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RELATIONSHIP BETWEEN FINANCIAL RISK AND BUSINESS RISK WİTH FIRM VALUES IN THE LOGISTICS INDUSTRY: AN ANALYSIS ON BRICS-T COUNTRIES

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ABSTRACT

Purpose of this research is to statistically measure the effects of financial risk and business risk on Firm values of logistics companies from Turkey, Brazil, Russia, India, China and South Africa (BRICS-T countries), that are listed on the Stock Exchange. This study was conducted in the light of previous research from the years between 2011 and 2014. For this reason a sample was created using by extracting data from the balance sheets and income statements of altogether 30 different companies and a multiple regression analysis was performed on them. At the end of the research, when a comparison was made with logistics companies in Turkey to the companies from the other BRICS-T countries that are in the logistics industry, similarities were found with companies from China and India. While business risk made an impact on Firm values in countries like Turkey, China and India, it was found that financial risk affected Firm value in Russia, Brazil and South Africa.

Key Words: *Logistics Industry, Financial risk, Business Risk, Firm Value*

LOJİSTİK SEKTÖRÜNDE FİNANSAL VE İŞ RİSKİ İLE FİRMA DEĞERİ ARASINDAKİ İLİŞKİ: BRICS – T ÜLKELERİ ÜZERİNE BİR ANALİZ

ÖZET

Bu araştırmanın amacı; Türkiye, Brezilya, Rusya, Hindistan, Çin ve Güney Afrika (BRICS – T) ülkelerinde borsaya kayıtlı lojistik sektöründe faaliyet gösteren firmaların Finansal Risk ve İş Riskinin Firma Değeri üzerindeki etkisini 2011-2014 yılları arasında literatürdeki diğer araştırmaların ışığında istatistiksel olarak ölçmektir. Bu amaçla 30 firmanın 4 yıllık bilanço ve gelir tablosundan veriler alınarak örneklem oluşturulmuş ve

her ülkeyi ayrı ayrı değerlendirebilmek için çoklu regresyon analizi yapılmıştır. Araştırma sonunda ülkemizi diğer ülkeler ile kıyaslama yaptığımızda Çin ve Hindistan lojistik sektöründe faaliyet gösteren firmalar ile benzer sonuçlara rastlanmıştır. Türkiye, Çin ve Hindistan için iş riski firma değerine etki yaparken, Rusya, Brezilya ve Güney Afrika ülkelerinde ise finansal riskin firma değerini etkilediği sonucuna ulaşılmıştır.

Anahtar kelimeler: *Lojistik Endüstrisi, Finansal Risk, İş Riski, Firma Değeri*

1. Introduction

Logistics industry carries the most importance for a country by providing them with a competitive power in foreign trade. Besides providing this power logistics industry also greatly effects the country's development. In today's global World even the small scale companies are observed to be involved in import and export activities. Procurement and supply activities now covers a wider geographical area worldwide while split deliveries are being used more frequently in orders. As a natural result of these changes, all the manufacturers, sevice providers and consumers across the country desires to perform transport, storage and other necessary logistics operations, that are in accordance to their own trading schemes, effectively (TÜSİAD,2012:12-15). When looking at the countries that are leading both the transportation and logistics industries, it could be seen that they have generally constructed their logistics infrastructures to provide them with a competitive advantage against other companies found within the same market as well as to eliminate all the risk factors. There has been an increase in various risk types parallel to the growing economies of the BRICS – T countries (Brazil, Russia, India, China, South Africa – Turkey) and due to all these developments taking place around the World, the importance and economic size of the logistics industry is also at a constant growth.

Financial risk and business risk are probably the most common ones among these risk types. Although there has been an increase in the number of studies regarding these two risk types in the recent years, there is limited information about their effects on the companies performing in the logistics industry of the countries that are in question (BRICS – T). For this reason, companies performing within the logistics industry were chosen to be researched in this study. With this study, previous research from the years between 2011 and 2014 were used for the purpose of statistically measuring the the effects of financial risk and business risk on the values of logistics companies located in Turkey, Brazil, Russia, India, China and South Africa (BRICS-T countries), and that are listed on the Stock Exchange. For this reason a sample was created using by extracting data from the balance sheets and income statements of altogether 30 different companies and a multiple regression analysis was performed on them.

2. Financial Risk, Business Risk and Firm Value

2.1. Financial Risk

In 1958 Franco Modigliani and Merton Miller stated in their research that in an efficient market, under the assumptions that there are no taxation, insolvency costs or asymmetical information, a Firm's value is independent of its capital structure. In other words, no matter at what level a Firm's financial leverage is, its capital costs will not change. But, in following studies, with the help of other researchers, it was statistically proved that there aactually is a relationship between capital structure and Firm value. Therefore, in this context, Net Income Approach as a capital structure theory and one of

the basic theories in finance, is found to neglect the issue of the increase in financial risk caused by the increasing debt usage, which causes an increase in the cost of debt, which then at last leads to expectations of a higher return by its equity owners on their investments (Mukherjee & Mahakud,2012:41-55).

Another theory is the theory of financial distress and bankruptcy costs. According to this theory, a Firm's assets can be sold below its value if there is a financial crisis situation. Both the partners of the Firm and its creditors can suffer from this situation (Weiying & Boafeng,2008:7). Froster (1966:429-442), concluded in her studies that when a Firm's debt (leverage) ratio increases, its payment obligations will increase accordingly, which can then lead that particular Firm into bankruptcy.

The last theory relating to the topic is the Signalling Theory. Signalling Theory states that a Firm's debt gives out signals regarding its success to investors. It gives signals to its investors that the Firm will go into a financial distress and its executives will not further go to extreme debt usage when the Debt (leverage) ratio increases (Harris & Raviv,1991:297-355).

Debt (leverage) ratio, which constitutes a financial risk for the Firm and effects the Firm's value, will be used in this study to represent the financial risk. In other words, this debt (leverage) ratio was used as a measure for financial risk of companies performing in the logistics industries of the BRICS-T countries. Details of the studies where debt (leverage) ratio was used as a financial risk variable can be found in the following sections.

2.2. Business Risk

Business risk can be defined as the change in the earnings before interest and tax of a Firm (Weiying & Boafeng,2008:15). In literature business risk is linked to many factors. Some of these factors are;

a) Risks arising from business information systems: In recent years, companies started focusing more on the topic of technology and started to set up the necessary systems within their structures as they all need to keep up with the competition, increase product offerings, and provide customers with faster and easier service. But companies can also suffer from the disruptions in these systems. Examples of these disruptions can be bad codes, inefficiencies in the backup system or breakups in the communication channels. Especially companies who provide their services over the Internet or have many different software and operating systems within their structures have higher chance of facing these types of risks. Disruptions within these systems can lead to failures in other parts of the Firm and can cause substantial changes in the Firm income (http://www.bilisimdergisi.org/s145/).

b) Business risks associated with processes: These are business risks that arise within a Firm if there are lack of policy and procedures regarding its processes, if there are development of incomplete controls or even if in a situation where there are correctly developed controls but are wrongfully applied. These disruptions which are experienced during processes can change the amount and cost of sales and can then result in an increase in the uncertainty of income (Minton & Schrand,1999:423-460).

c) Product Variability: Weiying and Buafeng, in their study, in 2008, stated that the variability in a Firm's product offerings means that the Firm is developing new products and this is causing the business risk to decrease with it.

Shin and Stulz, in a study conducted in (2000:8), concluded that the cash flow uncertainty is causing an increase in a Firm's business risk. In addition, in a study conducted by Allayannis in (2003:243-273) showed that there is a negative relationship between Firm earnings and cash flow uncertainty. According to the study, if a Firm's cash flow uncertainty increases, it causes the business risk to increase.

3. Lıiterature Review

When finance and business risk comes together it increases the Firm's profit loss and as a result causes a drop in its value. For this reason, risk management within companies should be designed to eliminate both the finance risk and the business risk for the purpose of Firm value. When looking back at previous studies it can be seen that there is only a limited number of research conducted in this area and when these are analysed it shows that risk management was also used to maximize Firm value in these papers and strategies were developed to prove this change in value.

Tobin's Q ratio was used as the Firm value variable in a study conducted by Allayannis and Weston in (2001:243-276). As independent variables; Firm size, cash flows to the Firm (showing business risk), leverage ratio (showing financial risk), profitability and size of investments were used. The study was performed using financial data between the years 1990-1995 of 720 companies that are operating in the United States and are not financial. The method used was a multiple regression analysis. The results showed that there is negative correlation between Firm value and business risk and a positive correlation between financial risk and Firm value. No relationship was observed with the other variables.

The relationship between optimal debt level and business risk of companies that have traded on the CRSP (Center for Research in Security Prices) between the years 1984-85 were investigated in the study conducted by Kale et al. (1991:1693-1715). İn this particular study, Ordinary Least Squares Method (OLS) was used and in the end it was concluded that there were few factors which caused an increase in the risk of bankruptcy. These identified factors were; the existence of debt and the uncertain flows of cash which can also be said as the existence of business risk.

Smithson and Simkins (2005:17) in their study had collected previous research and came up with 4 important questions. This study is concerned with two of these four questions: Does cash flow variability affect Firm value? and Is there a relationship between risk management and Firm value? Smithson and Simkins have expressed in their work that Tobin's Q ratio was used 9 out of 10 studies as the Firm value variable. Also, financial risk was represented by debt in these studies.

Minton ve Schrand (1999:423-460) have used 1000 real sector companies which are operating in America. Data from the years between 1988-1995 was collected from these companies using the COMPUSTANT database. Multiple regression analysis was conducted on the collected data. In the results of Minton ve Schrand's study, companies with high rate of variability in their cash flows was showed to have lower capital expenditures, research and development costs and advertising expenditures. Also, an

existence of a posititive relationship between debt costs and Firm value was concluded in the study.

4. Research

4.1 Purpose and Importance of the Study

Purpose of this research is to statistically measure the effects of financial risk and business risk on Firm values of logistics companies from Turkey, Brazil, Russia, India, China and South Africa (BRICS-T countries), that are listed on the Stock Exchange. This study was conducted in the light of previous research from the years between 2011 and 2014. Literature review on the topic has demonstrated that there is insufficient number of studies involving companies that are operating in the logistics industry, therefore, making this particular study more important. Data that is used in the study was obtained from the balane sheets and income statements of companies located within the BRICS-T countries' stock exchanges. Transportation, handling and storage indexes within the stock market was focused on for Firm selection. A detailed explanation of the data extraction and analysis can be found in the following sections of the study. Research method as well as the dependent and independent variables that are used are explained in detail in the light of similar studies that were identified in the literature review.

4.2 Research Data

In the study, financial data obtained from balance sheet and income statements of companies within the transportation, handling and storage indexes of BRICS-T countries' stock exchanges were benefitted from. Data in question were taken from balance sheets and income statements belonging to years from 2011 to 2014 and were obtained from the www.BİST.gov.tr and www.invesment.com Internet sites. It inclused 30 companies performing in the logistics industry of the BRICS-T countries. Size of the balance sheets were one of the main criteria for Firm selection. Companies that are included in this study can be seen in Table 1.

Table 1: BRICS – T Countries and Logistics Companies

COUNTRY	1	2	3	4	4
BRAZIL	COSAN LOGISTIC	JSL LOGISTIC	LOGIN LOGISTIC	SKF TRANSPORT	DC LOGISTIC BRZ.
RUSSIA	AK TRANSPORT	AEROFLOT TRANSPORT	NOVOROSS TRANSPORT	AEROPLAN LOGISTIC	PRO LOGISTIC
INDIA	ALL CARGO	ASHOK LEYAND MARINE	ESSAR SEAPORT	VRL LOGISTIC	TRANSPORT COMP.
CHINA	CHN. COSCO LOGISTIC	EAST AIR SS	CHN. SHIPPING	CTS LOGISTIC	JINZHOU PORT
SOUTH AFRICA	SANTOVA LOG.	VLUE GROUP	TRANSPACA COM.	LETABA LOGISTIC	INKOSI MARINE
TURKEY	CELEBI HAVA.	GSD DENİZCİLİK	PGSUS HAVA YOL.	REYSAŞ LOJİSTİK	THY A.O.

Source : http://www.globallogisticsnet.com/

Tobin's Q value is used as the dependent variable in this study. However, due to different calculations of Tobin's Q found in literature, it will be briefly explained. This ratio was first put forward by Tobin in the year 1969 bearing his own name and became a widely used performance criterion. Tobin' Q ratio is calculated by dividing the total market value of a Firm to its replacement costs (Canbaş, at al,2005:24-36). In other studies, approximate ratio was calculated as it is easier to calculate and easier to access financial data of companies. Therefore, approximation of Tobin's Q ratio was used in this study. Many studies point out that Tobin's Q ratio is widely accepted as a Firm performance measure. McConnel and Servaes (1990: , 595-612), Morck, Shleifer and Vishny (1988: 293-315), Weiying and Baofeng (2008:7); all used Tonin's Q ratio as Firm value indicator. Approximation of Tobin's Q ratio calculation can be expressed with the following formula (Koçyiğit,2009:179-189).

$$Approximate\ Q = \frac{Market\ Value + Total\ Debt}{Total\ Assets}$$

In this formula each item refers to;

Market Value (MV): is the market price of the Firm's shares multiplied by the number of shares,

Total Debt (TD): Firm's long and short term debts,

Total Assets (TA): Firm's total assets.

Besides the dependent variable Tobin's Q, all the other variables are treated as independent variables in this study. Information regarding the independent variables can be seen in Table 2.

Table 2: Dependent and Independent Variables Used in the Study.

	VARIABLES	**FORMULA**	**LITERATURE**
DEPENDENT VARIABLE	*TOBIN'S Q (A)*	(MV + TD)/ TA	Weiying and Boafeng (2008), Lindenberg and Ross (1981), Lewellen and Badrinath (1997), McConnel and Servaes (1990), Canbaş et al. (2005),Koçyiğit (2008), McConnel and Servaes (1990), Morck et al. (1988);
INDEPENDENT VARIABLE	*ROE (X1)*	Net Profit/ Equity	Jensen (1986), Williamson (1988), Chang (1999), Weiying and Boafeng (2008)
	Income Growth Rate (IGR) (X2)	$(M_2 - M_1)/M_1$	Weiying and Boafeng (2008), Hall et al. (2004)
	Leverage (X3)	Total Debt / Equity	Harris and Raviv (1990), Narayanan (1988), Noe (1988), Poitevin (1989), Stulz (1990),
	LAssets (X4)	$\text{Log}_e\ ASSETS$	Friend and Lang (1988), Titman and Wessels (1988), Kester (1986), Long and Maltiz (1985), Wald (1999),

4.3 Research Method

As known, it is not possible to explain any dependent variable with a single independent variable in the area of finance and from a macro perspective, business in general. For this reason, simple regression analysis cannot be used in situations where more than one variable needs to be used. When there are more than one variable, like in this case, the regression model that needs to be applied is called the "multiple regression analysis". Model fort he multiple regression analysis can be shown as:

$$\boldsymbol{TobinQ_{it} = \alpha_i + \beta_{i1} ROE_i + \beta_{i2} IGR_i + \beta_{i3} LEV_i + \beta_{i4} LAssets_i + \varepsilon_i}$$

Where;

Tobin Q_{it} *= Tobin's Q ratio of Firm i at time t,*

ROE_{it} *= Return on Equity of Firm i at time t,*

IGR_{it} *= Income growth rate of Firm i at time t,*

LEV_{it} = Leverage *of Firm i at time t,*

$LAssets_{it}$ *= Natural Logarithm of Assets of Firm i at time t,*

β_{it1-} *= Estimated Beta coefficients of variables of Firm i at time t, and*

ε_{it} *= Error term of Firm i at time t.*

4.4 Research Limitations

This study, in its sample, involves 30 logistics companies whose names have been given in the previous sections. The most important limitation that comes with this type of sample is that the companies in question have joint balance sheets which only cover a small period of time. Another constraint of the study is that data could not be reached every quarter. Because of these constraints, in order to minimize possible losses, data obtained from balance sheets and income statements from years between and including 2011 and 2014, where data from all companies could be accessed at the same time, were used in the analysis

4.5 Results

A. Correlation Tables

Following tables show the Pearson Correlations between firm variables.

Table 3: Pearson Correlations of Turkish Companies

		Y	X2	X3	X4	X5
TOBIN'S Q (Y)	Pearson Correlation (2 - Tailed)	**1**				
ROE (X1)	Pearson Correlation (2 - Tailed)	-,243	**1**			
Income Growth Rate (IGR) (X2)	Pearson Correlation (2 - Tailed)	,807**	-,001	**1**		

Leverage(X3)	Pearson Correlation (2 - Tailed)	,548*	,004	,722**	**1**	
LAssets (X4)	Pearson Correlation (2 - Tailed)	-,116	-,148	-,465	-,192	**1**

It could be seen from the results that the correlation between IGR (X3) variable and the value of a Firm is at 0,807 level. It means that there is a relationship between the two variables at a level of 0,807. Leverage (X3) variable and Firm value have a relationship between them at a level of 0,548.

Table 4: Pearson Correlations of Chinese Companies

		Y	**X2**	**X3**	**X4**	**X5**
TOBIN'S Q (Y)	Pearson Correlation (2 - Tailed)	1				
ROE (X1)	Pearson Correlation (2 - Tailed)	,409*	1			
Income Growth Rate (IGR) (X2)	Pearson Correlation (2 - Tailed)	,695**	,406*	1		
Leverage(X3)	Pearson Correlation (2 - Tailed)	-,061	-,263	-,027	1	
LAssets (X4)	Pearson Correlation (2 - Tailed)	,084	-,171	,072	,117	1

When analyzing the Chinese logistics companies' correlation table, it could be seen that the relationship level between profitability (ROE) and Firm value is at 0,409 level and at 0,695 level between Income Growth Rate and profitability.

Table 5: Pearson Correlations of Indian Companies

		Y	**X2**	**X3**	**X4**	**X5**
TOBIN'S Q (Y)	Pearson Correlation (2 - Tailed)	1				
ROE (X1)	Pearson Correlation (2 - Tailed)	-,107	1			
Income Growth Rate (IGR) (X2)	Pearson Correlation (2 - Tailed)	,964**	-,151	1		
Leverage(X3)	Pearson Correlation (2 - Tailed)	-,130	-,815**	-,059	1	
LAssets (X4)	Pearson Correlation (2 - Tailed)	-,279	,122	-,337	,134	1

When analyzing the Indian logistics companies' correlation table, it could be seen that there is a relationship between IGR variable and Firm value at a level of 0,964. Also, a relationship level of 0,815 was found between leverage and IGR variables.

Table 6: Pearson Correlations of Russian Companies

	Y	**X2**	**X3**	**X4**	**X5**

TOBIN'S Q (Y)	Pearson Correlation (2 - Tailed)	1				
ROE (X1)	Pearson Correlation (2 - Tailed)	,063	1			
Income Growth Rate (IGR) (X2)	Pearson Correlation (2 - Tailed)	-,119	-,216	1		
Leverage(X3)	Pearson Correlation (2 - Tailed)	,218	,294	-,509	1	
LAssets (X4)	Pearson Correlation (2 - Tailed)	,564**	-,119	-,065	,387	1

When analyzing the Russian companies' correlation table, it could be seen that there is a relationship at a level of 0,564 between Firm size (LAssets) and Firm value.

Table 7: Pearson Correlations of Brazilian Companies

		Y	X2	X3	X4	X5
TOBIN'S Q (Y)	Pearson Correlation (2 - Tailed)	1				
ROE (X1)	Pearson Correlation (2 - Tailed)	-,059	1			
Income Growth Rate (IGR) (X2)	Pearson Correlation (2 - Tailed)	-,002	,782**	1		
Leverage(X3)	Pearson Correlation (2 - Tailed)	,386	,430	,309	1	
LAssets (X4)	Pearson Correlation (2 - Tailed)	,714**	,254	,111	,350	1

When analyzing the Brazilian companies' correlation table, it could be seen that there is a relationship at a level of 0,782 between IGR and Firm value. Also, a relationship at a level of 0,714 exists between LAssets and IGR.

Table 8: Pearson Correlations of South African Companies

		Y	X2	X3	X4	X5
TOBIN'S Q (Y)	Pearson Correlation (2 - Tailed)	1				
ROE (X1)	Pearson Correlation (2 - Tailed)	-,975**	1			
Income Growth Rate (IGR) (X2)	Pearson Correlation (2 - Tailed)	,157	-,243	1		
Leverage(X3)	Pearson Correlation (2 - Tailed)	,765**	-,706*	-,034	1	
LAssets (X4)	Pearson Correlation (2 - Tailed)	-,750**	,828**	-,221	-,346	1

When analyzing the South African companies' correlation table, it could be seen that there is a relationship at a level of 0,750, 0,765 and 0,975 respectively between Firm value and variables Leverage, LAssets and ROE.

B. Multiple Regression Analysis

Table 9: Regression Analysis Summary Table of Turkish Companies

Variables	Beta	t	Sig.	R	Adj. R^2	F	Sig.F	Durbin-Watson
1. Regression Model								
Constant	,815	11,497	,000					
ROE (X1)	-,437	-1,914	,082					
Income Growth Rate (IGR) (X2)	**,848**	**3,661**	**,000**					
Leverage (X3)	-,043	-,197	,848					
LAssets(X4)	,206	,923	,376					
				,746	**,432**	**3,857**	**,000[a]**	**1,855**
$\boldsymbol{TobinQ_{it}} = 0{,}815 - 0{,}437_{i1}\mathrm{ROE_i} + \mathbf{0,848_{i2}IGR_i} - 0{,}043_{i3}\mathrm{LEV_i} + 0{,}206_{i4}\mathrm{LAssets_i} + \varepsilon_i$								

From the results of the regression analysis, it can be seen that the rate independent variables explain the changes that takes place in the dependent variable is 43% *(Adj.R^2).* Autocorrelation is the existence of a relationship between the successive values of the error term in the multiple regression analysis. In this case, as an assumption of the linear regression model there should not be any relationship between the error terms. Durbin Watson test statistics, on the other hand, shows if there is any correlation between the residual terms after the regression model is estimated. In other words, it tests the residuals from a regression model to show that they are not autocorrelated. This test score is around the value of 2 and it means that there is no autocorrelation. Also, F (probability) value was found to be 0,00 and because it is below the 5% mark, it shows that the model established is significant. Due to F value being 3,857 which is outside the (+1,96), (– 1,96) values, it satisfies this condition, therefore the model is significant. It is seen from the results that the independent variable Income Growth Ratio (IGR) significantly affects the dependent variable, which is Firm's Tobin's Q ratio. This affect is statistically in a positive direction with β_{IGR}= 0,848. Results also showed that, all of the independent variables other than the Income Growth Rate, did not have any significant affect on the dependent variable Tobin's Q ratio.

Table 10: Regression Analysis Summary Table of Chinese Companies

Variables	Beta	t	Sig.	R	Adj. R^2	F	Sig.F	Durbin-Watson
2. Regression Model								
Constant	-,030	-,146	,885					
ROE (X1)	,166	,887	,386					
Income Growth Rate (IGR) (X2)	**- ,622**	**3,472**	**,000**					
Leverage (X3)	**-,509**	**-,051**	**,003**					
LAssets(X4)	,068	,413	,684					

				,712	**,402**	**4,873**	**,000[a]**	**1,905**
$\boldsymbol{TobinQ_{it}} = -0{,}03 + 0{,}166_{i1}\mathrm{ROE_i} + \mathbf{0{,}622_{i2}}\boldsymbol{IGR_i} - \mathbf{0{,}509_{i3}}\mathbf{LEV_i} + 0{,}068_{i4}\mathrm{LAssets_i} + \varepsilon_i$								

From the results of the regression analysis, it can be seen that the rate independent variables explain the changes that takes place in the dependent variable is 40% *(Adj.R^2).* Durbin-Watson score is close to the value 2, which points out that there is no autocorrelation. Same as the results from the regression table of Turkish companies, the F (probability) value was found to be 0,00 and because it is below the 5% benchmark, the model can be said to be significant. F value is 4,873 and falls outside the (+1,96), (– 1,96) values of the 2-tailed test, therefore the model is significant. Independent variables Income Growth Rate (IGR) and Leverage significantly affects the dependent variable Tobin's Q ratio. From these variables, while IGR independent variable affects the dependent variable Tobin's Q ratio in a positive direction, β_{IGR}= 0,622; leverage independent variable affects it in a negative direction, $\beta_{Leverage}$= -0,509. Results also showed that, all of the other independent variables did not have any significant affect on the dependent variable Tobin's Q ratio.

Table 11: Regression Analysis Summary Table of Indian Companies

Variables	**Beta**	**t**	**Sig.**	**R**	**Adj. R^2**	**F**	**Sig.F**	**Durbin-Watson**
3. Regression Model								
Constant	,240	3,799	,002					
ROE (X1)	-,123	-1,024	,322					
Income Growth Rate (IGR) (X2)	**,964**	**14,245**	**,000**					
Leverage (X3)	-,185	-1,551	,142					
LAssets(X4)	,086	1,224	,240					
				,971	**,421**	**6,873**	**,000[a]**	**1,802**
$\boldsymbol{TobinQ_{it}} = 0{,}240 - 0{,}123\mathrm{ROE_i} + \mathbf{0{,}964_{i2}}\mathbf{IGR_i} - 0{,}185_{i3}\mathrm{LEV_i} + 0{,}086_{i4}\mathrm{LAssets_i} + \varepsilon_i$								

From the results of the regression analysis, it can be seen that the rate independent variables explain the changes that takes place in the dependent variable is 42% *(Adj.R^2).* Durbin-Watson score is close to the value 2, which points out that there is no autocorrelation. The F (probability) value is again 0,000, which is the same as previous sections and refers to the model being significant. F value is 6,873 and falls outside the (+1,96), (– 1,96) values of the 2-tailed test, therefore the model is said to be significant. It is seen from the results that the independent variable Income Growth Ratio (IGR) significantly affects the dependent variable, which is Firm's Tobin's Q ratio. This affect is statistically in a positive direction with β_{IGR}= 0,964. Results also showed that, all of the independent variables other than the Income Growth Rate, did not have any significant affect on the dependent variable Tobin's Q ratio.

Table 12: Regression Analysis Summary Table of Russian Companies

Variables	Beta	t	Sig.	R	Adj. R^2	F	Sig.F	Durbin-Watson
4. Regression Model								
Constant	,040	1,716	,130					
ROE (X1)	-,063	-,161	,876					
Income Growth Rate (IGR) (X2)	,029	,068	,948					
Leverage (X3)	**-,748**	**6,724**	**,000**					
LAssets(X4)	-,252	-,618	,556					
				,933	**,420**	**3,865**	**,000[a]**	**1,856**
$\boldsymbol{TobinQ_{it}} = 0{,}040 - 0{,}063\mathrm{ROE_i} + 0{,}29_{i2}\mathrm{IGR_i} - \mathbf{0{,}748_{i3}LEV_i} - 0{,}252_{i4}\mathrm{LAssets_i} + \varepsilon_i$								

From the results of the regression analysis, it can be seen that the rate independent variables explain the changes that takes place in the dependent variable is 42% *(Adj.R^2).* Durbin-Watson score is close to the value 2, which points out that there is no autocorrelation. The F (probability) value is again 0,000, which is the same as previous sections and refers to the model being significant. F value is 3,865 and falls outside the (+1,96), (– 1,96) values of the 2-tailed test, therefore the model is said to be significant. It is seen from the results that the independent variable Leverage (X3) significantly affects the dependent variable, which is Firm's Tobin's Q ratio. This affect is statistically in a positive direction with β_{LEV} = 0,748. Results also showed that, all of the independent variables other than Leverage, did not have any significant affect on the dependent variable Tobin's Q ratio.

Table 13: Regression Analysis Summary Table of Brazilian Companies

Variables	Beta	t	Sig.	R	Adj. R^2	F	Sig.F	Durbin-Watson
5. Regression Model								
Constant	0,213	4,085	,005					
ROE (X1)	-,606	-1,625	,148					
Income Growth Rate (IGR) (X2)	,298	,849	,424					
Leverage (X3)	,299	1,196	,271					
LAssets(X4)	**,730**	**3,103**	**,000**					
				,819	**,483**	**3,574**	**,000[a]**	**1,921**
$\boldsymbol{TobinQ_{it}} = 0{,}213 - 0{,}606\mathrm{ROE_i} + 0{,}298_{i2}\mathrm{IGR_i} + 0{,}299_{i3}\mathrm{LEV_i} + \mathbf{0{,}730_{i4}LAssets_i} + \varepsilon_i$								

From the results of the regression analysis, it can be seen that the rate independent variables explain the changes that takes place in the dependent variable is 48% *(Adj.R^2).* Durbin-Watson score is close to the value 2, which points out that there is no autocorrelation. The F (probability) value is again 0,000, which is the same as previous

sections and refers to the model being significant. F value is 3,574 and falls outside the (+1,96), (– 1,96) values of the 2-tailed test, therefore the model is said to be significant. It is seen from the results that the independent variable LAssets (X4) significantly affects the dependent variable, which is Firm's Tobin's Q ratio. This affect is statistically in a positive direction with $\beta_{LAssets}$ = 0,730. Results also showed that, all of the independent variables other than LAssets, did not have any significant affect on the dependent variable Tobin's Q ratio.

Table 14: Regression Analysis Summary Table of South African Companies

Variables	Beta	t	Sig.	R	Adj. R^2	F	Sig.F	Durbin-Watson
6. Regression Model								
Constant	,174	5,607	,001					
ROE (X1)	**-1,055**	**-5,072**	**,001**					
Income Growth Rate (IGR) (X2)	-,068	-,930	,383					
Leverage (X3)	,064	,512	,624					
LAssets(X4)	**,130**	**,867**	**,001**					
				,984	**,452**	**4,674**	**,000[a]**	**1,853**
$\boldsymbol{TobinQ}_{it} = 0{,}174 - \mathbf{1{,}055ROE_i} - 0{,}068_{i2}\mathrm{IGR_i} + 0{,}064_{i3}\mathrm{LEV_i} + \mathbf{0{,}130_{i4}LAssets_i} + \varepsilon_i$								

From the results of the regression analysis, it can be seen that the rate independent variables explain the changes that takes place in the dependent variable is 45% *(Adj.R^2).* Durbin-Watson score is close to the value 2, which points out that there is no autocorrelation. The F (probability) value is again 0,000, which is the same as previous sections and refers to the model being significant. F value is 4,674 and falls outside the (+1,96), (– 1,96) values of the 2-tailed test, therefore the model is said to be significant. It is seen from the results that the independent variable ROE (X1) significantly affects the dependent variable, which is Firm's Tobin's Q ratio. This affect is statistically in a negative direction with β_{ROE} = -1,055. Results also showed that, all of the independent variables other than ROE, did not have any significant affect on the dependent variable Tobin's Q ratio.

5. Conclusion and Evaluation

This study was conducted to show the relationship between the Firm value and the financial and business risks of the logistics companies performing within the BRICS-T countries. Data was obtained between the years 2011 and 2014 and from altogether 30 logistics companies listed on the Stock Exchange. After analyzing the results, it could be concluded that all of the countries within the sample came up with different results. These findings will be explained country by country.

Looking at Regression Analysis results shows that companies operating in the logistics industry in Turkey points to significant relationships between Income Growth Rate and Firm value. As this Income Growth Rate increases, business risk decreases which then means an increase in the Firm value. No relationship was found between the other variables and Firm value.

In the companies operating within the logistics industry in China, Income Growth Rate showed a positive relationship with the Firm value. Leverage as another independent variable this time showed a negative relationship with Firm value. This ratio represents the financial risk in this study. According to the regression analysis results, financial risk has a negative effect on the Firm value. As debt/equity ratio, which is also referred to as leverage, increases, the Firm value decreases. No relationship was found between the other variables and the Firm value.

When looking at the results of the regression analysis of the companies operating in the logistics industry in India, it can be seen that the results resembled the ones from the logistics companies in Turkey. There is a positive relationship between the Income Growth Rate and the Firm value. No relationship was found between the other variables and the Firm value.

However, the regression analysis results obtained for companies operating in the logistics industry in Russia it shows a situation much different than other countries. A negative relationship could be seen between Leverage independent variable and the Firm value. This negative relationship can be explained as; when the leverage ratio starts to increase, it causes a decrease in the Firm value. It can be a sign that companies in Russia gets affected by financial risk in a negative way.

Regression analysis results of companies operating in the logistics industry in Brazil shows that LAssets independent variable and Firm value has a positive relationship. According to research conducted in previous literature Firm size has a big impact on Firm value. These studies point out that in this type of situation, the bigger the firm is the more negative its impact will be on Firm value. Small scale companies were also found to have higher Firm values when compared to the larger scale companies (Weiying and Baofeng, 2008). But, in this study, results showed that in Brail as Firm size grew, the Firm value also increased. No relationship was found between the other variables and the Firm value.

Companies operating in South Africa have the lowest balance sheet values when compared to the other countries within the sample. These companies are also below the average Firm size. Regression analysis of these companies shows that ROE and Firm value has a negative relationship. It can be interpreted as, when profitting firms profits increase, their Firm values will start to decrease. On the other hand, Leverage independent variable and Firm value were found to have a negative relationship between them. This means, as leverage ratio increases, the Firm value will start to decrease. No relationship was found between the other variables and the Firm value.

At the end of the study when logistics companies from Turkey were compared to the ones from other countries, they seemed to have more similarities to the ones from China and India. It could be concluded from the findings that besides financial risk, business risk also affects value of companies. While business risk was found to have more of an effect on Firm values in Turkey, China and India, financial risk had an impact on Firm values in Russia, Brazil and South Africa. With more variables and data from balance sheets and income statements that cover longer periods, more practical and detailed results can be obtained. This way contributions to the developent of new ideas regarding risk can be made.

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