Political Economy of International Policy Coordination for Market Regulation

August, 2009

Young-Han Kim* and S. Kim

Abstracts: With the recent advent of the global financial crisis initiated by the collapse of the US mortgage loan market, the importance of international policy coordination for financial market regulation has been reemphasized. We examine the condition for the cooperative policy coordination for financial regulation to be self-enforcing considering asymmetric political economic structures of involved countries. It is demonstrated that when the level of asymmetries are within the range of critical value while the policy-continuity is higher than the critical value, a simple introduction of policy coordination mechanism itself can make the cooperative policy coordination as self-enforcing even without external credible enforcement mechanism. However, when the country asymmetry in political structure is higher than the critical value, and the policy continuity is lower than the critical value, an external enforcement should be adopted for credible policy coordination for financial regulation.

JEL codes: F42, F50, F59

Key Words: International Policy Coordination, Banking Regulation, Capital Requirements, Financial Stability

** Economics Dept., Sungkyunkwan Univ. Myungnyun-dong 53, Chongno-ku, Seoul, South Korea kimyh@skku.edu
1. Introduction

With the recent advent of the global financial crisis initiated by the collapse of the US mortgage loan markets, the importance of the international policy coordination for financial market regulation to recover the financial stability has been reemphasized. The collapse of the US financial system initiated by the break-down of the US mortgage market has caused the collapse of the global financial system and the global real economies with little time lag in an unprecedented speed.

There have been many analyses on the financial crisis and the resulted recessions in real economies that have been transmitted globally like an epidemic. The most frequently cited reason of the recent financial crisis is the wide-spread moral hazard by the issuers of mortgage loan and the mortgage-backed securities (MBS) skipping proper monitoring efforts. Moreover, the moral hazard was wide-spread also among the financial regulators in charge of monitoring banking sectors, and the unscrupulous financial sectors such as investment banks and commercial banks as the Citibank that were heavily dependent on toxic assets as the non-performing MBS.

In addition to the moral hazard of regulators and banking sectors, the increasing volatility in foreign exchange markets, where self-fulfilling currency crises are recurrent features, is cited as another factor that has aggravated the spiraling vicious circle of the financial crisis. The reason why the US financial crisis ended up with the currency crisis of Iceland, Hungary far across the globe can be explained by the accelerated speculative currency attacks on those small open economies mainly driven by the speculative expectation of capital outflows from those countries due to the troubled US investors.

Therefore, a comprehensive approach to design a financial mechanism to prevent recurrent financial crisis should handle not only the banking regulation agenda to prevent the wide-spread moral hazard in banking sectors, but also the agenda to correct the speculative attacks in foreign exchange markets. Both agendas require a well-organized international policy coordination mechanism as a perquisite for efficient and effective renovation of financial systems because there are strong cross-border
externalities due to the fact that all major banks and financial institutes are operating multinational financial investments. The importance of international policy coordination in reforming financial regulation was symbolically demonstrated by the fact that the first effort made by the US president-elect to fix the financial crisis was to arrange a G20 meeting to handle the problem.

This paper examines the optimal international policy coordination in financial regulation under strong cross-border externalities in financial regulation and banking sectors’ monitoring efforts due to multinational banking operations. We demonstrate that throughout the whole range of asymmetries of involved countries, joint-welfare is always maximized with the cooperative financial coordination while a country might have an incentive to deviate from the coordination depending on the parameters representing the asymmetries. In addition, we examine the impact of the country asymmetries on the self-enforcement condition of international policy coordination in financial regulation. Moreover, we consider the impact of asymmetric political economic structures of the countries involved in the financial policy coordination. More specifically, the conditions for the sustainability of the international financial policy coordination between asymmetric countries in terms of political economic structures are considered.

There have been numerous studies to examine the issues of international policy coordination with respect to the financial regulation. Stolz (2002) examines the optimal design of making supervision in the presence of cross-border lending, and argues that if benevolent supervisors are accountable only to their own jurisdictions, supervisors fail to implement the optimum from a supranational perspective, and consequently, the probability of a bank failure will be inefficiently high. Based on the above argument, the author suggests to introduce a ‘supervisory coordination authority’ to which national supervisors are accountable.

Aghion et. el. (2007) examines the optimal coordination mechanism focusing on when simultaneous multilateral bargaining might be welfare dominant to a country with a market power considering political economic motivation in the negotiation
They demonstrate that global policy coordination cannot be feasible when political-economy motivation is dominant and higher than a critical value. Assuming an overlapping generation model of two countries with one homogeneous, non-storable consumption good that is freely traded in the world market, Chang (1997) shows that financial integration can increase world welfare in the presence of international policy coordination but decreases world welfare in its absence because financial integration enhances the impact of domestic government policies on foreigners, while it might deteriorate the welfare under non-cooperative policymaking regime.

Kohler (2002) analyzes coalition formation in monetary policy coordination games between n countries, and shows that some but not all countries may join if the decision to be a member of the coalition is incentive-compatible for the individual country. Positive spillovers of the coalition formation process and the resulting free-rider problem limit the stable coalition size; since the coalition members are bound by the union’s discipline, an outsider can successfully export inflation without fearing that the insiders will try to do the same. These gains from staying out arise even in the case of symmetric shocks.

Dalen and Olsen (2004) analyze the optimal policy coordination mechanism focusing on the consequences of cross-border banking and entry of multi-national banks (MNBs) for banking supervision and regulation. When MNB operates in foreign markets via subsidiaries rather than setting branch offices, it is the case of a common agency case, where the subsidiary is regulated by both home and host country’s government. Therefore, MNB raises the issue whether the policy coordination between the host and home government can improve the social welfare of both governments or not. They show that the lack of international coordination of regulation towards MNB-subsidiaries works to lower capital adequacy requirements. Policy coordination issues were analyzed as the major factor deciding the welfare efficiency in wide range of policies where international externalities are observed as shown by Angeleos and Pavan (2007), Morris and Shin (2002), Loisel and Martin (2001), Jensen (1999), and Botman and Jager (2002).
The new feature of this paper in examining the optimal policy coordination for financial market regulation is to take a systematic consideration of the political economic structure of each participating country in the policy coordination. Especially, we focus on the impact of the political economic asymmetries on the sustainability of the international policy coordination taking consideration of policy continuity in each country. Based on a political economic model considering the asymmetries of the participating countries in terms of political economic structure, we demonstrate that when the level of asymmetries are within the range of critical value while the policy-continuity is higher than the critical value, a simple introduction of policy coordination mechanism itself can make the cooperative policy coordination as self-enforcing even without external credible enforcement mechanism.

However, when the country asymmetry in political structure is higher than the critical value, and the policy continuity is lower than the critical value, an external enforcement should be adopted for credible policy coordination for financial regulation. This implies that regional coordination for financial regulation and stability is feasible among relatively homogeneous countries with political stability just with an inauguration of the coordination mechanism. However, an inter-regional coordination for financial regulation and stability among asymmetric countries requires an expensive political arrangement for credible enforcement mechanism. When the share of the small economies that benefit from the positive externality from the policy coordination is larger than the critical value, the launch of the credible enforcement mechanism based on the transfers from the beneficiary countries is an equilibrium-path strategy.

This paper is organized as follows. Section 2 describes the model explaining how the asymmetric political economic factors characterize international policy coordination mechanism in the banking regulation. Section 3 characterize different regimes of policy coordination and the resulted welfare effects, and section 4 explains the policy implications of the results and concludes.

2. Model
We consider a case where two representative banking sectors operate in domestic and foreign markets with two governments regulating the banking operation within their territories. Each government tries to maximize its own political objective function that is a weighted social welfare function where the surplus of each sector has different political weight due to the asymmetric political economic characteristics of the policy decision making structures. First we consider the case when each government takes a short-sighted policy approach as in a one-shot game, where each policy maker takes a non-cooperative Nash strategy.\(^1\)

A representative bank in each country is a multinational bank operating both in the domestic and the foreign market. Each bank has two strategic variables to maximize its profits as its monitoring efforts level in extending risky loans to borrowers and allocation of loans between the domestic and foreign markets.

The rate of return from loan making in country \(i\) is given as follows, taking the form of inverse demand function of loans:

\[
 r_i = \bar{r}_i - (L_{ji} + \lambda L_{ji}) = \bar{r}_i - \left( \frac{\theta_i E_j}{k_i} + \frac{\lambda(1-\theta_j)E_j}{k_i} \right) 
\]

where \(L_{ji}\) is the loan made by the Bank \(j\) in country \(i\), while \(\lambda\) is the coefficient representing the level of financial market integration. More specifically, the amount of loan provided by the bank \(j\) in the market \(i\), is defined as follows: \(L_{ji} = \frac{(1-\theta_j)E_j}{k_i}\)

where \(\theta_j\) is the share of the loan made in market \(j\) by the bank \(j\), and \(E_j\) is the level of equity procured by bank \(j\), and \(k_i\) is capital requirement ratio imposed by the regulation of the government \(i\). where \(k_i\) is the capital requirement in country \(i\), \(k_i = \frac{E_i}{L_i}\) (\(E_i\) represents the equity required in country \(i\), and \(L_i\) represents the amount of the loan made the representative bank in country \(i\)).

\(^1\) This is the case where each policy maker has very short-term political regime with little policy consistency between two different regimes after the election.
Therefore, the profit function of the bank $i$ is defined as follows:

$$\text{Max}_{q_i, q_j} \prod_i \left( (q_i + \gamma_i q_i) \left( r_i - (1 - k_i) \delta_i - k_i \rho - c q_i \right) \right) \frac{\theta E_i}{k_i} + \mu \left( (q_j + \gamma_j q_j) \left( r_j - (1 - k_j) \delta_j - k_j \rho - c q_j \right) \right) \frac{(1 - \theta) E_j}{k_j}$$  

(2)

where $q_i$ is the probability of the success of investment by the bank, which represents the financial stability, equivalent to the level the bank’s efforts level of monitoring. ‘$\mu$’ is the parameter representing the rate of capital market integration taking consideration of market barriers including the restriction of the profit transfer from host country $j$ to home country $i$. $\gamma$ represents the positive externality of the foreign country’s financial stability on the home country.

Political economic objective function of government $i$ is defined as the summation of the banking sector profit times political economic parameter representing the political influence by the banking sector and the parameters representing the financial market stability as follows: $^2$

$$\text{Max} W_i = \alpha_i \prod_i \left( L_i \right) + \beta_i \left( q_i + \gamma q_j \right)$$  

(3)

where $\alpha_i$ is the coefficient representing the political economic influences commanded by the banking sector of country $i$ while $\beta_i$ the coefficient representing the political economic concerns about the financial stability for the society as a whole. If $\alpha_i > \beta_i$, the policy maker is captured by the banking sector, giving higher political importance to the banking sector’s profit than the general social welfare maximization via financial and economic stability.

Each government tries to maximize its political objective function with respect to the policy variable, $k_i$, the capital requirement ratio. The structure of the game is given as follows: After each government decides the policy variables, the representative bank in each country maximizes the profit from the banking operation in two countries with respect to two strategic variables as the allocation of loan-making between home and foreign market and the bank monitoring efforts level.

$^2$ The stability of domestic financial market is decided not only by the domestic banking sectors’ monitoring efforts, but also by the foreign bank’s monitoring efforts by the rate of externalities reflected by the parameter $\gamma$. 

3. Policy coordination for financial regulation with asymmetric political economies

First, we define the market equilibrium when each policy maker decides its policy decision in one-shot Nash non-cooperative fashion. We derive the equilibrium by backward induction. Bank’s decision on the loan allocation is made first, and then the decision on the level of monitoring efforts is made. The optimal level of the monitoring efforts by each bank is given from the first order condition of the bank profit maximization problem as follows:

\[
\frac{\partial \prod_i}{\partial q_i} = 0 \Rightarrow q_i^* = \frac{r_s(k_i, k_j) - (1-k_i)\delta_i + \gamma_i \left( r_s(k_i, k_j) - (1-k_i)\delta_j \right)}{2c} \tag{4}
\]

Then, the bank decides its allocation of the loans between two markets to maximize the profit. The optimal allocation of the loan is given again from the following first order condition, which is a function of the optimal efforts level as given above.

\[
\frac{\partial \prod_i(q_i^*)}{\partial \theta_j} = 0 \Rightarrow \theta_j^* = \frac{(q_j^* + \gamma q_j)(\overline{r} - \lambda(1-\theta_j)(E_j/k_j) - (1-k_j)\delta_j)(E_j/k_j) - \mu(q_j + \gamma q_j)(\overline{r} - \lambda\theta_j)(E_j/k_j) - (1-k_j)\delta_j)(E_j/k_j)}{2(q_j^* + \gamma q_j)(E_j/k_j)^2} \tag{5}
\]

Based on these equilibrium values of each banking sector’s strategic variables, regulator of each country decides the level of regulation on the capital requirement ratio, \(k_i\).\(^3\) When the policy maker takes a short-sighted approach with a short policy regime with no policy continuity with the next regime, the policy is taken as a non-cooperative Nash strategy as follows:

\(^3\) This regulation on capital requirement ratio can be interpreted as a general financial supervision including the forward looking criteria of financial institutions’ asset management.
\[ M_a \ W_i(k_i, k_j) = \alpha_i \prod_i (k_i, k_j) + \beta_i \left( q_i^*(k_i, k_j) + \gamma q_j^*(k_i, k_j) \right) \]  

(6)

where the equilibrium profit is defined as follows:

\[ \prod_i = \left( (q_i^* + \gamma q_j^*) (\bar{r}_i - (1 - k_i) \delta_i) - k_i \rho - c q_i^* \right) \frac{\theta_i E_i}{k_i} + \mu \left( (q_i^* + \gamma q_j^*) (\bar{r}_j - (1 - k_j) \delta_j) - k_j \rho - c q_j^* \right) \frac{(1 - \theta_j) E_j}{k_j} \]

However, when the policy maker takes a long-term approach with policy continuity with the next regime, the policy is taken as a cooperative strategy derived from the following joint-welfare maximization problem defined as follows:

\[ M_a \left( W_i(k, q_i^*, q_j^*) + W_j(k, q_i^*, q_j^*) \right) = M_a \left( \alpha_i \prod_i (k) + \beta_i \left( q_i^*(k) + \gamma q_j^*(k) \right) + \alpha_j \prod_j (k) + \beta_j \left( q_j^*(k) + \gamma q_i^*(k) \right) \right) \]

From the above setting, each country’s financial regulation creates strong positive externalities as shown in Lemma 1.

**Lemma 1.** Each country’s financial regulation creates positive externalities and consequently, in a non-cooperative setting, each country tends to free ride on the other country’s regulatory policies resulting in the under-provision of financial regulation from global perspective.

Proof: From the comparative static analysis of the optimal monitoring efforts, \( q_i^* \) and the equilibrium profit and social welfare with respect to the other country’s regulatory policy, the positive externality is straightforwardly shown as follows:

\[ \frac{\partial q_i^*}{\partial k_j} = \gamma_j E_j \left( \theta_j + \lambda (1 - \theta_j) \right) \frac{\gamma_j}{2\theta_j k_j^2} > 0 \]  

(7)

In the same way, from the comparative static analysis of the optimal social welfare with respect to the foreign country’s social welfare shows the positive externality as follows:
\[ \frac{\partial W_i(k_i, k_j)}{\partial k_j} = \alpha_i \frac{\partial \prod_i (k_i, k_j)}{\partial k_j} + \beta_i \left( k_i \frac{\partial q^*_i(k_i, k_j)}{\partial k_j} + \gamma \frac{\partial q^*_j(k_i, k_j)}{\partial k_j} \right) > 0 \] (8)

As the first term is always positive with the increase of the domestic rate of return in addition to the increase of reduced foreign bank’s revenue, and the second term is also positive as shown above, the domestic political economic social welfare is always increased with the foreign country’s enhanced financial regulation. □

Based on Lemma 1, it is shown in a straightforward way that the joint-welfare maximizing financial policy coordination cannot be sustained when each policy maker takes a short-sighted approach with relatively low policy continuity between different political regimes after an election in Lemma 2.

**Lemma 2.** Although the level of joint welfare as the summation of the social welfare of the home and foreign country is higher under the cooperative policy variable, \( k^* \), compared to the case of non-cooperative Nash strategies, \((k_i, k_j)\), the policy coordination might not be sustainable when each policy maker has a short-sighted approach even with the homogeneous political economic structures of decision making process.

**Proof:** The capital requirement ratio under the non-cooperative Nash type financial regulation policy decision process should satisfy the following first order condition:

\[ \alpha_i \frac{\partial \prod_i (k_i, k_j)}{\partial k_i} + \beta_i \frac{\partial (q^*_i(k_i, k_j) + \gamma \frac{\partial q^*_i(k_i, k_j)}{\partial k_j})}{\partial k_j} = 0 \] (9)

The joint welfare maximizing financial regulation policy, \( k^* \), satisfies the following first order condition:

\[ \alpha_i \frac{\partial \prod_i (k_i, k_j)}{\partial k_i} + \beta_i \frac{\partial (q^*_i(k_i, k_j) + \gamma \frac{\partial q^*_i(k_i, k_j)}{\partial k_j})}{\partial k_j} + \alpha_j \frac{\partial \prod_j (k_i, k_j)}{\partial k_j} + \beta_j \frac{\partial (q^*_j(k_i, k_j) + \gamma \frac{\partial q^*_j(k_i, k_j)}{\partial k_i})}{\partial k_i} = 0 \] (10)

However, without a credible enforcement mechanism for the above optimal cooperative regulation policy under a short-sighted policy approach, country \( i \) might
have an incentive to deviate from the cooperative strategy even with the homogenous political economic structures as shown in the follows:

\[
\left( \alpha_i \frac{\partial}{\partial k_i} \right) \left( \prod_i (k_i, k_j) + \beta_i \frac{\partial}{\partial k_i} \left( q_i^*(k_i, k_j) + \gamma_j q_j^*(k_i, k_j) \right) \right)_{k_i = k_j = k^*} > 0 \quad (11)
\]

The above inequality implies: \( W_i(k_i^{N*}, k_j^{C*}) > W_i(k_i^{C*}) \), which says country \( I \) has an incentive to deviate from the cooperative financial regulation to non-cooperative regulatory policy. \( \square \)

Intuition behind the Lemma 2 is that the positive externality created by the financial regulation provides free-riding incentives without a third party credible enforcement mechanism for the cooperative regulatory policy.

Moreover, mainly due to the positive externalities of banking regulation policies, the simple existence of the policy reinforcement mechanism of the banking might enable the existence of the cooperative equilibrium in banking regulation as shown in Proposition 1.

**Proposition 1.** When countries show relatively low asymmetries in political economic characteristics and higher policy continuity between different political regimes after the elections, which is reflected in the high discount factor, a simple adoption of the international coordination mechanism for financial regulation itself enable the international policy coordination in financial regulation even without credible enforcement mechanism for the cooperative strategy.

**Proof:** A higher level of policy continuity is reflected by a higher discount factor in policy coordination game. In addition, an adoption of the international policy coordination itself implies that the mode of game is transformed from a one-shot game to a repeated game. The proof can be made by showing that when the parameters representing the level of discount factor and the asymmetry in political economic structures belong to the intervals defined as \( \delta \in (\delta, 1] \) and \( \sigma \in [0, \sigma) \), where
\[ \sigma = |\alpha_i - \alpha_j|, \] the incentive compatibility condition for each policy maker to abide by the financial regulatory policy coordination, as defined as follows, is hold:

\[ W_i(k_i^{NS}, k_i^{CS}) + \frac{\delta W_i(k_i^{NS}, k_j^{NS})}{1 - \delta} \leq W_i(k_i^{CS}, k_i^{CS}) \quad (12) \]

When \( \delta = 0 \) and \( \sigma = \overline{\sigma} \), the incentive compatibility condition cannot be hold even in case of infinitely repeated game:

\[ W_i(k_i^{NS}, k_i^{CS}) + \frac{\delta W_i(k_i^{NS}, k_j^{NS})}{1 - \delta} - W_i(k_i^{CS}, k_i^{CS}) \mid_{\delta=0, \sigma=\overline{\sigma}} = W_i(k_i^{NS}, k_i^{CS}) - W_i(k_i^{CS}, k_i^{CS}) > 0 \quad (13) \]

However, when \( \delta = 1 \) and \( \sigma = 0 \), the incentive compatibility condition is held always as shown in follows:

\[ \frac{W_i(k_i^{CS}, k_i^{CS})}{1 - \delta} - W_i(k_i^{NS}, k_i^{CS}) - \frac{\delta W_i(k_i^{NS}, k_j^{NS})}{1 - \delta} \mid_{\delta=1 - \varepsilon, \sigma=0} > W_i(k_i^{CS}, k_i^{CS}) - W_i(k_i^{NS}, k_i^{NS}) - \frac{\delta W_i(k_i^{NS}, k_j^{NS})}{1 - \delta} \mid_{\delta=1 - \varepsilon, \sigma=0} > 0 \]

Therefore, there are values such as \( \overline{\delta} \) and \( \sigma \) that satisfy the equality of left hand terms and right hand terms of equation (12). Consequently, self-enforcement condition, (12), is held with \( \delta \in (\overline{\delta}, 1], \sigma \in [0, \sigma) \). □

Proposition 1 implies that when countries show fairly large asymmetry in political economic structures with relatively lower political continuity, self-enforcement condition cannot be held without a credible external enforcement mechanism as summarized in Proposition 2.

**Proposition 2.** If there are relatively large asymmetries in the political economic
structures and the policy continuity between different regimes is relatively low, a credible enforcement mechanism enforced by a third party is required for the sustainable policy coordination for financial regulation.

**Proof:** Proof of Proposition 2 is just the reverse case of the proof of Proposition 1. □

**Proposition 3.** When the share of the small economies that benefit from the positive externality from the policy coordination is larger than the critical value, the launch of the credible enforcement mechanism based on the transfers from the beneficiary countries is an equilibrium-path strategy.

**Proof:** The credible external enforcement mechanism can be an equilibrium arrangement only when the following condition holds:

\[
W_i(k_i^{NC}, k^{CE}_i) - W_i(k^{CE}_i, k^{CE}_i) < \sum_{j, j \neq i}^{N-1} \left( W_j(k^{CE}_j, k^{CE}_j) - W_j(k_i^{NC}, k^{CE}_i) \right)
\]  

(14)

It is straightforward that when \( N > \tilde{N} \) where \( \tilde{N} \) satisfy the equality condition, an external enforcement can be an equilibrium based on the transfer from N-1 small economies. □
4. Concluding remarks

This paper examined the optimal policy coordination for financial market regulation considering the political economic structure of each participating country in the policy coordination. Especially, we focus on the impact of the political economic asymmetries on the sustainability of the international policy coordination taking consideration of policy continuity in each country. Based on a political economic model considering the asymmetries of the participating countries in terms of political economic structure, we demonstrate that when the level of asymmetries are within the range of critical value while the policy-continuity is higher than the critical value, a simple introduction of policy coordination mechanism itself can make the cooperative policy coordination as self-enforcing even without external credible enforcement mechanism.

However, when the country asymmetry in political structure is higher than the critical value, and the policy continuity is lower than the critical value, an external enforcement should be adopted for credible policy coordination for financial regulation. This implies that regional coordination for financial regulation and stability is feasible among relatively homogeneous countries with political stability just with an inauguration of the coordination mechanism. However, an inter-regional coordination for financial regulation and stability among asymmetric countries requires an expensive political arrangement for credible enforcement mechanism. When the share of the small economies that benefit from the positive externality from the policy coordination is larger than the critical value, the launch of the credible enforcement mechanism based on the transfers from the beneficiary countries is an equilibrium-path strategy.

The above results implicate that in our efforts to derive an international policy coordination mechanism for financial regulation in the Asian region, the initial stage of coordination should starts with relatively more homogeneous countries with political stability. When countries show higher level of asymmetries, a multilateral approach might reduce possible tensions on the amount of transfer for the formation of credible external enforcement mechanism.
References


