MATHEMATICAL FINANCE PROJECT 2

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INTRODUCTION

Historical background
The first Treasury bill was created in England in March 1877. The first issue in the United States took place in December 1929.

What is Treasury Bills
A treasury bill, usually abbreviated to T-bill, is a short-term debt obligation of the central government. A treasury bill is a security of great simplicity resembling a bank note. It represents a charge on the revenues and assets of the United State. The main difference is that it is a note payable not at sight, but on a certain date in the future.

Treasury bills mature in one year or less. Interest is not paid prior to maturity; instead they are sold at a discount of the par value to create a positive yield to maturity.

The simplicity of the Treasury bill is suggested on the “face” of the bill, the face is electronic. It contains the following information:

- Issue date
- Maturity date
- Nominal or face value, which is the amount payable to the holder on maturity date

The difference between the **face value** and the purchase price is interest income. A discount is recorded when the amount paid is **less** than the face value and a premium when the amount paid is **more** than the face value (FASB Codification 835-30-25-5). At the time of purchase, a note with no periodic interest payments is valued at the present value of the future principal payments (face value). The present value calculation for notes paying periodic interest includes adding the present value of the future interest payments and the present value of the future principal payments. Because treasury bills are purchased at discount, they are effectively sold at their present value.

Regular weekly T-Bills are commonly issued with maturity dates of :
28 days (or 4 weeks, about a month)
91 days (or 13 weeks, about 3 months)
182 days (or 26 weeks, about 6 months)
364 days (or 52 weeks, about 1 year)

HOW TO BUY U.S TREASURY BILL

Treasury bills can be purchased directly from the U.S. Treasury or through a bank, broker, or dealer. U.S Treasury bills are sold by single-price auctions held weekly as follows**:**

- Offering amounts for 13-week and 26-week bills are announced each Thursday for auction, usually at 11:30 a.m., on the following Monday and settlement, or issuance, on Thursday. Banks and financial institutions, especially primary dealers, are the largest purchasers of T-bills.
- Offering amounts for 4-week bills are announced on Monday for auction the next day, Tuesday, usually at 11:30 a.m., and issuance on Thursday.
- Offering amounts for 52-week bills are announced every fourth Thursday for auction the next Tuesday, usually at 11:30 am, and issuance on Thursday.

Banks, brokers, and dealers offer two types of bidding for bills:

Competitive

Customers specify the discount rate they will accept. Depending on what discount rate is determined at the auction, they may or may not receive the bill desired, and if received, may be received in less than the amount wanted.

Non-competitive

Agreeing to accept whatever discount rate is determined at auction. It is guaranteed that the bill wanted is received, in the desired amount.

Factors that make Treasury securities attractive to investors.

Treasury securities are attractive to investors because they are backed by the full faith and credit of the united states government, are offered in a wide range of maturities and are exempt from state and local taxes. In addition, most of the securities offered to the public are marketable, meaning they can be resold. A small portion of the securities are non-marketable, meaning they are registered to the owner and cannot be sold in the financial market.

A key reason investors purchase Treasury Securities is because they are liquid—that is, investors can easily trade the security since there are many people interested in buying and selling at any given time.

Reasons why the Federal Reserve Purchase Treasury Securities.

The Federal Reserve buys and sells marketable treasury securities in the secondary market to conduct monetary policy in what are called "**Open Market Operations".** The Federal Reserve to the banking system by buying securities, and drains reserves from the system by selling securities. Open market operations generally target the federal funds rate – the rate at which banks lend to one another on an overnight basis—thereby influencing short term interest rates. The Federal Reserve typically purchases short-term Treasury securities for this purpose. During the financial crisis in 2008 and 2009, the Federal Reserve also began purchasing long term

Treasury securities in an effort to spur economic growth and other financial instruments to stabilize financial markets.

REFERENCE

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