The Role of the term structure of interest rates in interpreting the yield -curve's forms - Theoretical Analysis

دور الهيكل الزمني لأسعار الفائدة في تفسير أشكال منحنى العائد – تحليل نظري –

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Abstract:

The purpose of this study is to identify the relationship between bond interest rates and their maturity, known as the term structure of interest rates or the yield curve. Within this context, we have looked at the most important theories that explain the structure, direction and graphic explanation of this relationship, while identifying the strengths and disadvantages of each theory based on three important facts.

The study found that each theory had a certain degree of interpretation of the facts to which it was touched upon, the expectation theory was able to explain only the first and second facts, market segmentation theory explained the third fact that the expectation theory couldn't explain, and the liquidity preference theory was able to explain all three facts.

Keywords: term structure of interest rates; yield curve; expectation theory; segmentation theory; liquidity preference theory.

JEL Classification Codes: E43, G10, E40

ملخص:

هدفت هذه الدراسة الى معرفة العلاقة بين أسعار فائدة السندات وآجال استحقاقها، التي تعرف بالهيكل الزمني لأسعار الفائدة أو منحنى العائد، وضمن هذا السياق تطرقنا إلى أهم النظريات التي تفسر بناء واتجاه هذه العلاقة وشرحها بيانيا، مع تحديد نقاط قوة وعيوب كل نظرية بالاستناد إلى ثلاث حقائق مهمة .

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توصلت الدراسة أن لكل نظرية درجة تفسير معينة للحقائق المتطرق إليها،حيث أن نظرية التوقعات استطاعت أن تفسر الحقيقة الاولى والثانية فقط، نظرية تجزئة السوق فسرت الحقيقة الثالثة التي لم تستطع نظرية التوقعات تفسيرها، أما نظرية السيولة استطاعت أن تفسر كل الحقائق الثلاث.

كلمات مفتاحية: الهيكل الزمني لأسعار الفائدة، منحنى العائد، نظرية التوقعات.، نظرية تجزئة الأسواق، نظرية تفضيل السيولة.

تصنيفات JEL: E43، G10، E40

1. INTRODUCTION

The tax status and credit rating of a bond aren't the only elements that influence its yield. In reality, bonds with the same default rate and tax status, but various maturities typically have variable yields. Because long-term bonds are made up of a series of short-term bonds, their return is determined by what people predict for years to come. That is why we are setting a framework for thinking about the future interest rates through the relationship of the term structure of interest rates.

Three theories have been advanced to explain the structure of interest rates. Economic analysts believe that a good theory of interest rate structure should explain these three important empirical facts:

- Interest rates on bonds with different maturities change over time;
- When short-term interest rates are low, the yield curve tends to slope upward; when short-term interest rates are high, the yield curve is more likely to trend downward and invert;
- The yield curve is almost always upward sloping.

Research Problematic: In light of the introduction provided, the main issue of this paper is: how do theories of the term structure of interest rates explain the forms of the yield curve?.

Research Hypotheses: to answer the research problem, we have relied on the following hypotheses:

- **H1**: The expectations theory explains all three empirical facts;
- **H2**:The market fragmentation theory explains one fact;
- **H3**:Liquidity theory does not explain any of the preceding facts.

2. Yield curve background

Through this research paper, we will clarify a concept of interest rates term structure by addressing its definition and relevance to investors, policymakers, and what it is used for. We will consider the most important forms that it takes graphically.

2.1 yield curve difinition

The Yield Curve is a graph of interest rate yields on bonds with various terms to maturity. However, interest rates have the same risk, liquidity, and tax implications (Mishkin, 1990, p. 02). The term structure of interest rates—sometimes called the yield curve—refers to the curve drawn by interest rates on securities as their maturities vary from short-term to long-term (FRBSF, 1993).

2.2 Importance of the yield curve on government bonds

The yield curve is of interest to many investors, researchers, and economic policymakers and is important to government bonds in its following key features (ilifi & serir, 2020, p. 425) :

- Plays a market trend indicator because it is the result of investor decisions in the government bond market;
- The high liquidity of the government bond market ensures accurate predictions of the value and direction we place Stock exchange participants.

2.3 Making use of the yield curve

The yield curve shows where the bond market is currently trading.It also denotes the future trading level, or at least what the market believes will occur in the future.In other words, it is an excellent predictor of the market's future level.It's also a lot more dependable than any other indication utilized by individual investors, as we can demonstrate experimentally.

Consider the yield curve's main uses.The present shape and level of the yield curve, as well as what this information predicts for the future, are of importance to all players in the debt capital markets.The following are the main uses: (choudhry, 2019, p. 08):

- **For all debt market securities, the yield is set**: Over the maturity term structure, the yield curve basically fixes the cost of money.The yields of government bonds, from the shortest to the longest maturities, serve as a benchmark for all other debt instruments in the market, and are used to evaluate all debt instruments.The yield curve is thus used by debt issuers (and their underwriting banks) to price bonds and other debt instruments.The zero-coupon yield curve, rather than the redemption yield curve, is typically utilized to price new issue securities.
- **Serving as a forecasting tool for future yield levels**: The yield curve takes on particular forms in response to market expectations of future interest rates.Participants in the bond market examine the current form

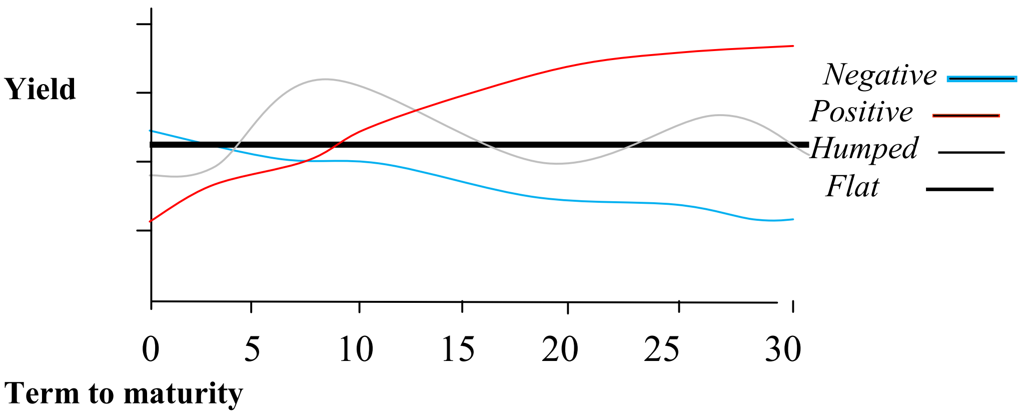
of the yield curve to predict the implications for market interest rates in the future.This is one of the yield curve's most significant roles, and it's as much an art as it is a science. Bond traders and fund managers, as well as corporate financiers, examine the yield curve for its information content as part of project evaluation.The yield curve is studied by central banks and government treasury departments for its information content, not just in terms of prospective interest rates, but also in terms of predicted inflation levels.

- **Returns are measured and compared over the age spectrum** :The yield curve is used by portfolio managers to evaluate the relative value of investments throughout the maturity range.The yield curves show the yields available at various maturity points and is thus critical to fixed income fund managers, who may use it to determine which point on the curve offers the highest return compared to others.
- **Indicates the relative value of different bonds with comparable maturities**:The yield curve may be used to determine which bonds are inexpensive or expensive relative to the curve. Bonds are placed in relation to the zero-coupon yield curve to assist identify whether bonds should be purchased or sold outright or as part of a bond spread transaction.

2.4 shapes of yield curve:

Figure 1 depicts the four basic forms that yield curves often adopt.There are curves that are positively sloping, negatively sloped, humped, and flat.It's interesting to observe the many forms that market dynamics might produce, because a naive view of yield curves could suggest that only upward-sloping yield curves are feasible, because investors desire to be rewarded more for money invested over longer periods of time (Stander, 2005, p. 03).

Fig.1. Different shapes of the yield curve



Source : from Researchers Based on (Stander, 2005, p. 03)

We take a realistic example of the Movements over Time of Interest Rates on U.S. Government Bonds with Different Maturities of the period 1950-2020, which is a curve of all four previous forms that the yield curve can take.We note how the yield curves of the various bonds are moving, where we find in the figure three curves (a short-term bond curve of three months in the green line, a medium-term bond curve of 3 to 5 years in the blue line and a third long-term bond curve of 20 years averages in the red line). Shown in appendix 1.

appendix 1 shows that there were periods when interest rates for three months were higher than those for Treasury bonds for 20 years. According to Glenn Hubbard, These are periods when yield curves are trending downward.Inverted yield curves are a type of downward-sloping yield curve that occurs seldom (anthony & O'Brien, 2012, p. 136).As the figure also shows Another key feature about the bond market is that interest rates on bonds of various maturities tend to move together.Consider how interest rates on 3-month Treasury bills and 10-year Treasury notes rose over the 1970s, peaked in the early 1980s, and then fell. And from it when you notice a combination of interest rates for a certain period of time, we discovered that all prices tend to move up and down together and have nothing to do with each other, but systematically, here we can say we're talking about a "rate structure." So we can say "interest rates are rising" or "interest rates are falling," which means that all the time structure of interest rates is moving up or down.

In addition to explaining why the yield curve takes different shapes at different times, a good theory of the yield curve must account for three important empirical facts (Mishkin, the economics of money,banking,and financial markets, 2014, p. 125) :

- interest rates on bonds of various maturities tend to move togather over time, As shown in appendix 1.
- When short-term interest rates are low, the yield curve tends to slope upward; when short-term interest rates are high, the yield curve is more likely to trend downward and invert.
- yield curves usually typically trend higher.

3. Term stucture of interest rates theories

to explain the term structure of interest rates, three theories have been put forward, explaining the relationships between interest rates on bonds with different maturity levels reflected in the patterns of the yield curve:

expectation theory, market fragmentation theory, and liquidity preference theory. and we'll describe each theory separately **.**

3.1 The expectations Theory of the Term Structure

Interest rates and interest rate term structure are discussed in the classic literature on interest rates and interest rate term structure.

Fisher (1896), Hicks (1939), Lutz (1940), Malkie1 (1966), and Roll (1966) formulated the 'expectations hypothesis' (1970, 1971).The first work in this area comes from Irving Fisher and dated from the nineteenth century, namely 1896.Fisher's work is widely considered to be the start of modern term structure interest rate theory.It took a long time, more than 40 years, before Hicks (1939) raised the issue again and expanded on Fisher's method.The expectancies hypothesis is the name given to their method[2].

The term structure's expectations theory asserts that the interest rate on a long-term bond will equal the average of short-term interest rates that people expect to occur during the bond's existence.For example, if investors anticipate short-term interest rates to average 10% over the next five years, the expectations theory predicts that the interest rate on bonds with a maturity of five years will also be 10%. (Mishkin & Serletis, The economics of money,banking and financial markets, 2009, p. 153).

This hypothesis is based on the assumption that bond purchasers do not prefer bonds of various maturities, therefore they will not keep any quantity of a bond if its predicted return is lower than that of a bond of a different maturity.Bonds with this feature are referred to be perfect substitutes.In reality, this means that if bonds of various maturities are perfect substitutes, their expected returns must be equally.

To understand how the assumption that bonds of different maturities are perfect substitutes leads to expectations theory, consider the following two investment strategies (Miskin, the economics of money,banking,and financial markets., 2022, p. 175):

- Buy a one-year bond and then buy another one-year bond when it expires in a year.
- Buy a two-year bond and keep it until it matures.

Because investors who hold both one-year and two-year bonds must have the same expected return, the interest rate on the two-year bond must equal the average of the two one-year interest rates.

[2] Roland Demmel, **Fiscal poliey, public debt and the term strueture of interest rates**, : Springer,Institute of Public Finance,University of Saarland, Germany,1999, p06.

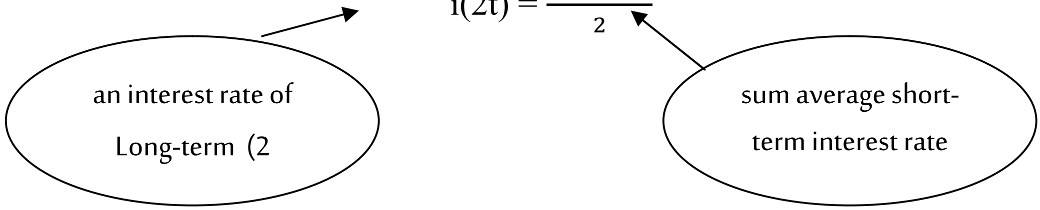
Table 1. Investment strategies for the theory of expectations

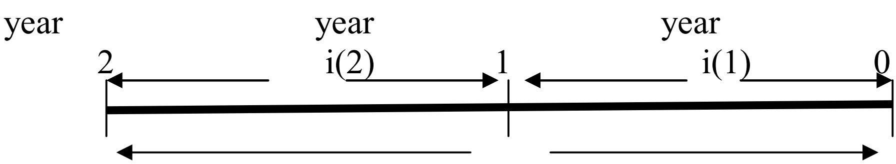
First strategy: Invest 1000 DZD for a one-year maturity date and at the expiry of the maturity date reinvest by buying another one with another year maturity date.	second strategy: invest 1000 DZD directly for a two-year bond.
Investor Amount: 1000 DZD Coupon rate: 1 year = 10% p. A = i (1) What's the return? At the end of the first year: $1000\ (1 + 0.10) = 1100$ DZD Formulation: $1\ [1+i(1)]$ We use this 1100 DZD to purchase another bond that matures in another year with an interest rate of 11% , p. A = i (2). End of second year: $1100\ (1 + 0.11) = 1221$ DZD We write it down: $[1+i(1)]\ [1+i(2)]$ We invested 1000 DZD and obtained 1221DZD . Return: 1221-1000 = 221 DZD We write it down: $[1+i(1)]\ [1+i(2)] - 1$	Investor Amount: 1000 DZD Coupon rate: 2 year = 10.5% p. A=i(2t) What's the return? At the end of two year: $1000(1+0.105)^2 = 1221$ DZD Formulation: $1\ [1+i(2t)]^2$ We invested 1000 DZD and obtained 1221DZD . Return: 1221-1000 = 221 DZD We write it down: $1\ [1+i(2t)]^2 - 1$
We note that the two strategies offer the same return, so	
$[1+i(1)]\ [1+i(2)] - 1$ $= 1+i(2)+ i(1)+i(1)i(2) -1$ $= i(2)+i(1) + i(1)i(2)$ $i(1)i(2)$ It's too small for any result so it canceled. $= i(2)+i(1)$ If we apply the first strategy, the return will be the sum of the short-term interest i (1) and i (2).	$[1+i(2t)]^2 - 1$ $= 1^2+2\ i(2t) + i(2t)^2 -1$ $i\ (2t)^2$ It's too small for any result so it canceled $= 2\ i(2t)$ If we apply the second strategy, the return will be the long-term interest rates of two years. so i(2t) summarizes the long-term interest rate for two years.

Source: from Researchers Based on (Mishkin, the economics of money,banking,and financial markets, 2014, p. 127)

Since the two returns are equal:
i(1)+i(2) =2[i(2t)]

$$i(2t) = \frac{i(1)+i(2)}{2}$$

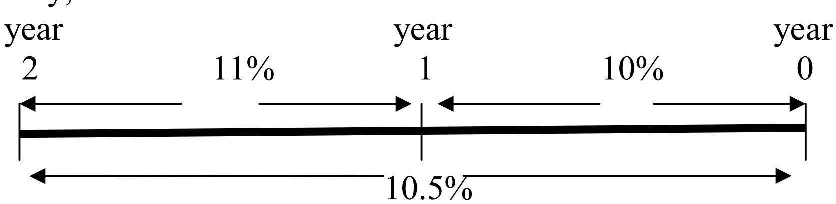




$$i(2t) = \frac{i(1)+i(2)}{2}$$

In our previous example, in the first Strategy, the current one-year interest rate on the bond was 10% and the investor expected the next year's interest rate to be 11%, if the investor followed second Strategy , the average return over the two years would have to be 10.5%.

the predicted return Over the next two years will be 10.5% each year ([10% + 11%]/2*10 %) Only if the two-year bond's projected return each year matches 10.5% would the bondholder be prepared to hold both the one- and two-year bonds.As a result, the two-year bond's interest rate must equal 10.5%, the average of the two one-year bonds' interest rates. graphically, we have:



The same steps can be taken to completely study the structure of term interest rates for bonds with a longer maturity.The following is the interest rate for the n period:

$$i(nt) = \frac{i(1)+i(2)+i(3)+\cdots+i(n-1)}{n} \quad \ldots\ldots\ldots (1)$$

Therefore the expectations theory of the term structure of interest rates holds that the interest rate on a long-term bond is an average of the interest rates investors expect on short-term bonds over the lifetime of the long-term bond.

The theory assumes that investors are unworried about the bond maturities.That is, if an investor plans to invest in the bond market for ten years, he or she will seek the highest return possible, irrespective of whether that return is obtained by purchasing a 10-year bond at the start of the period and holding it until it matures or by purchasing a five-year bond, holding it until it matures in five years, and then purchasing a second five-year bond (anthony & O'Brien, 2012, p. 137)..

The expectations theory is an excellent explanation for why the term structure of interest rates (as represented by yield curves) changes over time.The expectations theory predicts that short-term interest rates would rise in the future when the yield curve is upward-sloping, as we saw in our numerical example.Because the long-term rate is now higher than the short-term rate, the average of future short-term rates will be greater than the current short-term rate, which can only happen if short-term interest rates are predicted to grow.This is what our numerical example shows.When the yield curve inverts (slopes downward), the average of future short-term interest rates is predicted to be lower than the current short-term rate, meaning that short-term interest rates will decline in the future on average.The expectations hypothesis suggests that short-term interest rates are unlikely to change in the future only when the yield curve is flat.

The expectations theory also explains fact 1: interest rates on bonds of various maturities move together over the moment. Short-term interest rates have historically had the feature of tending to rise in the future if they rise presently.As a result, if short-term rates rise, people's expectations for future short-term rates will rise as well. Because long-term rates are the average of predicted future short-term rates, if short-term rates rise, long-term rates will climb as well, leading short- and long-term rates to move together.

The expectations theory also explains fact 2, which states that when short-term interest rates are low, yield curves have an upward slope and are inverted when short-term rates are high. People expect short-term rates to rise to a more normal level in the future when they are low, and the average of future expected short-term rates is high compared to the current short-term rate. As a result, long-term interest rates will be significantly higher than present short-term rates, and the yield curve will slope upward. Short-term rates, on the other hand, are expected to fall if they are high. Because the average of predicted future short-term rates is lower than present short-term rates, long-term rates will fall below short-term rates, and the yield curve will slope downward and invert.

The expectancies hypothesis is appealing because it gives a straightforward explanation for the behavior of the term structure, however, it suffers from a key flaw: It can't account for fact 3, which states that yield curves often slope upward. Short-term interest rates are projected to grow in the future due to the normal upward slope of yield curves. Because short-term interest rates are equally as likely to decrease as they are to increase in actuality, the expectations theory argues that the normal yield curve should be flat rather than trending upwards (Mishkin, the economics of money,banking,and financial markets, 2014, pp. 128-129).

3.2 The segmented markets theory of the term structure

The segmented markets theory handles the expectations theory shortcomings through two related observations (anthony & O'Brien, 2012, p. 142):

1. Not all fixed income investors have the same objective.
2. Investors do not believe that bonds of different maturities are perfect substitutes for each other.

The main assumption of segmented market theory is that bonds of different maturities are not substitutes at all, so the expected return of holding bonds of one maturity is independent of the demand for bonds of different maturities. This term structure theory is the opposite extreme of expectations theory, which assumes that bonds of different maturities are perfect substitutes (Miskin, the economics of money,banking,and financial markets., 2022, p. 178). Segment theory argues that investors and borrowers have such strong maturity preferences that investors would never buy securities beyond their preferred maturity range to take advantage of yield differentials. As a result, the short- and long-term parts of the bond market are effectively divided, and the return on one part depends on supply and demand within that maturity part (Reilly & Brown, 1999, p. 762). For example, the need to constantly manage liquidity has led commercial banks to focus primarily on the short end of the curve. On the other hand, institutions with long-term liabilities, such as insurance companies and pension funds, tend to focus on long-term markets (Parameswaran, July 2011, p. 202).

In segmented market theory, different yield curve patterns can be explained by differences in supply and demand associated with bonds of different maturities. If risk-averse investors have short holding periods and generally prefer short-term bonds with less interest rate risk, it makes sense that segment theory could explain fact 3, which states that the yield curve is generally trending upward. Because demand for long-term bonds is generally relatively lower than demand for short-term bonds, long-term bonds are priced lower and interest rates are higher, so the yield curve typically slopes upward (Miskin, the economics of money,banking,and financial markets., 2022, p. 179).

Segmented market theory can be used to explain any particular shape of the yield curve, although it is arguably best suited to curves with a positive slope. However, whatever it is, it does not help us interpret the yield curve and therefore offers no information content during analysis. (Fabozzi, 2002, p. 83). Although segmented market theory can explain why the yield curve is generally trending up, it has a major flaw in that it fails to explain facts 1 and 2 (Miskin & Eakins, financial markets and institutions, 2018, p. 143):

First, because she believes that the market for bonds of different maturities is completely segmented, there is no reason to think that an increase in interest rates on bonds of one maturity will affect rates on bonds of different maturities. Therefore, segmented market theory cannot explain why interest rates on bonds of different maturities tend to move together (fact 1).

Second, because it is unclear how the supply and demand of short- and long-term bonds will change with the level of short-term interest rates The theory fails to explain why the yield curve tends to slope upward when short-term interest rates are low and invert when short-term interest rates are high (fact 2).

Since each of our two theories can explain an empirical fact that the other cannot explain, it was a logical step to combine these theories, leading to the theory of the liquidity premium

3.3 The liquidity premium theory of the term structure.

Neither expectation theory nor segmented markets theory can explain the term structure of intereste rates completely. Thier flaws stem mosly from the extreme positions that each theory takes, investors regard bonds of different maturities as perfect substitutes for each other, under the expectation theory, whereas investors view bonds of different maturities as not being substitutes at all under segmented market hypothesis.By incorporating the findings of the previous two theories while avoiding their extreme assumptions.The **liquidity premium theory** or (**preferred habitat**

theory)of the term structure provides a more complete explanation (anthony & O'Brien, 2012, p. 143).

The core assumption of the liquidity premium theory is that bonds of various maturities are substitutes, meaning that the expected return on one bond influences the expected return on a bond of a different maturity.The theory, on the other hand, allows investors to choose between different bond maturities.To put it another way, different maturities of bonds are presumed to be substitutes, but not perfect substitutes. Shorter-term bonds are preferred by investors because they carry less interest-rate risk (Mishkin, the economics of money,banking,and financial markets, 2014, p. 130).As a result, if a long-term bond has the same yield as a series of short-term bonds, investors will not purchase it. Investors, contrary to the segmented markets theory, will be willing to swap a long-term bond for a short-term bond if the long-term bond pays a high enough interest rate (anthony & O'Brien, 2012, p. 143).

The liquidity premium theory, also known as the risk premium theory, states that long-term bonds have a liquidity premium over short-term bonds (Johnson, 2004, p. 78).As a reason, to encourage investors to keep longer-term bonds, a positive liquidity premium must be offered. As a result, the expectations theory is altered by include a positive liquidity premium in the equation describing the link between long and short-term interest rates.
The hypothesis of the liquidity premium is phrased as follows (Mishkin, the economics of money,banking,and financial markets, 2014, p. 130):

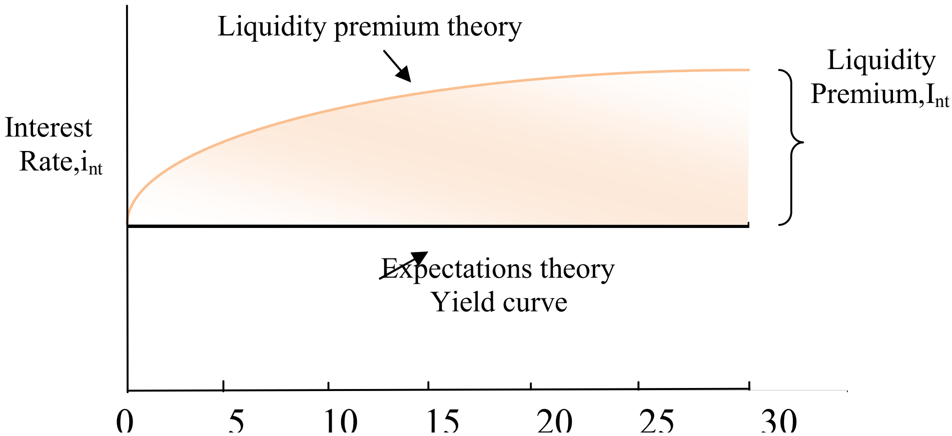
$$i_{nt} = \frac{i_t + i^e_{t+1} + i^e_{t+2} + \ . \ . \ . \ + i^e_{t+(n-1)}}{n} + l_{nt} \qquad .....(2)$$

where "lnt" is the liquidity (term) premium for the n-period bond at time t, which is always positive and increases with the bond's term to maturity, n.
The preferred habitat theory, which is deeply linked to the liquidity premium theory that takes a less direct approach to changing the expectation hypothesis, arrives to a similar conclusion.It assumes that investors have a preference for certain bond maturities over others—a preferred bond maturity ("preferred habitat") in which they want to invest.
Because they prefer one maturity over another, they are only prepared to purchase bonds with a somewhat higher expected return if they do not have the preferred maturity (habitat).Because risk-averse investors prefer the

environment of short-term bonds to that of longer-term bonds, they will only retain long-term bonds if the expected returns are higher. With a term premium that usually grows with maturity, this logic leads to the same Equation 2 as the liquidity premium hypothesis.

Figure 2 depicts the link between the expectations theory, the liquidity premium, and the preferred habitat theories.Because the liquidity premium is always positive and typically climbs as the term to maturity increases, the yield curve implied by the liquidity premium theory is always higher and has a steeper slope than the yield curve implied by the expectations theory. (For the sake of simplicity, we'll assume the yield curve in expectations theory is flat). (Miskin, the economics of money,banking,and financial markets., 2022, p. 180).

Fig.2: The Relationship Between the Liquidity Premium (Preferred Habitat) and Expectations Theory



Source : (Miskin & Eakins, financial markets and institutions, 2018, p. 145).

The liquidity premium and preferred habitat hypotheses in Equation 2 are further clarified by a simple numerical example, similar to the one we used for the expectation hypothesis.Assume that one-year interest rates are expected to be 5%, 6%, 7%, 8%, and 9% over the next five years, respectively, and that investors' preferences for holding short-term bonds mean that liquidity premiums for one- to five-year bonds are 0%, 0.25 percent, 0.5 percent, 0.75 percent, and 1.0 percent, respectively.The interest rate on the two-year bond, according to Equation 3, would be $\frac{5\%+6\%}{2}$ + 0.025% = 5.75%

For the five-year bond, it would be $\frac{5\%+6\%+7\%+8\%+9\%}{5} + 1\% = 8\%$

You should be able to confirm that the one- to five-year interest rates are 5.0 %, 5.75 %, 6.5 %,7.25 %, and 8.0 %, respectively, by performing comparable calculations for the one-, three-, and four-year interest rates.When compared to the expectations theory, we can observe that the liquidity premium and preferred habitat theories create yield curves that slope more steeply upward due to investors' preferences for short-term bonds. (Mishkin, the economics of money,banking,and financial markets, 2014, p. 132).

Let's look at whether the liquidity premium and preferred habitat hypotheses are consistent with the three empirical facts we've discussed (Miskin, the economics of money,banking,and financial markets., 2022, p. 181).

They explain the first fact, which claims that interest rates on bonds of varying maturities move togather over time:Short-term interest rates rising means that short-term interest rates will be higher on average in the future, and the first term in Equation 2 predicts that long-term interest rates will climb in parallel.

The liquidity and preferred habitat hypotheses also explain why yield curves have a particularly steep upward slope when short-term interest rates are low and invert when short-term interest rates are high (fact 2).Because investors expect short-term interest rates to return to a more normal level when they are low, the average of future predicted short-term rates will be higher than the present short-term rate. Long-term interest rates will be significantly higher than present short-term rates, and the yield curve will have a strong upward slope, thanks to the added boost of a positive liquidity premium. Short-term rates, on the other hand, are expected to fall if they are high. Because the average of predicted future short-term rates will be substantially below present short-term rates, despite positive liquidity premiums, long-term rates will fall below short-term rates, and the yield curve will slope downward.

By understanding that the liquidity premium grows with a bond's maturity due to investors' preferences for short-term bonds, the liquidity premium and preferred habitat theories explain fact 3, which indicates that yield curves often slope higher. Even if short-term interest rates remain unchanged, long-term interest rates will be higher than short-term interest rates in the future, and yield curves will normally slope upward.

4. CONCLUSION

Term structure theories explained the forms of the yield curve and how it was constructed. We highlighted the possibility of interpreting each theory of the three theories of the yield curve depending on the three facts we discussed in this research paper which were the criterion for a good interpretation of the structure of the term.

- the expectation theory well explains the first and second facts which have been concluded from the yield curves shapes and does not explain the third fact;
- The theory of market segmentation could explain the third fact and cannot explain the first and second that are explained by the theory of expectations;
- The liquidity premium theory has been able to explain all three facts.

Based on previous results, we can provide some recommendations :

- rely on the theory of liquidity when using the yield curve for its potential to be well interpreted, so that the results of expectations are close to the truth;
- Attention to the yield curve more broadly because the information it contains helps future predictions.

What's presented in the findings and recommendations can open the way for future research on the title within the following research perspectives.

- Translate the content of the yield curve information through liquidity preference theory of algeria;
- the predictive power of the yield curve for economic variables in Algeria.
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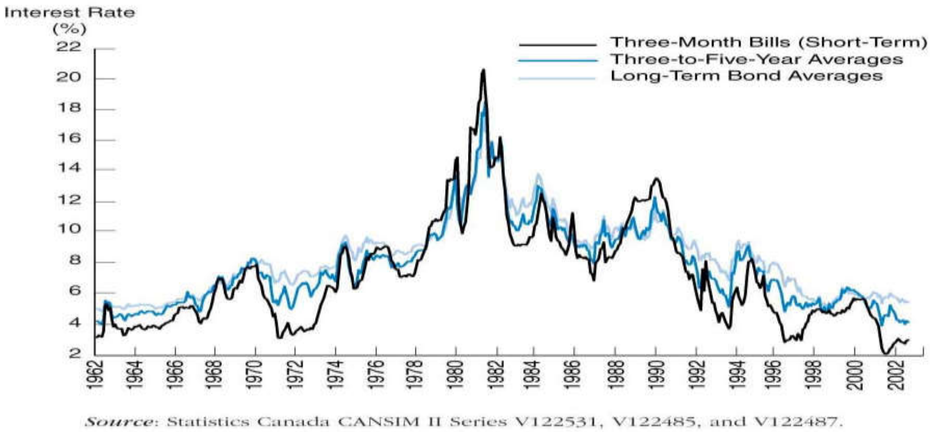
6. Appendices

Appendix 1 : Movements over Time of Interest Rates



Source: : (Mishkin & Serletis, The economics of money,banking and financial markets, 2005, p. 121)