Financial institutions: An Intuitive Understanding

Financial institutions have a very special place in economics. In Canada, the top three companies by market capitalization are all financial institutions: Royal Bank, TD Bank and Bank of Nova Scotia. Compared with other companies, what are special with financial institutions?

First, return on asset with financial institutions are very low. Most banking businesses, such as mortgage lending, are simple and standard. As a result, return on asset is rather low, around 2%.

Second, banks are highly leveraged. To increase return on equity, banks are highly leveraged.

Third, banks are highly regulated. This greatly reduces the intensity of competition among banks and reduces the possibilities of new entrants. This enables financial institutions to be highly leveraged. According to BIS, equity level at banks can be as low as 2% of the assets.

Fourth, the operations of financial institutions affect almost all parts of life. When we go shopping, we pay with credit cards or debit cards. Our monthly incomes are deposited directly into our bank accounts. Our pensions are managed by financial institutions. Individuals apply for mortgages when they buy houses. We buy housing insurances and car insurances from insurance companies. Businesses apply for loans from banks. Businesses also raise funds with bonds or stocks through investment banks. Bonds and stocks are traded in financial markets. The list can go on and on.

Many factors contribute to the growing influence of financial institutions. First, the increase of fixed cost in the society. Second, the increase of life span of the population. Third, the decline of the family system.

The recent financial crisis and subsequent sluggish economic performance in many countries must have generated a lot of reflection in our mind. What are the causes of the financial crises? What determines the magnitude of the crises? Why the economic activities in many countries, such as Europe, don’t recover quickly after recession, as predicted by the standard theory? What are the causes of low fertility and population aging? How aging population affect financial institutions, over short term and long term.? How financial policies and risk management practices impact financial institutions?

In this course, we will understand finance as means to help real economic activities. This perspective will enable us to gain a very intuitive understanding of the roles of financial institutions. We will illustrate the ideas through many simple calculations. Our ability to do precise calculations in finance enables us to communicate our knowledge much easier. This is also why finance theory has made much more progress in the past than economic theory.

Any organisms or organizations need to make a fixed investment before earning a positive return. What types of fixed investment and how much to invest depend on the market demands. When the market size for a product or a service is large, a small number of large projects provide higher returns than a large number of small projects. Financial institutions and markets, by issuing and trading debts and equities, provide effective ways to increase the fixed investment of economic systems. They have been instrumental in accelerating economic development in many countries.

Fifty years ago, dozens of small saw mills spread around Prince George. Over the years, the forestry industry in this region becomes dominated by only two companies: Canfor and West Fraser. The concentration of business, with corresponding increase of fixed costs, lowers the average production cost and increases the industry’s capacity to market effectively, especially to overseas markets. Both Canfor and West Fraser are publicly traded, while small forestry companies are generally privately held. The sizes of businesses are related to their financial activities. Large businesses usually have stronger interactions with financial institutions and financial markets.

Since building up required fixed assets takes time and effort, businesses and societies cannot respond to unexpected changes immediately. The necessity of fixed cost in businesses and economic systems is the most important reason why business and economic activities fluctuate, sometimes violently, over time.

The fixed costs of production systems can be high or low. Small businesses, as low fixed cost systems can respond more flexibly to unexpected changes. Hence as a group, they are less affected by business cycles. However, large businesses, as high fixed cost systems have lower variable cost and hence have more significant scale economy than lower fixed cost systems. When the size of the economy is large, large companies provide higher rates of return on average. Therefore, large businesses often replace small businesses over time in many sectors, despite their potentially higher instability.

Higher fixed cost systems require a higher level of output to breakeven than lower fixed cost systems. When economic output shrinks, high fixed cost investments are affected more than low fixed cost systems. Since financing is intimately related to high fixed cost investments, an economic downturn is often manifested as a financial crisis. Banks and other financial institutions, as major players in the financial market, often suffer heavily during financial crises.

What measures we can take to reduce our risk exposure to fluctuation of economic activities? Overtime, revenues of financial institutions have diversified from loan businesses to many other areas, such as wealth management, securitization,and transaction based services. Many laws and regulations are established to increase the businesses of financial institutions. A recent example is the increase of pension deduction of employees. But the increase of pension deduction reduces the income of people at their reproductive ages, which will further curb their ability to have more children. Over long term, low fertility and population aging will pose great challenge to Canadian economy and profit outlook of financial institutions.

When the fixed costs in productions are high, it often takes longer time to recoup initial investments. Expected production time is often long. This increases the difficulty in forecasting, planning and capital budgeting. The recent financial crisis is mainly about long term mortgage securities. The values of long term securities and long term projects are especially sensitive to the change of interest rate and other market conditions. We should be especially careful in taking on long term projects and long term financing. Forty year mortgages have been abolished after the financial crisis. We should be especially careful in buying long term securities.

The level of liability greatly affects the structure and incentives in production. There are a range of liability options from complete liability to limited liability. The level of liability is also affected by forms of financing and the nature of businesses. Broadly speaking, there are two forms of financing: Debt and equity. Debt financing has higher level of liability. At the same time, debt financing method has less dilution to ownership. Residential and commercial real estates are mainly tangible assets. Some businesses possess more tangible assets than others. Entities with high level of tangible assets are less subject to uncertainty. They are often financed by debts.

Limited liability encourages risk taking and experimenting, which helps explore new potentials but also generate high level of waste and induce moral hazard. Between equity and debt, equity has lower level of liability. When the growth rate is high, financial institutions often issue equity financing, which provide greater upside potential than debt financing. When the growth rate is low, investors prefer debts, which provide more certainty in return than equity holdings. It is important to gain good insight about long term growth rate in order to make sound investment decisions.

Discount rate is the most important tool government uses to affect the production and consumption at individual level, firm level and society’s level. The level of discount rate reflects the level of downside risk. However, risk can be understood from different scopes. In larger systems, risks of different parts often cancel each other. One party’s loss is often another party’s gain. In general, larger systems have lower risks. Individuals often incur highest borrowing rate. Firms have lower borrowing rates than individuals. Governments often have the lowest borrowing rates. While individual projects may have high risks, collectively, the overall risk can be low from the government’s perspective. If there is a potential for rapid economic growth, governments may lower the discount rate to stimulate growth. Government can use taxation and redistribution to compensate the losers in a low discount rate environment, such as the general public as small depositors. But taxation and redistribution is always complex and difficult. That is why in most time of human history, discount rates are determined by the market at much higher rates instead of directed by government agencies, as they are today. However, as economic activities slow down, it is time to reconsider the role of government is determining interest rates.

Regulation and risk management is an important part of financial systems. An important aspect of regulation is the co-evolution between regulatory systems and financial institutions. For example, deposit insurance was first introduced to protect small and poorly informed depositors. In the end, it provides insurance to large and sophisticated speculators. Similarly, risk management techniques, such as VAR, were first introduced to lower the risk of financial institutions. But in the end, these techniques enable financial institutions to take more risks. This can be illustrated by the name hedge funds. Hedge funds, initially called hedged funds, originally described those funds where market risks are hedged. Hence these funds typically had low risk exposures. But because of low risk exposures, many hedged funds attempt to increase their rate of return by leverage. In the end, many hedge funds, such as Long Term Capital Management, become highly risky.

Sustainability has become a serious concern for many of us. What is the ultimate measure of sustainability in a human society? It is the fertility rate. Currently, the fertility rate in Canada is 1.6 per woman, which is much lower than the replacement rate, or the sustainability rate. Many people have witnessed first hand the effect of low fertility rate. Prince George has experienced two waves of school closing in the last ten years. Some small Northern towns, such as Stewart, have seen the last bank branch left their towns. The decline of fertility has slow but profound impact on the life of community and the fortune of financial institutions. It is especially important for sparsely populated northern communities.

Some people might think demographics only have marginal impacts to finance. But demographical changes may provide a better long term signal of changes in financial fortunes than many would think. At the beginning of 1990s, the Japanese economy seemed unstoppable. But its fertility had dropped below replacement rate in 1960s. Nikkei 225 was over 39,000 in 1989. Today it is below 10,000. For most wealthy countries, their fertility rates dropped below the replacement rate in 1970s. It is possible that market values of many stock exchanges in these wealthy countries may have already peaked. China’s economy has been red hot for many years. But its fertility has been lower than the replacement rate since 1980s from its one child policy. From its demographics, we suggest that the Chinese stock markets may peak soon or have already peaked. While the values of stock market and economy are affected by many factors, the standard economic and finance theory may have ignored or at least underestimated the tremendous influence and predictive power of demography. If we understand social systems are part of the biological systems, we will be much for farsighted.

These and other issues will be explored in this course.