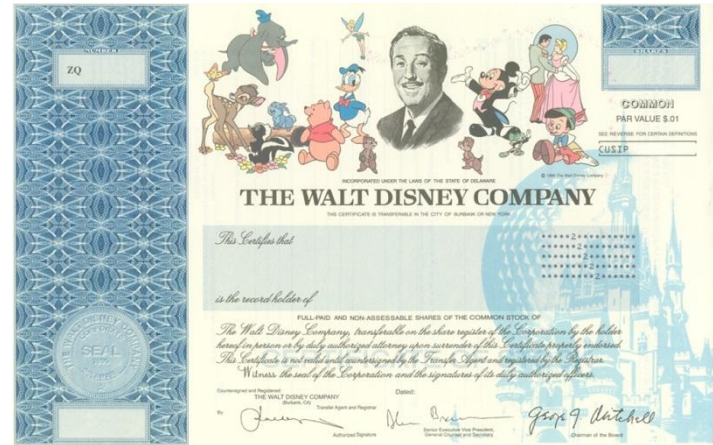


# Lecture 6: Origin and Development of Bond Markets in Medieval Europe

- Ref: AM-2
- Bond Markets and their Importance
- the Birth of the bond and Bond Markets
- War and Finance: Mountains of Debt
- Bond markets in Medieval Europe

# Bonds



Two example banknotes and one bond in the over 2770 lots offered in H.R. Harmer and Archives International auction, The American Bank Note Company Archives Auction PART III, June 2nd, 3rd & 4th, 2008. From left to right: The United States of America Fourth Liberty Loan \$1,000 Bond; 1905 \$100 specimen banknote from International Banking Corporation, Shanghai Branch; 500,000 Pounds Sterling Treasury Bill from the Russian Government.

# The bond market

- The bond market (also known as the credit, or fixed income market) is a financial market where participants buy and sell debt securities, usually in the form of bonds.
- As of 2009, the size of the worldwide bond market (total debt outstanding) is an estimated \$82.2 trillion, of which the size of the outstanding U.S. bond market debt was \$31.2 trillion according to BIS (or alternatively \$35.2 trillion as of Q2 2011 according to SIFMA

# bond markets

- Types of bond markets
  - ▣ Corporate, Government & agency, Municipal, Mortgage backed, asset backed, and collateralized debt obligation, Funding
- Participants
  - ▣ Institutional investors, Governments, Traders, Individuals

# US Bond Markets

- The outstanding value for all U.S. debt issues went from \$12 trillion in 1996 to more than \$35.9 trillion in 2010.
- **Average Daily Trading Volume (in 2009)\***
  - ▣ U.S. Bond Markets \$814.0 Billion
  - ▣ Stock Market (NYSE, NASDAQ, AMEX) \$104.9 Billion
- **Types of Outstanding Bonds (in trillions)\*: \$35.97**
  - ▣ Municipal: \$2.93, Treasury: \$8.85, Mortgage-Related: \$8.91, Corporate: \$7.54, Federal Agencies: \$2.73, Money Market: \$2.86, Asset-Backed: \$2.15

# the global bond market

- Amounts outstanding on the global bond market increased by 5% in 2010 to a record \$95 trillion. Domestic bonds accounted for 70% of the total and international bonds for the remainder.
- The US was the largest market with 39% of the total followed by Japan (20%). As a proportion of global GDP, the bond market increased to 130% in 2010 from 119% in 2008 and 80% a decade earlier.

# the global bond market

- At the end of 2010, \$95 trillion
  - ▣ global equity market with a market capitalisation of around \$55 trillion.
  - ▣ Growth was largely a result of an increase in issuance by governments, with government bonds accounting for 43% of the value outstanding at the end of 2010
- The outstanding value of international bonds increased by 3% in 2010 to \$28 trillion.
  - The US was the leading centre in terms of value outstanding with 24% of the total followed by the UK 13%.

# US Treasury securities

## □ **Federal Reserve holdings of U.S. Treasuries**

- For the Quantitative easing policy, the Fed's holding of US treasuries increased from \$750 billion in 2007 to over \$1.5 trillion by June 2011.

## □ **Top Foreign holders, at the end of 2010, in \$US B**

- China 1160.1, Japan 882.3, United Kingdom 272.1, Oil Exporters 211.9, Brazil 186.1, Carib Bnknng Ctrs 168.6, Taiwan 155.1, Russia 151.0, Hong Kong 134.2, Switzerland 107.0, Luxembourg 86.4 (\$172,800 per capita ), Canada 76.8, Singapore 72.9, Germany 60.5 (\$ 747 per capita )



# Significance of the Bond

## □ the Birth of the bond

- After the creation of credit by banks, the birth of the bond was the 2nd great revolution in Finance.
- Governments (and large corporations) issue bonds as a way of borrowing money from a broader range of people and institutions than just banks.
- For example, a Japanese government bonds totaling 838 trillion yen mountain of public debt that Japan has accumulated, mostly since the 1980s.

# How the bond market affect us

- How the bond market affect us
  - ▣ First, a large part of the money we put aside for our old age ends up being invested in the bond market.
  - ▣ Secondly, because of its huge size, and because big governments are regarded as the most reliable of borrowers, it is the bond market that sets long-term interest rates for the economy as a whole.
  - ▣ When bond prices fall, due ,for example, to worries about default or currency devaluation, interest rates soar, with painful consequences for all borrowers.

# Examples

- Japanese ten-year bond with a face value of 100,000 yen and a fixed interest rate or 'coupon' of 1.5 per cent, or
- US treasury 30-year bond with \$1,000 face value, semi-annual interest, quoted as
  - ▣ 30-Year 3.750 08/15/2041 113-25½ / 3.04 0-18 / -0.027
  - ▣ Price = handle (113) + 32<sup>nd</sup> (25.5/32) = 113.7969

# Bond markets have power

- Bond markets have power
  - PIMCO (the Pacific Investment Management Company), ‘bond markets have power because they’re the fundamental base for all markets.
  - But its real power lies in its ability to punish a government with higher borrowing costs.
  - Even an upward move of half a percentage point can hurt a government that is running a deficit, adding higher debt service to its already high expenditures.

# Bond price spiral

- Bond price spiral
  - An upward move of half a percentage point can hurt a government that is running a deficit, adding higher debt service to its already high expenditures.
  - As in so many financial relationships, there is a feedback loop. The higher interest payments make the deficit even larger.
  - The bond market raises its eye-brows even higher. The bonds sell off again. The interest rates go up again. And so on.

# The bond market dictating government policy

- The government faces three alternatives :
  - ▣ Does it default on a part of its debt, fulfilling the bond market's worst fears?
  - ▣ Or, to reassure the bond market, does it cut expenditures in some other area, upsetting voters or vested interests?
  - ▣ Or does it try to reduce the deficit by raising taxes?
- The bond market began by facilitating government borrowing. In a crisis, however, it can end up dictating government policy.

# War and Finance

- Heraclitus, 'War is the father of all things'
- **The Battle about Money**, engraving in 1570
  - ▣ By Pieter van der Heyden after Pieter Bruegel the Elder (Netherlandish, active by 1551, died 1569)

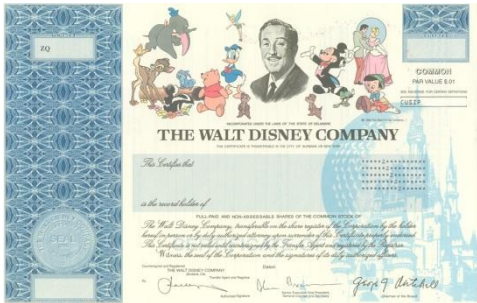


# Bonds



WY onderschreeven Reeken-meesters vande Camere der Oost Indische Compagnie binnen Middelburgh, Bekennen nichts deien gheaccordeert te hebben, ende by dien Chartergen der voorsz. Compagnie ontfanghen te wesen, vanden Eerfamen Taxe of Duty, die by de Rekenmeesters de bonnet van de Oost Indische Compagnie metten Interest van dien jesses 1650. 1651. 1652. 1653. 1654. 1655. 1656. 1657. 1658. 1659. 1660. 1661. 1662. 1663. 1664. 1665. 1666. 1667. 1668. 1669. 1670. 1671. 1672. 1673. 1674. 1675. 1676. 1677. 1678. 1679. 1680. 1681. 1682. 1683. 1684. 1685. 1686. 1687. 1688. 1689. 1690. 1691. 1692. 1693. 1694. 1695. 1696. 1697. 1698. 1699. 1700. 1701. 1702. 1703. 1704. 1705. 1706. 1707. 1708. 1709. 1710. 1711. 1712. 1713. 1714. 1715. 1716. 1717. 1718. 1719. 1720. 1721. 1722. 1723. 1724. 1725. 1726. 1727. 1728. 1729. 1730. 1731. 1732. 1733. 1734. 1735. 1736. 1737. 1738. 1739. 1740. 1741. 1742. 1743. 1744. 1745. 1746. 1747. 1748. 1749. 1750. 1751. 1752. 1753. 1754. 1755. 1756. 1757. 1758. 1759. 1760. 1761. 1762. 1763. 1764. 1765. 1766. 1767. 1768. 1769. 1770. 1771. 1772. 1773. 1774. 1775. 1776. 1777. 1778. 1779. 1780. 1781. 1782. 1783. 1784. 1785. 1786. 1787. 1788. 1789. 1790. 1791. 1792. 1793. 1794. 1795. 1796. 1797. 1798. 1799. 1800. 1801. 1802. 1803. 1804. 1805. 1806. 1807. 1808. 1809. 1810. 1811. 1812. 1813. 1814. 1815. 1816. 1817. 1818. 1819. 1820. 1821. 1822. 1823. 1824. 1825. 1826. 1827. 1828. 1829. 1830. 1831. 1832. 1833. 1834. 1835. 1836. 1837. 1838. 1839. 1840. 1841. 1842. 1843. 1844. 1845. 1846. 1847. 1848. 1849. 1850. 1851. 1852. 1853. 1854. 1855. 1856. 1857. 1858. 1859. 1860. 1861. 1862. 1863. 1864. 1865. 1866. 1867. 1868. 1869. 1870. 1871. 1872. 1873. 1874. 1875. 1876. 1877. 1878. 1879. 1880. 1881. 1882. 1883. 1884. 1885. 1886. 1887. 1888. 1889. 1890. 1891. 1892. 1893. 1894. 1895. 1896. 1897. 1898. 1899. 1900. 1901. 1902. 1903. 1904. 1905. 1906. 1907. 1908. 1909. 1910. 1911. 1912. 1913. 1914. 1915. 1916. 1917. 1918. 1919. 1920. 1921. 1922. 1923. 1924. 1925. 1926. 1927. 1928. 1929. 1930. 1931. 1932. 1933. 1934. 1935. 1936. 1937. 1938. 1939. 1940. 1941. 1942. 1943. 1944. 1945. 1946. 1947. 1948. 1949. 1950. 1951. 1952. 1953. 1954. 1955. 1956. 1957. 1958. 1959. 1960. 1961. 1962. 1963. 1964. 1965. 1966. 1967. 1968. 1969. 1970. 1971. 1972. 1973. 1974. 1975. 1976. 1977. 1978. 1979. 1980. 1981. 1982. 1983. 1984. 1985. 1986. 1987. 1988. 1989. 1990. 1991. 1992. 1993. 1994. 1995. 1996. 1997. 1998. 1999. 2000. 2001. 2002. 2003. 2004. 2005. 2006. 2007. 2008. 2009. 2010. 2011. 2012. 2013. 2014. 2015. 2016. 2017. 2018. 2019. 2020. 2021. 2022. 2023. 2024. 2025. 2026. 2027. 2028. 2029. 2030. 2031. 2032. 2033. 2034. 2035. 2036. 2037. 2038. 2039. 2040. 2041. 2042. 2043. 2044. 2045. 2046. 2047. 2048. 2049. 2050. 2051. 2052. 2053. 2054. 2055. 2056. 2057. 2058. 2059. 2060. 2061. 2062. 2063. 2064. 2065. 2066. 2067. 2068. 2069. 2070. 2071. 2072. 2073. 2074. 2075. 2076. 2077. 2078. 2079. 2080. 2081. 2082. 2083. 2084. 2085. 2086. 2087. 2088. 2089. 2090. 2091. 2092. 2093. 2094. 2095. 2096. 2097. 2098. 2099. 2100. 2101. 2102. 2103. 2104. 2105. 2106. 2107. 2108. 2109. 2110. 2111. 2112. 2113. 2114. 2115. 2116. 2117. 2118. 2119. 2120. 2121. 2122. 2123. 2124. 2125. 2126. 2127. 2128. 2129. 2130. 2131. 2132. 2133. 2134. 2135. 2136. 2137. 2138. 2139. 2140. 2141. 2142. 2143. 2144. 2145. 2146. 2147. 2148. 2149. 2150. 2151. 2152. 2153. 2154. 2155. 2156. 2157. 2158. 2159. 2160. 2161. 2162. 2163. 2164. 2165. 2166. 2167. 2168. 2169. 2170. 2171. 2172. 2173. 2174. 2175. 2176. 2177. 2178. 2179. 2180. 2181. 2182. 2183. 2184. 2185. 2186. 2187. 2188. 2189. 2190. 2191. 2192. 2193. 2194. 2195. 2196. 2197. 2198. 2199. 2200. 2201. 2202. 2203. 2204. 2205. 2206. 2207. 2208. 2209. 2210. 2211. 2212. 2213. 2214. 2215. 2216. 2217. 2218. 2219. 2220. 2221. 2222. 2223. 2224. 2225. 2226. 2227. 2228. 2229. 2230. 2231. 2232. 2233. 2234. 2235. 2236. 2237. 2238. 2239. 2240. 2241. 2242. 2243. 2244. 2245. 2246. 2247. 2248. 2249. 2250. 2251. 2252. 2253. 2254. 2255. 2256. 2257. 2258. 2259. 2260. 2261. 2262. 2263. 2264. 2265. 2266. 2267. 2268. 2269. 2270. 2271. 2272. 2273. 2274. 2275. 2276. 2277. 2278. 2279. 2280. 2281. 2282. 2283. 2284. 2285. 2286. 2287. 2288. 2289. 2290. 2291. 2292. 2293. 2294. 2295. 2296. 2297. 2298. 2299. 2300. 2301. 2302. 2303. 2304. 2305. 2306. 2307. 2308. 2309. 2310. 2311. 2312. 2313. 2314. 2315. 2316. 2317. 2318. 2319. 2320. 2321. 2322. 2323. 2324. 2325. 2326. 2327. 2328. 2329. 2330. 2331. 2332. 2333. 2334. 2335. 2336. 2337. 2338. 2339. 2340. 2341. 2342. 2343. 2344. 2345. 2346. 2347. 2348. 2349. 2350. 2351. 2352. 2353. 2354. 2355. 2356. 2357. 2358. 2359. 2360. 2361. 2362. 2363. 2364. 2365. 2366. 2367. 2368. 2369. 2370. 2371. 2372. 2373. 2374. 2375. 2376. 2377. 2378. 2379. 2380. 2381. 2382. 2383. 2384. 2385. 2386. 2387. 2388. 2389. 2390. 2391. 2392. 2393. 2394. 2395. 2396. 2397. 2398. 2399. 2400.

2400 — *Comptrolleur*



FIVE per Cent. Annuities,  
Consolidated JULY 6th, 1785.

Received this 22 Day of Jan<sup>r</sup> 1794 of  
*Amos Mason*  
the Sum of *Five hundred & one pound*  
being the Consolidation for *Five hundred & one pound*  
Interest or there in the Capital of *Five hundred & one pound* of FIVE per Cent.  
Annuities, consolidated July 6th, 1785, granted by Two Acts of  
Parliament, one of the Twenty-fourth, and the other of the Twenty-  
sixth Year of the Reign of His Majesty King George III both intitled,  
An Act for granting Annuities to Siry Andrew Bury, Vintner, and  
Trustee of the East India Company, and Thomas Deane, together with the Provisional Assent  
attending the same, by *Amos Mason* This Day transferred to the like  
*Amos Mason* Witness my Hand  
Witness *Amos Mason*



Two example banknotes and one bond in the over 2770 lots offered in H.R. Harmer and Archives International auction, The American Bank Note Company Archives Auction PART III, June 2nd, 3rd & 4th, 2008. From left to right: The United States of America Fourth Liberty Loan \$1,000 Bond; 1905 \$100 specimen banknote from International Banking Corporation, Shanghai Branch; 500,000 Pounds Sterling Treasury Bill from the Russian Government.



# War bonds: Mountains of Debt

- Powerful bond, why?
  - ▣ Our Mr. 'Bond' become so much more powerful than the Mr. Bond of Ian Fleming's 007?
  - ▣ Why, indeed, do both have a license to kill?
- War bonds: Mountains of Debt
  - ▣ It was certainly the father of the bond market.
  - ▣ Pieter van der Heyden's engraving, The Battle about Money, engraved on Bruegel's drawing at Antwerp
  - ▣ War for or by money?

# Mountains of Debt

- The Battle about Money
  - ▣ The Dutch verses below the engraving say: 'It's all for money and goods, this fighting and quarrelling.'
  - ▣ But what the inscription could equally well have said is: 'This fighting is possible only if you can raise the money to pay for it.'
- The ability to finance war through bond issue
  - ▣ a market for government debt was, like so much else in financial history, an invention of the Italian Renaissance.

# The war finance in the Italian Renaissance.

- Bond as an invention of the Italian Renaissance.
  - The ability to finance war through a market for government debt was, like so much else in financial history, For much of the 14C and 15C, the medieval city-states of Tuscany, Florence, Pisa and Siena at war with each other or with other Italian towns.
  - Rather than require their own citizens to do the dirty work of fighting, each city hired military contractors (*condottieri*) who raised armies to annex land and loot treasure from its rivals.
  - This was war waged as much by money as by men.

# Sir John Hawkwood, a mercenary

- *Giovanni Acuto, John the Acute, of Florence*
  - A *condottieri* of the 1360s and 1370s stood out.
  - His commanding figure on the walls of Florence's *Duomo*, a painting commissioned by a grateful Florentine public, for his 'incomparable leadership'.
  - Born in Essex, England, so skillfully did wage war on their behalf of the Florentines ,
  - fighting for Pisa first, then switched to serve Florence, and spent the rest of his military career in that city's employ. Because Florence was where the money was.

# War Finance in Florentine States

- The burden of war finance in Italy
  - ▣ The cost of incessant war had plunged Italian city states into crisis, Florence was drowning in deficits.
  - ▣ the city's debt burden increased from 50,000 florins at the beginning of the 14C to 5 million by 1427.
  - ▣ It was the communal debt mountain, *monte commune* .
  - ▣ the early 15C, borrowed money accounted for nearly 70 per cent of the city's revenue, more than half the Florentine economy's annual output.

# War Finance in Florentine States

- The birth of war bond
  - ▣ Instead of paying a property tax, wealthier citizens obliged to lend money to their own city government. , and in return for these forced loans (*prestanze*), they received ***interest***.
  - ▣ Technically, not usury (which was banned by the Church) since the loans were obligatory;
  - ▣ interest payments could therefore be reconciled with canon law as *compensation for the real or putative costs arising from a compulsory investment*.

# War Finance in Florentine States

- The war bond in Italian city-states
  - ▣ In Florence, war bonds were relatively liquid assets, even though the bonds at this time were no more than a few lines in a leather-bound ledger.
  - ▣ In effect, then, Florence turned its citizens into its biggest investors.
  - ▣ By the early 14C, two thirds of households had contributed in this way to financing the public debt, mostly by a few thousand wealthy individuals.

# War Finance in Florentine States

- Florence war bond
  - The Medici entries in the '*Ruolo delle prestanze*' testify not only to the scale of their wealth but also to the extent of their contributions to the city-state's coffers. In effect, it turned its citizens into its biggest investors.
  - This system worked so well since they and a few other wealthy families also controlled the city's government and hence its finances.



# War Finance in Florentine States

- This oligarchical power structure gave the bond market a firm political foundation.
  - ▣ Unlike an unaccountable hereditary monarch, who might arbitrarily renege on his promises to pay his creditors, the people who issued the bonds in Florence were in large measure the same people who bought them.
  - ▣ Not surprisingly, they therefore had a strong interest in seeing that their interest was paid.

# War Finance in Florentine States and Venice

- Nevertheless, there was a limit to fighting unproductive wars could be waged in this way.
  - The larger the debts of the Italian cities became, the more bonds they had to issue; and the more bonds they issued, the greater the risk that they might default on their commitments.
  - Venice had in fact developed a system of public debt even earlier than Florence, in the late 12C. The *monte Vecchio* (Old Mountain) as the consolidated debt was known, played a key role in funding Venice's 14C wars with Genoa and other rivals.

# War Finance in Venice

- A new mountain of debt, *the monte nuovo*, arose after the protracted war with the Turks in 1463-1479.
  - Investors received annual interest of 5 per cent, paid twice yearly from the city's various excise taxes, levied on articles of consumption like salt.
- Like the Florentine *prestanzze*, the Venetian *prestiti* were forced loans, but with a secondary market which allowed investors to sell their bonds to other investors for cash.

# War Finance in Venice

- In the late 15C, a series of Venetian military reverses greatly weakened the market for *prestiti*.
  - ▣ Priced at 80, 20 per cent below par, in 1497, the bonds of the Venetian *monte nuovo* were worth just 52 by 1500, recovering to 75 by the end of 1502 and then collapsing from 102 to 40 in 1509.
  - ▣ At their low points in the years 1509 to 1529, *monte vecchio* sold at just 3 and *monte nuovo* at 10.

# War Finance in Venice

- In the year 1499, when Venice was fighting both on land in Lombardy and at sea against the Ottoman Empire, a severe financial crisis as bonds crashed in value and interest rates soared.
- Likewise, the bond market rout of 1509 as a result of the defeat of the Venetian armies at *Agnadello*.
  - ▣ The result in each case was the same: business ground to a halt.

# War Finance in Northern Europe

- Northern European polities: solution for war finance, without falling foul of the Church was somewhat different.
  - ▣ Though they prohibited the charging of interest on a loan the usury laws did not apply to the medieval contract known as the ***census***, which allowed one party to buy a stream of annual payments from another.
- In the 17C, ***such annuities*** started to be issued by northern French towns like Douai and Calais and Flemish towns like Ghent.

# War Finance in Northern Europe

- They took one of two forms: *rentes heritables* or *erfelijkrenten*, perpetual revenue streams which the purchaser could bequeath to his heirs, or *rentes viagères* or *lijfrenten*, which ended with the purchaser's death.
- The seller, but not the buyer, had the right to redeem the *rente* by repaying the principal. By the mid sixteenth century, the sale of annuities was raising roughly 7 per cent of the revenues of the province of Holland.

# French and Spanish War Finance

- Both the French and Spanish crowns sought to raise money in the same way, but they had to use towns as intermediaries.
  - ▣ In the French case, funds were raised on behalf of the monarch by the Paris *hotel de ville*
  - ▣ in the Spanish case, royal *juros* had to be marketed through Genoa's Casa di San Giorgio (a private syndicate that purchased the right to collect the city's taxes) and Antwerp's *beurs*, a forerunner of the modern stock market.



# French and Spanish War Finance

- Yet investors in royal debt had to be wary. Whereas towns, with their oligarchical forms of rule and locally held debts, had incentives not to default, the same was not true of absolute rulers.
- the Spanish crown became a serial defaulter in the late sixteenth and seventeenth centuries, wholly or partially suspending payments to creditors in 1557, 1560, 1575, 1596, 1607, 1627, 1647, 1652 and 1662.