




Fall 2013
ADVANCED FINANCIAL INSTRUMENTS AND MARKETS
Lecture No. 03
Technology and Innovation in Finance

Hammad Hassan Mirza
Assistant Professor (Finance)
Department of Business Administration
University of Sargodha

Today's Discussion

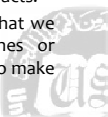
- * Some important concepts from Lecture No. 02
- * Meaning of Financial Innovation
- * Motivation for Financial Innovation
- * Financial Innovation and US Mortgage Crisis



Property of Department of Business Administration, University of Sargodha

Introductory Discussion

- * No exchange for Derivative in 1970
- * The proliferation of financial instruments in 40 years is stunning
- * Crisis are like Crash
- * Pooling of Independent Events and Socialism (Robert Owen)
- * Financial Inventions are Modern Financial Contracts.
- * Financial Devices are complicated structures that we set up for a certain purpose, like airplanes or automobiles, and we learn through time how to make them better and better



Property of Department of Business Administration, University of Sargodha

Some Examples from Old Times

- * Setting up a company and dividing its ownership into simple parts.
- * Limited liability has kind of a complicated history from 1811
- * The corporate law of New York in 1811: Shareholders cannot be sued.
- * Other states in the United States were looking at New York and saying, you're crazy. What are you doing? You can't sue the shareholders? They could do something irresponsible. **State of Massachusetts**, at around the same year, made a completely opposite law

Property of Department of Business Administration, University of Sargodha

4

Some Examples from Old Times

- * Well, guess what happened?
- * It was an experiment that might not have gone well
- * **Example of China**
- * Township and Village Enterprise or TVE
- * There were 12 million TVEs in China. By the mid-1990's, most of the industrial production of China was done by TVE

Property of Department of Business Administration, University of Sargodha

5

Classical Financial Innovations

- * US indexed bonds in 1780 state of Massachusetts
- * Why they disappeared: Gimlet
- * Example from **Chile**
- * Chile had a problem with, like many Latin American countries, especially of that time, with inflation. they had a currency called the peso which inflated enormously. It went up thousand times.
- * Every body was saying, I wouldn't take a contract paying pesos. The peso is gradually becoming worthless

Property of Department of Business Administration, University of Sargodha

6

Classical Financial Innovations

- * Chile switched to another currency called the escudo in 1960. Then, in 1975, they switched back to the peso. The exchange rate, peso to escudo, was one escudo was 1,000 pesos. So, a new peso was a million old pesos
- * If you have a nice 1,000 peso note from 1955 and you pull it out in 1975, it's worth nothing.
- * In 1967, in Chile they created something called the *Unidad de Fomento*. That's Spanish for Unit of Development. It was a unit of account that is indexed to inflation (Check today's worth <http://valoruf.cl>)

Property of Department of Business Administration, University of Sargodha

7

Some Modern Inventions

- * Indexing an old but important invention:
- * Renting House, Calculating GDP Growth (Deflator)
 - * Swaps
 - * Options
 - * Futures
 - * Forwards
 - * Convertibles
- * Shadow Banking??

Property of Department of Business Administration, University of Sargodha

8

Financial Innovation

- * Categorization of Financial Innovation according to "Economic Council of Canada"
 - * *Market broadening instruments*
 - * Which increase the liquidity of markets and the availability of funds by attracting new investors.
 - * *Risk management instruments*
 - * Which reallocate the financial risk to those who are less risk averse to them.
 - * *Arbitraging instruments and processes*
 - * Which enable investors and borrowers to take advantage of cost and return differences.

Property of Department of Business Administration, University of Sargodha

9

Financial Innovation

- * According to Bank for International Settlements
 - * Price risk transferring innovations
 - * Credit risk transferring instruments
 - * Liquidity generating innovations
 - * Credit generating instruments
 - * Equity generating instruments


Property of Department of Business Administration, University of Sargodha 10



Motivation for Financial Innovation

- * Two Extreme Views:
 - * Endeavor to circumvent regulations and find loopholes in tax rules.
 - * Enhancing market allocation efficiency for redistribution of risk among market participants.

Property of Department of Business Administration, University of Sargodha 11



Motivation for Financial Innovation

- * The ultimate Causes
 - * Increased volatility of interest rates, inflation, exchange rates
 - * Advances in Technology
 - * Sophisticated educational training among professional market participants.
 - * Financial Intermediaries Competition

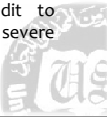
Property of Department of Business Administration, University of Sargodha 12



Case of US Financial Crisis 2008

* The U.S. **subprime mortgage crisis** was a set of events and conditions that led to the late-2000s financial crisis, characterized by a rise in subprime mortgage delinquencies and foreclosures, and the resulting decline of securities backed by said mortgages. Several major financial institutions collapsed in September 2008, with significant disruption in the flow of credit to businesses and consumers and the onset of a severe global recession.


Property of Department of Business Administration, University of Sargodha 13



Case of US Financial Crisis 2008


- * US Subprime Mortgage Crisis
- * Mortgage backed securities
- * Collateralized debt obligation
- * Credit Default Swap

Property of Department of Business Administration, University of Sargodha 14



End of Session - I

Property of Department of Business Administration, University of Sargodha 15



Session - II

- * Role of Central Bank
- * Role of Monetary Policy in Financial Markets
 - * Trade-Offs and Conflicts Among Policies
 - * Monetary Goals and Targets
 - * Characteristics of Targets
 - * Choosing Operating Targets
 - * Choosing Intermediate Targets


Property of Department of Business Administration, University of Sargodha 16



Role of Central Bank Open Market Operations

- * CB purchases and sales government securities
- * purchases
 - * Increase excess reserves
 - * Increase new loans
 - * Increase money supply
- * sales
 - * Decrease excess reserves
 - * Decrease loans
 - * Decrease money supply

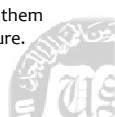
Property of Department of Business Administration, University of Sargodha 17



Open Market Repurchase Agreements

- * Repurchase Agreement
 - * CB buys securities from a seller who agrees to repurchase them at a higher price on a certain date in the future. (Temporary increase in excess reserves.)
- * Reverse Repurchase Agreement
 - * CB sells securities and agrees to repurchase them at a higher price on a certain date in the future. (Temporary decrease in excess reserves.)

Property of Department of Business Administration, University of Sargodha 18



Discount Rate

- * An increase in the discount rate discourages banks from borrowing from the Fed
- * A decrease in the discount rate encourages banks to borrow from the Fed



State Bank of Pakistan

- * **Statutory Obligations.**
 - * **CASH RESERVE**
 - * Presently the requirement is 5% on weekly average basis subject to daily minimum of 4% of Time & Demand Liabilities
 - * **LIQUIDITY REQUIREMENT**
 - * Presently the requirement is 15% (excluding 5% statutory cash reserve) of the total of its time and demand liabilities in Pakistan
 - * **MAINTENANCE OF LIQUIDITY AGAINST CERTAIN LIABILITIES**
 - * required to maintain cash balance with State Bank, which shall not be less than 1% of their liabilities
 - * **SUBMISSION OF ANNUAL AUDITED ACCOUNTS BY NBFIs**
 - * submit their annual audited accounts within a period of 6 months after the close of their accounting year.

Functions of State Bank of Pakistan

- * **ANNUAL ACCOUNTS**
 - * At the expiration of each calendar year
- * **SUBMISSION OF RETURNS**
 - * The accounts and balance-sheet together with the auditor's report as passed in the annual General Meeting shall be furnished as returns to the State Bank within three months of the close of the period to which they relate
- * **MINIMUM CAPITAL REQUIREMENTS**
 - * As present, all banks operating in Pakistan are required to maintain capital and general reserve, the value of which is not less than 8% of their risk-weighted assets. Additionally they are also required to maintain a minimum paid up capital of Rs.500 million.

*** Core Functions**

- * REGULATION OF LIQUIDITY
 - * Design and manage monetary and credit policy in a manner consistent with the Government's targets for growth and inflation and the recommendations of the Monetary and Fiscal Policies Co-ordination Board with respect to macro-economic policy objectives
- * REGULATION AND SUPERVISION
- * EXCHANGE RATE MANAGEMENT AND BALANCE OF PAYMENTS

Property of Department of Business Administration, University of Sargodha 22

Monetary Aggregates

- * Monetary Base: Currency in circulation
 - * Currency and coins plus total reserves
- * M1 Money Supply
 - * Currency plus demand deposits
- * M2 Money Supply
 - * M1 plus short-term time deposits
- * M3 Money Supply
 - * M2 plus long-term time deposits

Property of Department of Business Administration, University of Sargodha 23



The Money Supply Process in an Open Economy

- * Foreign Exchange Market Intervention
 - * The CB's purchase and sale of foreign currencies
- * Purchase of foreign currencies
 - * Increases monetary base
 - * Reduces value of the PKR
- * Sale of foreign currencies
 - * Decreases monetary base
 - * Increases value of the PKR


Property of Department of Business Administration, University of Sargodha 24



Role of Monetary Policy in Financial Markets

- * Price Stability
- * Full Employment
- * Economic Growth
- * Stable Interest Rates
- * Stable Foreign Exchange Rate

Property of Department of Business Administration, University of Sargodha 25



Trade-Offs and Conflicts Among Policies

- * Monetary Policy Tools
 - * Increase rate of growth in money supply by supplying more reserves to banking system
 - * Decrease rate of growth in money supply by supplying fewer reserves to banking system
- * Conflicts between monetary policies and monetary goals


Property of Department of Business Administration, University of Sargodha 26



Monetary Goals and Targets

- * Monetary Goals
- * Operating Targets
 - * monetary and financial variables
- * Intermediate Targets
 - * interest rates and monetary aggregates


Property of Department of Business Administration, University of Sargodha 27



Characteristics of Targets

- * Linkage
- * Observability
- * Responsiveness


Property of Department of Business Administration, University of Sargodha 28



Choosing Operating Targets

- * Operating Targets
 - * Level of federal funds rate
 - * Level of borrowed and non-borrowed bank reserves
 - * The Fed cannot target both interest rates and reserves at the same time

Property of Department of Business Administration, University of Sargodha 29



Choosing Intermediate Targets

- * Monetary aggregates
- * Exchange rates
- * Level of national output
- * Level of actual or expected inflation
- * Interest rates

Property of Department of Business Administration, University of Sargodha 30

