Econ 233

Lecture Note on Financial Liberalization in Transition

Issues and concepts:

- cost of capital
- risk premium
- diversification
- capital asset pricing model
- risk premium before and after liberalization

Introduction

In socialist economies, capital was allocated to each enterprise according to the central plan. Transition economies strive to establish new and efficient markets for capital. One of the decisions they face is whether or not to integrate their capital markets with the rest of the world. The current strategy of advanced transition economies is to open up their markets to foreign investment.[1] On one hand, liberalization of capital movement promotes efficient allocation of resources. On the other hand, some economists argue that global financial markets are full of imperfections and can actually be harmful to economic development. We approach the question of financial liberalization in the manner in which economists usually approach policy issues: we develop a framework to analyze the issue, find a testable implication, and finally look at the data to see in which direction they point.

You will recall from our discussion of the balance of payments that temporary imbalances in the current account can be financed by flows of capital from abroad. Whether inflows of capital are sustainable depends on whether the current account imbalance is due to high consumption or high investment. Capital flows are sustainable and highly beneficial if the investment which they finance increases a country's

[1] Advanced reformers such as Poland and Hungary chose to integrate their markets with the rest of the world from the very beginning of the reforms. However, slow reformers such as Albania, Belarus and countries in central Asia still have many restriction on international transactions.

productive capacity. On the other hand, if capital flows stifle investment and promote consumption, they are most likely to last for only a short period of time.

The cost of capital

In Economic Principles you learned that investment depends on, among other things, the level of interest rates. With high interest rates, entrepreneurs have to pay more to borrow the funds with which to implement their projects. Projects that can not deliver returns sufficient enough to pay the interest will not be implemented. The higher the interest rate, the higher the cost of capital.

Instead of borrowing from a bank firms may try to sell more stock on the stock market. What does the cost of capital depend on in this case? It still depends on the returns that the firm is expected to deliver. If the firm is unlikely to deliver a certain level of returns, it will not be able to sell the stock to investors. The return on a stock depends on how much and how quickly it appreciates. [2] In summary, the cost of capital depends on the required rate of return.[3]

Risk premium

What determines the required rate of return? In the following example, returns on a $100 dollar investment in asset W are as described in the table below:

	R_1	R_2	R_3	R_4	$\overline{R}$	$var(R)$
W	6	10	6	10	8	4
X	12	4	12	4	8	16

Asset W is a risky asset. Its returns vary with the average return being 8. Risk premium is the difference between the return on an asset with risk and the return on a riskless asset. If a riskless return is 6%, the risk premium on asset W would be 2%. Thus, the required rate of return is closely related to the risk premium. They both indicate what has to be offered to compensate for the risk of an asset.

[2]Returns depend on the present discounted value of all the dividends that the firm is going to pay to shareholders. The value of future dividends is reflected in the price of the stock. As the price of the stock rises, investors realize returns.

[3]To make sure you understand ask yourself if a high required rate of return is a good thing or a bad thing.

What does the risk premium depend on? Other things being equal, the higher the variance of returns the higher the risk, and the higher the reward for holding the asset. Risk premium depends on the variance of returns and the world price of risk T:

$$R_W - R_f = var(R_W) * T \tag{1}$$

For every unit of increase in variance the risk premium will increase by T. The price of risk depends on the level of risk aversion among investors in the world. In our case $T = 2$. [4] [5]

Risk diversification

What should the risk premium be on asset X? We see that the variance of returns is 16. Hence, according to equation (1), the average return should be 32, but it is only 8. Returns on asset X are the same on average as returns on asset W, but more variable. Would anyone be willing to hold asset X?

Suppose you took your $100 investment and split it in half. You invest $50 in asset A and $50 in asset B. What is your average return? What is the variance of your return? [6] The average return is still 8 but the variance is now only 1! By investing in more than one asset we were able to maintain the average return but we substantially reduced our risk.

The above example illustrates the concept of diversification. Despite the higher variance of returns, asset X performs a useful function of diversifying risk. Asset X has an especially large capacity to diversify because when asset W is down asset X is up and vice versa. Mixing assets X and W smooths out the variance of returns while maintaining the average return. The above example indicates that desirability of an asset depends not only on the variance of its returns but also on how returns move with returns on other assets.

[4] What happens if investors around the world suddenly become more risk averse?

[5] Naturally, there are other factors that influence the risk premium, such as liquidity. Liquidity is the ease with which one can turn an asset into cash.

[6] Try to mix the assets in another way by taking 2/3 of asset A and 1/3 of asset B. What return and what variance do you get?

Capital asset pricing model

Let's assume that asset W represents the world portfolio. The world portfolio is a composite asset where a small portion of money is invested into all stocks in the world that are available to an international investor.[7] Would returns on such portfolios have zero variance? Probably not. However, if one invests in the world portfolio there is no further possibility for diversification. Hence, the risk premium on the world portfolio will be guided by equation (1) and will depend only on its variance and the world price of risk.

How do we determine returns on individual assets? The previous example showed that if we mix assets W and X we would be able to reduce risk. If an asset has the capacity to reduce the risk of the world portfolio, then it should have a lower risk premium. The risk premium depends on the comovement with world returns, in particular:

$$R_X - R_f = cov(R_W, R_X) * T \tag{2}$$

If asset X is up when asset W is down, asset X reduces the risk of the world portfolio. The lower the covariance, the lower the risk premium. Equation (2) was derived in the context of the capital asset pricing model (CAPM). This model explains differences in returns on assets in terms of the amount of diversification they offer. [8]

Risk premium before and after globalization

Suppose that country X did not allow foreign investors to participate in its stock market. In this case, assets in country X would **not** be part of the world portfolio. Without liberalization of capital account transactions, only local investors can invest in local assets. This deprives local investors of the possibility to diversify abroad. Hence, if investors can invest in local assets only, they will demand a risk premium which depends on the variance of assets in the country.

$$R_X - R_f = var(R_X) * T \tag{3}$$

[7] If all investors are the same they will hold the same portfolio. The only way for all investors to hold the same portfolio is for them to hold the world portfolio.

[8] You do not need to know how to derive it, but you should understand the intuition behind it.

Once the economy opens up to foreign investors and allows local residents to invest abroad, local assets will be part of the world portfolio. The risk premium that these assets must offer will be guided by their covariance with world returns, that is by equation (2). Before globalization, a country's risk premium depends on the *variance* of returns. After globalization, the risk premium depends on the *covariance* of local returns with world returns. Comparing equations (2) and (3) it is clear that globalization will decrease the risk premium if the covariance of local returns with world returns is lower than the variance of local returns.[9]

$$var(R_X) > cov(R_W, R_X) \tag{4}$$

Researchers have looked at this condition in a number of countries in the world (see the paper by René Stulz). In developing countries of Latin Americ and Asian this condition is satisfied, rendering integration into world capital markets beneficial. In problem set 8 you will test whether this condition holds in transition economies. However, we should point out that condition (4) is not the only factor that should be considered when examining the benefits of capital account liberalization. There are other factors related to technology transfers, benefits from better corporate governance, etc.

[9]For example, investors in Russia face tremendous risks from expropriation by the state, by local managers, or through political instability, inflation, and exchange rate movements. The only way that Russia can make people invest is by offering very high potential returns. The problem is that only few projects can offer such high returns. However, if fortunes of Russian enterprises are **not** correlated with fortunes of companies in the rest of the world, then investing in Russian companies in addition to companies in the rest of the world can potentially reduce the risk of the world portfolio. In other words, Russian companies may provide diversification. With diversification comes lower risk premium and more investment.