is playing an important role in increasing the economic growth rate. Therefore, the logistics sector is developing in a way that will remain on the agenda by increasing its importance. Logistics enterprises should review the problems they encounter, manage them strategically in order not to encounter these problems again, and develop and implement strategic policies accordingly. These policies can be related to all processes in the enterprise or only to a certain department and unit.

Achieving and maintaining satisfactory levels in exports is proportional to high value-added product exports and the high diversity of the products and the market. Foreign trade transactions, which display an increasingly complex appearance, have increased the importance of the logistics sector (Erkan, 2014).

The concept of logistics is an important building block of the entire transportation sector (road transport, air transport, maritime transport, rail transport, river transport, pipeline transport).

In this study, the success of the logistics business in Turkey, the importance of sustainability of human factor, quality, important role in the development of priorities for the environment and the company is focused on the importance of strategic policy.

Strategic policies guide businesses in terms of behaviors and practices to be implemented in the short and medium term in order to achieve the long-term vision of strategic management, prioritized issues are critical and vital concepts for businesses.

In this respect, what kind of expressions are really needed for work, businesses, which should not be policy statements, which statements are increasing in importance in which sector? It will be useful in terms of guiding businesses in the answers of these and similar questions. The study consists of the concept of logistics, policies and importance in strategic management, application, findings, results and discussion.

2. LITERATURE

2.1 Strategy And Strategic Policies

Strategy, as a concept that has historically entered the literature, is the work of designing and managing the operations of armies in a war. According to this definition, strategy is a general war plan. Strategy is to mobilize, to put the army into the war order by making an order or planning and making intellectual operations (Eren, 2000).

The concept of strategy has begun to take place in social sciences in the field of economics since the 1930s and 40s. The concept started to be used in the field of business management after the 1950s. In the field of business, strategy is used as a concept that regulates the relations of businesses with their environment and activates all resources dynamically and provides efficiency in order to act competitive (Dincer, 1998).

Considering the above definitions, the business strategy can be defined jointly as follows: "Strategy is the process of constantly analyzing the business and its environment and determining the objectives and tools that will adapt to it, planning the activities and reorganizing the necessary resources in order to direct the business and provide competitive advantage." (Dincer, 1998).

The word politics is of ancient Greek origin. In terms of the word, it means "to supervise a job". The policy, which is used as the equivalent of "politics" in the Turkish literature, has mostly taken place in

the field of public administration and has been used with the meaning of "conducting a business belonging to the society according to a certain form and method". The concept of policy is defined in the dictionary as "a specific method or pattern of behavior chosen from among many alternatives to guide decisions today and in the future" or "a long-term plan that includes general goals and acceptable methods".

The definition of policy in the field of business management means "a set of principles guiding managers while making decisions". These principles guide managers in their decisions and their work, and create an enterprise-level plan to achieve specific goals. (Dincer, 1998). Strategic business policy tries to integrate knowledge and experience with middle and senior management. (Kozami, 2002)

There are varying degrees of policy in all businesses. if not managed well, political maneuvers will consume the organization's time, disrupt organizational goals, and shift the energy of employees to unnecessary directions. From time to time, political prejudices and personal preferences can become part of decision-making processes. Intra-organizational policies affect strategy selection decisions in all organizations (Akdemir: 2018) In addition, policies, mission form the components of the strategy together with the strategy, purpose and values in operation. (Campbell and Yeung, 1991: 16).

Individuals or groups that are affected by the policies, decisions and practices of businesses and that affect these decisions, policies, behaviors and practices are called stakeholders (Carroll and Buchholtz, 2008: 84).

Policies, like annual targets, have an important place in the implementation of strategies. Because the policies determine the expectations of the business managers and employees. Again, policies contribute to the coordination and operation of departments in a consistent and coordinated manner within and between departments.

Strategy and policies are terms that are confused with each other in the business literature. Because it is not possible to separate these two terms with exact lines. Policy is a general plan and path to be followed to achieve guidance and goals. In this respect, it creates the list of principles and total rules related to applications. Principles and rules are application solutions that can be applied to situations that do not allow initiative. (Eren, 2000).

Strategy is a more general concept that includes policy (Posacı, 2002). Strategy is the set of decisions made according to the conditions of uncertainty, in which all possible situations cannot be predicted in advance by focusing on the future. Policy consists mostly of specific environment decisions that are defined and reinforced by information management. For example; The wage policy applied in case of overtime or sickness is applied to all personnel and no separate decision is made for each individual situation. However, strategic decisions are taken in an environment that must be audited due to the variable details in terms of details and in which direction it will change.

Strategy is a concept above politics, more about planning, forecasting the future. Policy and strategy are similar in some ways. However, strategy is about goals. Strategic effectiveness is in the form of directing all current tangible and intangible assets to the goal. In politics, although there is a commitment to purpose, it may not be as strong as strategy. Although the political practices are purposeful in the final aggregate, not every policy may be aimed at general goals. (Eren, 2000).

The strategy hierarchy, three levels of strategy (corporate, business, and functional) are typically found in large businesses. Starting with the corporate level, each strategy level creates the strategic environment of the next level in the business. This means that corporate-level goals, strategies, and policies form an important part of a department's or business unit's environment. Therefore, the department or unit's goals, strategies and policies should be formulated in a way that helps the implementation of the plans (Wheelen and others, 2015).

2.2 Logistics

There are different definitions related to the concept of logistics. In general, the concept of logistics is taking the product from the point of production, storing it, stocking it, delivering the product to the desired place and in the desired form, and performing all these works in a planned, efficient and fast manner. In the logistics industry, minimum stock, minimum cost, high quality, traceability and sustainability are the main objectives. The geographical situation of the countries is very important in terms of the development of the sector. Although Turkey is geographically quite lucky, it lacks the required quantity of capacity. (Cevik and Kaya, 2010).

The frequently used definition of logistics was made by The Council of Logistics Management (CLM). Accordingly, logistics; It is the effective and efficient planning, implementation, transportation, storage and control of all kinds of products, services and information flows in the supply chain from the source to the consumption point in order to meet the needs of customers (logisticsclub.com/modules.php?name=News&file=article & sid=2,Accessed:10.06.2016).

As a logistics sector, it is an area that is speed-oriented, requires highly organized and planning is very important. Logistics enterprises have undertaken an important role as specialized enterprises in this field by easing the burden of production and trade enterprises. Thus, they have the opportunity to focus more on their main areas of production and trade businesses and their basic skills.

It is one of the components of the logistics supply chain. Supply Chain Management consists of successive components such as a chain link, as added. It is a component that includes determining the products we need, researching them, purchasing them, making a contract for this, preparing the product to be supplied, arranging the logistics services for the transportation of this product and paying the costs at these stages. This study is unique in that it has been done on the logistics sector and its policy statements. There is no study in this direction in the literature.

4. APPLICATION

4.1 Purpose and Method

The aim of this study is to examine the policy statements of the enterprises operating in the field of logistics, which is an important sector for the country's economy, to examine whether they are current and industry-appropriate statements, and to discuss the reasons.

As a method, data collection, categorization and interpretation methods were used in this study. The policy statements shared by 50 companies that are members of the Loder Logistics Association[1] were taken. It has been determined that each enterprise uses more than one policy statement. Policy statements are arranged one under the other, and similar ones are collected in one statement.

Businesses without policy statements were not taken into account. No sub-sector preference has been made. The data obtained were ranked in descending order, categorized and interpreted according to the frequency.

4.2 Findings

In this study, conducted on a sample of selected logistics company in Turkey, the company's policies are seen mostly they stood on the concepts given in the table. The fact that the study has been conducted on successful logistics enterprises increases the importance of the policies followed by these enterprises. It can be predicted that the policies followed by these enterprises have a significant share in their success.

The logistics sector is a sector that can be defined as the blood vessels of the country's economy and produces important production stages such as transportation, storage, insurance, packaging, customs clearance, stock management, value added services. In logistics enterprises, strategic management and strategic policies are formed, expressed, shared and shared, the concepts emphasized and given priority in the policies, and whether these concepts are up-to-date and appropriate for the sector should be seen as a problem. The study was conducted based on this reason.

Since the policy statements are too many in number on the basis of words and sentences, expressions that contain each other and are very similar to each other and different sentences expressing the same situation are collected under a single policy statement.

Strategic policies are very important in terms of how they are expressed, what they emphasize, what they prioritize, whether they are taken seriously, as concepts that direct the business in the short and medium term and determine the implementation styles of strategies.

[1] The Logistics Association (LODER) was established on 24/10/2001 and is an association that aims to develop professional and sectoral development, not only for corporate membership but for individual membership. Among its approximately 750 active members, there are company professionals who receive and provide logistics services, academicians, informatics professionals, industry-specific equipment sales company professionals and members of the armed forces.
(http://www.loder.org.tr/tr/sayfa/hakkimizda.html: 15.07.2017)

Similar expressions of the shared statements have been combined into a single statement for easy evaluation.(Table.1)

Table.1: Similar expressions turned into combined in a single expression

Similar Expressions	Combined in A Single Expression
Customer satisfaction, employee focus, customer care, high importance to employees, Customer and employee oriented	To be customer and employee oriented
Quality focus, quality in service, giving importance to quality, quality service	Quality service
Focus on development, continuous development, continuous improvement	Continuous improvement
Paying attention to productivity, productivity, efficiency.	Productivity
Fast delivery, speed in delivery, speed of delivery.	Fast delivery
To adapt to technology	To adapt to technology
Being sensitive to society and the environment, sensitivity to society, sensitivity to the environment	Being sensitive to society and the environment
Reliability, being a reliable business, standing out in reliability	Reliability
Being solution oriented, being a part of the solution, not the problem, problem solving	Being solution oriented
Adapting to innovations, compatibility, innovation and adaptation	To adapt to innovations
Continuous innovation, innovation, innovation-oriented	Continuous improvement
Working with team spirit, working with team spirit	Working with team spirit
Trained staff, giving importance to the training of the staff, developing the staff with training	Trained staff
Sustainable success, focusing on success, giving importance to continuous success	Sustainable success
To be respectful to ethical values, first of all ethical, moral oriented	Respecting ethical values
Motivation, encouraging employees	Motivation
Effective communication, attaching importance to communication, communication focus	Effective communication
Low cost, cost priority	Lower costs
Being proactive, prepared for crises, proactive approach to crisis	Being proactive

Table.2: Most Emphasized Concepts in Policy Statements of the Logistics Sector (According to less usage than the most frequently used)

	Policy Statements	Number of enterprises using the expression (Frequency)	Sampling Rate of Use in Enterprises (50 enterprises) %	Number of enterprises that do not use the expression (negative frequency)	Sampling rate of enterprises that do not use the expression %	The ratio of the expression used to the total number of expressions %
1	To be customer and employee oriented	31	62	19	38	13,60
2	Quality service	30	60	20	40	13,16

3	Continuous improvement	18	36	32	64	7,89
4	Productivity	16	32	34	68	7,02
5	Fast delivery	16	32	34	68	7,02
6	To adapt to technology	14	28	36	72	6,14
7	Being sensitive to society and the environment	14	28	36	72	6,14
8	Reliability	12	24	38	76	5,26
9	Being solution oriented	11	22	39	78	4,82
10	To adapt to innovations	11	22	39	78	4,82
11	Continuous improvement	10	20	40	80	4,39
12	Working with team spirit	10	20	40	80	4,39
13	Trained staff	8	16	42	84	3,51
14	Sustainable success	8	16	42	84	3,51
15	Respecting ethical values	5	10	45	90	2,19
16	Motivation	5	10	45	90	2,19
17	Effective communication	4	8	46	92	1,75
18	Lower costs	3	6	47	94	1,32
19	Being proactive	2	4	48	96	0,88
	TOTAL	228				100,00

5.1 Evaluating Shared Policy Statements

i- Being customer and employee oriented

The concept of being customer and employee focused was ranked as 62% with the use of 31 businesses. Its ratio to the total number of expressions is 13.60. Although it is very important that it takes the first place, it is seen that 38% of the enterprises do not use this expression and the close expressions that can replace it. It should be noted that the phrase "being customer-oriented and employee-oriented" is appropriate. However, it should be seen that 86% of the enterprises (50 enterprises including the sample) never use this expression and the close expressions that can replace it. It is a concept that moves from the eternity of customers' wishes and needs. It is not overlooked that

most of the time customers are also consumers. Customers are indispensable stakeholders for businesses. Therefore, the value that businesses give to their customers is very important.

It should always be decided what will be good for the customer. Being customer-oriented does not mean being privileged. Being employee-oriented shows the value given to employees. This concept, which is mentioned 31 times in the sample, has been determined as the most used policy concept by logistics enterprises.

ii-Quality service

The concept of quality service was ranked as 60% with the use of 30 businesses in the 2nd place. Its ratio to total frequency is 13.16. Although it is very important that it is in the top ranks, it is observed that 40% of the enterprises do not use this expression and the close expressions that can replace it.

While it is positive that businesses emphasize quality as a policy, the main thing is that this policy is adopted and implemented at all levels.

iii-Continuous improvement

The concept of continuous improvement was ranked as 36% with the use of 18 enterprises in the 3rd place. Its ratio to total frequency is 7.89. Although it is very important that it is in the top ranks, it is seen that 66% of the enterprises do not use this expression and the close expressions that can replace it. Continuous improvement is shared as a policy as well as being a quality term. Continuous improvement; It emerges as the name of process-oriented policies, not results-oriented. . Although this concept is a concept of quality, it is a concept that is valid for all enterprises that apply a process-based management strategy. It is expected to be used by all businesses as well as by logistics businesses. It is striking that the rate related to this concept is expected to be higher, but it is seen so low.

iv-Productivity

The concept of productivity, which ranks 4th, is a concept that deserves the first places. The concept of productivity was ranked as 32% with the use of 16 businesses in the 4th place. Its ratio to total frequency is 7.02. Although it is very important that it takes the first place, it is seen that 68% of the enterprises do not use this expression and the close expressions that can replace it.

v-Fast delivery

The fast delivery concept, which ranks 5th, is a critical concept for logistics businesses. Fast delivery was ranked as 32% with the use of 16 businesses in 5th place. Its ratio to total frequency is 7.02. Although it is very important that it takes the first place, it is seen that 68% of the enterprises do not use this expression and the close expressions that can replace it.

Since this concept is related to the business area, it is important for more logistics areas. It is striking that approximately one third of the sample used this policy, while the rest did not. Because fast delivery is an important success criterion for logistics businesses.

vi-To adapt to technology

The concept of adapting to technology, which ranks 6th, is an important concept for logistics enterprises. Adapting to technology took the 6th place with the use of 14 enterprises and was 28%. Its ratio to total frequency is 6.14. It is also seen that 72% of the logistics enterprises included in the sampling do not use this expression and close expressions that can replace it.

vii-Being sensitive to society and the environment

Being sensitive to society and the environment, which is in the 7th rank, is an indispensable concept for logistics enterprises. Being sensitive to the society and the environment was ranked as 28% with the use of 28 enterprises in the 7th place. Its ratio to total frequency is 6.14. It is also seen that 72% of the logistics enterprises included in the sampling do not use this expression and close expressions that can replace it. It is noteworthy that approximately 1 in 3 of the sample used this policy, while 2 out of 3 did not.

viii-Reliability

The concept of reliability, which ranks 8th during the frequency of use, was used in 12 of 50 enterprises in the sample. It is seen that 24% of businesses use this expression. 5.26% of all used policy statements are related to reliability. This concept is a concept that should be strengthened with mutual communication and relations in the medium and long term, and it is very important as a concept that keeps commercial and economic life alive. It is expected to be used by all businesses. The fact that more than two thirds of the sample did not use this concept seems to be a deficiency when the logistics enterprises are considered collectively.

ix-Being solution oriented

The concept of being solution-oriented, which ranks 9th during the frequency of use, was used in 11 out of 50 enterprises in the sample. (22% of businesses). 4.82% of all used policy statements are about being Solution-oriented. In addition, it was observed that 78% of the enterprises do not use this concept. This concept is a concept that is needed by businesses that will constantly encounter problems and are expected to produce fast solutions to problems, and to solve them without growing them, and the facilitator plays a role in commercial and economic life. It is expected to be used by all businesses, especially logistics businesses. It should be noted that the rate regarding this concept is lower than expected.

x-To adapt to innovations

The concept of adapting to innovations, which ranks 10th during the frequency of use, was used in 11 out of 50 enterprises in the sample. (22% of businesses). 4.82% of all used policy statements are related to adapting to innovations. In addition, it has been observed that 78% of the enterprises do not use this concept. This concept is an indispensable concept for businesses that have to keep up to date and renew themselves. It is expected to be used by all businesses as well as by logistics businesses. It is seen that the rate related to this concept is lower than expected.

xi-Continuous inovation

The concept of continuous inovation which ranks 11th during the frequency of use, was used in 10 out of 50 enterprises in the sample. (20% of businesses). 4.39% of all used policy statements are about continuous improvement. In addition, it was seen that 80% of the enterprises included in the sampling did not use this concept

xii-Working with team spirit

The concept of working with team spirit, which ranks 12th during the frequency of use, was used in 10 out of 50 enterprises in the sample. (20% of businesses). 4.39% of all used policy statements are about working with team spirit. It has been observed that 80% of them do not use this concept. This concept is a concept related to business organizations in which informal relations divided into smaller groups should be strong. Logistics companies are also among those that are managed with teams and where informal relationships stand out. It is expected to be used by all businesses as well as by logistics businesses. The rate for this concept would be expected to be higher.

xiii-Trained personnel

The concept of trained personnel, which ranks 13th, is a vital concept for logistics enterprises. Trained staff is 16% with the use of 8 enterprises. Its ratio to total frequency is 3.51. It is also observed that 84% of the logistics enterprises included in the sampling do not use this expression and close expressions that can replace it.

Finding qualified and trained personnel in the logistics sector is one of the main problems. For example; International logistics companies require personnel with a good language education. In general, it is extremely important for the person and business that those who want to work in this sector to have an internship and gain experience.

There is this general and unexplained statement on the sample, and there is no information about how to achieve this, how to maintain it, and by what methods. In recruitment processes, it may mean to employ trained personnel, to provide training within the service, to have training, to maintain this in a planned and institutional way, to implement a truly trained personnel policy. It is inevitable for businesses that absorb and apply the educated personnel policy in all dimensions to be successful.

xiv-Sustainable success

The concept of sustainable success, which ranks 14th, is a vital concept for logistics businesses. Sustainable success statement took place as 16% with the use of 8 businesses. Its ratio to total frequency is 3.51. It is also seen that 84% of the logistics enterprises included in the sampling do not use this expression and close expressions that can replace it.

The fact that businesses choose this statement as a policy shows that they prefer long-term successes more than temporary successes. In order to realize this policy, daily and medium term business processes should be guided insistently according to this policy.

It can be stated that businesses that do not use this policy statement ignore the returns on sustainable success on an expression basis.

xv-To be respectful to ethical values

The concept of being respectful to ethical values, which is in the 15th place, is a concept that is above all businesses. The statement to be respectful to ethical values took place as 10% with the use of 5 businesses. Its ratio to total frequency is 2.19. It is also seen that 90% of the logistics enterprises included in the sampling do not use this expression and close expressions that can replace it.

One of the policies preferred by businesses has been to respect and attach importance to ethical values. Ethical principles; These principles, which are justice, impartiality, honesty, transparency, accountability and protecting the public interest, must be upheld and acted in accordance with them. There is also good management in businesses or businesses that work in accordance with ethical values. In accordance with ethical principles, it is of utmost importance to our corporate success and personal success.

xvi-Motivation

The concept of Motivation, which ranks 16th, is a vital concept for logistics businesses. Trained personnel is stated as 10% with the use of 5 enterprises. Its ratio to total frequency is 2.19. It is also seen that 90% of the logistics enterprises included in the sampling do not use this expression and close expressions that can replace it.

xvii-Efficient communication

Effective communication concept, which is ranked 17th, is a very important concept for businesses. Effective communication statement took place as 8% with the use of 4 businesses. Its ratio to total frequency is 1.75. It is also observed that 92% of the logistics enterprises included in the sampling do not use this expression and close expressions that can replace it.

Specific to the sample, it has been observed that effective communication is minimally included in the policies of businesses, and importance and care is not taken into account. However, the success of all other businesses and transactions can be achieved through effective communication. In order for

businesses to reach this awareness, it is necessary for the strategic success to fulfill the theoretical, practical and financial studies required for effective communication with special attention.

xviii-Low cost

Although the concept of trained personnel, which is in the 18th place, is a vital concept for logistics enterprises, it should be considered that it is related to the three functions of the enterprise. Therefore, the external benefit of sharing it with external stakeholders can be discussed. The expression of low cost took place as 6% with the use of 3 enterprises. Its ratio to total frequency is 1.32. It is also observed that 94% of the logistics enterprises included in the sampling do not use this expression and close expressions that can replace it.

xix-Be proactive

The concept of being proactive, which ranks 19th, is a vital concept for logistics businesses in times of crisis. The statement of being proactive took place as 4% with the use of 2 businesses. Its ratio to total frequency is 3.51. It is also seen that 96% of the logistics enterprises included in the sampling do not use this expression and close expressions that can replace it.

6. CONCLUSION AND EVALUATION

In the study, the most frequently used strategic policy issues in the logistics industry were found. All policies were examined one by one and explanations were made about them. Businesses are generally customer-oriented and employee, providing quality service, efficiency, continuous development, fast and timely delivery, adapting to technology, being sensitive to society and the environment, reliability, being solution-oriented, adapting to innovations, continuous improvement, working with team spirit, trained personnel, sustainable success, respect for ethical values, motivation, effective communication, low cost and being proactive have prioritized themselves. At the same time, we can say that these political concepts are important for the success of businesses. Providing the highest quality service and being customer-oriented has been the leading policy issue for businesses.

Looking at the policy expressions used; service quality is an important criterion for businesses to achieve great success. Providing a quality service also increases customer satisfaction. It can be stated that under today's competitive conditions, one of the issues that logistics enterprises have to pay attention to is quality. Therefore, in order to provide competitive advantage, businesses should plan to work in a way that satisfies consumers by producing quality service. Although the concept of quality is in the first place in terms of policy, it is seen that there is a problem of perceiving only as product and service quality. However, quality is a comprehensive concept that concerns all business processes. Emphasis on quality and its effect should be seen in all processes, plans, procedures, instructions and forms. In this respect, emphasis on quality, implementation and understanding are seen as lacking on the sample in the companies examined in the study. When the policy sentences of businesses are

examined, it is understood that routine, quotes and similar sentences are included, and these statements are not specific to the business.

There are controversies on the issue of ethics, usually stemming from relativity. But even sticking to a small number of undisputed ethical principles can make a business a business committed to ethical values. Some of these ethical values are to give the employees their rights, not to mislead the customer, to be fair in price, to fully fulfill the responsibilities to the state, to give importance to health and the environment. For businesses, it is important that this important policy statement is indispensable for business life without remaining in a sentence, and for this, the top management is an example to other employees with practical examples. Establishing a good ethical values system will increase trust and positively affect the success of the entire business. The issue of ethics seems to be an important business necessity in all cultures. The biggest problem between today's producers of goods and services and their consumers arises from the differences between shown, advertised and actual.

A business managed by strategic management does not prefer short-term returns to long-term ones, targets long-term success and is aware that it can make a loss if necessary in the short term.

The most important issue for businesses is the motivation of employees. Since the logistics sector is a stressful sector, it can be said that the need for motivation is higher than other sectors. The higher the motivation of the employee, the more success is predicted to be achieved. For this, efforts should be made to increase the motivation of the employees.

Classical and sector-specific holiday opportunities such as wage increase, promotion, social activities should be carried out to increase the original motivation. It is observed that motivation is not included enough in the policies, and the issue of motivation is fulfilled irregularly with daily practices without institutionalization.

In an environment where the smallest detail is important in interpersonal relationships in the business, special attention should be given to relationships, and any behavior that will make people feel worthless should be prevented. The priority should be not to harm motivation.

Since people, both as employees, managers and customers, have feelings, predictions and plans, it is not possible to motivate them for a long time with false motivational displays. Employees must feel that they really belong to the business and are an important part of the business. This situation should be demonstrated strongly both in monetary and non-monetary ways.

Logistics businesses are geographically dispersed businesses in terms of their stakeholders. Therefore, remote communication requires making use of technology and using technological communication tools effectively. Alternative communication methods and techniques that complement this gap should be implemented for personnel who cannot experience the advantages of face-to-face communication.

Low cost is one of the most important ways to provide better service to the customer at a cheaper cost for all businesses in general and especially for logistics businesses. Although it is appropriate for businesses to adopt this policy, it gives the impression that it is not a policy that is emphasized in terms of being in the last place in policy choices.

He is a solution-oriented and hardworking person who carefully filters the events outside himself, uses his emotional and spiritual intelligence in a sensitive harmony, thinks positively, encourages him. It conducts risk analysis for each option and lives at peace with itself and its environment. It blends knowledge and intellectual abilities with common sense and uses it with high efficiency. It is clear that such proactive employees are needed in the logistics sector.

In practice, it is seen that the policy of being proactive is preferred in the last place within the scope of the sample. It should be thought that this concept, which is used especially in the sense of being prepared for crises, should not be lately. Because the logistics sector is a sector with a high tendency to be exposed to crises.

In order to be truly proactive, the enterprise should have detailed risk analysis, identify priority risks and precautions, and keep all the factors ready for the required solution when the risk occurs.

In order to make a more accurate interpretation on the enterprises in terms of using the policy statement, the logistics enterprises that do not include the relevant statements as policies are also seen in the table.2. The policy expressions that should not be abandoned in terms of logistics enterprises are not used in a considerable part of the enterprises, thus causing a perception that these policies are not intended in the strategic management process.

It has become clear that in order to grow economically, policies in the logistics sector should be determined and future plans should be made on these political concepts.

Although all policy sentences are shared positively and in a way that can move the business forward, the use of similar phrases, quotations, and occasional contradictions with other shares of the business, creates an impression that the policies are not internalized and are not real policies. In order for the policies to be realistic, assimilated, adopted and original, by spending effort, money and time, by creating them together as required by the governance principle, and most importantly, by integrating them into institutionalization, the effectiveness of these policies will increase.

It may also be suggested to include concepts such as generation z, artificial intelligence, globalization, flexibility and creativity that are not included in the policy statement findings. In the policy statements, especially the global understanding of the generations, the z generation, the transition to virtual business, and health-related sensitivities should also have been mentioned.

The most important issue that needs to be emphasized here is that the stated policies are compatible with the implemented policies. Senior management should make a serious effort in this regard. Day-to-day occupation often prevents managers from thinking strategically.

Since only "policy statements" are included in the scope of this study, measuring customer satisfaction, market share, product and service quality and measuring whether they overlap with policy statements, again, whether policies are determined by senior management or governance may be the subject of another study.

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Analysis of Changes in Financial Items of the Turkish Banking Sector with VAR Model[1]

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ABSTRACT

A restructuring program has been realized in the Turkish Banking Sector after the crises of 2000 and 2001. At the same time the restructuring program was implemented in the economy. Volatility is considered one of the most important risk indicator. The high volatility in a data set means that the risk is high. The aim of the study is to predict the strong changes in the main activity items of the banking sector from the post-crisis period to the present, based on the number of delays. During the period from the end of 2002 to the end of 2017, the volatility of the main financial items at the end of the three-month period has been analyzed in the Turkish Banking Sector. Afterwards, these main items were taken into consideration of past trends and predictive equations related to the levels that can be reached in the future were established. As a result of the analysis, it is seen that the highest change is primarily in the volume of the sector and in the loans and deposit items immediately afterwards. The high change in these two main factors in balance sheet naturally leads to a high volatility of the balance sheet total as well.

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1. INTRODUCTION

The volatility of economic and financial data is generally high in developing countries. The most important reason for this is the internal dynamics of the economies of these countries. Undoubtedly, political risks are also important factor that increase this volatility.

The concept of volatility, measures the magnitude of the fluctuation of a series deviating from a certain mean value, as indicated by Gujarati (2011, p.240) in the finance literature. The fact that the magnitudes of the downward or upward divergence fluctuations from the average value are large also indicates that there is a high risk in the relevant index / price / return series. This emerging risk situation can mean potential gains for investors as well as possible loss. Considering this point, in order to be able to make

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effective investment decisions in volatile markets, as mentioned by Yalama (2008, p.45) and Şahin (2015, p.108), firstly the volatility of these markets needs to be modelled.

Transition to liberalization after 1980 primarily showed its impact in the banking sector. Pricing, risk premium and volatility concepts have come to the forefront as a result of financial liberalization, the acceleration and globalization of fund flows, the changing competition structure and the use of complex financial products (structured products, synthetic derivatives etc.) and technologies.
Turkish Banking Sector has undergone significant changes in the last 25 years. These changes are based on technology from one side and new products from the other. The internal dynamics of Turkey's economy with various risks in terms of macroeconomic indicators is very sensitive. This sensitivity is naturally reflected in the sectors within the economy as well

A possible negativity in the Turkish Banking Sector, which is at the focus of the economy, affects the whole economy in a short time. In order to be prepared for such situations, it is vital that the banking sector tries to anticipate all kinds of risks and apply a good risk management policy. With this perspective, which is the focus of the study, one of the main objectives of the study is to predict the most sensitive financial items of Turkish banks to market developments and to make recommendations regarding them.

2. LITERATURE

There are few studies on the subject in the literature. These studies are listed below. There are also relatively close studies such as those by Rekik et al. (2018), Goddard et al. (2004), and Witowschi et al. (2016).

Moshirian and Wu (2009) investigated whether there is volatility in the banking sector. In the study, analysis of 18 developed and 18 developing country market data was performed by using the public market information of banks. It has been determined that the volatility in the banking sector performs well in predicting systemic banking crises for developed markets, but fails for emerging markets. This suggests that the effect of market forces on the soundness of the banking system may be different for developed and emerging markets. In addition, it is seen in the study that macroeconomic and banking risk management indicators have different effects on the probability of a banking crisis.

In the study conducted by Moshirian and Wu (2012), using dynamic panel forecasting techniques for 36 markets, the relationship between volatility in the banking sector and future economic growth is investigated. In the study examining the relationship between finance and growth from the perspective of an asset pricing theory, a positive relationship was determined between bank stock returns and future economic growth. On the other hand, a negative connection was observed between the volatility in the

banking sector and future economic growth. The reason for this is, state ownership of banks, enforcement of insider trading law, systemic banking crises and the bank accounting disclosure standards.

In the article prepared by Fernández A.I. et al(2016), the impact of the stability of banking on industrial value added volatility was analyzed using data from 110 countries. According to the results, banking stability reduces the value added volatility in countries with developed financial and institutional systems and in sectors with greater external financial dependence. In addition, banking stability helps reduce economic volatility in countries with less competition for the bank market.

In the study of Pholphirul (2008), a time series study was conducted in Thailand to investigate the causal links of financial instability and different sources of macroeconomic volatility. The results show that financial instability and the probability of a banking crisis are mostly affected by the volatility in trade deficit and less affected by price-related volatility. In addition, variables related to financial system development appear to be important factors in ensuring the stability of the financial sector. The estimated coefficients also show that financial system development helps balance growth volatility and reduce the likelihood of economic recession.

Huang et al. (2014) examined whether the banking structure has an impact on industrial growth volatility. The results of the study showed that the bank concentration increased the industrial growth volatility, but reduced the volatility in the sectors that need higher external liquidity. Various sensitivity checks show that the findings in the study remain for different model characteristics, banking market structure measurements, liquidity need indicators and neglected variables.

3. DATA AND METHODOLOGY

In the analysis, some financial data related to the quarterly turnover between December 2002 and December 2017 of the Turkish Banking Sector were used. The main purpose is to predict which of the items in the financial statements of banks can be a leading risk indicator. Thus, bank managements will pay special attention to the planning and management of these items. Because balance sheet management is easier when the markets do not have problems. The important thing for bank management is to create a financial structure that can adapt to changes in the rapidly changing market environment.

When the data to be included in the analysis are determined, it has been noted that these data are likely to react to changes in the market in a short time, to continuously protect the on-balance-sheet significance and to be indicators that are included in the main activity areas.

Among the assets and liabilities balance sheet items, the main items included in the analysis are; liquid assets, financial assets held for trading, financial assets available for sale, investments held to maturity, loans, loans under follow-up (gross), deposits, funds borrowed, money market takings. The data used in the analysis are taken from the Banks Association of Turkey statistical data section of the web page.

The VAR model was used in the analysis. VAR (Vector Autoregressive) model, Sims (1980) was developed and adopted without being subject to discrimination of all inner variables autoregressive model. According to Cooley and LeRoy (1985), VAR models are reduced form models and are a simple tool that summarizes the dynamic properties of the data.

VAR models are often preferred in terms of time series since dynamic relations can be given without any restrictions on the structural model.

In addition, the inclusion of lagged values of dependent variables in the VAR model makes it possible to make strong predictions for the future.

In the model, a common delay length is first determined for all variables. The variables are respectively taken as the dependent variable and the delayed values of its and other variables are regressed by taking the argument.

$$\begin{bmatrix} X_t \\ Y_t \\ C_t \\ RM_t \end{bmatrix} = A_0 + A_1 \begin{bmatrix} X_{t-1} \\ Y_{t-1} \\ C_{t-1} \\ RM_{t-1} \end{bmatrix} + A_2 \begin{bmatrix} X_{t-2} \\ Y_{t-2} \\ C_{t-2} \\ RM_{t-2} \end{bmatrix} + \ldots + A_m \begin{bmatrix} X_{t-m} \\ Y_{t-m} \\ C_{t-m} \\ RM_{t-m} \end{bmatrix} + \begin{bmatrix} \mu_{1t} \\ \mu_{2t} \\ \mu_{3t} \\ \mu_{4t} \end{bmatrix} \quad (1)$$

$$\begin{bmatrix} X_t \\ M_t \end{bmatrix} = A_0 + A_1 \begin{bmatrix} X_{t-1} \\ M_{t-1} \end{bmatrix} + A_2 \begin{bmatrix} X_{t-2} \\ M_{t-2} \end{bmatrix} + \ldots + A_m \begin{bmatrix} X_{t-5} \\ M_{t-5} \end{bmatrix} + \begin{bmatrix} \mu_{1t} \\ \mu_{2t} \end{bmatrix} \quad (2)$$

In equations, t period, A_0 constant term vector, coefficient vectors of A_i variables, and μ_{it} random error terms that match the classical EKK assumptions. In the VAR equation, the standard F test or the Wald χ^2 square test can be used in determining the causality relationships between the variables. If the VAR system is not stationary, some results such as impact response standard errors will be invalid.

4. ANALYSIS RESULTS

In the first stage, descriptive static statics of the data were examined. Detailed information on descriptive statistics can be found in annex 3a and annex 3b. In the 15-year period, the Akaike information criterion reached as the result of the analysis was looked at in order to be able to select the ones with the equilibrium estimating the highest change from the main balance sheet items.

In the table 1, there are sequential balance sheet items from the highest coefficient to the lowest coefficient. According to Akaike AIC Ratings results, it is seen that liabilities, loans and deposits have the highest coefficient, while non-performing receivables have the lowest coefficient.

Table 1. Akaike AIC Ratings

Rank	Item	Akaike AIC
1	Liabilities	23,48048
2	Loans	22,38437
3	Deposits	22,36932
4	Liquid Assets	21,63020
5	Funds Borrowed	21,10757
6	Investments Held To Maturity	20,88513
7	Financial Assets Available For Sale	20,82383
8	Money Market Takings	20,66901
9	Financial Assets Held For Trading	18,97349
10	Loans Under Follow-Up	16,46206

The progress of the share of loans and deposits in the balance sheet over the years in the banking sector is shown in the chart below. As can be seen below, the share of loans in assets and deposits in liabilities is high. During the period, while the share of loans in assets increased, the share of deposits in liabilities decreased slightly.

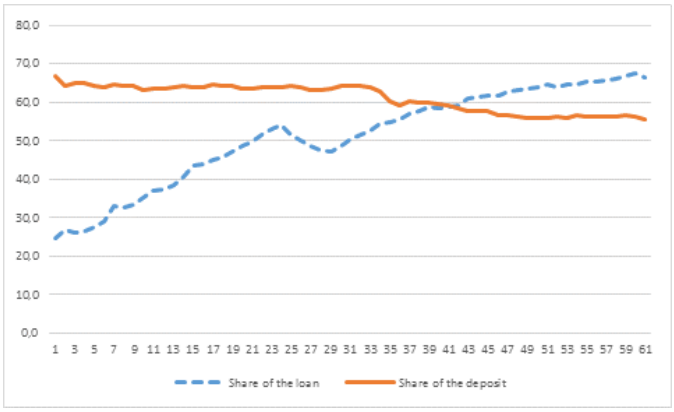

Figure 1. Development of Balance Sheet Share of Loans and Deposits

A test was made to see whether the data are stable or not. As a result of the Spectral Estimation Bartlett Kernel Method and Dicky Fuller and Philip Perron stationarity tests, the data were determined to be stationary ($p < 0.01$).

Table 2. Stationarity Test Results (Equity, Credit Obtained, Trading Securities, Loans, Liquid Assets, Deposits, Liabilities, Interbank Money Market, Available-for-Sale Securities, Non-Performing Loans, Assets To Be Held To Maturity)

Method	Statistic	Prob.**	Cross - sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.7903	0.0000	11	645
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-12.4385	0.0000	11	645
ADF - Fisher Chi-square	199.326	0.0000	11	645
PP - Fisher Chi-square	239.100	0.0000	11	649
** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				

Table 3 : Autocorrelation and Partial Correlation Test Results

	AC	PAC	Q-Stat	Prob
1	0.425	0.425	11.375	0.001
2	0.368	0.229	20.081	0.000
3	0.301	0.106	25.982	0.000
4	0.290	0.107	31.575	0.000
5	0.308	0.130	37.989	0.000
6	0.263	0.045	42.746	0.000
7	0.298	0.110	48.978	0.000
8	0.380	0.203	59.288	0.000
9	0.218	-0.094	62.766	0.000
10	0.057	-0.241	63.004	0.000
11	0.150	0.068	64.717	0.000
12	0.251	0.195	69.585	0.000
13	0.117	-0.153	70.669	0.000
14	0.154	0.011	72.582	0.000
15	0.025	-0.123	72.633	0.000
16	-0.014	-0.193	72.649	0.000
17	0.023	0.076	72.696	0.000
18	-0.018	0.117	72.725	0.000
19	0.081	0.028	73.314	0.000
20	0.166	0.073	75.885	0.000
21	0.062	0.022	76.253	0.000
22	-0.036	-0.133	76.381	0.000
23	-0.037	-0.008	76.522	0.000
24	-0.121	-0.061	78.029	0.000
25	-0.057	-0.057	78.377	0.000
26	-0.099	-0.157	79.453	0.000
27	-0.032	0.110	79.571	0.000
28	0.038	0.126	79.736	0.000

As a result of autocorrelation and partial autocorrelation, no consecutive sequencing was found in the data. In this case, there is no white noise.

AR roots were examined to determine the stationarity of the VAR system and all VAR systems were determined to be stationary.

The delay length was determined to be 2 for each equation according to the AIC criterion.

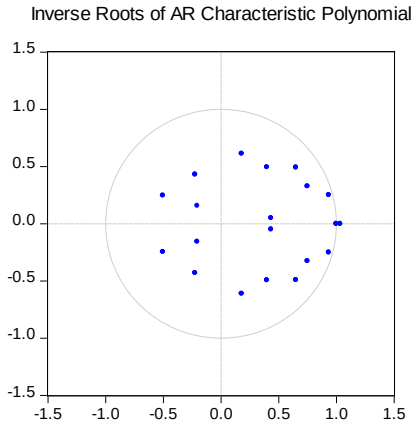

Figure 2. Location of Inverse Roots of AR Characteristic Polynomial in Unit Circle

As can be seen from Fig. 1, none of the inverse roots of the AR characteristic polynomial lies outside the unit circle, confirming that the established VAR system has a stable structure. In addition, normality, autocorrelation and variance tests were performed for the error terms of the VAR model. For normality, the JB statistic was calculated to be 6.174 (p-value: 0.412), with the error terms having normal distribution and the null hypothesis being accepted at the 5% significance level. The LM statistic for testing the presence of autocorrelation was set at 11.547 (p-value: 0.134), and the autocorrelation null hypothesis between error terms was accepted at a 5% significance level. Finally, in order to test for the presence of variant variance, the null hypothesis was accepted at a significance level of 5% and the variance between the error terms was obtained as 31.845 (p-value: 0.697). These results show that the VAR model provides the necessary assumptions.

Coefficients and decision criteria of models are detailed in the appendix 1. According to the analysis results in the table 4, the explanatory power of the findings is very high (R^2).

Table 4: Explanation ratio of models according to dependent variables.

	R-squared
Funds Borrowed	0,996556
Financial Assets Held For Trading	0,886830
Loans	0,999531
Liquid Assets	0,995327
Deposits	0,999227
Liabilities	0,999305
Money Market Takings	0,992092
Financial Assets Available For Sale	0,994096
Loans Under Follow-Up	0,998371
Investments Held To Maturity	0,951146

When the coefficient of determination is considered, it is seen that the dependent variable is the highest credit. However, when loans are dependent variables in liquid assets, deposits, liabilities, PP borrows, treasury repos, and follow-up variables, R^2 values are very close to each other.
The estimation equations obtained as a result of the 2-period delayed Var analysis according to the dependent variables are given in appendix 2.

5. DISCUSSION AND CONCLUSIONS

The banking sector is one of the sectors most affected by economic dynamics. Considering that the other financial institutions outside the banks are not very developed, understanding and following the internal dynamics of the banking sector is important for future projections.

In this context, it is predicted that the highest variability will be in the main volume (in the passive sum) when the estimation of long-term changes in banking sector balance sheet items is examined. The reason for using the VAR analysis method in the study is that the lagged values of the dependent variables in VAR models make it possible to make strong predictions for the future (Kumar, Leona, Gasking, 1995: 365).

The beginning of the analysis period is the years of emergence from the domestic crisis and the share of the loans in the balance sheet increases and the share of the deposits decreases in the following periods. By the end of 2011 and the beginning of 2012, when the impact of the global crisis began to slow down, deposits on the resource side continued to decline, as will be seen in the chart. In particular, it can be said that the increase in foreign borrowing facilities of banks is one of the main factor. In this framework, while the loans moved upwards from one side, the deposit moved downward from the other side. However, in this trend, volatility of both is considerably higher than the other main items. This indicator shows that banks have high risks in credit and deposit items. Then, the high volatility in liquid assets can be attributed to the high volatility in the market. Because the cost of being liquid is important. It can

be said that the banks are changing their policies in this item in short intervals considering the market conditions.

The data obtained as a result of the analysis gives important clues for the Turkish Banking Sector. Because, a significant portion of the resources in the Turkish Banking Sector consists of the deposit item. On the asset side, the biggest share belongs to the loans item. In the analysis, since it is determined that the biggest change is in these two items, it is stated that banks should give more importance to credit and deposit management in terms of risk. Because, on the passive side, there is no other foreign resource that can be an alternative to deposit. On the asset side, the strongest item is loans. At the same time, the determination of liquid assets as another item with high volatility gives an important clue for banks. Indeed, when the market in balance deteriorated in Turkey, the first negative developments are taking place in the liquidity side.

In the light of all these data, it is important for Turkish banks to give more importance to diversification in terms of resources and assets and to develop alternative balance sheet items in terms of continuity and risk management. In future studies, systematic and non-systematic risks leading to this volatility in credit and deposit can be analyzed.

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Appendix1. Coefficients and decision criteria of models

		Dependent Values									
		Funds Borrowed	**Financial assets held for trading**	**Loans**	**Liquid Assets**	**Deposits**	**Liabilities**	**Money Market Takings**	**Financial Assets Available for Sale**	**Loans under follow-up**	**Investments held to Maturity**
İndependent Values	Funds Borrowed (-1)	1,175971	0,317776	-0,0965	0,326744	0,009027	0,796255	0,194569	0,003776	0,002122	-0,1825
	Funds Borrowed (-2)	-0,7602	-0,3601	-0,7019	-0,5796	-0,2927	-2168307	-0,5428	-0,0416	0,007616	0,119021
	Financial assets held for trading (-1)	-1383859	0,119673	-0,9981	-0,6966	-1463527	-2122593	0,383185	1,299568	-0,0801	-1148497
	Financial assets held for trading (-2)	0,047838	0,226744	0,125028	0,175015	0,818513	0,468085	-0,4073	-0,4683	-0,0789	0,052945
	Loans (-1)	0,310934	0,115825	2,253019	0,805244	1,742651	2,905987	0,050439	0,238594	-0,0020	0,097286
	Loans (-2)	-0,1340	0,026809	-0,8426	-0,2844	-0,9861	-1506695	-0,2430	-0,3547	-0,0049	-0,1840
	Liquid Assets (-1)	-0,1508	0,017300	0,119772	0,808078	-0,1894	0,272395	0,308530	0,478964	-0,0048	-0,4272
	Liquid Assets (-2)	-0,2149	-0,1459	-0,4008	-0,2573	-0,0824	-0,8001	-0,1269	-0,3217	-0,0027	0,319163
	Deposits (-1)	0,333675	0,102664	-0,5001	-0,7565	0,242950	-0,6426	-0,1564	-0,1690	-0,0138	0,684264
	Deposits (-2)	-0,3585	-0,1366	-0,2946	0,270514	-0,3332	-0,6131	0,250974	-0,2610	0,022651	0,145626
	Liabilities (-1)	-0,3631	-0,2228	-0,4584	-0,1732	-0,6132	-0,7213	-0,0176	-0,2058	0,012041	-0,1968
	Liabilities (-2)	0,376850	0,145256	0,690284	0,156955	0,599243	1,578752	0,236806	0,535142	-0,0084	-0,1597
	Money Market Takings (-1)	0,496426	0,276330	0,242451	-0,1316	0,474375	0,758289	0,409252	-0,3363	-0,0255	0,535056
	Money Market Takings (-2)	-0,2328	-0,0977	-0,6191	-0,1189	-0,5119	-1279024	-0,3204	-0,1998	0,047083	0,067360
	Financial Assets Available for Sale (-1)	-0,2456	-0,0492	0,197602	0,088352	0,243896	0,166757	-0,3446	1,211385	-0,0315	-0,6109
	Financial Assets Available for Sale (-2)	0,032343	0,026129	0,264370	0,237935	0,558878	0,603628	0,124934	-0,1100	0,001797	0,046180
	Loans under follow-up (-1)	2,737521	0,117264	7,738944	2,506383	13,01593	15,01524	-4144617	1,064896	0,996806	2,729074
	Loans under follow-up (-2)	-1653129	0,632736	-4325409	-2358870	-9127438	-1075002	2,839807	-1867034	-0,0551	-2545191
	Investments held to Maturity (-1)	-0,5479	-0,1191	-0,1758	0,217573	0,289912	0,042166	-0,1081	0,391459	0,001170	0,363496
	Investments held to Maturity (-2)	0,307059	0,147537	0,319538	0,200674	0,396182	0,938246	0,128928	0,129680	-0,0193	-0,0352
	C	52350,94	25945,13	51894,28	47913,10	77090,48	143339,4	-23677,74	-35155,04	3778,443	34529,53
D	R-squared	0,996556	0,886830	0,999531	0,995327	0,999227	0,999305	0,992092	0,994096	0,998371	0,951146

	Adj. R-squared	0,994743	0,827267	0,999284	0,992867	0,998820	0,998939	0,987930	0,990989	0,997513	0,925433
	Sum sq. resids	2,49E+09	2,95E+08	8,93E+09	4,20E+09	8,79E+09	2,67E+10	1,61E+09	1,87E+09	23911269	1,99E+09
	S.E. equation	8094,090	2784,578	15325,73	10511,30	15210,88	26511,84	6500,353	7023,517	793,2490	7242,120
	F-statistic	549,7894	14,88889	4048,511	404,6485	2456,273	2730,141	238,3725	319,9130	1164,297	36,99146
	Log likelihood	-6.016.733	-5.387.181	-6.393.388	-6.170.910	-6.388.950	-6.716.743	-5.887.359	-5.933.030	-4.646.309	-5.951.113
	Akaike AIC	21,10757	18,97349	22,38437	21,63020	22,36932	23,48048	20,66901	20,82383	16,46206	20,88513
	Schwarz SC	21,84703	19,71296	23,12383	22,36967	23,10878	24,21995	21,40848	21,56329	17,20153	21,62459
	Mean dependent	137124,7	17997,62	686219,3	160864,5	682486,3	1162926,	79027,46	156317,4	22276,28	78338,48
	S.D. dependent	111639,1	6699,946	572758,7	124455,4	442854,9	813737,8	59168,42	73987,35	15907,30	26521,24

Appendix 2.

Funds Borrowed = 1.18* Funds Borrowed (-1) - 0.76* Funds Borrowed (-2) - 1.38* Financial assets held for trading (-1) + 0.05* Financial assets held for trading (-2) + 0.32* Loans (-1) - 0.13* Loans (-2) - 0.15* Liquid Assets (-1) - 0.21* Liquid Assets (-2) + 0.33* Deposits (-1) - 0.36* Deposits (-2) - 0.36* Liabilities (-1) + 0.38* Liabilities (-2) + 0.50* Money Market Takings (-1) - 0.23* Money Market Takings (-2) - 0.258* Financial Assets Available for Sale (-1) + 0.03* Financial Assets Available for Sale (-2) + 2.74* Loans under follow-up (-1) - 1.65* Loans under follow-up (-2) - 0.55* Investments held to Maturity (-1) + 0.31* Investments held to Maturity (-2) + 52350.94

Financial assets held for trading = 0.32* Funds Borrowed (-1) - 0.36* Funds Borrowed (-2) + 0.12* Financial assets held for trading (-1) + 0.23* Financial assets held for trading (-2) + 0.12* Loans (-1) + 0.027* Loans (-2) + 0.02* Liquid Assets (-1) - 0.15* Liquid Assets (-2) + 0.10* Deposits (-1) - 0.14* Deposits (-2) - 0.224* Liabilities (-1) + 0.15* Liabilities (-2) + 0.28* Money Market Takings (-1) - 0.10* Money Market Takings (-2) - 0.05* Financial Assets Available for Sale (-1) + 0.03* Financial Assets Available for Sale (-2) + 0.12* Loans under follow-up (-1) + 0.63* Loans under follow-up (-2) - 0.12* Investments held to Maturity (-1) + 0.15* Investments held to Maturity (-2) + 25945.13

Loans = - 0.10* Funds Borrowed (-1) - 0.71* Funds Borrowed (-2) – 1.00* Financial assets held for trading (-1) + 0.13* Financial assets held for trading (-2) + 2.3* Loans (-1) - 0.84* Loans (-2) + 0.12* Liquid Assets (-1) - 0.400* Liquid Assets (-2) - 0.50* Deposits (-1) - 0.29* Deposits (-2) - 0.46* Liabilities (-1) + 0.70* Liabilities (-2) + 0.24* Money Market Takings (-1) - 0.62* Money Market Takings (-2) + 0.20* Financial Assets Available for Sale (-1) + 0.26* Financial Assets Available for Sale (-2) + 7.74* Loans under follow-up (-1) - 4.33* Loans under follow-up (-2) - 0.18* Investments held to Maturity (-1) + 0.32* Investments held to Maturity (-2) + 51894.28

Liquid Assets = 0.33* Funds Borrowed (-1) - 0.58* Funds Borrowed (-2) - 0.70* Financial assets held for trading (-1) + 0.18* Financial assets held for trading (-2) + 0.81* Loans (-1) - 0.28* Loans (-2) + 0.81* Liquid Assets (-1) - 0.26* Liquid Assets (-2) - 0.76* Deposits (-1) + 0.27* Deposits (-2) - 0.17* Liabilities (-1) + 0.16* Liabilities (-2) - 0.13* Money Market Takings (-1) - 0.12* Money Market Takings (-2) + 0.09* Financial Assets Available for Sale (-1) + 0.24* Financial Assets Available for Sale (-2) + 2.51* Loans under follow-up (-1) - 2.36* Loans

under follow-up (-2) + 0.22* Investments held to Maturity (-1) + 0.21* Investments held to Maturity (-2) + 47913.10

Deposits = 0.01* Funds Borrowed (-1) - 0.29* Funds Borrowed (-2) - 1.46* Financial assets held for trading (-1) + 0.82* Financial assets held for trading (-2) + 1.74* Loans (-1) - 0.99* Loans (-2) - 0.19* Liquid Assets (-1) - 0.08* Liquid Assets (-2) + 0.24* Deposits (-1) - 0.33* Deposits (-2) - 0.6* Liabilities (-1) + 0.60* Liabilities (-2) + 0.47* Money Market Takings (-1) - 0.52* Money Market Takings (-2) + 0.24* Financial Assets Available for Sale (-1) + 0.59* Financial Assets Available for Sale (-2) + 13.02* Loans under follow-up (-1) - 9.13* Loans under follow-up (-2) + 0.29* Investments held to Maturity (-1) + 0.40* Investments held to Maturity (-2) + 77090.48

Liabilities = 0.80* Funds Borrowed (-1) - 2.17* Funds Borrowed (-2) - 2.12* Financial assets held for trading (-1) + 0.47* Financial assets held for trading (-2) + 2.91* Loans (-1) - 1.51* Loans (-2) + 0.27* Liquid Assets (-1) - 0.80* Liquid Assets (-2) - 0.64* Deposits (-1) - 0.61* Deposits (-2) - 0.72* Liabilities (-1) + 1.58* Liabilities (-2) + 0.76* Money Market Takings (-1) - 1.28* Money Market Takings (-2) + 0.17* Financial Assets Available for Sale (-1) + 0.61* Financial Assets Available for Sale (-2) + 15.02* Loans under follow-up (-1) - 10.75* Loans under follow-up (-2) + 0.04* Investments held to Maturity (-1) + 0.94* Investments held to Maturity (-2) + 143339.39

Money Market Takings = 0.19* Funds Borrowed (-1) - 0.54* Funds Borrowed (-2) + 0.38* Financial assets held for trading (-1) - 0.41* Financial assets held for trading (-2) + 0.05* Loans (-1) - 0.24* Loans (-2) + 0.31* Liquid Assets (-1) - 0.13* Liquid Assets (-2) - 0.16* Deposits (-1) + 0.25* Deposits (-2) - 0.02* Liabilities (-1) + 0.24* Liabilities (-2) + 0.41* Money Market Takings (-1) - 0.32* Money Market Takings (-2) - 0.34* Financial Assets Available for Sale (-1) + 0.12* Financial Assets Available for Sale (-2) - 4.14* Loans under follow-up (-1) + 2.84* Loans under follow-up (-2) - 0.11* Investments held to Maturity (-1) + 0.13* Investments held to Maturity (-2) - 23677.74

Financial Assets Available for Sale = 0.00* Funds Borrowed (-1) - 0.04* Funds Borrowed (-2) + 1.30* Financial assets held for trading (-1) - 0.47* Financial assets held for trading (-2) + 0.24* Loans (-1) - 0.35* Loans (-2) + 0.48* Liquid Assets (-1) - 0.32* Liquid Assets (-2) - 0.17* Deposits (-1) - 0.26* Deposits (-2) - 0.21* Liabilities (-1) + 0.54* Liabilities (-2) - 0.34* Money Market Takings (-1) - 0.20* Money Market Takings (-2) + 1.21* Financial Assets Available for Sale (-1) - 0.11* Financial Assets Available for Sale (-2) + 1.06* Loans under follow-up (-1) - 1.87* Loans under follow-up (-2) + 0.39* Investments held to Maturity (-1) + 0.13* Investments held to Maturity (-2) - 35155.04

Loans under follow-up = 0.00* Funds Borrowed (-1) + 0.01* Funds Borrowed (-2) - 0.08* Financial assets held for trading (-1) - 0.08* Financial assets held for trading (-2) - 0.00* Loans (-1) - 0.00* Loans (-2) - 0.00* Liquid Assets (-1) - 0.00* Liquid Assets (-2) - 0.01* Deposits (-1) + 0.02* Deposits (-2) + 0.01* Liabilities (-1) - 0.01* Liabilities (-2) - 0.03* Money Market Takings (-1) + 0.05* Money Market Takings (-2) - 0.03* Financial Assets Available for Sale (-1) + 0.00* Financial Assets Available for Sale (-2) + 1.00* Loans under follow-up (-1) - 0.06*

Loans under follow-up (-2) + 0.00* Investments held to Maturity (-1) - 0.02* Investments held to Maturity (-2) + 3778.44

Investments held to Maturity = - 0.18* Funds Borrowed (-1) + 0.12* Funds Borrowed (-2) - 1.15* Financial assets held for trading (-1) + 0.06* Financial assets held for trading (-2) + 0.10* Loans (-1) - 0.18* Loans (-2) - 0.42* Liquid Assets (-1) + 0.32* Liquid Assets (-2) + 0.68* Deposits (-1) + 0.15* Deposits (-2) - 0.20* Liabilities (-1) - 0.16* Liabilities (-2) + 0.54* Money Market Takings (-1) + 0.07* Money Market Takings (-2) - 0.61* Financial Assets Available for Sale (-1) + 0.05* Financial Assets Available for Sale (-2) + 2.73* Loans under follow-up (-1) - 2.55* Loans under follow-up (-2) + 0.36* Investments held to Maturity (-1) - 0.04* Investments held to Maturity (-2) + 34529.53

Appendix 3a. Descriptive Statistic -1

	_ZKAYNAK	**AL_KREDI**	**AL_M_SAT_M**	**KREDILER**	**LIKIT_AKTIFLER**	**MEVDUAT**
Mean	135229.4	133250.3	18072.10	665546.1	156387.3	664769.1
Median	114544.4	78212.13	17441.92	438166.6	103976.6	560417.1
Maximum	345030.9	419846.6	42578.18	2059127.	439341.1	1713185.
Minimum	25698.65	15648.65	7403.525	52631.49	20002.13	137867.9
Std. Dev.	89861.41	111794.9	6600.738	574400.3	124796.0	446091.4
Skewness	0.682171	0.997573	1.235167	0.863905	0.727321	0.724512
Kurtosis	2.361548	2.778124	4.876182	2.566753	2.184895	2.446541
Jarque-Bera	5.767167	10.24249	24.45748	8.064777	7.066800	6.115213
Probability	0.055934	0.005969	0.000005	0.017732	0.029205	0.047000
Sum	8248994.	8128266.	1102398.	40598310	9539624.	40550915
Sum Sq. Dev.	4.85E+11	7.50E+11	2.61E+09	1.98E+13	9.34E+11	1.19E+13
Observations	61	61	61	61	61	61

Appendix 3b. Descriptive Statistic -2

	PASIF	**PP_BOR_**	**SAT_HAZ_R**	**TAKIP**	**VADEYE_KADAR**
Mean	1131894.	76779.49	151838.2	21872.54	77375.42
Median	870150.5	56688.53	170277.4	17826.07	81984.50
Maximum	3095039.	210053.5	269088.6	60597.13	129962.3
Minimum	211660.8	9053.136	17668.81	5886.701	42479.01
Std. Dev.	817911.9	59462.85	76769.17	15795.68	26604.66
Skewness	0.783191	0.513645	-0.237845	1.097904	0.233889
Kurtosis	2.459177	1.908684	1.716446	3.121886	1.768584
Jarque-Bera	6.979525	5.709338	4.762552	12.29259	4.410301
Probability	0.030508	0.057575	0.092433	0.002141	0.110234
Sum	69045516	4683549.	9262132.	1334225.	4719900.
Sum Sq. Dev.	4.01E+13	2.12E+11	3.54E+11	1.50E+10	4.25E+10
Observations	61	61	61	61	61