The Effects of the Illiquidity Premium on the Return of Securities and the Importance for Eurasia

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Abstract

This study investigates the illiquidity premium, which has major impacts on Eurasia Economics and its term structure. In this study, the effects of the term structure of the illiquidity premium on government and corporate bonds and "the return of securities – illiquidity premium – expectation theory relationship" are investigated through various parameters and formulations. Consequently, the study draws upon the study of Kempf, Korn and Uhrig-Homburg which is conducted in 2009 and aims to investigate relations between German public sector's bonds and private sector's bonds. It is found that illiquidity premium varies in short, medium and long terms depending upon different factors and the curve that connects illiquidity premiums with different terms is a U shaped curve. Studies that use traditional methods in asset pricing evaluate the illiquidity premium as a systematic risk criterion. However, illiquidity is a risk factor that should be investigated alone instead of being investigated together with all of the risk factors. Financial market makers aim to make arrangements that remove the problems arising from the level of liquidity, in other words increase the level of liquidity, and contribute to the formation of efficient price. Further studies in this field will be very important in the development process of corporate bonds market with the decrease of interest rates in international markets and the issue of new corporate bonds in developing countries recently.

Key Words: Eurasian Economy, Illiquidity, Illiquidity premia, the term structure of illiquidity premium

JEL classification: E43, G12, G10

1. Literature Review

The big economic leap taken by China, Turkey and the Turkic Republics requires the enterprises in these countries to think in detail about the issue of liquidity. Liquidity means the conversion of the assets into cash easily and with minimum cost when desired. Therefore, liquidity is a considerably important concept especially for the investors in the Eurasian countries as well as for all investors desiring to use liquidity savings in various investment vehicles. The concept of liquidity is significant in terms of country economies, however, the concept of liquidity and the concept of liquidity premium are used interchangeably quite often and the illiquidity premium is rarely used in the literature. Nonetheless the present study is especially significant with respect to the fact that it pays attentions to the concept of illiquidity within the frame of the Eurasian countries and includes the respective scientific discussion.

In Amihud (2000), it was concluded that the illiquidity premium negatively affects the share returns and in Dimkon and Hanke (2004), it was concluded that illiquidity affects the asset prices and the economy of countries by increasing the expected return. In the study conducted in Amihud and Mendelson (2006), it was concluded that liquidity helps explaining stock returns, that illiquidity decreases share prices, increases the expected return and plays an important role in explaining asset prices, and hence that the said facts directly affect the economy of countries, especially the developing ones (Kyrgyzstan, Azerbaijan, Turkmenistan etc.). A similar result is present in Khandani and Lo (2009) according to which there is a positive correlation between illiquidity and asset returns; and in the study titled "Liquidity Risk Premia in Corporate Bond Markets" and published in 2005, Jong and Driessen detected that liquidity risk can be significantly used for explaining asset prices and returns.

The factors that affect the prices and returns of financial assets are discussed in the part which follows the literature review; the concepts of liquidity, liquidity premium, illiquidity and illiquidity premium are discussed in the third part; the relationship between the securities return and illiquidity premium is examined in the fourth part; the relationship between the expectations theory, return curves and illiquidity premium is explained in the fifth part.

The last part of the study is devoted to the discussion of the methods used in measuring the illiquidity premium and the term structure of the illiquidity premium is explained with reference to the study conducted by Alexander Kempf, Olaf Korn and Marliese Uhrig-Homburg.

2. Conceptual Framework and Research Variables

2.1. Liquidity Risk

Liquidity is a considerably complex concept. In simple terms, liquidity is the buying and selling of a security easily (Amihud et al, 2005). When desired, a liquid asset can be quickly converted into cash with the minimum loss in the price at which the seller desires to sell, in the business hours of the market. The most important feature of the liquid markets is that the sellers and buyers are always present in the market. (Xavier and Timmermans, 2009). Liquidity risk requires a security to be easily sold at a value above or close to its real price. While liquidity risk is less important for an investor who is considering holding the bond s/he bought until the maturity date, for a person who desires to dispose of the bond without waiting until the maturity date, liquidity, that is liquidity risk, is important. Liquidity has a reasonably important affect on financial markets.

2.2. The Concept of Illiquidity Premium

Illiquidity premium is the opposite of liquidity and can arise due to the abrupt withdrawal of the buyers and sellers from a market which is liquid under normal circumstances or when investors are not able to complete an investment made in any security until the maturity date when a secondary market for the said security is absent (Timmermans and Xavier, 2009).

The primary factors leading to illiquidity are broker wages, transaction costs concerning the buying and selling orders, transaction taxes, demand insufficiency, investment risk and private information (Amihud et al, 2005). Investors, who invest in certain securities depending on the said reasons, will desire to compensate the risk in remuneration of enduring the factors stemming from liquidity. Therefore, they will desire to have an additional return, differently from the securities that do not pose such kind of risks. For this reason, the investors will consider the risk stemming from illiquidity as the discount factor in asset valuation.

2.3. The Liquidity Risk - Liquidity Premium - Illiquidity Premium Relationship

According to investors, liquidity risk is the body of systematic components including large-scale macroeconomic variables concerning market. Since risk is a relative concept, the degree of risk can vary depending on different factors and the measure of the risk stemming from liquidity can be expressed with the illiquidity premium (Emektar and Morris, 2010). Liquidity premium is a criterion of the price difference between liquid and illiquid assets which are similar to each other in terms of other circumstances except liquidity. In other words, while certain costs should be endured in order to sell an asset or an asset group, another asset can be converted into cash without enduring the cost of buying and selling or with an insignificant level of cost (Hibber, 2010).
Investors, who invent in illiquidity assets, need a higher return in order to hold these assets. Since liquidity is generally a desirable feature for investors in financial markets, investors want to have a higher return than the bonds the secondary market of which is not deep (Emektar and Morris, 2010). This desire to have a higher return is explained with the illiquidity premium.

Liquidity premium varies according to time and asset type. For, different assets have different liquidity levels (Hibber, 2010). Liquidity problem in markets positively affect the asset returns in due course. Whether the investment instruments are liquid or not affects their returns (Duarte and Young, 2007).

The return which transcends the risk free interest rate in investment instruments adds an additional risk to these assets. This risk premium, which represents overly return is named as illiquidity premium (Amihud et al, 2005).
Illiquidity premium is the difference between the returns of two assets all the features of which are similar except liquidity (Xavier and Timmermans, 2009). According to Amihud, shares are less liquid as compared to short-term treasury securities as well as being risky investment instruments. Despite the high risk posed by shares, the part that transcends the return of treasury securities has risk factors including also the return of illiquidity.

According to Brennan and Subrahmanyam, there is a positive relationship between illiquidity and return. They divided the measure of illiquidity into its permanent and temporary components and demonstrated that both components increase the return expected from financial assets (Kayalı and Ünal, 2010).

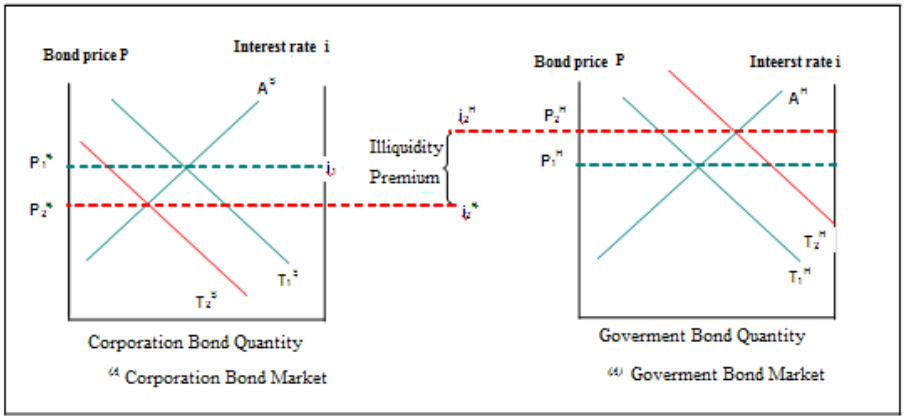

Figure 1: The Illiquidity Premium

Source: http://www3.dogus.edu.tr/amuslumov (05.03.2010).

A two-market economy is illustrated in Figure 1. The first market is the corporate bond market and the second market is the government bond market.

- Since the government bond market is wide and deep, the number of the buyers and sellers is high and thus the government bond market is more liquid.
- In this case, if the same balance interest rate is at stake (provided that other circumstances are same), those who demand bonds will be more interested in government bond market and thereby the bond demand curve T_1^H will slide to the right and the price of government bond will increase and the return (interest rate) of the government bond will decrease.
- Similarly, the demand for corporate bonds, the liquidity of which is relatively low, will decrease and the demand curve T_1^S will slide to the left, the price of the corporate bond will decrease and the return (interest rate) of the corporate bond will increase.
- The return difference that arises by the sliding of the demand curves is named as the illiquidity premium.

The liquidity premium and illiquidity premium are often used interchangeably; however, although closely related to each other, these concepts have different meanings. While the liquidity premium is a factor that affects asset prices in case the assets are liquid, the illiquidity premium expresses the return difference in case the illiquid assets provide higher return in comparison to the liquid assets (Novy-Marx, 2006). In other words, while the liquidity premium expresses the prices of assets with different levels, the return difference between the assets are explained with the illiquidity premium.

When examined with respect to Eurasian economies, it might be theoretically predicted that the countries, the main economic returns of which are petroleum and petroleum derivatives have liquidity abundance rather than illiquidity. However, this theoretical approach is not valid most of the time. It is observed that, especially in Middle Asian countries, the returns obtained from petroleum and petroleum derivatives are shared with government enterprises or with multinational corporations which show activity in partnership with big families. Thus, it is more appropriate to speak of illiquidity rather than liquidity abundance. In this situation, it is possible to argue that illiquidity premium is an asset factor for Asian companies.

3. The Relationship between Security Returns and the Illiquidity Premium in Eurasian Economies

Illiquidity premium gains importance if the assets, in which investment is made, are disposed of before the maturity date. For, if the investor waits until the maturity date, s/he knows the return to be obtained. If the assets are desired to be disposed of before the maturity date, the investor will have to sell the asset at a price lower than the expected price depending on whether the secondary market is shallow or not. It is not possible to definitely state the relationship between the security returns and illiquidity in Asian countries, especially Middle Asian countries, the secondary markets of which is not developed enough. Nonetheless, it will become easier to determine the relationship between the security returns and the illiquidity premium in the context of Asian economies if the export of securities based on petroleum and petroleum derivatives (government bonds, bills etc.) is accepted as a financial method. Moreover, the becoming widespread of derivative products strengthens the idea that the relationship assumed to exist between the security returns and illiquidity in Middle Asian economies will become true in a more concrete plane.

The probability that additional costs concerning the selling of the asset arise along with sales price might cause the decreasing of the amount of the cash to be obtained by the investor. Therefore, illiquidity constitutes pressure over the asset prices and increases the return expectation (Dimson and Hanke, 2004). The investors, who invest in illiquid assets, will desire to obtain a higher amount of return in consideration of the risk they run. Thus, while they determine the discount rate to be used in the valuation of the said assets, they should add the liquidity premium to the discount rate in the valuation of these illiquid assets (Watsonwyatt, 2004).

3.1. Expectations Theory, Return Curves and the Illiquidity Premium

Expectations theory aims to explain the term structure of the interest rates. The difference between the curve drawn according to the expectations theory and the real return curve can be expressed as the illiquidity premium. In order that investors demand also the illiquid assets, a liquidity premium, which will encourage investors to give long-term loans, should be paid. Liquidity premium can be demonstrated with the following formulation (Teker and Gümüşsoy, 2006):

$$0 = L_1 < L_2 < L_3 <... L_n \text{ ve } (L_2 - L_1) > (L_3 - L_2) > (L_4 - L_3) ... > (L_N - L_{N-1}) \quad (2)$$

L_i expresses the liquidity premiums according to terms and the illiquidity premium increases with a decreasing rate as terms increase. Expectations Theory, into which the liquidity premium is included, can be expressed as follows (Teker and Gümüşsoy, 2006):

$$((1 + {}_tR_N))^N = ((1 + {}_tR_1)(1 + {}_{t+1}f_1 + L_2) ... (1 + {}_{t+N-1}f_1 + L_N)) \quad (3)$$

In this formula the 1 year termed forward rate in the year ${}_{t+1}f_{1,t}+1$ shows the spot return of the ${}_tR_{N,N}$ year termed bill in year t. According to Expectations Theory, investors are persons who aim at profit maximization as long as they hold the assets without term preference. All assets in a certain risk category, the term of which is insignificant are regarded as full substitutes for each other. As long as the return rates of the investors are same, there is not any difference between buying a 10-year asset or two sequential 5-year assets or 1-year assets which follow each other periodically (Rose, 1997). Expectations hypothesis is based on the assumption that the future value of the interest rates is determined by the expectations of bill owners (Teker and Gümüşsoy, 2006).

Kessel is another scientist who attempts to explain short term returns. According to the monetary substitution theory, short term bills are equal to cash. It is accepted that these kinds of bills have risks which are too minor to be taken notice of. Therefore, there is more demand for short term bills and short term bills offer lower return than long term bills. On the other hand, those who want to borrow look for long term financing in order to minimize costs. Consequently, long terms bills offer higher return due to excess supply and low liquidity (Teker and Gümüşsoy, 2006).

In bill market, certain deeds are declared to be indicator bills and attract special attention. When interests are discussed without using return curve, mostly the interests of these bills are referred to. These deeds pass through hands very often, i.e. they have high liquidity. Since a liquid asset is something desired to be held, it is believed that market participants generally price indicator bills higher than the bills with comparable terms. This demonstrates that indicator bills have a liquidity premium and this premium can be measured by means of a return curve. Diagram 8 compares the continuous compound return of indicator bill with the return which is expected from the return curve and which has exactly same term as the indicator bill that day (Akıncı et al, 2006).

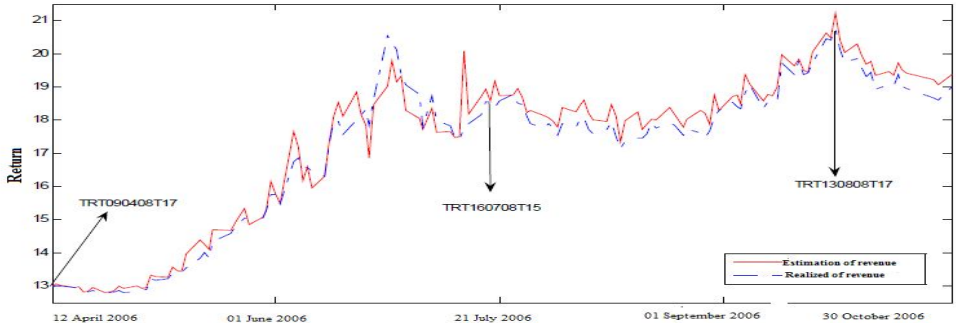

Figure 2: The Illiquidity Premium

Source: Özge Akıncı, Burcu Gürcihan, Refet Gürkaynak, Özgür Özer, "Devlet İç Borçlanma Senetleri İçin Getiri Eğrisi Tahmini" (The Return Curve Expectation for Domestic Government Bonds), Turkish Central Bank, Research and Monetary Policy Department Working Paper, p.22.

As can be seen in this diagram, the interest of the indicator bill has remained below the return expected from the long term return curve. This means that the liquidity of the bill is high. However, as the issuance time of the new indicator bill draws near, the liquidity of the bill has decreased and the illiquidity premium has arisen and thus the realized return has exceeded the expected return (Akıncı et al, 2006).

4. Measurement of the Illiquidity Premium

Liquidity is a considerably complex concept. It is not possible to determine the level of liquidity directly. Determination of the liquidity of an asset does not depend on a single factor and requires a complex process. According to the ILLIQ method developed by Amihud, the liquidity of a share can be measured by means of the following formula (Jong and Driessen, 2005):

$$ILLIQi,t = \frac{1}{Dt}\sum_{d=1}^{Dt}\frac{\left|r_i^d{}_t\right|}{V_i^d{}_t}$$

- ILLIQ i,t expresses the illiquidity premium for i share in month t
- Dt expresses the number of trading days in one month
- $\left|r_i^d{}_t\right|$ expresses the i share return in day d in month t
- $V_i^d{}_t$ expresses the trading amount of the i share in day t in month t as the percentage of the market value of the share

If there are not enough buyers and sellers in a certain period of time, the market can be said to be illiquid. In such a case, an intermediary, who has the obligation to make market, has to step in and buy the shares desired to be sold by the investors and sell the shares desired to be bought by the investors. Market makers provide market with liquidity in this way. During the said process, there arises a difference between the prices of buying and selling. This difference, which is named as buying-selling price range, is for meeting the costs of the service of providing liquidity. Therefore, liquidity is traditionally measured by the buying-selling price range (Kayalı and Ünal, 2010).

Kyle measures liquidity by depth, i.e. the processing size that would move the prices by one unit (Kyle, A.S, 1985). In the study conducted on the basis of government and commercial bonds, Kempf, Korn and Uhrig-Homburg argue that it is highly difficult to measure the liquidity premium and that, when bonds are at stake, the difference between the returns of the bonds, the features of which are similar except liquidity, is the illiquidity premium (Kempf et al, 2009).

Most empiricist studies use the buying-selling price range as the measure of liquidity. The three components of the buying-selling price range are order processing costs, inventory holding costs and asymmetrical information costs (McInish and Van Ness, 2002). Order processing costs are the costs incurred during the processing of the buying-selling orders. The time spent by the market maker, paper works, taxes and similar costs are in this group. Inventory holding costs stem from the authority and responsibility of the market maker to make and arrange market. The market maker, who buys (sells) the shares desired to be sold (bought) by stepping in when there is not a buyer (seller) for the prices in the market, can have more (less) shares than s/he should have. The costs incurred due to the growing of the share inventory in hand apart from the optimum level are defined as inventory holding costs (Kayalı and Ünal, 2010).

Asymmetrical information costs are costs required to be incurred by the market maker as a result of the processes performed together with the investors who buy and sell on the basis of information. When the said investors buy (sell) shares from (to) market makers, the prices tend to increase (decrease). In other words, market maker buys (sells) at a price relatively expensive (cheap) before the prices begin to decrease (increase). These kinds of costs are considered as asymmetrical information costs (Kayalı and Ünal, 2010).

O'Hara (2003) argues that the characteristics of firms and the microstructure of markets affect the liquidity of financial assets. If these effects are high enough, asset returns are also influenced. O'Hara develops an Asymmetrical Information Asset Pricing Model that takes these effects into consideration. In this model, the risk premium is higher for the assets the private information of which is ample as compared to public information.

As the share of the private information increases, the risk premium desired by investors and hence the expected return rate also increase.

There are empirical studies conducted on the liquidity of the shares processed in Istanbul Stock Exchange (ISE). Önder and Güner (1998) examine the buying-selling price range and its determinants. They demonstrate that since there are not market makers in ISE, the order processing costs and the inventory holding costs are low while the asymmetrical information costs are high. Moreover, the asymmetrical information costs are higher in the second session as compared to the first session. For, the number of people who perform processing based on information is higher in the second session. The information obtained in the two-hour lunch break is reflected on the prices by means of the processes performed in this session.

5. The Term Structure of the Illiquidity Premium

Illiquidity premium is the return difference between the returns of the assets which have similar features except liquidity. In the significant study conducted by Kempf, Korn and Uhrig-Homburg on illiquidity premium which is important for companies becoming gradually significant in Eurasian economies, especially in the developing Middle Asian economies, the illiquidity premium was detected by comparing the commercial bonds and government bonds in German financial market and the term structure of the illiquidity premium was tried to be discovered by using the illiquidity premiums concerning return differences.

The government bonds (BUNDS) and Pfandbriefe examined in the said study are the two most important instruments of the German bond market. According to the data for 2007, government bonds constitute the 33 percentage of the bond market and Prandbirefe constitutes the 25 percentage of the bond market. Similar to the role of the American treasury in the American bond market, the government bonds named as BUNDS in the secondary market provide, with their high liquidity level, an opportunity of comparison for the Euro based fixed-income securities (Kempf et al, 2009).

5.1. The Term Structure of the Illiquidity Premium and the Short and Long Term Factors Shaping the Term Structure

In the said study, mostly the approach of Nelson and Siegel was used in order to display the period structure of the illiquidity premium of the securities. In the Nelson-Siegel method, the return curve is based on the assumption that immediate forward value rates move in due course with a structure implied by the quadric difference equation. The relationship between the return and term is explained with a function determined by four parameters. The economic explanation of this parametric form can be made by means of considering a component which captures the pricings with different terms stemming from the short term monetary policy expectations of the return curve, a component which captures the pricing behavior stemming from medium term conjuncture fluctuation expectations and thus allows a bend to form in the return curve and a component which captures the interest expectation at the steady state of economy in the long term (Akıncı et al, 2006). The approach allows displaying the character of the time structure by means of four parameters. Within the frame of Nelson-Siegel method, the return of a zero-coupon bond, the maturity in time t of which will be arrived at in T, is presented below. Here, t is the variable and the betas and Tau symbols are parameters to be expected. In a way related to the aforementioned Beta parameters, β0, β1 and β2 are interpreted as factors of level, slope and curvature, respectively. These are regression coefficients. Nelson-Siegel return curve begins in 0th maturity with 1 and gets close to 0 while maturity goes to infinity. The formula to be used for the estimation of the return curve to be used for the estimation of Beta 0, 1, 2, and Tau 1, 2 parameters can be expressed as follows:

$$y(T) = \beta_{ot,} + \beta_{1t,}\left[\frac{1-e^{-T/\tau_t}}{T/\tau_t}\right] + \beta_{2t}\left[\frac{1-e^{-T/\tau_t}}{T/\tau_t} - e^{-T/\tau_t}\right]$$

For estimating the government bond and Pfandbrief market parameters, the month-end returns of those until the maturity of which remains 3 months, 6 months, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15 years were selected from the Bundesbank data.

The factors are closely related to the different segments of the period structure. The meanings of these parameters can be expressed as follows:

- β0 is equal to the limit value of the returns while the day that remains until the maturity goes to infinity. This parameter gives the interest expectation (with a term premium) of the participants of the Domestic Government Bond market at the steady state of economy.
- β0 + β1 is equal to the limit value of the returns while the day that remains until the maturity goes to zero, i.e. it gives the immediate interest rate. Thus, β1 is equal to the difference between the short term return and the long term return. In other words, β1 is the negative marked value of the slope of the return curve (the difference between the returns with infinite and zero maturity).
- τ *1* determines where (in which time) the bend will be formed in the return curve. Moreover, the tau value determines the explanatory variables' speed of convergence to zero while maturity prolongs. While maturity prolongs in small (big) tau values, the explanatory variables converge to zero within a shorter (longer) period of time. Thus, while the small tau values provide a better overlapping with the bends at the short-term end of the return curve, high tau values allows the long term end of the return curve to better overlap.
- β 2 determines the size and direction of the bend in the return curve. If β 2 is positive (negative), the return curve takes the shape of bump (dip) at the point where the maturity is equal to τ1. This parameter, together with tau, includes the expected interest path in the return curve depending on conjuncture fluctuation.

The given parameters estimate the two market segments. The parameters are as follows respectively:

$$\beta_{0t}^{SP} \equiv \beta_{0t}^{PF} - \beta_{0t}^{BU}, \quad \beta_{0t}^{SP} + \beta_{1t}^{SP} \equiv \beta_{0t}^{PF} - \beta_{0t}^{BU} + \beta_{1t}^{PF} - \beta_{1t}^{BU}\beta_{0t}^{SP}$$

They are the shaping factors of the long term factor, the short term factor and the illiquidity time structure. The long term factor measures the illiquidity premium of the period structure in the long term and the shape factor dominantly affects the illiquidity premium in the medium term. In order to get the first impression in the form of the term structure of the illiquidity premium, the average of all the months were calculated in the data period. The result of the average period structure is illustrated in Diagram 1.

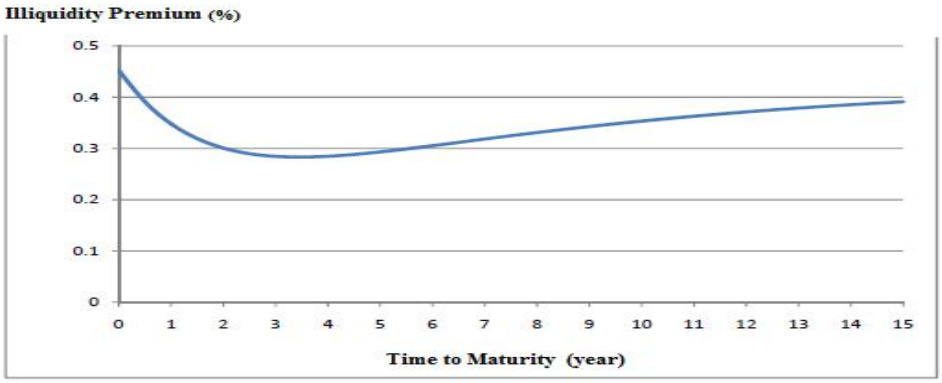

Diagram 1: The Average Term Structure of the Illiquidity Premium. Data Interval January 2000-August 2008.

Diagram 1 shows that there is average positive illiquidity for all terms. Nonetheless, premium differentiates for different terms. The period structure of the illiquidity premium clearly takes U shape in the average. The premium is considerably high in the short term and the long term, however it is less in the medium term bonds. Liquidity price is higher for short and long term bonds as compared to the medium term ones.

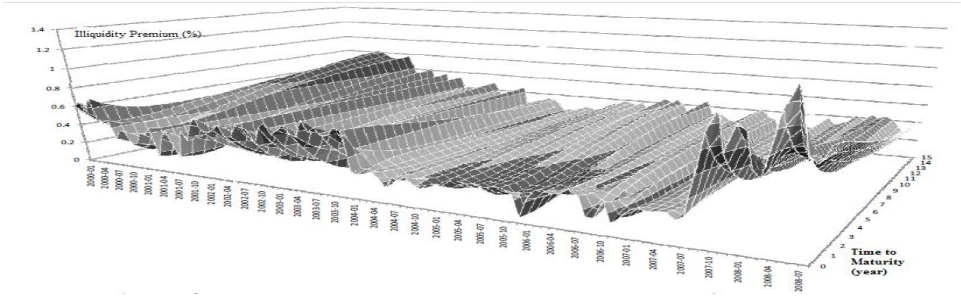

Diagram 2: The Term Structure of the Illiquidity Premium

Diagram 2 shows the development of the period structure of the illiquidity premium according to time. The diagram shows the period structures for each month. It is seen in the diagram that there are changes in the form of the time structure. In the diagram, generally the U shaped curves of the illiquidity premium, the increasing term structures, at times sharp descents and ascents and humps in the curves are observed. The illiquidity premium is always positive in all terms, however its level changes. For instance, in the beginnings of 2004, the liquidity price for the short term is quite low, while it is quite high in the middle of 2007 and later on. This situation is a fact that increases liquidity in a financial crisis period. During the time of crisis, the investors preferred high liquidity and agreed to pay high price for liquidity in government bonds. The result demonstrates that, especially in cases where market weight is not definite, the investors who desire fixed return attach importance to liquidity. The effects of the recent economic crisis on the liquidity price have been mentioned about the short term bonds more often than the long term bonds. Consequently, it is observed that the illiquidity premium differentiates by means of different ways in due course. The said situation can be observed in Diagram 3.

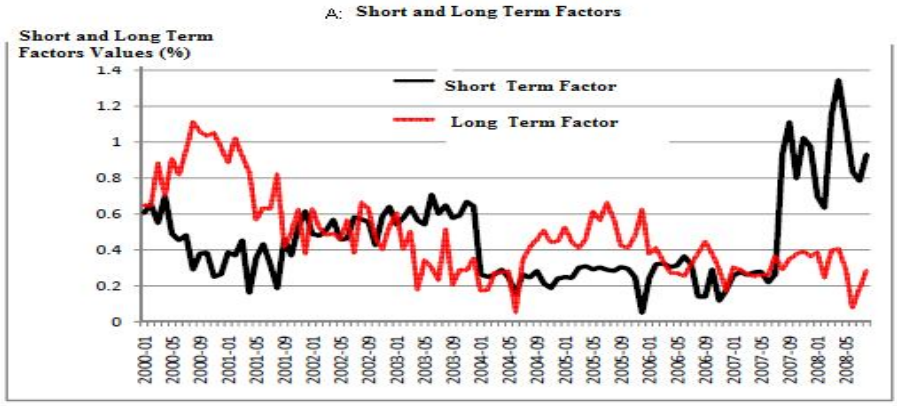

Diagram 3: The Change of the Term Structure Factors of the Illiquidity Premium Depending on Time

In Diagram 3, there are periods where the long term illiquidity premium is above the short term liquidity premium. For instance, as in the time period between August 2004 and February 2006, liquidity was priced more in the long term. On the contrary, in the time period between August 2007 and August 2008, the investors desired high liquidity in the short term. The illiquidity premium correlation between the short term and the long term is negative and is, significantly, different from zero. These findings demonstrate that different economic effects can shape the long and short term period structures.

5.2. The Economic Factors That Direct Term Structure

The illiquidity premium provides the opportunity to measure the liquidity price in different terms. The said price reflects factors such as

- the liquidity difference between two markets stemming from institutional arrangements and market characteristics,
- investor's liquidity expectation,
- features peculiar to assets processed in the market,
- micro-structure of the market and
- the behaviors of market participants

Therefore, liquidity price depends on the necessities concerning the buying and selling of the securities to be owned by the investor in the future. The economic factors that affect liquidity price were obtained by means of using different variables. Investment decisions are affected by long term risks. If the economy and long term outlook in the financial markets is positive, future entertains less risk for investors and investors can hold the investments belonging to the securities they own for a longer period of time. In this situation, liquidity is less important for investors. In cases of uncertainty in markets, investors might seek confidence and prefer quitting the market (O'Hara, M. 2003). In the study, Ifo Index, the IFO business climate index, was used as the risk indicator concerning the economic outlook and the buying and selling decisions in the long term future. Ifo index is the most important indicator of the business life in Germany and is based on research on approximately 7000 companies published monthly by the IFO Institute.

Various control variables are used in the study. *Firstly*, net investment control was made for the foreign investors in the German bond market. *Secondly*, credit risk was controlled. Although there was not default risk in the government bonds and Pfandbrief bonds, the Pfandbrief bonds can be perceived to have credit risk. For representing credit risk, Bloomberg Euro region Industrial index AA+\AA bond returns and Bloomberg Euro region industrial index BBB bond returns were used. Month-end values were used for the bonds until the maturity of which one year remains. Lastly, in order to demonstrate the dynamic interactions, the delayed variables of the illiquidity factors were separated as control variables in the model.
An equation was estimated for each factor concerning the term structure of the illiquidity premium.

$$Short_t = \gamma_0^8 + \gamma_1^8 Volume_t^8 + \gamma_2^8 Volatility_t + \gamma_3^8 VDAX_t + \gamma_4^8 Ifoindex_t + \gamma_5^8 Foreign_t + \gamma_6^8 Credit_t + \sum_{i=1}^{2}\left(\alpha_{i,8}^8 Short_{t-i} + \alpha_{i,8h}^8 Shape_{t-i} + \alpha_{i,l}^8 Long_{t-i}\right) + \varepsilon_t^8$$

$$Shape_t = \gamma_0^{8h} + \gamma_1^{sh} Volume_t^{sh} + \gamma_2^{sh} Volatility_t + \gamma_3^{sh} VDAX_t + \gamma_4^{sh} Ifoindex_t + \gamma_5^{sh} Foreign_t + \gamma_6^{sh} Credit_t + \sum_{i=1}^{2}\left(\alpha_{i,8}^{sh} Short_{t-i} + \alpha_{i,8sh}^{sh} Shape_{t-i} + \alpha_{i,l}^{sh} Long_{t-i}\right) + \varepsilon_t^{sh}$$

$$Long_t = \gamma_0^l + \gamma_1^l Volume_t^l + \gamma_2^l Volatility_t + \gamma_3^l VDAX_t + \gamma_4^l Ifoindex_t + \gamma_5^l Foreign_t + \gamma_6^l Credit_t$$

t time index expresses the time from August 2001 to May 2007.

The evaluation of the analysis of the economic variable factors that direct term structure demonstrates that

- explanatory variables have an important effect on the illiquidity premium in the short and long term structure, however, that these results do not give information about the form of the term structure,
- the illiquidity premium is being directed by the uncertainties to be faced by the investor,
- the uncertainty at the highest level indicates the highest illiquidity premium,
- Investors attach importance to illiquidity when there is maximum uncertainty.

In addition to the findings above, there are different kinds of uncertainties that affect short and long term illiquidity. Accordingly,

- while the short term illiquidity premium is affected by the short term fluctuations in the asset markets,
- the long term illiquidity premium is shaped by the long term uncertainty in the economic outlook measured by the Ifo index and
- Thus, different variables direct the different parts of the time structure.

An important effect was observed in the short term premium regression equation, which stems from the fluctuations in the capital market and the bond market. The co-mobility in the capital market and the bond market expresses the higher risk in the bond and capital market and this leads to a higher illiquidity premium. Accordingly, a higher level of fluctuation brings about the possibility of high number buying and selling processes that makes the liquidity of an asset more valuable and the government bond market more attractive.
The economic factors that affect liquidity price were obtained by using different variables. Investment decisions are affected by long term risks. If the economy and long term outlook in the financial markets is positive, future entertains less risk for investors and investors can hold the investments belonging to the securities they own for a longer period of time. In this situation, liquidity is less important for investors. In cases of uncertainty in markets, investors might seek confidence and prefer quitting the market. In this context, if the long term outlook is negative and the market boom is unlikely, the investors who have made long term investments may not continue their investment strategies and convert the securities in which they have invested into cash before the maturity date. Therefore, the assets, in which these investors will invest, will be more than the illiquid ones.

The results demonstrate that the different curve of the term structure of the illiquidity premium reflect different regimes for short and long terms risks. While short term fluctuation for the short term illiquidity premium of a bond is more important, the economic outlook that covers a longer period of time is important for bonds with longer terms.

6. The Importance of Liquidity for Market Economy with respect to Eurasian Countries

When market liquidity declines too much, financial markets and organizations might loose strength in the face of economic shocks and the effect of economic shocks on asset prices might increase. By reason of these, financial stability problems can arise. Following market liquidity is significant in terms of the policies implemented for financial stability. Central banks can ease markets by taking liquidity measures for lessening the adverse affects of market illiquidity on financial stability. In the interaction between market and funding liquidity, central bank liquidity and auditing and surveillance practices are reasonably important for providing stability in the financial system.

In the global financial crisis, the eminence of market liquidity and liquidity in general has come onto the scene once again. The existence of banking based on the securitization of credits instead of traditional banking caused the system to become vulnerable as a result of the credit quality which was deteriorated due to the increase of the interests. In such an environment, the melting of the capital of the financial organizations caused by the decreasing of asset prices and the simultaneous narrowing of the borrowing circumstances inevitably resulted in the sale of assets. Thus, asset prices further decreased and funding crunch further grew (Brunnermeier, 2009). The emerging confidence loss caused further decreasing of the prices of the assets that are bought and sold in markets and illiquidity in financial markets. With the decreasing of the asset prices, the banks with relatively weak balance tended to sell more assets. This situation led to the further decreasing of the prices and weakening of the balances (Adrian and Shin 2008). The said negative feedback relationship between market liquidity and funding liquidity has been one of the primary fields of interest for central banks throughout the crisis.

The illiquidity premium is important for market economies in terms of several aspects. It functions as an indicator that gives information about the buying and selling facility of the assets in markets, demonstrates the periods of confidence loss, serves as a starting point for deductive analyses to be conducted about the reasons of vulnerabilities, and allows contrastive analyses by being compared with the similar indicators of other countries.

When considered in terms of the Eurasian economy, China is dependent on foreign sources concerning the continuously increasing energy need and thus makes important investments in Middle Asian economies and gives credits to be used in the field of energy. The Eurasian countries, especially oil-rich Kazakhstan and natural gas-rich Turkmenistan need foreign investment for introducing their energy resources to Europe. For example, the fact that Kyrgyzstan was the first Eurasian country to become a member of the World Trade Organization in 1998 demonstrated that Kyrgyzstan adopts an extrovert development strategy. For, the need of investments for economic development can not be met by domestic resources. The investment of the western companies in the region is an important assurance for the independence and stability of the Asian countries. For, the natural sources in the Eurasian countries, which have a transition economy and which are not completely integrated to the world economy, provide the foreign investors with a significant field of investment.

However, due to the macro-economic problems, political and economic instability, the injustice of income distribution, the size of the informal economy, the public insufficiency to provide income, foreign-trade deficit, tax dimension, insufficient infrastructure, absence of regulations that induce foreign capital, investors' lack of confidence and high inflation, the region is having integration problems in global trade and the level of the entry of foreign capital remains low.

Therefore, structural reforms should be implemented for attracting foreign investment in different platforms to the countries with rich natural resources. For example, in Kyrgyzstan, which is close to China and has a strategic importance, the banking system does not have a developed status although the banks with foreign capital have a large proportion among the commercial banks, and this situation has caused the liquid assets to remain inactive and most processes to be performed on the basis of cash. Some of the measures to be taken in this context can be establishing macro economic stability, forming a reasonable foreign credit strategy, realizing a sufficient growth and implementing structural reforms, conducting new structural reforms in collaboration with IMF, economic configuration, closing foreign-trade deficit, decreasing inflation, immediately implementing strategies for economic growth, providing governmental assurance for foreign capital entry, insuring required risks and reducing costs stemming from regulations in export and import.

Result and Evaluation

In the study conducted by Kempf, Korn and Uhrig-Homburg, it was detected that the curve that represents the term structure in the illiquidity premium term structure diagram was not straight and shaped as U, and that this U shaped structure reflected the changes in the economic environment and did not always continue in the same direction. Upon examination, it is found that the liquidity premium term structure does vary in the short and long term; however that it does not have an expansion effect, either. In the short term, term structure is shaped by the fluctuation in the share and bond market. The long term illiquidity premium is shaped by long term economic outlook. The findings show that long term investors, who face an increasing risk in terms of passing to liquidity, agree to pay a higher price for long term bonds during times of economic recession. For medium term bonds, the illiquidity premium is affected by short and long terms risk factors.

The additional return desired by the investors in exchange for investing in an illiquid asset will definitely affect the capital costs of those who export these securities. The studies on asset pricing conducted by means of traditional methods consider illiquidity premium as systematic risk criterion. Yet the illiquidity premium is a risk factor which has to be examined on its own instead of being considered among all other risk factors.

The aim of the financial market managements is to perform arrangements that would eliminate problems stemming from liquidity i.e. that would increase liquidity and contribute to the effective formation of prices. The studies to be conducted on this subject matter will provide also the financial market actors with an important source. Moreover, at the present day, when new bond exports began with the decreasing of interest rates, these studies are also important in terms of the development of the private sector bond market both in Turkey and in Eurasian countries.

Therefore, the findings of the present study are significant with respect to Eurasian economies. Drawing on the fact that Eurasian economies are mostly defined as developing economies, the below findings are also valuable for business finance.

The obtained findings demonstrate that there is a positive regressional and correlative relationship between security return and illiquidity. In this context, deploying investment strategies within the frame of the said relationship would be a rational approach for Eurasian companies.

It is observed that the illiquidity premium is a stabilizer and shifter of the liquidity risk. As can be observed also in the study on Germany, enterprises can use the illiquidity premium as a risk management mechanism and tool. The existence of this mechanism increases the options of the Eurasian enterprises in risk management.
The illiquidity premium can not be considered to be independent from the development level of security markets and the existence of secondary markets. In this context, the performance state of the developing Asian stock exchanges will keep the illiquidity premium on the agenda also in the future and lead to several studies on the issue.

References

Amihud, Mendelson, Pedersen and Lass, 2005, Liquidity and Asset, Foundations and Trends in Finance. 2005. p.269-304

Adrian, T. and H. Shin, 2009, Liquidity and Leverage, Journal of Financial Intermediation

Akıncı Özge, Gürcihan Burcu, Gürkaynak Refet, Özel Özgür, (2006), "Devlet İç Borçlanma Senetleri İçin Getiri Eğrisi Tahmini" (Return Curve Estimation for Domestic Government Bonds) Central Bank of the Republic of Turkey, December 2006 p.10

Akıncı Özge, Gürcihan Burcu, Gürkaynak Refet, Özer Özgür, 2006 "Devlet İç Borçlanma Senetleri İçin Getiri Eğrisi Tahmini", (The Return Curve Expectation for Domestic Government Bonds), Turkish Central Bank, Research and Monetary Policy Department Working Paper, No 6/8, December 2006, p.21.

Amihud, Y. 2000. "Illiquidity and Stock Returns: Cross-Section and Time-Series Effects", Journal of Financial Markets 5, p.31-56.

Brunnermeier, M., 2009, Deciphering the liquidity and credit crunch 2007-08, Journal of Economic Perspectives.

Dimson and Hanke, 2004, "The Expected Illiquidity Premium: Evidence From Equity Index-Linked Bonds, Rewiev of Finance, 8, p.19-47.

Duarte and Young, 2007, "Why is PIN Priced?", Journal of Financial Economics, 91(2), p.119-138.

Emektar, 2010, Interview on "Liquidity Premium and Illiquidity Premium with Robert Morris"12.03.2010.

http://www.wise.xmu.edu.cn/seta2006/download/ORAL%20PRESENTATION/%E5%AD%99%E8%B0%A6/IlliquidityandStockReturn7.pdf (01.07.2011) p 1-15,http://www3.dogus.edu.tr/amuslumov, (05.03.2010).

Jong and Driessen 2005, , "Liquidity Risk Premia In Corporate Bond Markets", Tilburg University, 2005, p.13. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=686681 , (20.03.2010).

Hibber and John,2010, "Liquidity Premium: Myth Or Reality?", http://www.barrhibb.com/documents/downloads/Liquidity_Premium_Literature_Review.PDF (10.03.2010).

Kayalı and Ünal. 2010."Piyasa Mikro Yapısı, Finansal Varlıkların Likiditesi Ve Fiyatların Oluşumu" (Market Microstructure, The Liquidity of the Financial Assets and the Formation of Prices), Dumlupınar University Journal of Social Sciences, 12, p.8

Kyle, A.S. (1985). "Continuous auctions and insider trading", Econometrica, 53:1331-1336.

Kempf, Korn and Homburg, 2009. "The Term Structure Of Illiquidity Premia", Center For Financial Research, p.1-2

Latest Thinking on Liquidity Premia, Watsonwyatt.com, (01.03.2010).

McInish, T.H. and Van Ness, B. (2002). "An intraday examination of the components of the bid-ask spread", Financial Review, 37:507-524.

Novy-Marx, 2006, "Excess returns to illiquidity". Working Paper. University of Chicago, February 2006, s.1.Watsonwyatt 2010, Latest Thinking on Liquidity Premia, Watsonwyatt.com, (01.03.2010).

O'Hara, M. (2003). "Presidential Address: Liquidity and Price Discovery", Journal of Finance, 58:1335-1354.

Önder, Z. and Güner, Z.N. (1998). "İstanbul Menkul Kıymetler Borsasında satılan hisse senetlerinin alış-satış fiyat aralığı ve belirleyicileri" (The determinants and buying-selling price range of the shares sold in the Istanbul Stock Exchange, ISE Journal, 2:1-22.

Rose, P. S. (1997). Money and capital markets: financial institutions and instruments in a global marketplace, (6. ed.) Chicago: Irwin.

Teker and Gümüşsoy 2006, "Faiz Oranı Eğrisi Tahmini: TC. Hazine Bonosu Ve Eurobond Üzerine Bir Uygulama" (Interest Rate Curve Estimation: An Application on the Turkish Republic Treasury Bond and Eurobond), 8. Finance Syposium, İzmir, 1-4 Kasım 2006 p.4.

Timmermans and Xavier, 2009 "Investing in Illiquidity Assets", Risk And Rewards". 53, p.12.