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Exchange Rate Policy and Policy Diffusion: Exchange Rate Regime Choices
in East Asia

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requirements for the degree Doctor of Philosophy
in Political Science

by

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ABSTRACT

Exchange Rate Policy and Policy Diffusion: Exchange Rate Regime Choices in East Asia

by

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We often note similar exchange rate regimes adopted by states and also observe a clustering of a specific policy, such as faithful US dollar followers in East Asian countries. Then, what account for this seemingly similar choice of exchange rate policy? To better understand the determinants of exchange rate regime (ERR) choice, this dissertation focuses on whether and how policy diffusion occurs in exchange rate policy. To test the effects of three sets of hypotheses on ERR choice – namely, coercion, competition, learning/emulation mechanisms - drawn from international diffusion theory, both statistical tests and case studies are employed. To analyze the data, I employ both a spatial lag model and event history analysis. Explanatory variables are constructed by operationalizing the policies of other countries in diffusion mechanism areas using a spatial lag model. The hypotheses were tested by employing event history analysis in order to estimate diffusion effects on ERR choice. The cases of South Korea and Taiwan are analyzed to whether and how external factors may affect their exchange rate policy choices.

My dissertation suggests international diffusion's effects on ERR choice. The empirical tests on diffusion mechanisms suggest that competition, learning and emulation have consequential effects on the choice of exchange rate policy and thus explain the spread of similar ERR choice among governments with economic and social connections. The analyses of South Korea and Taiwan's exchange rate policy making provide useful evidence that coercion worked through these countries' policy decisions. Taken together, these findings from statistical analysis and exchange rate policy experience of two cases provide evidence of diffusion effects in ERR choice. Hence, unlike the prevalent assumption that national economic policymaking is independent, this research demonstrated that the policy choice of governments was affected by others' prior policy decisions. External factors exert effects on exchange rate policy: governments are influenced by one another, among those who are politically, geographically, and socio-economically closely related.

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I. Introduction

With the rapid expansion of trade and foreign direct investment (FDI) in East Asia,¹ economic policies in the region have been actively debated. The debate on which exchange rate regime (ERR) would serve best for each country, in particular, is one of the most heated topics on East Asian economic policies because of ERR's impact on each national economy and politics.

Exchange rate policy has been a critical concern for many developing countries in East Asia for several reasons. The choice of ERR in the region has been constrained by both internal and external circumstances. In essence, it is closely related to the economic developmental model that many East Asian countries have pursued. Several scholars characterize many East Asian countries as the followers of developmental state economic model: the state whose goal is economic development takes necessary policy measures for that goal, often involving strong governmental intervention, regulation, and planning (Johnson 1987, 1999). Therefore, governments in this region are sensitive to the impact of exchange rate policy on trade and FDI for further economic growth.

Furthermore, in the pursuit of developmental state economic model, the role of trade has been crucial to governments' survival. The economic growth through promoting exports has often played a crucial role in supporting the logic of strong government. Countries in the region have shown relatively less interests in political liberalization, and governments have

¹ In this study, East Asian countries are confined to ASEAN + 3, Hong Kong and Taiwan. Ten member states of the Association of Southeast Asian Nations (ASEAN) are including Brunei, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam. China, Japan and Korea have participated ASEAN+3 Summit meetings since 1997.

used the logic of economic development to slow democratization, arguing that economic prosperity has a priority over democratization. Hence, if countries could not continue to achieve economic growth, the legitimization of authoritarian governance could not be sustainable.

The international economic environment also imposes constraints on East Asian countries. On the one hand, most countries in the region use the U.S. dollar as an invoice even in regional or bilateral trade.² They borrow loans denominated in the U.S. dollar. Due to this “original sin” (Williamson 2000), East Asian countries are more concerned with the fluctuation of exchange rates.

On the other hand, another major international constraint on exchange rate policy in East Asia is related to the “fear of floating” (Calvo and Reinhart 2000). After the 1997-98 Asian financial crisis (AFC), some argue that the exchange rate pegs prevalent in the region prior to the crisis were one of the causes of the crisis. To cope with financial crisis, a hard peg and independent float are perceived as the only viable exchange rate regimes; middle regimes such as a soft peg or managed float appear to be unsustainable and crisis-prone due to the seemingly lack of credibility and vulnerability to speculation attacks. Then, did the ‘hollowing of the middle’ of the ERR choice argument become evident after AFC? The next section reviews the evolution of exchange rate regimes in East Asia from 1995 to 2010. Then, the second part presents research questions and the argument; and the last section provides the outline of the dissertation.

² In addition to East Asian countries’ high volume of trade with the United States (U.S.), another reason for choosing the U.S. dollar as an trade invoice is due to the relatively small size of the short-term capital markets in the region (Fukuda 2011). Measurements to hedge the exchange rate risk, such as efficient forward markets or foreign exchange derivatives, are limited or missing in East Asia.

A. Exchange Rate Regimes

Exchange rate policy has great impacts on the domestic economy, especially on trade and foreign investment, and can also have serious, competitive implications for neighboring states. The choice of exchange rate policy has two aspects: individual states opt for different exchange rate regimes (ERRs) and levels of currency values.³ This dissertation addresses the former, the choice of an ERR.

The exchange rate regime is the framework of how an exchange rate is determined, which is classified by the extent to which either government or market forces determines a country's exchange rates. A government can choose from any one of a number of exchange rate regime options, which ranges from hard pegs to pure floating. A hard peg system refers to a system where the monetary authority can set a particular exchange rate and design methods for maintaining that exchange rate value. The benefit of this system is stable exchange rate over time. In a pure floating system, however, the value of exchange rate is determined by currency markets without governmental intervention. Therefore, irrevocably fixed rates and floating rates are referred to as the "corner solutions" to ERR choice.

Intermediate regimes between a peg and a pure float are diverse, depending on determination of the rate by the government or currency market. In an "adjustable peg," the government announces a peg value which means the specific value that its currency is exchanged for another, and can alter the rate at its discretion at any time. A state may peg its currency to a single currency, such as the Hong Kong's to the U.S. dollar, or to a composite

³ The level of the exchange rate refers to the value of currency. Monetary authorities make policies to influence the level of exchange rates, which can move against other currencies. Rising currency value is called as appreciation or revaluation while defining is depreciation or devaluation (Frieden 2014, 3–4).

index, a basket, of two or more currencies. In the basket, weights of each anchor may vary. The government can set a specific pegged rate for its currency against the composite index, or it can let currencies float within a “band.” When a government chooses to use a specific peg or a band, it may choose to alter the exchange rate for its policy goals, and therefore, these regimes allow room for government to maneuver exchange rates.

The choice of exchange rate regime is important since ERRs affect the risks of exchange rate fluctuations and transaction costs that occur in international trade and investment (Corden 1994; Broz and Frieden 2006). The growth in capital mobility⁴ complicates the government’s choice of ERR. High international capital mobility influences the government’s effort to maintain domestic control over monetary policy. As the Unholy Trinity (Cohen 1993) posits, governments face constraints on their policy choices. Governments must give up one of three goals in the era of global capital mobility: exchange rate stability, monetary policy autonomy, or capital mobility. On the one hand, while flexible exchange rate system allows autonomous monetary policy for the country, it may incur exchange rate risk to open economies. However, there tends to be a tradeoff between credibility and competitiveness since a floating system does not allow a government to adjust its nominal exchange rate to enhance the competitiveness of tradable goods sector (Frieden, Ghezzi, and Stein 2000; Broz and Frieden 2001).

⁴ Capital mobility refers to the ability of capital to move across borders. The rise of capital mobility is mainly due to the improvements in trading and settlement practices and computer and informational technology.

On the other hand, an exchange rate peg can be a useful instrument for a government to enhance policy credibility. A fixed exchange rate may solve the time inconsistency problem⁵ by improving the credibility of a government's commitment to low inflation (Canavan and Tommasi 1997; Broz and Frieden 2001). Moreover, exchange rate regimes can be easily monitored by the public. This transparency of fixed exchange rate system weakens the credibility problem of a government's monetary policy. As such, adopting a fixed ERR would sacrifice a government's autonomous monetary policy but serve as a credible commitment measure.

B. Evolution of Exchange Rate Regimes in East Asia

Then, what types of exchange rate regimes have East Asian countries adopted? East Asian countries report their exchange rate regimes to the International Monetary Fund. The IMF classification of exchange rate arrangements shows that most East Asian countries shift to a more flexible system (see Appendix 1). Since the 1997-1998 Asian financial crisis, the managed floating has become prevalent in the region.

Although the IMF's classification is useful, Frankel-Wei (1994)'s regression method can provide more detailed descriptions on ERR choices of these countries to see whether any differences or similarities exist among them. In Frankel-Wei's model, it is to regress changes in the value of the local currency on the value of major international currencies that can exert a significant influence on the movements of each currency. This method is useful to estimate the influence of important international currencies in the currency baskets of individual

⁵ Time inconsistency problem occurs when governments have incentives to announce a policy of low inflation but subsequently increase the money supply to achieve short-term economic gains (Kydland and Prescott 1977).

countries and identify observed exchange rate regimes.⁶ Some estimation results of exchange rate regime of seven East Asian countries⁷ are presented from Table 1.1 to 1.7 (China, Indonesia, South Korea, Malaysia, Singapore, Thailand and Vietnam).

Each table displays the relationship of each Asian currency with five major international currencies – the U.S. dollar, the yen, the sterling pound, the euro and the yuan - during five sub-periods: 1) the pre-AFC period (1995-1996); 2) Asian financial crisis (1997-1998); 3) the post-AFC period (January 1999- June 2005); 4) the pre-global financial crisis (July 2005 to July 2008); and 5) global financial crisis (GFC) (August 1, 2008 – 31 May 2010). The Special Drawing Right (SDR) is used as a numeraire in the denomination of exchange rates.

We can see similar choices of ERR among selected East Asian cases from the ERR tables. Since the Asian financial crisis, most countries in the region have adopted a managed floating system or de facto peg although their de jure regimes were announced as ones with currency flexibility. The estimated coefficients may be interpreted as the weights on the corresponding five major currencies in exchange rate baskets. In the pre-AFC period (January 1995 to June 1997), the coefficients of adopting the U.S. dollar are overall high among most East Asian countries.

During the AFC period, the regressions for East Asian countries show marked changes. The most pronounced phenomenon is that the weights of U.S. dollar in the currency basket

⁶ Frankel-Wei model will be detailed in the Chapter III, defining the dependent variable of this study. Daily data of exchange rates are used to conduct regression of log differences of a local currency (in terms of the SDR) on log differences of the five major currencies (in terms of the SDR) for each sub period. The regression for each sub period shows linkages of each East Asian currency with the five major currencies during the period.

⁷ Due to data constraints, the results of Brunei, Cambodia, Laos and Vietnam are not presented.

declined noticeably in many East Asian countries. In Indonesia, Thailand, Malaysia, and Korea, the estimation shows pronounced decrease in U.S. dollar weights. Although Taiwan was not directly affected by the AFC, we also witness the drop of the U.S. dollar weights in the Taiwan's currency basket. Another noticeable phenomenon is the increased significance of the yen in the currency baskets. We notice the rises of the yen's weights in the baskets. However, the importance of the sterling pound or German mark did not display much change during the crisis.

More attention goes to the ERR choice of East Asian countries after the financial crisis to see how the crisis affected the previously dollar pegged countries. The post-crisis period from 1999 to mid-2005 exhibits more diversity in exchange rate baskets than before. Crisis-affected countries moved toward greater exchange rate flexibility. Unlike the expected 'hollowing of the middle' of the ERR choice argument, crisis-affected countries turned neither to a fully fixed nor fully flexible exchange rate regime; those countries rather still maintained managed floats. A notable change is the weights of major international currencies became more diverse than pre-crisis period while the U.S. dollar-based exchange rate stabilization policies persisted.

Korea and Thailand seemed to have shifted to a de factor managed float, with reference to a currency basket including a smaller U.S. dollar weight and a larger yen weight than in the pre-crisis period. They adopted more flexibility in their exchange rate baskets. For example, Table 1-3 illustrates the changes in the weights of international currencies in Korean won basket. The weights of the yen and the pound turned into a significant level in 2001 and 2002. However, Malaysia restored the U.S dollar peg in September 1998 which sustained until July 2005.

Overall, the post-crisis period shows that the high weights on the U.S. dollar continued to exist among East Asian countries; however, the weights of other major anchors in the currency baskets became significant. We can observe the increased weights of yen and euro during this period. China and Hong Kong present continued dollar peg during this time. Singapore maintained a de facto and de jure managed float with a currency basket system.

The fourth sub-period includes the RMB reform in China from July 2005 to August 2008. East Asian countries during this period had displayed more diverse currency baskets than the pre-crisis period. On the one hand, the U.S. dollar continued to be included in the baskets, but declined since the AFC. On the other hand, China and Malaysia officially abandoned their pegging system. In July 2005, Chinese authority announced its exchange rate regime reform: shifting a target of its exchange rate policy from the U.S. dollar to a currency basket as well as revaluation of the Chinese Renminbi (RMB). The yuan began to be revalued against the U.S. dollar over 2 percent.

Table 1.1 Changes in Observed Exchange Rate Regimes for the Chinese yuan

Period	USD	yen	pound	euro	yuan	No. Obs
Post-AFC (Jan. 1, 1999 – Jun. 30, 2005)	0.999*** (0.000)	-0.000** (0.000)	-0.000 (0.000)	-0.001*** (0.000)	-	1,124
Pre-Lehman (21 Jul. 2005 – Jul. 21, 2008)	0.915*** (0.022)	0.041*** (0.008)	-0.011 (0.013)	0.033 (0.021)	-	528
GFC (Aug. 1, 2008 – Dec. 30, 2010)	0.955*** (0.013)	-0.001 (0.005)	-0.006 (0.006)	0.003 (0.010)	-	404

note: *** p<0.01, ** p<0.05, * p<0.1

Table 1.2 Changes in Observed Exchange Rate Regimes for the Indonesian rupiah

Period	USD	yen	pound	euro	yuan	No. Obs
Pre-AFC (Jan. 3, 1996- Jun. 30, 1997)	1.025*** (0.040)	0.016 (0.014)	-0.017 (0.024)	-0.010 (0.040)	-	434
AFC (July 1, 1997- Dec. 30, 1998)	1.686 (2.813)	1.102 (1.132)	0.039 (1.002)	-0.466 (2.165)	-	31
Post-AFC (Jan. 1, 1999 – Jun. 30, 2005)	0.886*** (0.129)	0.180*** (0.054)	0.046 (0.091)	0.084 (0.118)	-	513
Pre-Lehman (21 Jul. 2005 – Jul. 21, 2008)	0.288 (0.293)	-0.126** (0.053)	0.193** (0.086)	0.348*** (0.134)	0.888*** (0.280)	476
GFC (Aug. 1, 2008 – Dec. 30, 2010)	0.364 (0.275)	-0.471*** (0.096)	-0.217* (0.113)	-0.110 (0.211)	-	403

note: *** p<0.01, ** p<0.05, * p<0.1

Table 1.3 Changes in Observed Exchange Rate Regimes for the Korean won

Period	USD	yen	pound	euro	yuan	No.Obs
Pre-AFC (Jan. 3, 1996- Jun. 30, 1997)	1.054*** (0.063)	0.028 (0.022)	0.004 (0.039)	0.063 (0.063)	-	393
AFC (July 1, 1997- Dec. 30, 1998)	0.475 (0.472)	0.175 (0.146)	0.010 (0.335)	-0.357 (0.461)	-	239
Post-AFC (Jan. 1, 1999 – Jun. 30, 2005)	1.031*** (0.061)	0.018 (0.025)	0.035 (0.044)	0.002 (0.046)	-	901
Pre-Lehman (21 Jul. 2005 – Jul. 21, 2008)	0.295 (0.249)	-0.017 (0.042)	0.059 (0.072)	-0.134 (0.113)	0.758*** (0.238)	461
GFC (Aug. 1, 2008 – Dec. 30, 2010)	1.109*** (0.258)	0.097 (0.091)	0.100 (0.107)	-0.074 (0.197)	-	422

note: *** p<0.01, ** p<0.05, * p<0.1

Table 1.4 Changes in Observed Exchange Rate Regimes for the Malaysian ringgit

Period	USD	yen	pound	euro	yuan	No. Obs
Pre-AFC (Jan. 3, 1996- Jun. 30, 1997)	0.874*** (0.048)	0.088*** (0.016)	-0.049* (0.027)	0.071 (0.046)	-	394
AFC (July 1, 1997- Dec. 30, 1998)	0.852** (0.365)	0.453*** (0.118)	0.361 (0.256)	0.344 (0.379)	-	250
Post-AFC (Jan. 1, 1999 – Jun. 30, 2005)	1.000*** (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-	1,170
Pre-Lehman (21 Jul. 2005 – Jul. 21, 2008)	-0.085 (0.152)	-0.087*** (0.026)	0.075* (0.044)	0.129* (0.068)	0.917*** (0.145)	469
GFC (Aug. 1, 2008 – Dec. 30, 2010)	0.769*** (0.083)	-0.139*** (0.029)	-0.043 (0.035)	0.064 (0.064)	-	410

note: *** p<0.01, ** p<0.05, * p<0.1

Table 1.5 Changes in Observed Exchange Rate Regimes for the Singapore dollars

Period	USD	yen	pound	euro	yuan	No. Obs
Pre-AFC (Jan. 3, 1996- Jun. 30, 1997)	0.765*** (0.041)	0.128*** (0.014)	-0.016 (0.024)	0.048 (0.040)	-	420
AFC (July 1, 1997- Dec. 30, 1998)	0.777*** (0.146)	0.385*** (0.047)	0.150 (0.103)	0.158 (0.151)	-	254
Post-AFC (Jan. 1, 1999 – Jun. 30, 2005)	0.646*** (0.032)	0.159*** (0.013)	0.008 (0.021)	-0.036* (0.021)	-	1,119
Pre-Lehman (21 Jul. 2005 – Jul. 21, 2008)	-0.068 (0.121)	0.011 (0.021)	0.012 (0.035)	0.126** (0.055)	0.756*** (0.116)	501
GFC (Aug. 1, 2008 – Dec. 30, 2010)	0.580*** (0.068)	-0.095*** (0.024)	-0.017 (0.028)	0.082 (0.052)	-	416

note: *** p<0.01, ** p<0.05, * p<0.1

Table 1.6 Changes in Observed Exchange Rate Regimes for the Thai baht

Period	USD	yen	pound	euro	yuan	No. Obs
Pre-AFC (Jan. 3, 1996- Jun. 30, 1997)	0.927*** (0.012)	0.128*** (0.004)	0.028*** (0.007)	0.104*** (0.012)	-	403
AFC (July 1, 1997- Dec. 30, 1998)	0.497 (0.330)	0.275** (0.108)	-0.079 (0.231)	0.298 (0.342)	-	233
Post-AFC (Jan. 1, 1999 – Jun. 30, 2005)	0.664*** (0.044)	0.141*** (0.019)	-0.031 (0.031)	-0.019 (0.030)	-	964
Pre-Lehman (21 Jul. 2005 – Jul. 21, 2008)	1.044*** (0.218)	-0.002 (0.037)	0.092 (0.062)	-0.141 (0.101)	-0.226 (0.205)	394
GFC (Aug. 1, 2008 – Dec. 30, 2010)	0.885*** (0.052)	0.006 (0.017)	-0.035 (0.022)	-0.077* (0.040)	-	381

note: *** p<0.01, ** p<0.05, * p<0.1

Table 1.7 Changes in Observed Exchange Rate Regimes for the Vietnamese dong

Period	USD	yen	pound	euro	yuan	No. Obs
Post-AFC (Jan. 1, 2004 – Jun. 30, 2005) ¹	0.060 (0.220)	-0.107 (0.091)	-0.014 (0.152)	-0.305 (0.202)	-	255
Pre-Lehman (21 Jul. 2005 – Jul. 21, 2008)	-0.503 (0.342)	-0.002 (0.059)	-0.084 (0.098)	-0.255* (0.154)	0.890*** (0.327)	508
GFC (Aug. 1, 2008 – Dec. 30, 2010)	0.755*** (0.175)	0.035 (0.060)	0.101 (0.072)	-0.120 (0.134)	-	422

note: *** p<0.01, ** p<0.05, * p<0.1

¹ Data for the Vietnamese dong is from 2004 to 2010.

The transformations in exchange rate policy of China also affected those of other East Asian countries. In some countries, the coefficient for the yuan was statistically significant and the yen coefficient was significantly positive for this period. This was the time that the appearance of the yuan has significant although tenuous effects on some East Asian countries as reported in Table 1.2-1.4 and 1.7. The emergence of literature on “yuan bloc” in East Asia also supported and confirmed similar policy adoption in the region (Subramanian and Kessler 2012; Ma and McCauley 2011; Henning 2012; Fang, Huang, and Niu 2012; Fratzscher and Mehl 2014; Fang, Huang, and Niu 2012; Pontines and Siregar 2012; Park and Song 2011; Patnaik et al. 2011).

This fourth period exhibited more diverse exchange rate regimes of East Asian countries than previous periods: however, similarities still exist among them. The weights of the U.S. dollar declined while significance of the yuan increased in East Asian currency baskets during this period due to changes in Chinese exchange rate policy. Indonesia continued to have relatively high weights on the U.S. dollar and the Indonesia rupiah showed high volatility. Indonesia maintained an ERR close to a free float even though the Indonesian monetary authority allegedly intervened into the currency market frequently to smooth the value of rupiah against the dollar. Even though it announced its adoption of a managed floating exchange rate system, the Chinese government still kept stabilizing the exchange rate of the RMB against only the U.S. dollar.

The last sub-period happened during the global financial crisis (GFC), caused by the subprime mortgage problem in the U.S. The Lehman shock of September 15, 2008 increased counterparty risks of financial institutions in inter-bank transaction, escalating depreciation of the euro and the sterling pound. The GFC affected notable movements in East Asian

currencies: for example, the Japanese yen was appreciated while the Korean won was depreciated.

In sum, the investigation on the movements of East Asian currency baskets presents a similarity of ERR in the region. After the AFC, the U.S. dollar weights accorded by East Asian countries declined slightly following the move to introduce some relative flexibility to their currencies. These U.S. dollar weights are still quite high in value and have dominated those of the other international currencies. However, it does not seem like a ‘New Bretton Woods system’ (Dooley, Folkerts-Landau, and Garber 2004) or ‘dollar standard’ as McKinnon argued (R. I. McKinnon 2005). We notice a widening deviation among East Asian currencies than prior AFC period that the decision to introduce some flexibility to the East Asian currencies is associated with the relatively rising weights of the euro and yen in their currency baskets.

Hence, the review on East Asian countries’ ERR choices shows a regional clustering of ERR choice. The region of East Asia has generated a geographical pattern of ERR choice. East Asian countries have similarities in adopting exchange rate regimes: high weights on the U.S. dollar in the currency baskets during pre-crisis period; declines of reliance on the U.S. dollar as an anchor since post-crisis; and lastly, increased importance of the yuan in the currency basket during China’s RMB reform.

C. Explaining the Exchange Rate Regime Choices of East Asia

Exchange rate regimes of East Asian countries are critical in achieving and maintaining economic growth. Exchange rate fluctuations may impact on prices and exports substantially and become sensitive policy issues. Then, considering the importance of exchange rate

policy for East Asian countries, what explains exchange rate regime (ERR) choices in East Asia? How can we account for the apparent similarities in East Asian countries' exchange rate policy choices? Are these similarities due to similar characteristics or common external shocks, such as financial crisis in 1997-98, or are they the results of interdependent policy choices? In other words, can a change in ERR adoption of a state be influenced by others' prior choices? If such diffusion occurs in ERR choice of East Asian countries, what causal path does it take? If not, do other domestic or external factors shape the actual pace and depth of adoption of ERR?

Economics and the international political economy literatures provide accounts for the determinants of exchange rate regime choice. In economics, optimal currency area (OCA) theory is associated with the ERR choice. Economic characteristics of a country such as economic size and openness affect the exchange rate arrangement. Economic explanations of exchange rate policy mainly focus on optimality and efficiency and, accordingly, consider the nature of exchange rate policies as essentially apolitical. Variations of exchange rate policy choices across states are seen as the result of differences in the economic conditions of individual state.

In the international political economy literature, three competing approaches provide accounts for ERR choice: the cognitive level of analysis, the domestic politics approach and international diffusion theory. First of all, individuals' personality, perceptions and cognition play a role in foreign economic policy making. The cognitive level of analysis relies on how ideas shape decisions made about money politics.⁸ Second, domestic politics approach argues that domestic socioeconomic and political factors mainly explain particular economic

⁸ The cognitive level of analysis will be more discussed in international diffusion theory.

policy choices. The determinants of national economic policy making and changes include diverse national factors, including partisanship, domestic political pressures, domestic veto players, federalism, coalition governments, and policy transparency. Lastly, international diffusion theory posits that diffusion occurs when a given country's government decisions are conditioned by others' prior choices.

When applying OCA theory and the domestic politics approach to explaining the exchange rate policy of a state, we may conclude that countries with similar characteristics are likely to choose similar economic policies. However, the ERR choice of East Asian countries do not seem to be sufficiently explained by OCA theory and the domestic politics perspectives. We often notice similar exchange rate regimes adopted by states which are quite different in terms of domestic political and economic conditions arrangements. We also observe a clustering of specific policy in a region. OCA theory and the domestic politics approach therefore cannot explain adequately the existence of policy diffusion since these theories assume the independent policy choice of a state. Many studies in domestic politics approach often do not consider the possibility of interdependence in policy decision-making.

As explained in the previous section, we have observed several similarities in ERR choices across East Asian countries. Among similarities, a number of East Asian countries have been faithful US dollar followers. The dollar has been a key anchor currency for their exchange rates and has been used for trade invoicing and settlement even in regional or bilateral transactions in East Asia. The region has been described as “the East Asian dollar standard” (R. McKinnon and Schnabl 2004) or the “Bretton Woods II” (Dooley, Folkerts-Landau, and Garber 2003, 2004). In addition, a number of countries' exchange rate regimes

shift to more flexible ones after the financial crisis in 1997-98 (Kim and Lee 2004; Kawai and Akiyama 1999; Kawai and Ginkō 2002).

To explain a regional clustering of ERR choice, this study aims to analyze exchange rate policy choices of East Asian countries by employing international diffusion theory. I argue that a state's choice of exchange rate policy may be affected by others' policy decisions. My argument rests on international diffusion theory,⁹ which is a growing literature that has examined how policies diffuse internationally across a wide range of domains (Graham, Shipan, and Volden 2013; Solingen and Börzel 2014).

In the existing bodies of literature on policy diffusion, several studies have examined the diffusion of liberal economic policies (Simmons and Elkins 2004; Simmons, Dobbin, and Garrett 2006; Meseguer 2004, 2006). Studies of economic policy issue areas include tax, bilateral investment treaty, and public sector downsizing; however, many studies on exchange rate policy using diffusion theory have been scant (major exceptions are Simmons and Elkins, 2004 and Khamfula 1998). This study explores whether policy diffusion occurs in exchange rate policy.

More importantly, East Asia provides insights into an understudied area of international diffusion. In studying policy diffusion, cases must be selected in a non-random fashion in diffusion studies “in order to assess competing explanatory claims” (Starke 2013, 567–568). For instance, Weyland selects “positive cases” for his analysis in which policies concerned are actually spread (Weyland 2006, 14-16) or “intuitive regression” (Collier, Brady, and

⁹ Major works on policy diffusion are including: (Savage 1985; Karch 2007; Simmons, Dobbin, and Garrett 2006; Stone 1999; Marsh and Sharman 2009; Berry and Berry 1990; Graham, Shipan, and Volden 2013; Givan, Roberts, and Soule 2010; Meseguer and Gilardi 2009; Bennett 1991; Gilardi 2010; Dolowitz and Marsh 1996).

Seawright 2004). The region of East Asia seems to show “intuitive regression” of geographical pattern of ERR choice: many East Asian countries have shown similarity in adopting managed floating (Kawai and Ginkō 2002; Kawai 2009).

In addition, most studies on international diffusion tend to concentrate on Europe and North America, and use quantitative studies based on large scale data. Therefore, a study with a focus outside the Western developed countries and with an in-depth comparisons is important to fill the gap for the diffusion theory (with the exception of Evans (2004) and Weyland (2004, 2005)). Moreover, some diffusion mechanisms are expected to exert a stronger influence on the developing countries than anywhere else (Gilardi 2010). Exchange rate regimes for developing countries are critical to attain sustainable economic growth.¹⁰ Therefore, investigating diffusion effects in developing countries’ policy choices, such as those of East Asia, may provide useful information and insights.

Hence, ERR choice in East Asia will be examined by both statistical tests and case studies. The analysis spans from 1996 to 2012: the year 1996 is selected as the starting point because by this time countries had adopted a weighted basket currency system. Meanwhile, 2012 was the most recent year for which data were available for all countries. In order to detect the existence and nature of interdependence, the main explanatory factors will be constructed by employing a spatial lag model. Since the dependent variable is exchange rate policy, spatial lags measure the average policy among these countries.

Korea and Taiwan offer illuminating cases in that they provide the opportunity to study diffusion effects on a spatial scale and the existence of any diverging policy outputs. Both

¹⁰Regarding developing countries’ economic growth and exchange rate policy, see (Alesina and Wagner 2006; S. Edwards 1989; Sebastian Edwards 2011, 2011; Frankel 2003;

countries share many common socio-economic and political attributes. In their economic development, they embraced the “flying geese” model (Akamatsu 1962) of open-trading and developmental state policies, following Japan after World War II (Leftwich 1995; Woo-Cummings 1999; Wong 2004). Both countries have shown economic growth, and are described as “tigers” or newly industrializing countries (NICs) in East Asia. In addition to export-led economic development policy, Korea and Taiwan have intimate security and economic relationships with the U.S. They have cultural similarities, such as the traditions of Confucianism and Buddhism which are deeply rooted in both societies.

Despite these many similarities, Korea and Taiwan present divergent exchange rate policy choices. The literature on yuan bloc argues that some East Asian countries show a gradual shifting of its key reference currency to the renminbi (RMB). For example, in the case of Taiwan, most studies find that it shows closer currency co-movement of currencies, the New Taiwan dollar (TWD) and the renminbi. In contrast, even though Korea is experiencing rapid increase in trade and financial interdependence with China, the Korean exchange rate demonstrates a different path of movement from the TWD: it does not quite follow the yuan’s movement, but still closely fluctuating with the US dollar (Fang, Huang, and Niu 2012; Henning 2012; Pontines and Siregar 2012; Park and Song 2011).

Given the comparable trajectories of post-war economic and political developments in the growth-oriented policies of Korea and Taiwan, this seemingly different policy stances pose a question of what explains the divergent approaches to exchange rate policy between them. However, this question has not been convincingly and comprehensively explored in the literature. This study endeavors to ascertain the causal relationship between different

Frieden, Ghezzi, and Stein 2000; Sebastian Edwards 1988; Mishkin 1998; Eichengreen

policy outcomes of these two countries by examining exchange rate policy of these two countries from 1995 to 2012.

D. Expected Contributions

This dissertation seeks to make two contributions to the literature on international political economy. It aims to contribute to the growing literature on international diffusion theory and the exchange rate policy. This dissertation extends the view of diffusion to the question of ERR choice. The possibility of interdependence among states' policy choices which have been ignored by economic theories and domestic politics approaches, is highlighted in this study. The other aim of this dissertation is to add more explanations on developing countries' exchange rate policy. The analysis on the determinants of ERR choices of East Asian countries would provide an insight and useful information.

E. Outline of the Dissertation

The dissertation is consisted of six chapters. Following Chapter I Introduction, Chapter II surveys and reviews relevant theoretical approaches to exchange rate regime choice. This chapter presents whether and how international diffusion theory may provide better accounts on ERR choice than the optimal currency area theory and domestic politics approach.

This dissertation includes statistical tests of aggregate data and two qualitative case studies. Chapter III lays out the research design which guides the empirical research on ERR choice. It presents the hypotheses of this research and specifies the concepts and measurements of the dependent, explanatory and control variables for statistical testing: the dependent variables are measured by using Frankel and Wei (1994) model; explanatory

1993; Reinhart and Reinhart 2003).

variables are spatial lags which incorporate the interdependence of time and space among countries while economic and domestic political conditions are included as control variables.

Chapter IV specifies the employed statistical models and reports the statistical results of testing hypotheses. I perform event history model tests that attempt to predict the likelihood of choosing a certain anchor currency in a country's currency basket. Findings of these tests strive to show a general pattern of ERR choice.

Chapter V and VI detail comparative case studies, which adds qualitative evidence for diffusion hypotheses. By using the case studies of South Korea and Taiwan, diffusion and ERR choices can be studied in greater detail and in their proper context. Lastly, Chapter VII summarizes the findings of the research and discusses contributions of this project and possible policy implications.

II. Literature Review

This chapter reviews the literature on of explaining ERR choice. It starts with the economic approach: the optimum currency area theory (OCA). Then, the second section surveys approaches of international political economy to the analysis of ERR choice at the cognitive level and the domestic politics of foreign economic policymaking. The last section details the international diffusion theory.

A. Economics Literature: Optimal Currency Area Theory

In the economics literature, optimum currency area (OCA) theory provides a conceptual framework for analyzing the choice of ERR. OCA theory assesses the benefits and costs of different intermediate regimes, focusing on how countries with different economic structures would be better off with different ERRs (Mundell 1961; McKinnon 1963; Kenen 1969; Tavlas 1997; Willett 2006).

The early literature of OCA had focused on exchange rates as an instrument for balance of payments adjustments to achieve external balance. The seminal work of Robert Mundell (1961) identifies criteria for choosing between fixed and flexible exchange rate systems facing external shocks. As Mundell noted, “A system of flexible exchange rates is usually presented, by its proponents, as a device whereby depreciation can take the place of unemployment when the external balance is in deficit, and appreciation can replace inflation when it is in surplus” (Mundell 1961, 657). Stressing the role of internal factor mobility as an adjustment mechanism where wages and prices were sticky, Mundell asserts that “where wage and price flexibility and/or factor mobility is high, the costs of the restrictive macroeconomic policies required to correct a balance of payments deficit will be relatively

low, and hence the macroeconomic costs of adopting a fixed exchange rate would typically be modest” (Mundell 1961).

Other classic contributors to this theory, McKinnon (1963) and Kenen (1969), emphasize openness and fiscal policy, respectively. McKinnon’s work looks on the influence of openness and hypothesizes that openness with potential currency area trading partners is more likely to decide the creation of an optimum currency area. Kenen articulates the importance of fiscal integration. He argues that the higher the level of fiscal integration between two areas, the greater their ability to smooth out diverse shocks through fiscal transfers from a low unemployment region to high-unemployment region (Kenen 1969).

Other economic factors, such as price and wage flexibility, inflation, and foreign reserves also shape ERR policy. When prices and wages are flexible between regions, the transition toward adjustment between regions is less likely to be associated with unemployment in one region and inflation in another. This would diminish the need for exchange rate adjustment, and, therefore, these countries are more likely to join a common currency area (Tavlas 1997). In the case of inflation, a fixed exchange rate is hard to sustain. Thus, moderate inflation will require frequent alterations of the peg. The sustainability of fixed exchange rate is also related to the availability of foreign reserves. Lack of reserves increases the probability of adjusting or abandoning the peg, and the probability of incurring political costs of doing so (Frieden, Ghezzi, and Stein 2000).

As such, OCA theory weighs costs and benefits of fixed exchange rates relative to floating exchange rates. Hence, OCA theory posits that smaller and more open economies would have higher economic costs of maintaining an independent exchange rate, and hence they are more likely to adopt fixed exchange rate regime while the larger and more closed economies are more likely to choose flexible exchange rates.

The OCA approach contributes to our understanding of exchange rate policy by identifying how national economic characteristics may affect the cost and benefit analysis of choice. However, OCA's account for ERR choice patterns is often absent in empirical studies. For instance, Ghosh and Wolf (1994) find that neither Europe nor the United States (U.S.) forms an optimum currency area, of which regions show costs of adopting a single currency exceed benefits of transaction cost savings. In addition, OCA theory does not consider any possible impacts of political factors on ERR choice, such as domestic political institutions in democracies. Furthermore, it does not make an assumption about the possibility of interdependence among states in the case of policy-making. The domestic politics approach and international diffusion theory fill the void of the possible impacts of political factors on ERR choice.

Hence, the OCA theory's economic characteristics will be treated as control variables. A country's economic characteristics and its external economic environment are factors of concern. Variables of interest include: economic size (gross domestic product, GDP), GDP per capita, world interest rates, openness to trade (shares of exports and imports in GDP), the availability of foreign reserves, and the experience of financial crisis.

B. Competing International Political Economy Explanations

Above all the pages must be conceived as a sequence of images with design continuity. The reader should experience the pages as a flow of related events rather than as separate isolated entities.

1. Cognitive Level of Analysis

The first level of analysis draws attention to the concepts, values, perceptions and cognition that underlie foreign economic policy making (Jervis 1976; George 1980; Odell

1982; Haas 1992; Goldstein and Keohane 1993; McNamara 1998; Helleiner 1999; McDermott 2004).¹¹ The cognitive level of analysis rests on how ideas shape decisions made about money politics. Ideas are defined as “ shared causal beliefs” (McNamara 1998, 4). This level of analysis accentuates “the base of ideas and consensual knowledge that legitimize governmental policy-making” (Cohen 2002, 432).

Several studies have examined the role of first-mage cognitive variables on money politics.¹² McNamara explores the role of ideas in the process of monetary integration in Europe during the 1970s and 1980s. She emphasizes that a new norm of “consensus of competitive liberalism” was necessary for achieving international exchange rate stability: states should be willing to give up their use of monetary policy as an instrument for domestic economic goals, such as employment or economic growth; and states must be willing to “stake their credibility [...] on support for exchange rate stability and inflation control” (McNamara 1998, 10). McNamara’s analysis of what makes pegged exchange rate systems work is designed to explain the performance of exchange rate systems over time, highlighting the role of norm.

With respect to central bank independence, Hayo (1998) and Hayo and Hefeker (2002) suggest that if a society has an inflation-averse preference, it is more likely to choose a pegging system since pegging can be used to enhance anti-inflation credibility of monetary policy. Basham and Roland explore how personalities affect the policymaking of the European Central Bank (ECB) during the sovereign debt crisis and argue that different

¹¹ See also “Knowledge, Power, and International Policy Coordination,” special issue of *International Organization* 46 (Winter 1992), edited by Peter M. Haas; Sikkink (1991); Judith Goldstein and Keohane (1993); and regarding trade policy and ideas, Goldstein (1993).

personalities of the two President of the ECB, Jean-Claude Trichet's and Mario Draghi, influenced policy choice (Basham and Roland 2014).

Nevertheless, ideational factors are also closely connected to the third-level of analysis. The role of ideas is more systematically discussed in international diffusion literature. The first-image cognitive analysis largely shares the assumption of the role of ideational factors as determinants of policy choices with learning and emulation mechanism of international diffusion theory. Therefore, impacts of cognitive factors on economic policy decisions will be discussed in more detail in the section of international diffusion theory.

2. Domestic Politics Approaches: Interests and Institutions

The second image analysis focuses on how key actors within a state and their structured interactions generate the choice of governments' policy preferences and behavior. The domestic politics approaches emphasize how interest and institutions influence government's policymaking. The most dominant approach in international political economy is the Open Economy Politics (OEP) paradigm, coined by David Lake (2009), which proposes three stages in explaining economic policy. The domestic politics approaches comprise initial two stages of OPE. In the first stage, OPE scholars study how actors' interests are formed; in the second stage, domestic (political) institutions aggregate and mediate the established interests. Lastly, these states' attributes shape foreign economic policymaking in the international stage. While the preferences of political actors or a state's

¹² Jonathan Kirshner (2003)'s edited volume also stresses how ideas play a role in the issues such as inflation policy, central banking, and capital deregulation. Studies included in this edited volume will be discussed in the section of international diffusion theory.

political institutions are prioritized, as Oatley (2011) points out, 13 specific interactions between domestic structures and systemic factors have not been sufficiently addressed.¹⁴

On the one hand, advocates of interest approach emphasize the preferences of interest groups (Frieden 1991; Bernhard and Leblang 1999; Frieden, Ghezzi, and Stein 2000; Steinberg 2015). The domestic politics scholars develop models of societal economic preferences for exchange rate policy. Unlike interest-based models of political cleavages in trade policy (Rgowski 1989, 1990), models of societal economic preferences regarding exchange rate policy are more complex: it is more difficult to know which interest groups would prefer a specific exchange rate policy because the exchange rate policy has broad effect on the population.

However, Jeffrey Frieden focuses on the direct impact of capital mobility and different exchange rate regimes on interests in his seminal work (Frieden 1991), suggesting that distributional implications will create preferences of interest groups and political coalitions, which in turn affect policies. Domestic actors who are involved in foreign trade and investment, such as producers of exportables, are more likely to prefer fixed exchange rate systems because these actors tend to be averse to volatility associated with floating rates. Conversely, internal actors in domestically oriented and non-tradable sectors are more likely to favor floating rates since they do not have a direct interest in the risks and costs of currency fluctuations. These individuals also tend to be more sensitive to domestic macroeconomic conditions and, hence, prefer monetary autonomy.

¹³ Oatley argues that IPE scholars' reductionist research which focuses on domestic factors while lacking of analyzing systemic factors may lead to incorrect conclusions in this globalized system (Oatley 2011).

¹⁴ Regarding the limitations of OEP paradigm, see also (Milner and Keohane 1996; Chaudoin, Milner, and Pang 2015).

In his more recent book, Frieden also emphasizes the interests and influence of economic interest groups (Frieden 2014). He seeks explanations about governments' currency policy choices by examining the cases of the U.S. in the 1970s, the European monetary integration, and Latin American currency policy since the 1970s. Frieden identifies industries' motivations for currency policy preferences. Preferences, according to Frieden, are likely to be determined by the distinctive industry's characteristics, such as its exposure to currency risk and the price effects of exchange rate movements. Hence, economic interests play a great role in making exchange rate policy. In the similar vein, Stefanie Walter's work (2013) addresses core issues of macroeconomic adjustment during financial crises, exploring how factors like foreign currency liability, unemployment, and holding a mortgage shape the extent to which voters are affected by different adjustment strategies (Walter 2013). Here, Walter emphasizes the role of voters in politics of adjustment.

David Steinberg (2015) attempts to account for why some developing countries maintain undervalued exchange rates while others overvalue their exchange rates. He stresses on the power of the manufacturing sector which may influence exchange rate policy. Steinberg claims that exchange rates are likely to be most undervalued in countries with powerful manufacturing sectors since manufacturing sectors and to prefer undervalued exchange rate for export competitiveness, and this preference is also conditional on their political institutional environments (Steinberg 2015).

On the other hand, another stream of the domestic politics approaches focuses on institutions. Institutionalists draw attention to how electoral systems (Bernhard and Leblang 1999; Clark and Hallerberg 2000; Bernhard and Leblang 2002), partisanship (Clark 2002; Bearce 2003), central bank independence (CBI) (Alesina 1988; Alesina and Roubini 1992; Alesina and Summers 1993; Cukierman 1992), domestic veto players (Keefer and

Strasavage 2002), federalism (Hallerberg 2002), and coalition governments (Bernhard and Leblang 2002) may shape ERR policy in democracies.¹⁵

For instance, Clark and Hallerberg (2000) explore how different electoral systems impact on exchange rate policy and argue that politicians under a proportional representation (PR) system have relatively low stakes in elections, hence having weaker desire to maintain discretion over macroeconomic policy. Therefore, policymakers under a PR are more likely to adopt a fixed exchange rate than those under majoritarian systems.

Other works treat how political regime types affect the ERR choice. Leblang (1999), Broz (2002), and Broz and Frieden (2001) postulate how domestic policy transparency may shape exchange rate policy. They demonstrate that nondemocratic systems are significantly more likely to adopt a fixed regime for credibility purposes than democracies in order to show policy commitment to other countries.

In his comparative case studies on currency policies of the U.S., Germany and Japan, Henning stresses on the role played by political institutions (Henning 1994). He focuses on the effects that different institutional arrangements can produce and examines the differences in central bank-government relationships in the U.S., Germany and Japan. Central banks tend to emphasize price stability whereas finance ministries tend to value broader economic goals, such as unemployment. Thus, he argues that when the degree of central bank independence is greater, the objective of inflation control is likely to supplant other economic goals.

¹⁵ Concerning authoritarian regimes' exchange rate policy, Steinberg and Malhotra (2014) present that foreign economic policy varies across three different types of authoritarianism: monarchic, military and civilian dictatorships. They argue that monarchies and military regimes tend to keep fixed ERRs and undervalued exchange rates than democracies and civilian dictatorships (Steinberg and Malhotra 2014).

While the domestic politics approaches have identified how interest and institutions shape ERR policy, there are several limitations. First and foremost, the domestic politics literature assumes that important political processes are confined to each country's internal circumstances. Preferences of domestic actors or national institutions are assumed to be major factors that shape and determine policy choice. Domestic politics theories tend to neglect the role of international politics or structural factors on national policy choice. In addition, the domestic politics literature is dominated by research that assumes independent policy choices and hence undermines the possibility of diffusion. Although the domestic level approach often disregards diffusion of policy, domestic politics variables are closely related to exchange rate policies and, therefore, will be included for analysis in this proposed study as control variables.

3. International Level Approach: International Diffusion Theory

As noted, the existing literatures of ERR choice pay insufficient attention to international factors and the role of policy diffusion from other states. The domestic politics approach has limitation to analyze ERR choices by assuming that an individual government sets policies autonomously. The literature that emphasizes interdependence of foreign economic policy making and transitions is international diffusion theory. Scholars from various fields, such as sociology, policy analysis, comparative politics and international relations, have advanced a common set of causal mechanisms which potentially explain possible policy diffusion.

International diffusion is not a new idea. Essentially, the "second image-reversed" theory emphasizes the impact of the international economy on domestic policy preferences. Gourevitch notes the interaction between international politics and domestic structures (Gourevitch 1978). Rather than relying on domestic politics as explanatory variables for

government's policy making, the second-image reversed approach investigates how the international system constrains domestic behaviors. The variations in degree to which states are integrated into the global economy may influence policy making by shaping or changing domestic agents' incentives to a given policy. For instance, economic integration may limit governments' ability to tax capital (Rodrik 1997). Despite the incorporation of international factors in the analysis, second image-reversed analysis has its limitation in that it mainly stresses domestic agents' reaction to the changes in the international economy as economic integration deepens (Oatley 2011, 316). What has been missing is how international diffusion can lead to similar policy responses despite domestic similarities or differences.

The notion of international interdependence has long been emphasized by Keohane and Nye's *Power and Interdependence* (1977). Studies of international interdependence assume that states interact with one another in a complex network of economic, political, and cultural affairs, and international factors affect domestic decision making through transnational diffusion processes. Recently, international diffusion is applied to studying economic policymaking in order to provide more systematic accounts of it.

Simmons, Dobbin and Garrett state that "international policy diffusion occurs when government policy decisions in a given country are systematically conditioned by prior policy choices made in other countries" (Simmons, Dobbin, and Garrett 2006, 787). Then, how are policies of a state influenced by others' choices? Diffusion theorists provide systemic accounts of diffusion mechanisms. This section elaborates on the four main theoretical models of policy diffusion: coercion, competition, learning and emulation. Then, I will discuss ways to detect the existence of policy diffusion.

a. Mechanisms of International Diffusion

Diffusion mechanisms¹⁶ refer to “systematic sets of statements that provide a plausible account of how policy choices in one country are systematically conditioned by prior policy choices made in other countries” (Braun and Gilardi, 2006, 299). There are various causal mechanisms discussed by theorists depending on their focus on “different substantive phenomena as well as different theoretical, methodological, and epistemological foundations” (Solingen 2012, 634).

For example, Börzel and Risse (2009, 2012) distinguish diffusion mechanisms by combining two criteria: the major logics of social action¹⁷, and direct/indirect influence. Actors are conceived as rule followers or persuaders of norms. Or, diffusion works through direct influence of coercion, manipulating utility calculations, socialization and/or persuasion; or indirectly through competition, learning, and mimicry. Other scholars focus on causal mechanisms, such as signaling, shaming and bargaining (Börzel and Risse 2012; Solingen and Börzel 2014).¹⁸ Thus, among many diffusion mechanisms, theorists seem to broadly agree on four mechanisms driving policy diffusion: coercion, competition, learning and emulation. While coercion and competition focus on the changes in material incentives, learning and emulation works through “normative rationality or the logic of appropriateness and involves socialization” (Börzel and Risse 2012, 10).

¹⁶ According to Gerring (2007), causal mechanism is defined as “the pathway or process by which an effect is produced or a purpose is accomplished” (Gerring 2007, 178).

¹⁷ The major logics of social action include logic of consequences, logic of appropriateness, and logic of arguing.

¹⁸ In their survey article on diffusion studies, Graham, Shipan, and Volden provide a long list (104 terms) of the possible process of diffusion (Graham, Shipan, and Volden 2013, 690).

(1) Coercion

The first mechanism of diffusion is not a horizontal process, but a vertical one. The external pressure argument assumes that powerful states and international organizations attempt to influence other states' policies. These powerful actors use "manipulation of economic costs and benefits, and even the monopolization of information and expertise" (Simmons, Dobbin, and Garrett 2006, 10), in order to press or cause policy alteration in other states.

How can coercion be effective? Powerful states may explicitly or implicitly attempt to influence weaker states' policy decisions. Governments may exercise coercion through physical force (Owen 2002). In addition, regional and international institutions can be considered as agents of diffusion. Loan or aid conditionality imposed by international financial institutions (IFIs), such as the International Monetary Fund (IMF) and the World Bank, may also constitute forms of coercion (Quinn and Toyoda 2008). In order to acquire certain resources, national governments need to comply with a given policy. Quiliconi examines how regional PTAs as institutional agents promote their interests and designs of their principals, the U.S. and Brazil (Quiliconi 2014). Unilateral policy choices that shape the choices of other governments are another example of coercion mechanism.

Coercion can be distinguished into two types: "hard" and "soft" coercion (Simmons, Dobbin, and Garrett 2006, 790–91). This distinction is closely related to the discourse on "three faces of power" (Bachrach and Baratz 1962; Schattschneider 1963; James and Lake 1989; Digeser 1992). The first and second faces of power are relevant to "hard coercion." The "first face of power" implies the direct use of positive and negative sanctions for the purpose of influencing foreign governments' policy choices (James and Lake 1989, 4). This notion is similar to "relational power" labeled by Susan Strange (1988; 1994, 23-25) since

relational power refers to power of A to get B to do something that they would not otherwise do (Strange 1988, 24).

Dominant states may directly coerce weaker states to adopt policy changes that those weaker nations would not otherwise adopt. Use of force and conditionality are in this category. They offer rewards, such as foreign aid and military support. The exchange rate weapon (Henning 2006) argument is also relevant in this context. The hegemonic state, the United States, wanted to defend the dollar by providing other states political and military support and allowing market access to US markets while also constraining those states through disruption of financial assistance or military interventions (Henning 2006). As such, the first face of power is intentional and deliberate in exercising positive and negative sanctions.

The “second face of power” is exercised through international market power. It involves indirect political action through systematic infrastructure to favorably alter incentive structures, or “structural power”¹⁹ in Susan Strange’s term. The second face refers to “the power to shape and determine the structures of the global political economy,” and “the power to decide how things will be done, the power to shape frameworks within which states related to each other” (Strange 1988, 24–25). The second face of power affects choice and incentive structure, and it is a “passive form of structural power.” This ability to gain by rewriting the rules of the game (Cohen 1977) alters the incentives and political influence of societal actors in other countries, who then exert pressure on their governments for

¹⁹ Structural power is used by Susan Strange as a distinct concept corresponding to “relational” power in international relations (Strange 1988). She advocates the understanding of power at the two levels, which are relational and structural in order to grasp mutual dependence. Relational power refers to “power of A to get B to do something they would not otherwise do” (Strange 1988, 24). Structural power concerns with “the power to decide how things will be done.”

alternative policies that will be beneficial to the dominant international power's interests. As such, diffusion may occur through "manipulating utility calculations" by providing negative and positive incentives (Börzel and Risse 2012, 6–7). For example, Kirshner probes diminished American power and influence since global financial crisis and discusses how it impacts on structural power in international politics (Kirshner 2014, chap. 7).

Without any intentional efforts, great powers may still influence the policy decision of weak states by the second face of power. This so-called "go-it-alone power" (Gruber 2000) refers to "the ability to influence unilaterally a government's policy choice by altering the nature of the status quo it faces" (Simmons, Dobbin, and Garrett 2006, 456). Stackelberg leadership (von Stackelberg's 1934) in economics also accounts for dominant actors' influence on policy adoption. Stackelberg leader-follower relations posit that "a monopolist's decision about how much to produce affects market entry and production decisions of others. Thus, "a Stackelberg leader enjoy first-mover advantages" (Simmons, Dobbin, and Garrett 2007, 456). For example, the Stackelberg leader-follower game can be applicable to exchange rate policy of countries in East Asia. With emergence of economic rising of China, China's ERR changes may influence other follower countries' exchange rate policy choices (Henning 2012). Schelling's (1960) "focal points" argument also utilizes policy leadership argument in which participants may follow the behavior of a powerful state simply by virtue of its salience.

Dominant states do not necessarily have to exert physical force or use materially altering costs or benefits to impact the policies of weaker states. Through "soft" coercion, also known as the "third face of power," powerful states may influence other countries. Soft coercion occurs through cognitive channels, such as theories, information or ideas. Therefore, the third face emphasizes "the hegemon's use of ideas and ideology to structure

public opinion and the political agenda in other countries so as to determine what are legitimate and illegitimate policies and forms of political behavior” (James and Lake 1989, 4). Joseph Nye’s soft power argument rests on the same notion. According to Nye, “soft power rests on the ability to shape the preferences of others” (Nye 2008, 95). In short, it is based on the power to persuade and attract others.

Political scientists tend to treat policy leadership (Schelling 1960; Wilson and Rhodes 1997; Pahre 1999) and hegemonic ideas as soft types of coercion. Once ideas from dominant actors become justified, and then influence “how policy makers conceptualize their problems and order potential solutions” (Simmons, Dobbin, and Garrett 2007, 456). For instance, Edwards (1997) points out that the World Bank has provided evidence and data which supports economic liberalization to member states and those data may influence policy decision of states.

In empirical studies, however, coercion in policy diffusion has not been sufficiently demonstrated. For example, Weyland suggests that “given the global reach of the most powerful international organizations, it has difficulty explaining the geographical clustering of this innovation’s spread” (Weyland 2006, 37). In his analysis of pension reform in Latin America countries, Weyland shows that international financial institutions did not exert much influence on these reforms (Weyland 2006, 69-96).

In exchange rate policy choices, how might the coercion mechanisms work? The answer to this question depends on whether dominant states or international organizations may intentionally or unintentionally influence policy adoption of others. In order to examine this, we need to know whether there is any preference for a certain type of exchange rate regime by dominant actors. The literature on the power of currency argues that being an anchor currency does not have much benefit (Cohen 2008). In the process of ERR choice, it would

be a challenge to find how the coercion mechanism actually works and how the paths of adoption occur across countries and time.

Developing countries, such as the Republic of Korea (henceforth Korea), may be under pressure when great powers, like the U.S., verbally mention their exchange rate policy in periodical reports on international economic and exchange rate policies (“US Treasury Calls on China and South Korea to Go Further in Currency Appreciation” 2014). Dominant states or international institutions’ exhortation may give subtle pressure to weak states.

(2) Competition

The second diffusion mechanism, competition, refers to “the process whereby policymakers anticipate or react to the behavior of other countries in order to attract or retain economic resources” (Gilardi 2012b, 462). According to this approach, governments compete with each other to increase their export market shares or to attract more global capital. Competitive pressures and technological advancements may compel national governments to deregulate capital markets in order to attract foreign investors who can shift their capital easily and rapidly to other countries. Liberal theories assume that international investors and enterprises prefer certain types of policies, and governments want to adopt those international business-friendly policies: governments attempt to reduce or relax regulatory requirements, tax burdens, and investment risks. These policy choices also signal affirmative changes of policy to international investors, which in turn make local economy more attractive for more investment and exports (Simmons, Dobbin, and Garrett 2007, 457–60; Gilardi 2012b).

Several empirical works find evidence of the competition mechanism in some economic policy making. For example, Zachary Elkins and Beth A. Simmons (2004) suggest an empirical evidence of competition mechanism in economic policy liberalization, namely

liberalization of current and capital accounts, and exchange rate unification. Benjamin E. Goldsmith argues that the competition between China and other less developed states in the region propelled the diffusion of open economic policies across East Asia post-1978 (Goldsmith 2014). As such, studies based on diffusion theories contribute to the understanding of international economic competition since they provide a more precise analysis of competition dynamics.

With regard to competition approach to ERR choice, countries may take into consideration other countries' choice of exchange rate policy when making national policy given high competition in international trade. Thus, globalization raises the costs for national governments to pursue divergent monetary objectives, which may also shape ERR policy. If governments are more inclined to coordinate macroeconomic policies by sacrificing some degree of monetary independence for the purpose of maintaining high interest rates and balance of payments stability (Webb 1991; Andrews 1994), we may find diffusion of similar ERR choice among states in trade and capital competition.

When it comes to regional economic competition, we need to consider the patterns of intra-regional trade. Considering East Asia as an example, intraregional trade has expanded remarkably over the last three decades. The share of East Asia's intraregional trade in its total trade has risen from 37 percent in 1980 to 54 percent in 2007 (Kawai 2008a, 8). Regional trade in East Asia has a distinct characteristic, the dense production networks which are also referred to as "Factory Asia," or "flying-geese" model (Akamatsu 1962),²⁰

²⁰ The "flying geese" model refers that "Tigers" in East Asia, including Hong Kong, Singapore, South Korea, and Taiwan followed the successful strategy of Japanese economic growth, which is characterized as the spread of open trading and developmental state policies (Johnson 1982, 1987, 1995; Leftwich 1995; Woo-Cumings 1999; Peng and Wong 2004). Kimura and Obashi argue that despite its useful framework to explain the development model of East Asian countries, the application of the flying-geese model to

creating efficient intra-industry trade (Kawai and Urata 1998; Fukao, Ishido, and Ito 2003; Kimura and Obashi 2011; Athukorala 2005, 2011; Kawai 2008b; Goldsmith 2014). The international division of labor in the region is not by industry, but by production process. These networks have promoted the specialization of production: the production process is fragmented into different sub-processes within the same industry; and also into different countries (Kawai and Urata 2004, 15). This organized configuration in production has promoted intra-industry trade within East Asia, particularly in “capital equipment, parts and components, intermediate inputs, semi-finished goods, and finished manufactured products” (Kawai 2008b, 8).²¹

Then, how would such a characteristic of intra-regional trade affect the exchange rate policy of East Asian countries? We need to consider how exchange rate policy, particularly exchange rate volatility, affects parts and components trade within intra-regional production networks in East Asia. Several studies examining exchange rate volatility’s impact on exports provide evidence that exchange rate volatility decreases exports of parts and components in electronics (Thorbecke 2008) and in machinery (Hayakawa and Kimura 2009).²² Such empirical findings suggest that exchange rate stability is “one of the most important prerequisites for a country to participate in production networks” (Kimura and

current East Asia need to be cautious because the flying-geese model focuses on industrial division of labor; current East Asia shows production-process division of labor (Kimura and Obashi 2011, 5).

²¹ “Machines typically consist of a large number of parts and components, each of which is produced by diversified technologies and inputs. Machinery industries are thus particularly suited to the fragmentation of production” (Kimura and Obashi 2011, 1).

²² Hayakawa and Kimura (2009) provided further evidence that “the negative impact of exchange rate volatility on trade in machinery parts and components is severe compared to the case of finished products.”

Obashi 2011, 14), and we may assume that countries involved in production chains are likely to consider other regional production partners' exchange rate policy in order to limit fluctuations of exchange rates. Hence, in addition to the incentive to choose similar exchange rate policies among competing East Asian countries in the international market, the dense production networks in the region may increase the possibility of similarity of ERR choices.

(3) Learning

The third mechanism concerns diffusion through learning. While coercion and competition emphasize maximizing self-interest, the processes of socialization or learning rests on the logic of appropriateness or normative rationality (Olsen and March 1989; March and Olsen 1998; Börzel and Risse 2009, 2012). Learning is defined as “a change in beliefs or change in one's confidence in existing beliefs, which can result from exposure to new evidence, theories, or behavioral repertoires” (Simmons, Dobbin, and Garrett 2006, 795). For the development of social knowledge, agents such as "epistemic communities” (Haas 1980) advocate new norms and rules of appropriateness to domestic actors through persuasion and learning. Then, governments may be influenced by normative pressure through epistemic communities' direct or indirect involvement in policy decisions.

Governments are assumed to be rational in that they use information to maximize their policy success (Simmons and Elkins 2004, 174). Policymakers use information on other's policies and update their beliefs through a process of Bayesian updating, meaning that new information is added to their prior knowledge and beliefs and influence their behavior. Some scholars question the assumption of rational learning and argue that crucial information to appreciate policy consequences is often lack to policymakers. Policymakers are bounded learners since their rationality is limited by the information available to them; they are

“cognitive misers” who depend on shortcuts due to limited time and energy (Fiske and Taylor 1991; Elkins and Simmons 2005; Weyland 2006). Weyland argues that available and representative information exerts more influence on policy decision. This bounded learning is also due to the cost required for gathering, interpreting and analyzing information. Therefore, Meseguer (2005) and Weyland (2007) argue that bounded learners may have different cognitive biases, such as over-representing the success of a geographically close policy experiment.

Simmons and Elkins (2004) empirically examine the effects of ideas on economic policy liberalization and find evidence that policy transitions are influenced by both the policies of a country's socio-cultural peer and international economic competitors. The authors argue that a country's peer influence acts as a form of channeled learning, reflecting a government's search for appropriate models for economic policy. With regard to exchange rate policy, Simmons and Elkins (2004) stress that transitions to unified exchange rates occurred in the mid-1970s and again in the mid-1990s.

Ilene Grabel (2003) also emphasizes the role of ideological factors in monetary institutions by looking at central banks and currency boards in developing economies. She finds that monetary systems in these economies were designed and transformed by adopting a new classical theory²³ of policy credibility in addition to political and economic influence of strong states (Grabel 2003). Eric Helleiner's case studies on the role of American “money doctors” in promoting monetary reforms in developing countries, in the regions of Latin America and Asia, also provide good examples of this learning effect (Helleiner 2003).

²³ In her article, Grabel (2003) uses a new-classical theory as “the extension of 1970s and 1980s that emerged in the 1970s and 1980s. It combines the “rational expectations hypothesis” with a presumption of instantaneous market adjustment” (Grabel 2003, 25). Neoliberal policies drive from new-classical theory.

Chang Kil Lee and David Strang probe public sector downsizing in the 1980s and 1990s. They suggest that influential epistemic community regards public downsizing as a solution to the poor economic performance, and learning and emulation mechanisms work in the process of public downsizing (Lee and Strang 2006).

If policymakers are likely to adopt a successful policy, then we need to ponder what is meant by “success” in the exchange rate policy. Growth rates are commonly used as indicators for policy success (Simmons and Elkins 2004; Simmons, Dobbin, and Garrett 2006). We need to specify criteria for success in exchange rate policy found in other states.

(4) Emulation²⁴

The last mechanism of international diffusion is the spread of policy through emulation. Emulation, sometimes referred to as imitation or mimicry, involves “copying the actions of another in order to look like that other” (Shipan and Volden 2008, 842). States desire to be a legitimate member of an international community by adopting universalist policies, such as improving human rights standards or fighting corruption. The emulation mechanism is based on normative rationality which follows the logic of appropriateness (Börzel and Risse 2009, 2012). Social constructivists’ focus on intersubjectivity of meaning is a case in point. Despite policymakers’ belief in the “best practice,” they are limited to judge which one policy is better than the other. Constructivists recognize that theory and rhetoric, the bases of decision making, change over time. Similarly, “the same policies can have different meanings over time” (Simmons, Dobbin, and Garrett 2006, 799).

²⁴ Börzel and Risse (2009, 2012) distinguish emulation into three mechanisms: competition, lesson drawing and mimicry based on the underlying theory of social action. Competition and lesson drawing in their argument are based on instrumental rationality since they follow a functional logic. In this study, I confine emulation mechanism to a normative perspective.

Emulation proponents argue that epistemic communities can influence governments to adopt new policies simply by making arguments for them. Expert groups or epistemic communities include policy professionals, academics, international nongovernmental organizations (INGOs), and nongovernmental organizations (NGOs). For example, American economists, in particular those from the University of Chicago, have influenced economic policy changes in Latin America, either directly or indirectly (Drake 1994; Harberger 1997; Montecinos 1997; Murillo 2002).

Emulation may occur when there are commonalities, such as, region, common language, or similar political history. According to reference group theory from social psychology, “individuals emulate the behavior of their self-identified peers, even when they cannot ascertain that doing so will in fact be in their best interests” (Shipan and Volden 2008, 801).

Zweig and Yang explore the diffusion of Western (U.S. and European) academic, scientific, and business norms to China. They suggest that Chinese leaders’ pursuit of promoting academic freedom and performance-based career opportunities aimed to “bring back the best” and create world class universities, scientific research centers, and modern private firms (Zweig and Yang 2014).

Diffusion mechanisms are often interrelated and sometimes hard to discern. Learning and emulation have commonalities in that both underscore the role of epistemic communities and geographical similarities. For example, an international organization might try to influence or change norms and use learning mechanisms at the same time for the purpose of changing both beliefs and behavior. Because distinguishing emulation from learning is problematic, recent studies tend to largely focus on learning rather than strictly

separating the two²⁵, and therefore, this proposed research will combine learning and emulation mechanisms to be tested.

This section has reviewed four mechanisms of international policy diffusion. Advocates of policy diffusion argue that no single mechanism provides a full and best explanation in a given policy area. A number of authors propose that a combination of mechanisms can provide an explanation for diffusing policies (Braun and Gilardi 2006; Simmons, Dobbin, and Garrett 2006; Holzinger and Knill 2005; Meseguer and Gilardi 2009). This study proposes to test all four mechanisms while combining learning and emulation, to see whether they can explain policy diffusion of exchange rate policy among state. As discussed, many commonalities between learning and emulation, such as the role of epistemic communities, make the two mechanisms hard to be separated distinctively.

b. Methodology for Detecting Diffusion

How do we examine whether policies spread in an interdependent process? This section will discuss methodological issues surrounding the empirical study of international policy diffusion. In order to uncover diffusion phenomena in a certain area, both quantitative and qualitative methods can be employed. Among various methods on detecting diffusion, spatial regression and cross-case analysis will be detailed.

²⁵ However, Shipan and Volden (2008) point to a distinction between learning and emulation: policymakers focus on the policy itself in learning whereas they focus on other government in emulation. In emulation, policymakers focus on what other government do and how we can appear to be the same. Shipan and Volden argue that “the crucial distinction is that learning focuses on the *action* (i.e., the policy being adopted by another government), while imitation focuses on the *actor* (i.e., the other government that is adopting the policy)” (Shipan and Volden 2008, 842–43).

(1) Spatial Regression Model²⁶

Most works on policy diffusion have studied by employing quantitative studies and contribute to find the pattern of policy diffusion (Marsh and Sharman 2009; Gilardi 2010, 2012a). International relations scholars have begun to make use of spatial econometric models to test and accommodate various forms of dependence among observations. The null hypothesis of diffusion approach is that only domestic socioeconomic and political variables explain a particular policy choice. Empirical studies test a priori hypotheses about diffusion channels. In particular, spatial regression can measure the existence and nature of interdependence (Beck, Gleditsch, and Beardsley 2006; Franzese and Hays 2007; Ward and Gleditsch 2008). Spatial regression method relies on spatial lags which are “weighted averages of the dependent variable in other units” and is added to the regression as an additional variable (Gilardi 2012a, 7). If the dependent variable is a policy, the spatial lag measures the average policy in other units, such as states or cities. The approach is labeled variously as the spatial regression method, the spatial autoregressive model or the spatial lag model.

In the spatial regression method, constructing a connectivity matrix, which should be based on theory, is a crucial step in the analysis. The connections between units are defined by diffusion mechanisms; hence, finding best-fitted indicators of diffusion mechanisms are

²⁶ Beck, Gleditsch, and Beardsley (2006) discuss two different models of special regression: one is “spatially lagged error” models (also called as “spatial error” models in Anselin’s (1988) terms), and the other is “spatial autoregressive models,” or “spatial lag models.” In spatial error models, errors in one unit are related to the errors in other units. Basically, space is counted in the error process, not included as a substantial specification in the model. Therefore, Beck and colleagues argue that spatially lagged error models are less appropriate for international political economy studies. Unlike spatial error models, spatial lag models incorporate both error terms and covariates in nearby units in its design. Therefore, in this section of spatial regression models, we focus on spatial lag models.

important in this analysis. For instance, geography is the most commonly used indicator for competition. Trading partners are also often used indicators since states tend to be more dependent on their major trading partners when the weight of the total trading volumes is substantial relative to a state's total trade.

Then, the spatial lag is made by row-standardizing²⁷ connectivity matrix and multiplying it with the dependent variable. Researchers include these spatial lags in the analysis as an additional variable (Gilardi 2012b). Since spatial regression conceptualizes the dependent variable for a unit as being affected by the values of dependent variable in nearby units, spatial models are useful for policy diffusion study (Cao 2010, 833).

As discussed, the construction of a connectivity matrix is important in spatial lag analysis and the geographical distance is often included as an indicator of connections between units. However, the notion of space can be extended to mean more than geographic boundary in international political economy. Neighboring states, for example, are not necessarily closely related in policy choice. Researchers expand the use of geographical distance as a connectivity matrix to non-geographic notions of proximity. Units of concerned could be influenced by shared language, history or other cultural factors. Beck and colleagues point out that existing studies pay little attention to the potential for applications of spatial statistics to social distances (Beck, Gleditsch, and Beardsley 2006, 32).

There are also several limitations to using spatial regression models. For example, if a unit has no connections, then all zeros will be recorded in the corresponding row and the spatial lag will be zero, which may or may not have meaningful implications. In addition,

²⁷ Row standardization refers to dividing each neighbor weight by the sum of all neighbor weights in order to create proportional weights in cases. Plümper and Neumayer

since weights can take both positive and negative values, adding spatial lags may not result in appropriate values. Theoretically, finding the best indicator of diffusion mechanisms and corresponding data are crucial concerns when using spatial regression.

As discussed, finding non-geographic measures of connectivity would be one of the tasks that new studies should attempt. When the nearest or most relevant actors are not necessarily geographic neighbors, what criteria should be used to account for connections between units the best? What would be the best connectivity matrix based upon things other than geographical distance when applying to the diffusion of economic policy making, especially exchange rate policy? Regarding these concerns, this study attempts to include several spatial lags as explanatory variables in the statistical tests.

In addition to spatial regression, the dyadic approach and network analysis are useful quantitative methods to detect international diffusion. On the one hand, Volden (2006) adapts the dyadic event history approach to study the adoption of Children's Health Insurance Program (CHIP) in the United States.²⁸ Volden investigates which dyads of states in the U. S. are more likely to emulate the other's policies. The dyadic approach reshapes datasets to make the units of analysis pairs of countries. While each country is an observation in the spatial regression method, pairs of countries are the units of analysis in the dyadic method. This enables studies to integrate information that are related each other, such as languages or geographical proximity.

raise a question on the possible problems of row-standardization. See Plümper and Neumayer (2010) for more details.

²⁸ Volden (2006) found policy learning works in his Children's Health Insurance Program (CHIP) case in that states were more likely to adopt a policy shown to be successful in other states. States were more likely to become more similar to other states that managed to increase insurance rates among children, which was one of the main goals of the policy under study.

On the other hand, another quantitative approach to study policy diffusion is network analysis which emphasizes the interdependent nature of observations.²⁹ Networks connect nodes via links. Networks represent patterns of relations among social or political actors. Any type of ties can be analyzed by network analysis which can conceptualize and measure structure (Hafner-Burton, Kahler, and Montgomery 2009). Network analysis is concerned with either structural properties of networks or individuals or actors. For example, structural equivalence refers to “similarly situated actors create a class” (Ward, Stovel, and Sacks 2011, 250) and is measured by the extent to which nodes have a common set of linkages to other nodes in the system. Structural equivalence is a useful concept to measure competition among states in exchange rate policy since it measures the similarity of actor’s roles and positions within the network.

This dissertation is more interested in individual level network analysis to show how nodes, states, are close and connected in the network. From a network perspective, competitive pressure may emerge from policy outcomes of key competitors that are defined by position similarities in the networks of international markets. Therefore, the concept of structural equivalence will be employed to construct competition diffusion variables.

(2) Qualitative Approaches

Although quantitative methods are useful in finding a general pattern of policy diffusion, as some authors have argued, it is difficult to discern which mechanisms are more likely to be prevalent under what circumstances. Several studies employ qualitative methods for

²⁹ For surveys of network analysis in political science, see Hafner-Burton et al (2009), Ward, Stovel and Sacks (2011), and Lazer (2011). Major works that applied network analysis include Hafner-Burton and Montgomery (2006); Hafner-Burton, Kahler, and Montgomery (2009); Elkins, Guzman, and Simmons (2006); and Elkins (2009).

diffusion phenomena to compensate for the shortcomings of statistical studies (Weyland 2006; Karch 2007; Horowitz 2010; Biedenkopf 2011).

One of qualitative methods is to employ cross-case analysis, which is defined as “the systematic investigation of qualitative similarities and differences of values on theoretically relevant variables across several cases” (Starke 2013, 567). Cases may be selected as the whole group population or as a carefully selected subset. In contrast to statistical studies, cases need to be selected in a nonrandom way by using “intuitive regression” (Collier, Mahoney, and Seawright, 2004, 94; recited from Starke 2013, 567). When applying cross-case comparison to the whole universe of cases, we need to draw inferences about the geographical patterns of policy diffusion. The theory of diffusion plays a role in this. Either by using a diffusion curve or a map depicting geographical aspects of clustering, we can describe empirical patterns.

For example, in his study of pension and health reforms diffusion in Latin America, Weyland (2006) employs a diffusion curve and derive implications. He demonstrates that the overall pattern of spreading Chilean-style pension privatization in Latin America shows typical traits of policy diffusion: the typical S-shaped adoption pattern, geographical clustering, and convergence of outcomes over time. Hence, East Asia can be a region to study international diffusion of ERR choices. As shown in the Chapter I, East Asian countries’ ERR choices have shown a geographical clustering.

For studies of policy diffusion, cross-case comparisons can be based on less restrictive “diverse cases” design³⁰, which allows several independent variables to vary across the selected cases in order to test or develop other alternative explanations (Starke 2013, 570;

See Seawright and Gerring 2008). If applied to policy diffusion, diverse cases design can be effectively linked to different alternative diffusion mechanisms since it is possible to “contrast cases with high or low values on crucial variables and thereby assess different hypotheses by comparing theoretical predictions with empirical reality” (Starke 2013, 570). Diverse cases also help prevent case selection bias by choosing representative cases among the universe of cases (Seawright and Gerring 2008). Hence, selecting two periods of two countries, South Korea and Taiwan would provide efficient comparable cases.

Another qualitative approach to studying policy diffusion is the within-case method. Since diffusion itself is a causal process, rather than an outcome, process tracing is appropriate to deal with the policy diffusion phenomenon. Process tracing refers to an attempt to “identify the intervening causal process – the causal chain and causal mechanism – between an independent variable (or variables) and the outcome of the dependent variable” (George and Bennett 2005, 206). Researchers try to draw within-case implications of causal mechanisms by connecting one or several independent variables with an outcome. They focus on the issues of timing, sequencing, and causal conjunction.

In order to defect diffusion phenomena on ERR choice, both quantitative and qualitative methods discussed in this section will be employed. Spatial regression is used to construct major explanatory variables. Using cross-case methods, we can carefully select cases and seek to find theoretical mechanisms of diffusions and judge the plausibility of alternative explanations. Process tracing can help examine whether change in a policy was really caused by the exchange rate policy of other countries, and did not appear independently. This will be possible by providing specified diffusion mechanisms and smoking gun evidence.

³⁰ “Diverse cases” method refers to “a case selection strategy of which primary objective is the achievement of maximum variance along relevant dimension” (Seawright and Gerring

C. Conclusion

This chapter reviews the existing literature on ERR choices. Economics literature contributes to assess the cost and benefits of choosing different ERRs. Optimum currency area theory (OCA) emphasizes different economic circumstances tend to decide the best option for a state. The approaches of international political economy provide three levels of analysis on ERR policy: the cognitive level and the domestic politics, and the international diffusion theory. Based on the conceptual framework of international diffusion theory, a set of hypotheses will be presented in Chapter III.

III. Hypotheses and Analytical Framework

This chapter presents my hypotheses derived from the theory and analytical framework of international diffusion. It defines my dependent and primary explanatory variables and identifies control variables. I begin with the hypotheses to be tested in this project in order to illustrate the conceptual framework. Next, the concepts and operationalization of major variables are explained. The dependent variable is defined with an illustrative example of its construction. The main explanatory variables are spatial lags constructed by using measures of similarity and proximity, which help detect the presence or absence of interdependence. Domestic economic and political conditions as well as geographical proximity are controlled for in this study.

A. Hypotheses

As advocates of policy diffusion have addressed, at least four sets of mechanisms might act as conduits for the diffusion of exchange rate policy: coercion, competition, learning, and emulation. Learning and emulation are sometimes difficult to discern: if a state chooses the policy of a successful state, but at the same time it adopts it to resemble that country, then should we consider this case as diffusion through learning or emulation? How can we differentiate the agents' role in learning and emulation? Due to these difficulties of differentiation, learning and emulation mechanisms will be combined, making a total of three sets of hypotheses. These hypotheses address the effect international diffusion on the government's choice of exchange rate policy. The following three sets of hypotheses from diffusion mechanisms are tested.

Hypothesis 1: Testing for the effect of coercion

The coercion argument assumes the influence of powerful states and international organizations over weaker actors. The existence of conditionality imposed by international financial institutions (IFIs), such as the IMF or World Bank, may exert influence on ERR choice. For example, Article IV of the IMF Articles of Agreement deals with Obligations Concerning Exchange Arrangements. The IMF has the power of surveillance over the member states' exchange rate policy. Considering that the IMF advocated for the floating exchange rate regime in 1990s and early 2000s, we may assume that the IFIs constrain the policy choices of member states. It seems that tougher coercion measures may not be used directly to alter the ERR choice of other countries.

Coercion also implies structural power relations or soft power exertion. It signifies asymmetric power relations between the first-mover and followers. Weaker states may change their policies influenced by liberal ideas even without great powers' intentional efforts to alter other's decisions. For example, the emergence of economic rising of China, the policy stance of China may have impact on its regional neighbors' policy choice. As well, there are other formulations of the coercion argument, such as a leader-follower game situation or soft coercion will be discussed in Chapter V, using case study methods. Here, we arrive at the following hypothesis:

H1. The existence of a loan or aid conditionality may affect the ERR choice of a state.

It is hard to assume that the IFIs advocate a certain anchor currency. Rather than assuming a direct and directional impact of external pressures on the anchor currency choice, hypothesis 1 tests whether coercion indicators significantly affect the choice of ERR.

Hypothesis 2: Testing for the effects of competition

The competition argument posits that a state's ERR policy may be shaped by policies of its foreign economic competitors. Facing heightened international competition as well as new information and communication technology, governments are vying with each other to capture larger export market shares and greater foreign investment. Countries may be forced to enact market-friendly measures, such as deregulation. Any divergent policy choices from economic rivals may result in the loss of competitiveness. Therefore, I hypothesize that an individual state is likely to adopt an ERR similar to its major economic competitors. This hypothesis is consistent with other diffusion studies, including Simmons and Elkins (2004) and Elkins, Guzman, and Simmon (2008).

Regional economic relations may also be associated with ERR choice. If regional economies forming intra-industry trade networks that enhance the specialization of production are fragmented into different sub-processes within the same industry, the economic policy choices of regional partners may affect ERR choice. In the case of East Asia, exchange rate volatility would hinder exports of parts and components within intra-regional production networks in East Asia (Kawai and Urata 1998; Fukao, Ishido, and Ito 2003; Kimura and Obashi 2011; Athukorala 2005, 2011; Kawai 2008; Thorbecke 2008, 2011; Goldsmith 2014; Kimura and Obashi 2016). Hence, members of production networks are likely to consider other regional production partners' exchange rate policy in order to maintain exchange rate stability.³¹ As such, the increasingly dense production networks in the region may increase the possibility of convergence of ERR choices.

³¹ Previous empirical studies regarding the effects of exchange rate volatility on trade show mixed results. Many studies on East Asian cases cited above presented empirical evidence that exchange rate volatility may reduce parts and components production.

H2a. A state is likely to adopt an ERR similar to its major export competitors.

H2b. A state is likely to choose an ERR similar to those of regional partners in the dense production networks in order to limit divergent exchange rate fluctuations.

H2c. A state is likely to adopt an ERR similar to its major competitors for foreign capital.

Hypothesis 3: Testing for the effects of Learning/Emulation

Learning and emulation can be in the same category since actors or agents follow successful examples and the logic of appropriateness (Olsen and March 1989; March and Olsen 2004; Börzel and Risse 2012). States may learn about the effects of exchange rate policy by observing the experiments of other countries; these lessons then influence a national ERR choice. Through communication networks which are built through socio-economic and political relations, states learn about others' policy choices. The likelihood of a state adopting a policy increases when the same policy is enacted by other states which are geographically and socio-economically close to each other.

Governments tend to be affected by the policies of more successful states (Meseguer 2004, 2006a, 2006b; B. A. Simmons and Elkins 2004; Gilardi, Füglistner, and Luyet 2009). Policymakers are attentive to changes in productivity of other states. One measure of the changes in productivity would be a country's annual GDP growth. By observing others' progresses in terms of GDP growth rates with respect to arranging ERRs, a state compares those with its own. A state has an incentive to adopt the most successful regime. Hence, one

However, it may not deter processing production in the case of US-centered auto parts industry (Türkcan and Keskinel 2009; Türkcan and Ates 2011).

obvious source of other states' "success" is the accomplishment of high economic growth rate.

Other states may pay attention to economic performance, such as the performance of trade balances. States may use another state's import-export differential as an indicator of strong economic performance. Or states simply may compare the average inflation performance of other states (Simmons and Hainmueller 2004). Learning among policymakers may take place primarily by comparing the inflation performance with different ERRs. Among these performance indicators, economic growth rate is most widely used indicator of learning. We do not expect policymakers would have power to gather all information related to a certain policy. Hence, they are likely to use cognitive short-cut to gather information (Fiske and Taylor 1991; Weyland 2006). In this sense, a state's high economic growth rate can be a conspicuous example readily available to decision-makers and will be used as an indicator of learning which is consistent with that articulated in Simmons and Elkins (2004) and Simmons and colleagues (2006). This variable may fairly encapsulate features of learning among states.

The existence of pre-existing epistemic communities might play a role in policy decisions. As epistemic communities promote new ideas and norms, national governments may be affected by their direct and indirect policy involvement. Governments may learn more from the experiences of more advanced countries because the information is more readily accessible and transparent (Tversky, Kahneman, and Slovic 1982; Gale and Kariv 2003). The debate on the role of government in the growth of the East Asian developing

countries³² suggests a possibility that learning mechanisms may work in the policy choice in East Asia. For example, Amsden argues that learning, rather than invention and innovation, has played an important role in the development of East Asian countries (Amsden 1991). If there were frequent intergovernmental meetings and exchanges between governmental officials of East Asian countries, such networks and relationships might work as channels for policy learning and emulation.

Countries tend to learn through increased interaction with one another in their networks. Countries tend to learn in the negotiation process and in maintaining their memberships in international institutions (Kahler 1994; B. A. Simmons, Dobbin, and Garrett 2006). Informational networks may form through various economic and political joint memberships, including trade relationships, bilateral investment treaties, and preferential trade agreements. During the governmental meetings for reaching preferential trade agreements, governments are likely to share their knowledge and experience.

Governments find information easily from their cultural peers or even some governments may want to imitate the actions of cultural peers. Due to easy availability of information states may choose similar policy. This tendency can be more likely when states share historical legacy or have similar networks. Or considering the previous economic, political or cultural relationships, a state wants to resemble its neighbors. When there are more cultural similarities among states, such as shared values, languages, and histories,

³² Major works on the role of government in the growth of the East Asian countries include: (Akamatsu 1962; Kang 2002; Leftwich 1995; Shin 1996; Beeson 2009; World Bank 2001; Joseph E. Stiglitz and Uy 1996; Wade 1990; T.-J. Cheng, Haggard, and Kang 1998; Johnson 1995; Rodrik 1994; T. Cheng 1990; P. B. Evans 1989; J. E. Stiglitz and Yusuf 2001; Woo-Cumings 1999; Öniş 1991; Aoki, Kim, and Okuno-Fujiwara 1997; P. Evans 1994).

international diffusion may be more likely. Then, the choice of ERR may be influenced by the choices of cultural peers.

Hence, I hypothesize,

H3a. A state is likely to adopt an ERR similar to a state with higher growth rate.

H3b. A state is likely to adopt an ERR similar to those of states in its informational networks.

H3c. The likelihood of a state adopting or changing to a similar ERR increases when other states sharing common language, religion, and historical legacy have chosen a certain ERR.

B. Research Design

1. Dependent Variables

Due to the less obtrusive nature of diffusion processes, diffusion studies have operationalized the dependent variables in different ways. For example, either floating or fixed exchange rate has been used as a dependent variable in studying exchange rate policy and diffusion (Khamfula 1998; B. A. Simmons and Elkins 2004). However, this study is less interested in whether countries are pegging de jure or de facto; rather, this study attempts to estimate the changes in the weighting of anchor currencies in countries' currency baskets. When the coefficients of a reference currency are high and significant, that currency is adopted as an anchor currency in the given country's currency basket. Exchange rate policy tends to be implemented as one instrument for running the national economy, and many countries choose to softly peg their currencies to one or more major currencies rather than having irrevocably fixed rates. In order to revalue or devalue exchange rates when needed, governments are likely to disclose the composition of their currency baskets.

The dependent variable, the adoption of major anchor currencies, is operationalized in two steps. The first step is to estimate the changes in the weighting of currencies in each state's currency basket. In order to assess the weighting of currencies in their currency baskets, I use the method developed by Frankel and Wei (1994; 2007), which tests "a regression of the changes in the value of the domestic currency against the changes in the values of foreign currencies," including the U.S. dollar, the Japanese yen, the German mark or the euro, to investigate which major foreign currency the domestic currency has followed the most (Frankel and Wei 1994, 297). Through this regression model, we can discern which anchor currencies play a role in each country's currency basket.

When there lacks clear information on the composition of the basket available, usually major international currencies are included as regressors. In this research, major key currencies in the regression are selected based on their relative importance in the world economy.³³ In addition to these four major currencies - U.S. dollar, the Japanese yen, the German mark or the euro -, I add six more major currencies, including the British pound, the French franc (1996-1998), the Canadian dollar, the Swiss franc, the Austrian dollar, and the Chinese yuan, considering the importance of these currencies in international trade and foreign reserves.³⁴ The Chinese yuan was included in the regression models from 2006 to

³³ The foreign reserve and trade data from IMF financial statistics were referred to selecting candidate anchor currencies.

³⁴ In considering candidate anchors, several sources were used for reference. Reinhart and Rogoff (2004) and Ilzetki, Reinhart and Rogoff (2011) provide the de facto classification of ERR. The data of foreign reserves were obtained from the IMF's database on the Currency Composition of Official Foreign Exchange Reserves (COFER). The COFER data identifies currencies composed in foreign exchange reserves, including the U.S. dollar, euro, pound sterling, Japanese yen, Swiss franc, the Australian dollar, the Canadian dollar and a category for all "other currencies." The bilateral trade statistics from the UN's Comtrade database were also referred to since trade partners' anchor currency choices may

2008 since the Chinese authority changed from the U.S. dollar peg to a managed float from July 22, 2005 to July 2009.³⁵

Daily data from the beginning of 1996 to 2012 of 67 IMF membership countries³⁶ are used for the test and the values of all currencies are expressed in terms of the special drawing right (SDR).³⁷ Based on the model developed by Frankel and Wei (1994, 2007), the estimation equation below is used to infer weights of important currencies in the implicit basket:

$$\Delta \log H_t = c + \sum_j \omega_j [\Delta \log X_{jt}] + u_t$$

matter for local anchor currency choice in order to reduce transaction costs according to Optimal Currency Area (OCA) theory.

³⁵ The People's Bank of China (PBOC) announced the yuan's appreciation of 2.1 percent against the US dollar. In addition, China's peg to the U.S. dollar had been changed to a managed floating regime with reference to a basket of currencies. The yuan was allowed to appreciate by around 20 percent against the dollar from 2005 to late 2008 (People's Bank of China. July 21, 2005. "Public Announcement of the People's Bank of China on Reforming the RMB Exchange Rate Regime,"; People's Bank of China. August 10, 2005. "Speech of Governor Zhou Xiaochuan at the Inauguration Ceremony of the People's Bank of China Shanghai Head Office"). See also (Wright 2009; Cheung, Chinn, and Fujii 2010; Sun 2010).

³⁶ Among 189 member states, I include countries which have their own currencies and their exchange rate data are available. Taiwan is also included. I did not strictly exclude countries of which exchange rate regime is free floating for analysis. The number of free floating regime is only few and sometimes those with free floating system are accused of government's exchange rate intervention, such as Japan. For omitted currency data in the IMF financial statistics, I derived the exchange rate data from Pacific Exchange Rate Service (<http://fx.sauder.ubc.ca/data.html>).

³⁷ The special drawing right (SDR) refers to supplementary reserve assets defined and maintained by the International Monetary Fund (IMF). The value of the SDR is determined by the value of five currencies important to the world's trading and financial systems, including the U.S. dollar, the euro, the British pound, the yen and the yuan. The basket of currencies used to value the SDR is "weighted" meaning that the more important currencies have a larger impact on its value.

where H_t is the number of SDRs per unit of domestic currency, and X_{jt} is the number of SDRs per unit of currency j , with j = the U.S. dollar, the Japanese yen, the British pound, the euro³⁸, the Swiss franc, the Austrian dollar, the Canadian dollar, and the Chinese yuan.³⁹⁴⁰

The second step is to record this estimation into a binary measure. In this regression model, the coefficients represent the weightings of the respective currencies in the basket. High and significant coefficients mean that the anchor currency plays a role in the currency basket. After the test of the weights of the key currencies, the dependent variable is recorded into dichotomous measures to be included in the model, based on the significance of estimated coefficients: the dependent variable is recorded as “1” if a certain key currency was adopted in that country, in a given year; “0,” otherwise, representing no adoption of that key currency occurred. Hence, the dependent variable in my study indicates whether a particular anchor currency in the observation is adopted in a given year.

This operationalization of the dependent variables can examine how explanatory variables would affect the changes or transition into a different policy adoption test arguments about global diffusion processes. Recent empirical research on state-level policy diffusion uses event history analysis (Berry and Berry 1990; Mintrom 1997; Mintrom and Vergari 1998; B. A. Simmons and Elkins 2004; Elkins, Guzman, and Simmons 2006). This

³⁸ German mark and French franc are included in the regression model until 1998.

³⁹ Taking the Korean Won in 2006 as an example, the regression equation is:

$$\Delta \log KRW_t = c + \beta_{1t} \Delta \log USD_t + \beta_{2t} \Delta \log JPY_{tT} + \beta_{3t} \Delta \log GBP_t + \beta_{4t} \Delta \log EUR + \beta_{5t} \Delta \log CHF_t + \beta_{6t} \Delta \log CAD_t + \beta_{7t} \Delta \log AUD_t + \beta_{8t} \Delta \log CNY_t + u_t$$
where $\beta_1, \beta_2, \dots, \beta_n$ denote the candidate anchor weights.

⁴⁰ The typical problem that appears in the time series data is nonstationarity, which means correlation among data due to temporal dependence. I evaluate the exchange rates data for nonstationarity and found no unit root problem. The results from the augmented Dickey-Fuller test for nonstationarity also showed no stationarity.

method is useful since it allows researchers to model the effects of both the domestic determinants (e.g. state's GDP or party system) and the external determinants (e.g. the policies of neighboring states) of policy change. Dataset is analyzed using a regression model with a dichotomous dependent variable indicating whether the policy was adopted in a given year by a given state. As applying the event history model to ERR choice, the occurrence of an event is the adoption of a certain anchor in a given year in this study. More details about the event history model are presented in the model specification.

2. Explanatory Variables

Since this study aims to examine whether policies spread through interdependent processes, independent variables indicative of the coercion, competition, and learning/emulation channels need to be identified and constructed.

Detecting Diffusion: A Spatial Lag Model

Many studies of policy diffusion have employed quantitative methods, which contribute to establishing patterns of international diffusion.⁴¹ International relations scholars have begun to make use of spatial econometric models to test various forms of dependence among observations. Spatial regression can measure the existence and nature of interdependence (N. Beck, Gleditsch, and Beardsley 2006; Franzese and Hays 2007; Ward and Gleditsch 2008). The null hypothesis of the diffusion approach is that national policymaking is independent: only domestic socio-economic and political variables account for a particular policy choice. Empirical studies test a priori hypotheses about diffusion.

⁴¹ For reviews of methodology to examine policy diffusion, see (Marsh and Sharman 2009; Gilardi 2012a).

Spatial regression methods rely on spatial lags which refer to “the weighted averages of the dependent variable in other units” (Gilardi 2012a, 7). After construction, spatial lags are added to the regression as additional variables. If the dependent variable is a policy, the spatial lag measures the average policy in other units, such as states or cities. The approach is labeled variously as the spatial regression method, the spatial autoregressive model or the spatial lag model.⁴²

In the spatial regression method, constructing a “connectivity matrix” is a crucial step in the analysis. Connectivities are defined by diffusion mechanisms, so that a connectivity matrix specifies the degree of interdependence between any two observations. For instance, geographical distance is the most commonly used indicator for international diffusion. However, the notion of “nearness” can be extended to more than geographic proximities in the study of international political economy (N. Beck, Gleditsch, and Beardsley 2006), such as trading partnership or shared culture. Then, the spatial lag is made by row-standardizing⁴³ the produced connectivity matrix and multiplying it with the dependent variable in other units. Researchers include these spatial lags in the analysis as an additional variable (Gilardi 2012b). Since spatial regression conceptualizes the dependent variable for a unit as being

⁴² Beck, Gleditsch, and Beardsley (2006) discuss two different models of special regression: one is “spatially lagged error” models (also called as “spatial error” models in Anselin’s (1988) terms), and the other is “spatial autoregressive models,” or “spatial lag models.” In spatial error models, errors in one unit are related to the errors in other units. Basically, space is counted in the error process, not included as a substantial specification in the model. Therefore, Beck and colleagues argue that spatially lagged error models are less appropriate for international political economy studies. Unlike spatial error models, spatial lag models incorporate both error terms and covariates in nearby units in its design. Therefore, in this section of spatial regression models, we focus on spatial lag models.

⁴³ Row standardization refers to dividing each neighbor weight by the sum of all neighbor weights in order to create proportional weights in cases. However, Plümper and Neumayer raise a question on the possible problems of row-standardization. See (Plümper and Neumayer 2010) for more details.

affected by the values of dependent variable in nearby units, spatial lags may help in detecting possible interdependence in policy diffusion.

In this study, the main explanatory variables are spatial lags constructed by using some measure of similarity and proximity, which would help determine the presence or absence of interdependence. To assess the course and strength of the various influences of policy diffusion, I construct a series of spatial lags, modeled after those in Simmons and Elkins (2004) and Khamfula (1998), which are explained in detail below.

Competition Variables

Policies of export competitors

Countries compete with each other to enlarge their export market shares or to attract more global capital. As governments tend to choose market-friendly policies to maintain exports competitiveness and access to foreign investment when their competitors have done so, countries may be expected to choose similar exchange rate policies as their economic competitors. The first issue is to identify their economic competitors. Then, we need to calculate their mean policy. One way to conceptualize export competition is to measure the degree to which countries compete for exportable goods and services in the same foreign markets. The bilateral direction of trade data⁴⁴ obtained from the IMF Financial Statistics database is used to construct an n by n by t matrix of yearly dyadic correlations.⁴⁵ The

⁴⁴ Taiwan's bilateral trade data are derived from AREMOS Taiwan Economic Statistical Databank System: <http://www.aremos.org.tw/tedcold/ebank1.htm>.

⁴⁵ See Elkins and Simmons (2004) and Elkins, Guzman, and Simmons (2008) for the details of constructing competition variables. In making an n by n by t matrix of yearly dyadic correlation, I employed the concept of structural equivalence and calculate it using the UCINET software. Structural equivalence can capture network position similarity and the intensity of competitive pressure between countries. Structural equivalence is calculated as a Pearson correlation between two countries' profiles of connections in the same network and is bounded between -1 and +1 (Ward, Stovel, and Sacks 2011). If the competition

resulting matrix represents the degree to which countries have the same trade relationships and is used to discern the tenth most competitive countries for each. Then, the spatial lag for a given country is constructed as a mean policy score of those tenth countries.

Another way to determine economic competition is to evaluate the similarities between countries in exports in distinct sectors. The correlation between countries across a set of eight sectors is calculated based on each country's percentage of exports in each sector. The spatial lag is then constructed by the mean policy of the tenth most competitive states in a given year. This constructed variable is expected to have positive association with the dependent variable.

Policies of capital competitors

Countries also vie with each other to attract foreign direct investment. International investors are assumed to assess their investment depending on diverse risks and may regard states with similar risks as alternatives. Portfolio theory considers how an optimizing investor would behave (H. Markowitz 1952; H. M. Markowitz 1991), by assuming that investors are risk averse and tend to prefer the less risky portfolio when two countries provide the same expected return. Then, countries in the same pool of portfolio may vie for global capital.

Given that corporate tax rate and capital account liberalization are critical for foreign investment (Rodrik 1997; Gastanaga, Nugent, and Pashamova 1998; B. A. Simmons and Elkins 2004), having exchange rate stability may also be sensitive to foreign investment. Two measures can be used to differentiate which countries compete for the same pool of international capital: one is countries' credit ratings; and the other is countries' human

between two countries is low, it will be reflected in the dissimilarity between their profiles of economic connections and indicated by a low structural equivalence score.

capital or infrastructural profiles. For a capital competition spatial lag, sovereign risk ratings from Standard and Poor's are used to compute the mean score of the similar rating groups. Alternatively, an indicator for capital competition can be constructed by assessing correlations of human assets and social infrastructures data from the World Development Indicators (WDI). The mean policy of the most similar countries for each measure is the spatial lag.

Policies of network trade partners

Another factor to be considered for trade competition is how characteristics of regional trade affect ERR policy. The machinery industry has the most sophisticated production networks in East Asia and worldwide and will be served as a proxy for regional network more generally. A number of studies have examined the relationship between trade and exchange rate volatility and suggested that exchange rate volatility among network trade participation countries would deter network trade in East Asia. Thorbecke (2008) and Hayakawa and Kimura (2009) show that exchange rate stability among East Asian countries' currencies is important for unhampered flow of parts and components within regional production networks.

Measuring the extent to which a country is involved in regional (or global) production networks depend on the proportion of machinery in total exports. In order to calculate the volumes of parts and components, extant studies provide a comprehensive coverage of the parts and components. They delineate parts and components from specific product categories on which network trade is heavily concentrated. Following Clark, Tamirisa and Wei (2004), Kimura and Obashi (2010) and Athukorala (2010, 2011), six U.S. Standard International Trade Classification (SITC) system categories are selected to estimate the extent to which a

country is involved in production networks.⁴⁶ I therefore follow the approach that delineates trade in parts and components by using each country's trade statistics (Ng and Yeats 2003; M. P. B. Clark et al. 2004; Athukorala 2005; Athukorala and Menon 2010; Athukorala 2011; Kimura and Obashi 2011).

Data on international trade values are obtained from UN Comtrade. Taiwan's trade statistics are drawn from the Customs Administration, the Ministry of Finance of the Republic of China. The indicator of production networks in East Asia is the extent to which a country is involved in trading machinery parts and components. Data of total exports of East Asian countries to other East Asian countries are used by product category. The list of parts and components is presented in the Appendix 1. It is assumed that the extent to which a country engages in regional production network would affect the ERR choice in East Asia: when a country participates in regional network trade more heavily, it is more likely to choose a policy similar to those of network trade partners.

Learning/emulation Variables

Learning from success

Learning from success is the most compelling argument for policy diffusion. Political scientists have focused on how policy-salient information is socially channeled. In particular, some sources are more important than others for policymakers. Although many complex measures of success can be considered, policy information may be channeled by conspicuous

⁴⁶ The selected SITC categories are including: office machines and automatic data processing machines (SITC 75), telecommunication and sound recording equipment (SITC 76), electrical machinery (SITC 77), road vehicles (SITC 78), professional and scientific equipment (SITC 87), and photographic apparatus (SITC 88). Products in these categories do not seem to be produced from start to finish in a country.

“success.” The result of experiments with similar policies elsewhere may directly affect the probability of policy change in a given country.

One commonly used indicator of other states’ “success” is economic growth rate. Economic growth rate refers to the measure of the annual rate of growth in gross domestic product (GDP) between the first and the last year over a period of time. Countries regard other successful countries’ policies as an example to learn. Policies of countries in the top decile of growth rate in a given year are measures of concern here. For a spatial lag variable of “learning from success,” the rate of GDP growth is used to select the top decile countries in each year. High GDP growth rate as a conspicuous success seems to be an appropriate indicator as a measurement of changes in productivity rather than using a GDP growth per capita which represents a country’s developmental level. The weighted average of the dependent variable of high growth rate countries is constructed as a spatial lag.⁴⁷ Data for growth rate are derived from the World Development Indicators (WDI).

Policies of communication network partners

States draw lessons from members of their networks (Rogers 1995, Axelrod 1997). Membership in regional and international institutions is assumed to provide a venue for communication. For example, states have more opportunities to communicate with their partners and increase direct contacts at the intergovernmental level through trade or investment meetings and negotiations. A co-membership matrix can be treated as an indicator of the extent to which two actors appear together. Memberships of each country are weighted when calculating the average policy scores by year. Data for regional trade

⁴⁷ Alternative indicators of policy success are the performance of trade balances and inflation. Countries in East Asia may use another country’s import-export differential as a signal of strong economic performance. However, this indicator is not included in the model.

agreements (RTAs) and free trade agreements (PTAs) are derived from International Economics Data and Programs by José de Sousa (de Sousa 2012). The data for bilateral investment treaties (BITs) available from the Investment Policy Hub of the United Nations Conference on Trade and Development (UNCTAD) and were used to calculate the mean policy score of BIT partners.

Policies of cultural peers

The emulation measures include whether countries share similar political history, such as experiences of colonial rule and foreign imperialism. Other cultural indicators are the use of a common language and sharing of a dominant religion. The data are available from the CIA World Factbook and have binary values: a country either shares a common religion, language, history with another, or it does not. The cultural spatial lags are calculated in the same weighted-average manner as for trade competition: they are equivalent to the mean policy score among those culturally related countries with the same cultural identity - religion, language, and colonial history.

Coercion Variables

Use of IMF credits and foreign aid

Coercion indicators are “the use of IMF credits” and the reception of “foreign aid.” These two variables are not constructed based on a spatial lag model. I incorporate a dichotomous measure of whether or not a country has drawn on IMF resources in a given year. The overseas development assistance per capita data obtained from World Development Indicator (WDI) is included as an indicator of coercion as well. These two external pressure variables are not expected to have any direct and directional results for this analysis since operationalization was not conducted to reflect IFIs’ intention or position in

choosing a certain anchor. These indicators are merely included to see whether they have any significant effects on exchange rate policy.

3. Control Variables

Alternative explanations of the choice of exchange rate policy have been provided by economics and domestic politics literature. These two literatures posit that policy choice of a state is independent of outside factors, arguing that only domestic socioeconomic and political variables can explain the choice of ERR and do not consider interdependent policymaking among states. Here, economic conditions and domestic political indicators are controlled for when analyzing ERR choice. I follow standard theoretical arguments and some of the existent empirical literature - the optimal currency area (OCA) theory and political economy literature - in choosing a set of control variables.

Economic conditions

I have evaluated several control variables for use, relying upon indicators of domestic economic conditions, as derived from the OCA theory. Countries with similar economic conditions may respond to external shocks in similar ways. To consider a country's economic size, the gross domestic product (GDP) is used. GDP per capita is used as an indicator of state's developmental level. The growth rate is one of common indicators for economic conditions in a country.⁴⁸ The openness of the economy is defined as the shares of exports and imports in GDP. World interest rates are controlled for in the analysis since

⁴⁸ The variable of economic growth rate of each state is an indicator to show whether a state is in an economic downturn or boom. This variable is included in many diffusion studies of foreign economic policy (Khamfula 1998; B. A. Simmons and Elkins 2004; Lee and Strang 2006; Elkins, Guzman, and Simmons 2006). The spatial lag of high growth countries' policies is constructed to show whether the conspicuous "success" would effect on others' policy choice, which reflects the policies of states in the top decile of high growth rates.

various world interest rates may spur capital outflow and impose exchange rate pressure. U.S. interest rates are used as a proxy for world interest rates.

Economic shocks, such as financial crises, may be associated with exchange rate policy. The experience of the currency crisis in the previous year obtained from Leaven and Valencia (2012) is controlled for. Leaven and Valencia (2012) define a currency crisis as “a nominal depreciation of the currency vis-à-vis the U.S. dollar of at least 30 percent that is also at least 10 percentage points higher than the rate of depreciation in the year before” (Laeven and Valencia 2012, 11). Another indicator related to economic shocks is changes in the current account balance. The weight of each country’s current account balance on GDP is included in the model, which are lagged two years to diminish endogeneity problem. Current account balance is the sum of net exports of goods and services, net primary income, and net secondary income.

Availability of foreign reserves⁴⁹ is controlled for since a lack of reserves may increase the probability of adjusting or abandoning the peg, and the probability of incurring political costs of doing so (Frieden, Ghezzi, and Stein 2000). All these economic indicators are obtained from the World Development Indicators (WDI) database unless otherwise noted.

⁴⁹ Data for foreign reserve is total reserves in months of imports obtained from WDI. Total reserves comprise holdings of monetary gold, special drawing rights, reserves of IMF members held by the IMF, and holdings of foreign exchange under the control of monetary authorities. The gold component of these reserves is valued at year-end (December 31) London prices. This item shows reserves expressed in terms of the number of months of imports of goods and services they could pay for [Reserves/(Imports/12)].

<http://data.worldbank.org/indicator/FI.RES.TOTL.MO>

Trade volumes with candidate currency countries are obtained from the WDI database.⁵⁰ It is expected that a country with higher bilateral trade with a potential anchor country would be more likely to choose that partner's currency as an anchor. In addition, denomination of foreign debt may affect the anchor choice. Data for external debt of countries are extracted from the International Debt Statistics of the World Bank. Currency composition of public and publicly-guaranteed (PPG) debt as follows: Deutsche mark (%); Euro (%); French franc (%); Japanese yen (%); pound sterling (%); Swiss franc (%); U.S. dollars (%).⁵¹

Political conditions

Another possible explanation of exchange rate policy choice is that similar domestic institutions may lead to similar choices of economic policy. In examining the determinants of exchange rate policy, domestic political indicators are controlled for in this study, including political regime type, party, and central bank independence.⁵² Democracy may be related to transition to a more flexible exchange rate regime since it is particularly effective for a developing country due to the difficulty of reconciling democratic politics with popular

⁵⁰ Meissner and Oomes argue that a country choose an anchor currency which is similar to its trade partners in order to minimize the transaction costs across all anchor choices (Meissner and Oomes 2009, 528–29). See also (Krugman 1979; Westerhoff 2003; Bracke and Bunda 2011). Regarding the currency denomination of reserves, see (Eichengreen and Mathieson 2000).

⁵¹ <http://databank.worldbank.org/data/reports.aspx?source=international-debt-statistics/>

⁵² The second image analysis focuses on how domestic politics affect the choice of governments' policy preferences and behavior. The domestic politics approach emphasizes how institutions and interest influence policymaking. On the one hand, advocates of institutional explanations focus on how electoral systems (Bernhard and Leblang 1999; W. R. Clark and Hallerberg 2000; Bernhard and Leblang 2002), partisanship (W. R. Clark 2002; Bearce 2003), central bank independence (CBI) (Alesina 1988; Alesina and Roubini 1992; Alesina and Summers 1993; Cukierman 1992), domestic veto players (Keefer and Strasavage 2002), federalism (Hallerberg 2002), coalition governments (Bernhard and Leblang 2002) may affect the decision over exchange rate policy in democracies.

demands in developing countries (Garrett, Guisinger, and Sorens 2000). I include a measure of democracy from the Polity IV data, which is the revised combined polity score.

The nationalist executive variable is a binary measure obtained from the Database of Political Institutions (T. Beck et al. 2015): if it is a “1”, a party is listed as nationalist; “0” otherwise. By including a measure of the ruling party’s level of nationalism, we consider the possibility that nationalist-leaning governments affect ERR choice.

Central bank independence is expected to underpin a government’s confidence in liberalizing the flow of capital or exchange rate system (Maxfield 1997). I include data from Crowe and Meade (2008) that measure central bank independence and transparency. However, it is not expected that these political condition variables would influence a state’s choice of a certain anchor currency.

Geographical proximity

Physical contiguity is a commonly used indicator to explain economic policy diffusion. Two spatial lags for geography are constructed: one uses the logged distance between capitals; the other is whether two countries share common borders, of which data are obtained from The *GeoDist* database.⁵³ The mean policy score is computed through a weighted measure of these two indicators for each country. These two spatial measures are controlled to isolate the effect that may be caused by diffusion mechanisms, including coercion, competition, and learning/emulation, and see whether they would indicate the sole effect of contiguity on policy choice.

Temporal dependence

⁵³ GeoDist is maintained by d'Etudes Prospectives et d'Informations Internationales (CEPII) http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=6.

Finally, in order to consider the effect of multiple recurrent events, I include the number of previous adoptions of the dollar as an anchor currency for each country in the model. In addition, to account for duration dependency, the model includes temporal dummy variables. My dataset has a time = 1, 2,... 17 time points at which events can occur. Year 1996 takes a value of 1, year 1997 does 2, and so on. By including time in the model, we can control for possible temporal dependence (N. Beck, Katz, and Tucker 1998; Box-Steffensmeier and Jones 1997).

C. Conclusion

This chapter has presented major hypotheses and defined the measurement and operationalizations of explanatory and control variables selected to be used in my quantitative analysis. Table 1 presents the summary statistics of the variables used in this study. Chapter IV will specify statistical models and discuss results.

Table 3.1 Summary Statistics

Mechanism	Explanatory Variable	Obs	Mean	Std. Dev.	Min	Max
Dependent Variables	Choice of USD	1030	0.50	0.50	0.00	1.00
	Choice of yen	1014	0.10	0.30	0.00	1.00
	Choice of pound	1013	0.10	0.30	0.00	1.00
	Choice of mark	189	0.33	0.47	0.00	1.00
	Choice of French franc	189	0.12	0.33	0.00	1.00
	Choice of Swiss franc	1014	0.10	0.30	0.00	1.00
	Choice of Canadian dollar	1014	0.14	0.35	0.00	1.00
	Choice of Australian dollar	1008	0.28	0.45	0.00	1.00
	Choice of euro	857	0.21	0.41	0.00	1.00
	Choice of yuan	195	0.22	0.41	0.00	1.00
	Coercion	Use of IMF credits	1030	0.45	0.50	0.00
Foreign aid per capita		1030	31.68	63.55	0.00	588.17
Competition	Policies of export competitors	1010	4.71	3.08	0.00	10.00
	Policies of export sector competitors	915	5.25	2.60	0.00	10.00
	Policies of capital competitors	788	0.93	0.54	0.00	2.31
	Mean global policy	1030	5.12	1.08	2.22	6.52
Learning/ Emulation	Policies of high growth countries	1030	6.73	1.81	2.86	10.00
	Policies of RTA partners	1012	0.52	0.55	0.00	2.03
	Policies of PTA partners	1027	5.78	3.67	0.00	10.00
	Policies of BIT partners	405	5.31	4.24	0.00	10.00
	Policies of religion peers	1030	1.04	0.74	0.00	2.77
	Policies of language peers	1030	0.38	0.49	0.00	1.69
	Policies of history peers	1030	0.99	0.79	0.00	2.98
Control Variables	Current account/GDP (t-2)	875	0.81	8.78	-32.28	64.65
	GDP growth	1030	3.94	3.75	-10.89	26.17
	GDP per capita	1026	16403.12	18103.18	261.83	82192.93
	World interest rates	1025	2.76	2.30	0.13	6.50
	Currency crisis(t-1)	1030	0.01	0.10	0.00	1.00
	Degree of openness	1005	0.51	0.10	0.19	1.21
	Democracy	936	6.43	3.87	0.00	10.00
	Nationalist executive	984	0.05	0.23	0.00	1.00
	Central bank independence	709	0.47	0.19	0.14	0.92
	Policies of neighboring countries	1013	12.97	56.02	2.35	558.32
	Policies of border countries	1013	0.14	0.19	0.00	1.09
	Trade with U.S.	939	13.71	14.32	0.00	77.40
	External debt denominated in USD	479	54.82	21.27	0.57	98.20
Number of previous policy adoption	1030	3.58	4.01	0.00	16.00	
Time dummies	1030	9.00	4.88	1.00	17.00	

IV. International Diffusion Analysis of Exchange Rate Regime: Statistical Evidence

This chapter specifies event history models employed to test the diffusion hypotheses discussed in Chapter III and presents the results of estimating diffusion effects on ERR choices.

A. Model Design and Specification

1. Policy diffusion and Event History Analysis

The dependent variable in this study is the choice of anchor currencies in a state's currency basket, which is operationalized as a dichotomous measure. This study primarily draws from time-series-cross-sectional (TSCS) data. As several works have claimed, there exist limitations and caveats when using ordinary least square estimation when estimating binary dependent variables with TSCS data (Beck and Katz 1997; Beck, Katz, and Tucker 1998; Singer and Willett 1993; Box-Steffensmeier and Jones 1997). Beck, Katz and Tucker (1998) point out that using ordinary logit (or probit) to analyze this type of data has limitations because it is likely to "violate the independence assumption of the ordinary logit or probit statistical model" since the logit and probit do not consider the temporal dependence of the data (Beck, Katz, and Tucker 1998, 1260). The probability that a country chooses a specific policy is likely to be dependent on its previous policy choice. Changes in exchange rate policy may also be influenced by prior choices and therefore, temporal dependence is likely to exist in this data analysis since it focuses on change processes as well as temporal data.

In measuring diffusion effects, recent studies employ event history methods (Berry and Berry 1990; Mintrom 1997; Mintrom and Vergari 1998; Simmons and Elkins 2004; Elkins, Guzman, and Simmons 2006). The event is defined as a policy adoption. For example, the event can be Indian gaming adoptions (Boehmke and Witmer 2004), pension reform (Weyland 2006) and signing of bilateral investment treaties (Elkins, Guzman, and Simmons 2006). Event history analysis (EHA) offers a convenient way to incorporate time dependence in the models of policy or innovation adoption. Analysts of EHA are concerned with the patterns and causes of change. Since event history analysis in policy diffusion scholarship was introduced by Berry and Berry (1990)'s study on state lottery adoption in the U.S., it has become more widely used in the policy diffusion literature (Allison 1984; Berry and Berry 1990, 1999, Box-Steffensmeier and Jones 1997, 2004).

In particular, diffusion is unobservable directly and, as a result, the issue of how to measure diffusion quantitatively has been debated. EHA purports to estimate the conditional probability of an event occurring, to which a linear regression would not sufficiently assess, and it helps computing and interpreting the conditions that lead to an event occurring (Allison 1984). Hence, I opt to use an event history analysis to estimate the effects of explanatory variables on policy (ERR) adoption.⁵⁴ Due to the dichotomous nature of

⁵⁴ In understanding the effects of the covariates on the policy adoption, two statistical models can be used: the logistic regression (logit model) or event history analysis. The logit model used in an ordinary least square (OLS) has been traditionally used to analyze the effects of explanatory variables on the event (policy adoption). However, event history models have advantage over the traditional logit model in considering the spell of time – duration - leading up to an event. Logit regression model lose information on when an event occurs. EHA can more easily incorporate time-varying covariates. Besides, it can include right-censored observations, meaning if the subject, such as an individual or a state, had not adopted the policy by the last time period observed. See Karch (2007) for a recent review of EHA (Karch 2007). On the event history method, see (Allison 1984; Box-Steffensmeier and Jones 1997, 2004).

dependent variables in this study, logit regression model, also known as logistic regression, is employed to capture the likelihood that a country will, in any given year, adopt a certain ERR. Each country can be considered “at risk,” that is, a state has a non-zero probability of adopting the policy for a series of years. The analysis will show the extent to which factors such as economic competition, external political pressures, learning and emulation increase the probability of adoption.

Policy adoption may occur at any time, but because the pooled TSCS data are based on discrete time intervals, a discrete-time hazard model is more appropriate than a continuous time hazard model (Box-Steffensmeier and Jones 1997, 2004; Jenkins 2005).⁵⁵ Hence, I run hazard models for each anchor currency of the dependent variable to test hypotheses, which are explained in fuller detail in the next section.

2. Model specification: Discrete-time Logit Model

The EHA models I use to analyze the data set contain the variables of diffusion and also a set of control variables reflecting domestic political and economic conditions. What is to be explained in discrete-time EHA is called the hazard rate, which is defined as the

⁵⁵ There are continuous and discrete time EHA models. In considering the adequacy of the discrete-time logit event history model for this study, we need to consider the nature of the event, whether the policy adoption would be either a continuous or discrete time (Box-Steffensmeier and Jones 2004; Jenkins 2005). The discrete-time event history model presumes that a change only occurs at discrete, often predetermined time, such as election day (Box-Steffensmeier and Jones 1997, 1423). In the case of policy adoption, it would be hard to know when exactly the event occurred; however, it is important to know when adoption occurred relative to other countries. Therefore, the year in which a policy was adopted may be sufficient as the occurrence of an event. While policy adoption may be a continuous-time process, we can regard the process as a discrete-time. In addition, Box-Steffensmeier and Jones point out that “if a researcher is dealing with a continuous time process but has data that are observed at crude intervals, then use of the discrete-time formulation may actually improve inferences made about the process”(Box-Steffensmeier and Jones 1997, 1424). As explained in the Chapter III, many diffusion and control variables are yearly observed and therefore, it seems adequate to employ a discrete-time EHA model.

probability $P_{i,t}$ that an individual i will experience the event during a particular time period t , given that the individual is “at risk” at that time.⁵⁶ When states have a non-zero probability of adopting the policy for a series of discrete time periods, usually years, all the states are in the risk set. The hazard rate is then presumed to be determined by a set of independent variables. The dependent variable for estimating effects in EHA is equivalent to the binary censoring variable. When the indicator is a “0”, the observation is assumed to be at risk; when the indicator is “1”, the observation is assumed to have failed, that is, the event occurred.⁵⁷

The issue is whether diffusion factors affect the choice of policy adoption. The event is defined as policy adoption. The dataset includes an observed value of $Adopt_{i,t}$ - 0 or 1 – for each state at risk of adoption, ERR choice, in each year between 1996 and 2012. The logit model is used to derive estimates of the underlying hazard probabilities of a country experiencing an event. The dependent variables are adoptions of an anchor currency, which can be repeatable and multiple events.^{58 59} The following is a specification of how the

⁵⁶ Event history analysis is also known as survival analysis (medical study), duration analysis (economics), and transition data analysis. Some terminologies, such as hazard rate, hazard ratio or failure, are used in survival analysis. The probability of “survival” in this study’s context means the probability of not having shifted to a new ERR policy, at each time point in the analysis. “A failure” means to an adoption of a policy.

⁵⁷ A “1” denotes the occurrence of an event, and a “0” denotes the nonoccurrence of the event or censored. This is the information conveyed by the censoring variable. My data are both left and right censored: in year 1996-2012 countries may have several entries and exits. 90 countries who have own currencies are under observation.

⁵⁸ Many events in social research may occur more than once to an individual or state over the observation period. I cluster the standard errors by country in order to address the lack of independence of multiple observations from the same cross-sectional unit. Comparing with single event models, models for multiple events are likely to violate the assumption of single event models that the event times are independent. There could be correlation among the event times in the occurrence of repeatable events, which could yield misleading covariance estimates and possible biased estimates of the coefficients (Box-

hazard depends on time and explanatory variables. The most popular choice is the logit regression function and the specification of a model is as follows:

$$\log\left(\frac{P_{tij}}{1-P_{tij}}\right) = \alpha D_{tij} + \beta x_{tij} + u_j$$

P_{tij} is the probability of an event occurring during interval t . D_{tij} is some function of t , which is a vector of functions of the cumulative duration by interval t with coefficients α . This may take the form of linear or polynomial function.⁶⁰ In order to consider duration

Steffensmeier and Jones 1997, 155–56). In order to model repeated events, I choose the frailty approach which takes into account the correlation between repeated event times by including a random effects term in the hazard.

⁵⁹ There are two issues in repeatable event history models: one is to adjust the variance-covariance matrix in order to explain dependence among related observations. Another concern is the problem that the estimated standard errors are often smaller than they should be when there is clustering in the data. Multiple events can be differentiated between unordered and ordered, which requires different approaches to fix these concerns. Regarding the problem of the estimate of the variance-covariance matrix, Lin and Wei (1989)'s robust estimator of the variance-covariance matrix for the maximum partial likelihood estimator is used. In this approach, the model is “estimated as if the observations were independent and then the variance is “fixed” to account for the correlation among the repeated observations. The clustering correction assumes that the observations are independent across groups and clusters but not necessarily within groups conditional on the covariates” (Box-Steffensmeier and Jones 2004, 156–57).

⁶⁰ There are several approaches to incorporate temporal dependence in the data. One is to include temporal dummy variables. Second is to use mathematical transformation to account for temporal dependence, such as log time and cubic polynomials. Third, smoothing functions for discrete duration data can be applied, such as spline functions and lowess (locally weighted scatterplot smoothing functions). These functions can replace temporal dummy variables. Because the data set has multiple observations of the same country over time, we need to account for any duration dependency that may be exhibited in the data. To test for different specifications of temporal dependency, I estimated several models and tested the fit against a null model where no duration dependency was assumed. Specifically, six functional forms for the baseline duration dependency were tested: linear, temporal dummies, national log transformation, polynomial time transformation, and lowess (locally weighted scatterplot smoothing). In addition, complementary log-log model are also used to compare the results with logit. Comparison of results from six models is presented in the Appendix B.

dependence in the discrete time model, temporal dummy variables are included with a category specified for each time interval. x_{itj} is a vector of covariates with coefficients β . u_j represents individual-specific unobservables, which allows for unobserved heterogeneity ('shared frailty') between individuals due to time invariant omitted variables.

The logit equation for each model produces a log odds of an event occurring. The coefficients in the output of the logit model are given in units of log odds. An odds is defined as the probability (p) that the event will occur divided by the probability that the event will not occur (p/(1-p)), between t-1 and t.⁶¹ Log odds refer to the natural log of the odds. Hence, the coefficients indicate the amount of change expected in the log odds when there is one unit change in the following explanatory variable with all of the other variables in the model held constant. The model specifications for this study are as follows:

Model 1-a : Adoption of an anchor currency in a currency basket of a country

$$\text{Adopt}_{i,t} = c + \beta_1(\text{IMF})_{i,t} + \beta_2(\text{ODA})_{i,t} + \beta_3(\text{Tradecom})_{i,t-1} + \beta_4(\text{Capital})_{i,t-1} + \beta_5(\text{Mean})_{i,t} + \beta_6(\text{High growth})_{i,t-1} + \beta_7(\text{RTA partner})_{i,t-1} + \beta_8(\text{PTA partner})_{i,t-1} + \beta_9(\text{BIT partner})_{i,t-1} + \beta_{10}(\text{Religion})_{i,t-1} + \beta_{11}(\text{History})_{i,t-1} + \beta_{12}(\text{Language})_{i,t-1} + \beta_{13}(\text{Current account})_{i,t-2} + \beta_{14}(\text{GDPcap})_{i,t-2} + \beta_{15}(\text{GDP growth})_t + \beta_{16}(\text{US interest})_{i,t} + \beta_{17}(\text{Currency crisis})_{t-1} + \beta_{18}(\text{Reserve})_t + \beta_{19}(\text{Openness})_t + \beta_{20}(\text{Trade with anchor country})_{i,t} + \beta_{21}(\text{Democracy})_{i,t} + \beta_{22}(\text{Executive})_{i,t} + \beta_{23}(\text{CBI})_{i,t} + \beta_{24}(\text{Neighbor})_{i,t} + \beta_{25}(\text{Border})_{i,t} + \beta_{26}(\text{Preno})_{i,t} + \beta_{27}(\text{T1})_{i,t} + \dots + \beta_{44}(\text{T17}) + u_t$$

⁶¹ The *probability* (p) of an event is the measure of likelihood that an event will occur, that is, the number of times the event occurs divided by the number of times the event could occur. Probability always ranges between 0 and 1. *Odds* are defined as the probability that the event will occur divided by the probability that the event will not occur (p/(1-p)). *Odds ratios* provide a relative chance of an event happening under two different conditions. An odd ratio is the ratio of the odds of success for one group divided by the odds of success for the other group: $\left(\frac{\text{probability}(\text{success})_A / \text{probability}(\text{failure})_A}{\text{probability}(\text{success})_B / \text{probability}(\text{failure})_B} \right)$. For example, in the context of clinical experiment, an existing treatment can be compared to a new treatment. The odds of experiencing bad outcome under the new treatment can be compared to the odds of a experiencing a bad outcome with existing treatment. *Log odds* are defined as the natural log of the odds. When exponentiating a log odds, we can get an odds ratio (OR) (Box-Steffensmeier and Jones 2004).

where policy adoption denotes an adoption of a key (among ten designated key currencies) in a currency basket by a state; β_1 represents the use of the IMF credit while β_2 denotes the use of foreign aid. β_3 to β_5 are competition diffusion variables: β_3 represents the mean policy of trade competitors; the mean policy of global capital competitors are expressed as β_4 , using Standard & Poors' sovereign risk ratings; β_5 is the mean global policy. β_6 to β_{12} are learning/emulation diffusion variables: β_6 refers to the policies of high growth country; β_7 , β_8 and β_9 represent the mean policy of RTA, BIT and PTA partners. β_{10} denotes a spatial lag of policies of religion peers; β_{11} , history, and β_{12} , language. The control variables are from β_{13} to β_{43} : β_{13} denotes the current account in proportion of GDP (t-2); β_{14} GDP per capita (t-2); β_{15} GDP growth; β_{16} means the U.S. interest rate which is used for world interest rate; β_{17} is included as the experience of currency crisis of the previous year; β_{18} represents foreign reserve; and β_{19} denotes openness which is shares of exports and imports in GDP. β_{20} denotes trade volume with potential anchor currencies. β_{21} , democracy; β_{22} , nationalist executive; and β_{23} , central bank independence. The policies of neighboring countries are β_{24} (the logged distance between capitals) and β_{25} (sharing common borders). β_{26} represents the number of previous adoption; and β_{27} to β_{44} denote time dummy variables. Lastly, c is constant and u_t refers to random effects.

In addition to a discrete-time logit model, two other EHA model can be considered for use to test the hypotheses: complementary log-log models and Cox model. When we cannot specify the distribution of time dependency, we use non- or semiparametric methods of estimation, such as the Cox model. As addressed in footnote 2, although we are studying a continuous time process, the data are collected at predefined periods, on yearly basis. The

Cox model would be appropriate for this analysis and is also applied to compare its estimation with that of discrete-time logic model.⁶²

B. Model Results and Interpretation

In this section, I present a set of tables displaying the estimation of models and discuss results.

1. Results from the U.S. Dollar Anchor Choice

What are the conditions leading to ERR choice? Candidate anchor currencies are selected in terms of their importance to global trading and financial systems as explained in Chapter III. The estimation from the discrete-time logit model of anchoring the U.S. dollar is presented in Table 4.1. Using logistic regression, the probability of an event occurrence, an

⁶² Cox models allow one “to estimate the effects of individual characteristics on survival time without having to assume a specific parametric form for the distribution of time until an event occurs” (Box-Steffensmeier and Jones 1997, 1432). Cox models incorporate the temporal dynamics of independent variables into the model. The event is defined as a policy adoption, that is, an adoption of an anchor currency. The data used consist of repeated observations of the same country over time. In order to take care of the issue of time dependency caused by repeated observations, the Lin and Wei (1989)’s robust variance estimator⁶² is used in the model. Lin and Wei (1989)’s robust estimator of the variance-covariance matrix is to use the efficient score residual for each subject in the data for the variance calculation.

The model specifications of Cox regression is as follows:

Model 1-b: Adoption of one anchor currency in a currency basket of a country estimated using Cox regression model

$$\begin{aligned} \text{Adopt}_{i,t} = & \beta_1(\text{IMF})_{i,t} + \beta_2(\text{ODA})_{i,t} + \beta_3(\text{Tradecom})_{i,t-1} + \beta_4(\text{Capital})_{i,t-1} + \beta_5(\text{Mean})_{i,t} \\ & + \beta_6(\text{High growth})_{i,t} + \beta_7(\text{RTA partner})_{i,t} + \beta_8(\text{PTA partner})_{i,t} + \beta_9(\text{BIT partner})_{i,t} \\ & + \beta_{10}(\text{Religion})_{i,t} + \beta_{11}(\text{History})_{i,t} + \beta_{12}(\text{Language})_{i,t} + \beta_{13}(\text{Current account})_{i,t-2} \\ & + \beta_{14}(\text{GDPcap})_{i,t-2} + \beta_{15}(\text{GDP growth})_t + \beta_{16}(\text{US interest})_{i,t} + \beta_{17}(\text{Currency crisis})_{t-1} \\ & + \beta_{18}(\text{Reserve})_t + \beta_{19}(\text{Openness})_t + \beta_{20}(\text{Trade with anchor country})_{i,t} + \beta_{21} \\ & (\text{Democracy})_{i,t} \\ & + \beta_{22}(\text{Executive})_{i,t} + \beta_{23}(\text{CBI})_{i,t} + \beta_{24}(\text{Neighbor})_{i,t} + \beta_{25}(\text{Border})_{i,t} + u_t \end{aligned}$$

where policy adoption denotes an adoption of a certain anchor (among ten designated key currencies) in a currency basket by a state; β_1 to β_{25} represents the same as those of the logit model, Model 1-a.

adoption of a certain anchor currency here, versus non-occurrence, conditional on explanatory variables, to some time t is measured. In order to incorporate temporal dependence in the data, time dummy variables are included.⁶³ The logit equation of Model 1-a produces a log odds of an event taking place,⁶⁴ that is, the probability of policy adoption versus non-adoption. In the last two columns of Table 4.1, comparable results for ERR choice estimated by employing a complementary log-log model are presented.

Interpreting a discrete-time logit model is different from traditional logit model since the data used to estimate EHA model are temporal data (Allison 1984; Yamaguchi 1991; Singer and Willett 1993). When exponentiating a log odds, we can get an odds ratio. The coefficients estimated in the random effects logit model, when exponentiated, give us the effect on the odds of a country's policy change into adoption, holding constant the values of other variables and their random effects. For a logit model, estimated coefficients for independent and control variables reveal information on how the log odds of an event occurring increases or decreases for a unit change in each variable.

Table 4.1 presents odds ratios rather than log odds (coefficients of the estimation) of each variable. The resulting odds ratios are presented in Table 4.1, column 3 and 4. A complementary log-log (cloglog) model is one of discrete time proportional hazards models,

⁶³ In case that the observations are independent, temporal dummies should not be included in the model. To test of whether the temporal dummies should be included in a model, a standard likelihood ratio test of the hypothesis that all the $k_{t-t_0}=0$ is performed. Since the null hypothesis of temporal dependence is rejected, all the k_{t-t_0} are included in the logit specification.

⁶⁴ Stata 11 is used for estimation. The likelihood-ratio test rejects the null hypothesis that rho equals zero, which means that the model requires to consider the random effects.

and its exponentiated coefficient can be interpreted as hazard ratios,⁶⁵ in which results are presented in the last two columns of Table 4.1. If an odds ratio is more than 1, it represents a positive effect on the odds of policy adoption; and less than 1, a negative effect.

External political pressures and policy diffusion

The external-pressure hypothesis assuming powerful states' or international financial institutions' influence over weaker states' policy decision is not well supported by the results. The existence of borrowing from the IMF is only statistically significant in time dummy cloglog model while not significant in time-dummy logit and Cox model. Having used IMF credit, versus non-use of IMF credit, decreases the odds of the adoption of U.S. dollar as an anchor. The estimated of odds of adoption is 0.59 in cloglog. Since the use of IMF credit variable was not operationalized in a way reflecting IMF's position, it does not seem to possibly discern a certain anchor choice. The use of IMF credit variable has aimed to see whether it may significantly alter exchange rate policy choice. The result from the model shows that borrowing from the IMF has effect on ERR choice.

Another variable to test external pressure hypothesis is the use of foreign aid per capita. There is little effect of foreign aid per capita on policy adoption. In empirical studies, coercion in policy diffusion has not been sufficiently demonstrated mainly due to its unobservable nature. Therefore, the coercion mechanism seems to need more detailed qualitative analysis.

⁶⁵ Event history analysis is also called as survival analysis. The event of interest is 'the adoption of a certain anchor currency in the basket' and the waiting time is 'survival' time. The term "hazard rate" is used in survival analysis, which is defined as the rate of the event's occurrence. Hazard rate is also called as failure rate. The hazard ratio refers to the hazard rates under two conditions. A cloglog model's exponentiated coefficients (odds ratios) can be interpreted as hazard ratios (Box-Steffensmeier and Jones 2004). Regarding the argument that hazard ratios and odds ratios are more or equal, see (Nurminen 1995). See also Stare and Maucort-Boulch (2016) for more explanations on the definitions and differences of hazard ratios and odds ratios (Stare and Maucort-Boulch 2016).

Table 4.1 The impact of international diffusion on exchange rate policy (US dollar anchor)

Mechanism	Explanatory Variable	Time Dummy (Logit)		Time Dummy (Cloglog)		Cox Regression	
		Odds ratio	SE ^a	exp(b)	SE	Haz. Ratio	Robust SE
Coercion	Use of IMF credits	0.353	0.227	0.585***	0.120	0.842	0.141
	Foreign aid per capita	0.937	0.112	0.965	0.078	1.045	0.039
Competition	Policies of export competitors	1.017	0.075	1.065	0.045	1.025	0.031
	Policies of capital competitors	0.951	0.303	-	-	0.937	0.119
	-infrastructure	-	-	1.094*	0.060	-	-
	Mean global policy	1.233	0.666	1.070	0.117	0.983	0.079
Learning/	Policies of high growth countries	1.362	0.495	1.273**	0.153	0.994	0.028
Emulation	Policies of RTA partners	1.213	0.489	0.867	0.194	1.018	0.143
	Policies of PTA partners	0.758***	0.074	0.886**	0.046	0.914**	0.041
	Policies of BIT partners	0.988	0.039	0.997	0.021	1.001	0.011
	Policies of religion peers	0.727	0.267	0.785	0.152	0.857	0.111
	Policies of language peers	1.062	0.575	0.957	0.269	1.088	0.166
	Policies of history peers	1.412	0.440	0.966	0.127	1.198***	0.082
Control Variables	Current account/GDP (t-2)	1.017	0.030	1.006	0.012	1.005	0.005
	GDP growth	1.155***	0.056	1.091***	0.020	0.991	0.013
	GDP per capita	1.000	0.000	1.000	0.000	1.000	0.000
	Foreign reserves	1.006	0.178	1.052	0.094	1.078	0.058
	World interest rates	0.914	0.158	1.054	0.149	0.943**	0.028
	Currency crisis(t-1)	0.625	0.733	0.351	0.239	0.740	0.242
	Degree of openness	21.712	42.007	35.021***	38.257	3.416**	1.922
	Trade with U.S.	1.057***	0.017	1.027***	0.005	1.014***	0.004
	Democracy	0.824***	0.059	0.891***	0.026	0.941**	0.024
	Policies of neighboring countries	0.999	0.004	1.001	0.001	1.000	0.000
Policies of border countries	1.576	1.781	1.108	0.592	0.521**	0.156	
Number of previous policy adoption	1.106	0.080	1.164***	0.045			

note: *** p<0.01, ** p<0.05, * p<0.1 ^a: Standard errors

Table 4.1 The impact of international diffusion on exchange rate policy (US dollar anchor) (continued)

Mechanism	Explanatory Variable	Time Dummy (Logit)		Time Dummy (Cloglog)		Cox Regression		
		Odds ratio	SE	exp(b)	SE	Haz. Ratio	Robust SE	
Control	Time dummies/T1	29.304**	41.287	4.009	4.341			
Variables	T2	6.964	11.262	3.771	3.251			
	T3	11.965*	15.555	5.255***	2.906			
	T4	50.936***	72.467	12.474***	8.278			
	T5	20.618**	26.212	6.039**	5.005			
	T6	21.257***	23.000	4.915***	2.961			
	T7	6.348**	5.573	3.589***	1.676			
	T8	1.832	2.254	1.577	0.961			
	T9	5.568	6.045	3.520***	1.590			
	T10	10.291**	10.320	3.687**	2.209			
	T11	0.528	0.568	0.495	0.351			
	T12	13.924	23.234	5.655***	2.816			
	T13	2.164	2.100	1.813	0.715			
	T14	6.642	11.244	2.836**	1.324			
	T15	6.752**	5.422	3.703***	1.627			
	T16	7.384**	6.176	3.917***	1.553			
		T17	(omitted)		(omitted)			
		/lnsig2u	0.081	0.603				
	sigma_u	1.041	0.314					
	rho	0.248	0.112					
	N	606		606		402		
	Time at risk					406		
	Log likelihood =	-241.449				-843		

note: *** p<0.01, ** p<0.05, * p<0.1 ^a: Standard errors

Economic competition

How does export competition work in explaining policy diffusion? The results of competition variables do not support the competition argument sufficiently. The influence of policy change of export competitors in the foreign markets is signed in the model as expected: the policies of export competitors may increase the odds of adoption. However, it is not statistically significant. An alternative measure of export competition is the policies of export competitors in distinct sectors. When substituting a spatial lag of sectoral competition for export markets competition, the result is insignificant in all three models. Hence, export competition may not effect on the diffusion of ERR choice.

The result for capital competition is less convincing in the model as well. The model estimation shows that the effect of capital competitors' policies is not statistically significant and shows negative association with ERR choice which would not be generally expected. An alternative measure for policies of capital competitors, which can be constructed by considering the infrastructure development and education of work force of countries, appears to have a different result.⁶⁶ When an infrastructure spatial lag is substituted for a variable of capital competitors, the result is significant in the cloglog model.

The size of the effect of an infrastructure spatial lag can be understood as follows. The odds ratios in Table 4.2 can be interpreted as the effect on the odds of adoption associated with one unit change in the explanatory variable. Since each diffusion variable ranges from 0 to 10 after rescaling, one unit on diffusion variables denotes 10 percentage points. With

⁶⁶Countries compete for the same pool of global capital. Foreign investors want to create a country profile to compare countries for investment. Bond ratings are a commonly used indicator for investors. International investors may also consider human capital and social infrastructure. The educational, and information and technological infrastructure data are derived from World Development Indicators (WDI) to construct the policies of capital competitors with similar infrastructure and human capital.

regard to the variable of policies of capital competitors using indicators of human capital and infrastructure, if a competitor shifts its policy choice to adoption by 10 percentage points, the probability of adoption (versus non-adoption) for the government will increase by 1.1 times.⁶⁷ Implementing a similar policy among countries competing for foreign capital appears to be important. Governments tend to adopt a similar policy when other competitors do.

How does the average policy choice of ERR in the world economy affect the ERR choice? Global mean policy constructed by the yearly mean of the dependent variable across all countries in the sample does not appear to have any visible effect. When comparing this result of global mean policy with the variable of policies of competitors, this result suggests that policy diffusion is more likely to occur through economic competition channel than globally averaged policy stance.

Learning and emulation

The learning approach for explaining diffusion provides a few significant effects. According to the learning argument, governments learn through their networks which provide channels for the spread of policy (Halligan 1996). Significantly, the hypothesis that countries may choose the policy of successful state is supported by the result in the cloglog model. Countries whose economic growth rates are in the top decile are used to construct a spatial lag of policies of high growth countries. The measure of policies of successful countries appears to have positive effect on policy adoption: it increases the odds ratio of

⁶⁷ Table 4.2 shows the odds ratio (that is, exponentiated log odds) of each diffusion variable. The odds ratio of the variable, policies of capital competitors, is 1.1, which means the probability of the policy adoption (event happening) is higher than the probability of the non-adoption (event not happening) by 1.1 times when a competitor shifts its policy choice to adoption by 10 percentage point.

adopting similar policies by 1.27 times when one unit - 10 percentage points - of successful state's policies changes. Thus, conspicuous success has significant effects on diffusion of exchange rate policy. States tend to adopt similar policies of a successful state.

Policies of preferential trade agreement (PTA) partners yield significant effects on policy shift at the 95 % confidence level when controlling for all other factors in all three models (logit, cloglog and Cox model). However, the sign of the estimation is in unexpected direction: the odds ratio of policies of PTA variable is 0.758 (logit), which means a negative effect on altering a policy.

Policies of common membership in regional trade agreements (RTAs) and bilateral investment treaties (BITs) do not yield clear insights. RTA partners' policies are statistically insignificant and have a positive effect on altering policy while those of BIT partners have slightly negative one.⁶⁸

The last set of theoretically driven variables tests diffusion through cultural references. Governments may pay attention to those sharing cultural similarities, such as religion, language or shared historical legacy. The most pronounced finding from cultural variables is historical legacy peers' influence on decision which it is significant only when the model is analyzed by using Cox regression. In both discrete logit and cloglog model, it does not turn out significantly. The odds ratio for common history is 1.2 and its sign is positive,

⁶⁸ The policies of BIT partners' negative effect on policy shift may be related to adverse selection effects for signing a BIT although statistically insignificant. BITs play a role as a credible commitment since they accompany the range of costs after signing them, such as arbitration costs and reputational costs. Adverse selection refers to the asymmetrical information between investors and the host government. Outside investors lack information about the motivation that the host government pursues a certain policy, such as capital liberalization, which may be internal or external (Bellak and Leibrecht 2016, 78–80). See also (Basu and Chau 1999; Elkins, Guzman, and Simmons 2006; Kirabaeva and others 2011).

suggesting that there could be a positive association between common heritage and policy choice. Diffusion seems to take place through the policies of countries with similar history backgrounds.

The effect of policies of common dominant religion peers on ERR policy is not statistically significant, and its direction is not generally expected: that is, religion peer's policies have negative effects on policy choice. Lastly, the policies of common language peers do not provide compelling evidence on policy choices.

Control variables

Indicators of internal economic and political conditions are included in the model as control variables. First of all, economic factors from optimum currency area theory hold visible effects on ERR choice: the odds ratio of GDP growth is 1.16, statistically significant at the 95 % confidence level when using time dummy logit and cloglog model. Consequently, GDP growth seems to be associated with the adoption of the dollar as an anchor currency in a country's currency basket. The degree of openness is positively signed in cloglog and Cox model. World interest rates are significant only in Cox regression, but negatively impact on altering policy decisions.

Trade relations with potential anchor currencies are included in the model. The result shows that the odds ratio of trade with the U.S. is 1.1, significant at the 99 % ceteris paribus in all three models. It means that higher trade relations with the U.S. significantly increase the probability of choosing the U.S. dollar as an anchor.⁶⁹

⁶⁹ In addition, currency composition of external debt is considered as one of important factors for anchor choice (Lowell 1992; Eichengreen and Mathieson 2000). Data of currency composition of foreign debt were included in the model, but not statistically significant.

While it was assumed that experience of currency crises might lead to ERR change, the result is not statistically significant. Furthermore, GDP per capita, foreign reserves and the share of the current account in the proportion of GDP do not yield compelling effects on the country's policy adoption, either.

Among domestic political variables,⁷⁰ democracy is the only variable that has visible effects on ERR choice. The odds ratio of the democracy variable is 0.82, significant with negative sign. The domestic politics approach argues democracy may be related to transition to a more flexible ERR. Authoritarian regime is more likely to prefer a fixed ERR for credibility purpose than democratic regime. It seems that this indicator only partially reflects the effect on anchor choice. The level of democracy may influence policy shift.

Consider, next, geographical proximity, the most common argument for diffusion which is controlled purporting to discern whether ERR choice may be affected by diffusion effects or merely contiguity. The effects of typical spatial indicators seem weak. On the one hand, the policies of border countries are insignificant in the time dummy and complementary log-log model while effective in Cox model. Border adjacency has negative effect on policy choice. On the other hand, the policies of neighboring countries which are constructed by logged distance between capitals do not seem to drive the spread of policy adoption. This spatial lag is insignificant in all three models. Overall, geography has provided weak insights.

In order to consider the effect of multiple recurrent events, I also include the number of previous adoptions of the dollar as an anchor currency for each country in the model. The variable *preno* is significantly effective in the complementary log-log model while not in the

time dummy logit. If the country has adopted the U.S. dollar as an anchor before, it may increase the probability of adopting it again in a given year.

To account for duration dependency, the model includes temporal dummy variables. My dataset has a time = 1, 2,... 17 time points at which events can occur, from 1996 to 2012. Time dummy variables are indirect measures that capture the influence of policy adoption. Most of time dummies are significant and present that the probability of adopting the policy slightly decreases over time in the cloglog model.

To summarize, several diffusion mechanisms provide insight about ERR choice. The use of IMF credit variable has a significant effect on ERR choice, but unexpectedly negatively. Economic competition argument supports the diffusion of policy although the effect is weak. Learning from joint membership yield mixed results: two variables – policies of successful states and PTA partners hold effects on policy shift while policies of RTA and BIT partners do not. Policies of successful states yield positive effect while policies of partners, negative. Among cultural similarity explanations, only history peer's policy yield effect on exchange rate policy.

2. Results from Other Anchor Choices

The previous section has presented the statistical results from the U.S. dollar anchor choice, which shows some evidence of diffusion through competition and learning. Then, how do diffusion factors influence the choice of other candidate anchor currencies? The

⁷⁰ Nationalist executives and the central bank independence were included in the model initially; however, two variables were found statistically insignificant and do not seem to have any independent policy stance.

effects of diffusion factors on the choice of other anchors were tested by using complementary log-log model and their results are presented in Table 4.2 – 4.4.⁷¹

First, comparing the U.S. dollar anchor with the Japanese yen, the measures of economic competition result in the same as those of the USD anchor choice: neither export nor capital competition measures yield significant effects. Economic competition does not appear to influence the choice of the yen as an anchor in the currency basket. However, there are differences in two factors: policies of RTA partners and policies of religious peers. It is notable that the effect of policies of RTA partners on ERR choice is statistically significant and increases the probability of adopting a similar policy by 2.35 times when one unit of dependent variable moves. The spatial lag of religious peer's policies has significant effect on adopting the yen; however, the sign of its effect is not generally expected. Religious factor affects negatively on altering policy choice. Among control variables, geography provides discernible effects: policies of neighboring countries positively impact on adopting the yen as an anchor.

In testing the choice of the British pound as an anchor, only one diffusion variable turns out effectively: the policies of historical peers. Its odds ratio is 3.6, indicating that the probability of altering policy in pound choice is increases by 3.6 times with one unit change. Some control variables have significant effects on pound adoption: the current account in proportion of GDP, GDP growth, world interest rates, currency crisis, and trade relationship with the U.K. Policies of neighboring countries are statistically significant with a negative

⁷¹ Each anchor choice was tested by using discrete-time logit, complementary log-log model and Cox regression model, respectively. Table 4.2-4.4 presents only the results from cloglog model. Time dummies are not presented in the table.

sign. All other variables are found insignificant. The test for pound anchor yields least significant effects.

In anchoring Swiss franc, it is unique that the foreign aid and policies of export competitors in the third export markets hold statistically significant effects. The odds ratio of foreign aid is 1.41 and significant at the 99 % confidence level, indicating positive association between foreign aid and Swiss franc adoption as an anchor. Coercion argument is supported by this result. In testing competition hypothesis, the influence of export competitors on policy change is signed as expected and significant only in the Swiss franc test: the probability of adopting of the Swiss franc in the currency basket increases by 1.35 times when the policies of export competitors moves one unit. Governments tend to adopt a policy similar to those of their export competitors in third export markets. Lastly, among control variables, none of geographical proximity measures hold significant effects.

A test for diffusion effects on anchoring Canadian dollar and Austrian dollar provide weak effects, respectively. On the one hand, the policies of RTA partners may shape the choice of the Canadian dollar as an anchor which is similar to the Japanese yen anchor test. The learning argument is supported by this test: governments may learn through the channel of regional trade networks and adopt similar policies that their RTA partners have. On the other hand, the test for the Austrian dollar anchor choice yields few insights on policy diffusion. The hypothesis testing of capital competition results in significant effect on policy choice, but with negative sign. The measure of policies of high growth countries holds weak and negative effect on diffusion as well: the odds ratio of the variable is 0.59. Among control variables, two measures of geographical contiguity provide ambiguous effects. Policies of border countries seem to have positive association with policy diffusion while those of

neighbors have negative relations. The number of previous policy choice has significant effect on both choosing Canadian dollar and Australian dollar as an anchor, respectively.

Finally, two tests of taking the euro and the Chinese yuan as an anchor, respectively, display little insights. In the case of the euro anchor adoption, one learning diffusion variable suggests positive effect on ERR choice: the effect of policies of high growth countries on ERR choice strongly holds positively. It increases the policy choice by 6.9 times. With regard to anchoring Chinese yuan, the variable of policies of capital competitors shows significant effect. However, it is weak and not in the expected direction: it decreases the probability of anchoring the yuan. It seems that relatively insufficient time periods for test – only from 2005 to 2008 - might result in limited observation and interpretation.

Table 4.2 The impact of international diffusion on other anchor choices (Japanese yen, British pound and Swiss franc)

Mechanism	Explanatory Variable	Japanese yen		British pound		Swiss franc	
		exp(b)	Robust SE	exp(b)	Robust SE	exp(b)	Robust SE
Coercion	Use of IMF credits	1.211	0.581	0.791	0.373	1.044	0.575
	Foreign aid per capita	1.033	0.135	1.137	0.137	1.412***	0.158
Competition	Policies of export competitors	1.068	0.176	1.039	0.225	1.349*	0.212
	Policies of capital competitors-infra	1.195	0.269	0.339	0.367	1.048	1.045
	Mean global policy	0.000	0.000	21.775	62.491	0.054	0.116
Learning/ Emulation	Policies of high growth countries	60.657	277.55	0.376	0.402	1.001	0.433
	Policies of RTA partners	2.345**	0.920	1.213	0.717	1.407	1.152
Emulation	Policies of PTA partners	0.870	0.121	0.426	0.222	-	-
	Policies of religion peers	0.084***	0.074	1.052	1.219	0.646	0.726
	Policies of language peers	0.046	0.106	0.906	1.572	5.078	9.771
	Policies of history peers	1.554	0.602	3.635*	2.836	1.680	1.841
Control Variables	Current account/GDP(t-2)	1.042	0.028	1.049**	0.024	0.966*	0.020
	GDP growth	0.992	0.077	0.903***	0.034	0.946	0.037
	GDP per capita	1.000	0.000	1.000	0.000	1.000	0.000
	Foreign reserves	1.473**	0.270	0.964	0.122	1.054	0.132
	World interest rates	0.566**	0.149	1.725*	0.531	0.475*	0.190
	Currency crisis(t-1)	3.751	3.660	3.013*	1.908	-	-
	Degree of openness	0.342	0.775	0.373	0.493	7.748*	8.613
	Trade with anchor countries	1.108**	0.046	1.018*	0.071	0.812*	0.089
	Democracy	0.912	0.074	0.995	0.075	1.009	0.062
	Policies of neighboring countries	1.022***	0.005	0.104*	0.125	0.842	0.212
	Policies of border countries	0.207**	0.165	18.586	47.004	0.019	0.074
	Number of previous policy adoption	1.071	0.077	1.071	0.105	1.118	0.084
	N	688		570		528	
Log likelihood	-150.012		138.631		154.285		

note: *** p<0.01, ** p<0.05, * p<0.1

Table 4.3 The impact of international diffusion on other anchor choices (Canadian dollar and Australian dollar)

Mechanism	Explanatory Variable	Canada dollar		Australian dollar	
		exp(b)	R. SE	exp(b)	R. SE
Coercion	Use of IMF credits	0.771	0.34	0.645	0.17
	Foreign aid per capita	0.973	0.11	1.096	0.08
Competition	Policies of export competitors	0.923	0.11	1.000	0.08
	Policies of capital competitors	0.655	0.49	0.402**	0.18
	-infra				
	Mean global policy	1.095	4.80		
Learning/	Policies of high growth countries	0.780	0.30	0.590****	0.10
Emulation	Policies of RTA partners	3.097**	1.47	1.498	0.39
	Policies of PTA partners	1.068	0.08		
	Policies of religion peers	0.870	0.55	0.706	0.23
	Policies of language peers	0.247	0.39	0.862	0.53
	Policies of history peers	0.539	0.28	1.217	0.34
Control Variables	Current account/GDP (t-2)	1.033	0.03	1.019	0.02
	GDP growth	0.940	0.04	1.040	0.03
	GDP per capita	1.000	0.00	1.000*	0.00
	Foreign reserves	0.866	0.11	1.186**	0.10
	World interest rates	1.068	0.15	0.928	0.18
	Currency crisis(t-1)	1.477	1.14	(empty)	
	Degree of openness	0.067	0.14	2.827	2.18
	Trade with anchor countries	0.967	0.18	1.011	0.05
	Democracy	1.030	0.07	1.027	0.03
	Policies of neighboring countries	0.168	0.25	0.224**	0.13
	Policies of border countries	1.655	3.15	6.857****	4.76
	Number of previous policy adoption	1.598****	0.13	1.412****	0.09
		N	585		555
	Log likelihood	-178.84694		-259.829	

note: **** p<0.01, ** p<0.05, * p<0.1

Table 4.4 The impact of international diffusion on other anchor choices (euro and Chinese yuan)

Mechanism	Explanatory Variable	euro		Chinese yuan	
		exp(b)	R.SE	exp(b)	R. SE
Coercion	Use of IMF credits	0.954	0.53	0.553	0.71
	Foreign aid per capita	0.863	0.09	0.910	0.20
Competition	Policies of export competitors	0.832	0.12	1.155	0.32
	Policies of capital competitors	1.594	1.32	0.003**	0.01
	-infra Mean global policy				
Learning/ Emulation	Policies of high growth countries	6.897***	4.00	0.145	0.30
	Policies of RTA partners	1.651	0.59	1.526	1.21
	Policies of PTA partners				
	Policies of religion peers	1.746	1.16	13.400	32.89
	Policies of language peers	0.058	0.16	0.448	2.19
	Policies of history peers	0.841	0.45	2.578	2.94
Control Variables	Current account/GDP (t-2)	0.960	0.03	1.066	0.07
	GDP growth	0.938	0.05	0.837	0.09
	GDP per capita	1.000	0.00	1.000	0.00
	Foreign reserves	0.898	0.15	1.347	0.30
	World interest rates	1.093	0.20	1.155	0.33
	Currency crisis(t-1)	(empty)		(omitted)	
	Degree of openness	0.204	0.38	0.000	0.00
	Trade with anchor countries	1.077***	0.02	1.051	0.09
	Democracy	1.012	0.09	0.922	0.13
	Policies of neighboring countries	0.014***	0.02	0.003	0.01
Policies of border countries	0.388	0.85	0.001**	0.00	
Number of previous policy adoption	1.183**	0.08	1.406	1.15	
N		491		87	
Log likelihood		-121.686		-30.301	

note: *** p<0.01, ** p<0.05, * p<0.1

3. Case of East Asia

The previous section presented statistical results using world observations aimed to find a general pattern of policy diffusion of exchange rate policy. The statistical results showed that several diffusion variables affected the choice of ERR. This section examines the East Asian experience in a regional context, primarily focusing on whether diffusion may have distinct regional characteristics, by adding a variable that reflects specific characteristics of East Asia.

East Asian countries are confined to encompass the newly industrialized economies of the selected members of the ASEAN plus 3 - Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam, China, Japan, and South Korea -, Hong Kong and Taiwan. Four members of the ASEAN - Brunei, Cambodia, Lao People's Democratic Republic (Lao PDR), and Myanmar - are excluded due to data limitations. Table 4.5 presents the results of Model 1-a.

In testing the East Asian cases, a new variable, production networks, is added as an additional competition variable. One of prominent features of East Asia's intra-regional trade is high concentration of production network trade. A measure of network trade is included to test whether there is any association between production network participation and ERR choice. The network trade variable is defined as a country's share of parts and components exports to other East Asian countries. The data are extracted from UN Comtrade. As explained in the Chapter 3, the list of parts and components is delineated from the divisions that network trade is heavily weighted among total trade.

Diffusion variables

Table 4.5 presents the statistical results from testing diffusion effects on selecting the U.S. dollar as an anchor in currency baskets of East Asian countries. Testing diffusion effects on ERR choice, several variables yield significant effects. A test for competition has yielded more pronounced effects than those in Table 4-1. The variable constructed to reflect the policies of export competitors in distinct sectors has significant effect, *ceteris paribus*: it increases the probability of USD adoption as an anchor by 1.95 when export product competitors shift their policies by one unit. This means that export product competition has an effect on ERR choice. The effect of policies of capital competitors is statistically significant; however, the sign of the result shows negative impact on altering ERR choice. Although the direction of effect is not expected, it appears that a shift in capital competitors' policies may effect on a state's policy stance.

How does network trade affect exchange rate policy? Applying a competition argument for policy diffusion, it is assumed that participation in the trade network would increase the probability of adopting or altering to a similar ERR for stable exchange rates since exchange rate stability is critical to maintain unrestrained production network trade. In order to see the effect of network trade on ERR choice, cases are limited to East Asian countries that are assumed to be participating in the East Asian production network (Kawai and Urata 1998; Thorbecke 2008; Athukorala 2011; Kimura and Obashi 2016). The test for network trade hypothesis shows that the impact of network trade on ERR choice is significant at the 95 % significance level: the odds ratio of the network trade variable is 0.67, indicating that this variable decreases the probability of altering policy choice. It appears that participating in production network may negatively associated with ERR choice.

Table 4.5 Selected East Asian countries and ERR Choice (USD)

Mechanism	Explanatory Variable	Odds Ratio	Std. Err.
Coercion	Use of IMF credits	0.000	0.000
	Foreign aid per capita	0.659	0.397
Competition	Policies of export competitors	3.639	2.919
	Policies of export sector competitors	1.950**	0.605
	Policies of capital competitors	0.781**	0.084
	Network trade share	0.669**	0.127
	Mean global policy	31.002	113.690
	Learning/ Emulation	Policies of high growth countries	1.841
Emulation	Policies of PTA partners	1.028	0.763
	Policies of religion partners	0.006**	0.009
	Policies of language partners	0.007	0.051
	Policies of history partners	24.209*	40.894
Control variables	Current account/GDP (t-2)	1.307**	0.168
	GDP growth	1.656**	0.351
	GDP per capita	0.999***	0.000
	World interest rates	0.579*	0.173
	Foreign reserves	11.505*	15.791
	Currency crisis(t-1)	-	
	Degree of openness	2.42e-09***	1.853-08
	Trade with the U.S.	1.193	0.273
	Democracy	1.550	0.428
	Policies of neighboring countries	-0.007	0.027
			1698.14
	Policies of border countries	331.388	0
	The number of previous adoption	1.319	0.433
Time/T1-T17	-	-	
	/lnsig2u	0.000	56.293
	sigma_u	0.000	0.007
	rho	0.000	0.000
	N	147	

note: *** p<0.01, ** p<0.05, * p<0.1 ^a: Standard errors

Learning/emulation diffusion variables display mixed results. While policies of religious peers have significant effect on ERR choice, its sign is negative which is not generally expected. Policies of history peers would increase the probability of adopting the similar policy. This could be related to the fact that many East Asian countries have experienced Japanese imperialism. Lastly, policies of high growth countries and PTA partners do not provide discernible effects.

Two indicators used to test whether coercion may exert influence on ERR choice do not hold effective influence: borrowing from the IMF and use of foreign aid. The use of IMF credits does not exert significant effects on policy adoption, and the sign of the result is negative, which is not generally expected. In addition, foreign aid per capita also does not exert significant effect.

Control variables

Some of national economic conditions have significant effects on ERR choice. Current account in proportion of GDP and GDP growth are statistically significant and increase the adoption of USD as an anchor. GDP per capita seems to have negative association with ERR choice. The influence of world interest rates of which proxy is the U.S. interest rate is significantly effective on policy adoption, but the direction is negative. The odds ratio of foreign reserve is significant and greatly increases the adoption of USD as an anchor by 11 times. All these variables are related to external shocks, and the estimated results suggest that domestic economic conditions related to external shocks appear to increase adoption of USD as an anchor. Lastly, the degree of openness is significant and positively associated with policy adoption.

The effect of the most common indicator of policy diffusion, contiguity, is not compelling. Both the distance between capitals and border-neighboring countries do not

yield significant effects. In addition, time variables do not provide notable results: time dummies as well as the number of previous adoption are not statistically significant.

In sum, the East Asia experience in a regional context shows there is a fairly convincing evidence of the importance of competition for export in distinct sectors. If a competitor shifts its policy choice to adoption, the odds of choosing a similar policy for a government increases. The results from capital competition and network trade hypothesis are ambiguous: although the spatial lags of capital competitors and network trade partners' policies are statistically significant, the signs of two spatial lags are unexpectedly negative. The negative signs of two odds ratios mean decreases in the probability of altering a policy choice. Policies of historical legacy peers tend to affect the government's policy stance. Overall, the estimated results from East Asian experience suggest there is correlation between exchange rate policy choice and diffusion.

C. Conclusion

This chapter has specified event history models employed to test diffusion hypotheses, and presented statistical results of estimating diffusion effects on ERR choice. Several diffusion mechanisms have provided insight about ERR choice. Economic competition argument supports the diffusion of policy choice. Learning from joint membership, however, yields mixed results: although learning indicators are significant, they are in the unexpected direction. Yet, coercion variables did not provide useful explanations. Each diffusion mechanism will also treated in detail in the next case studies chapter.

V. Case Study: South Korea

This chapter and Chapter VI apply the considerations elaborated in Chapter III to the cases of the Republic of Korea and the Republic of China, Taiwan. Supplementing the empirical analysis in Chapter IV, these two chapters assesses the three mechanisms of external effects – coercion, competition and learning/emulation – upon the choices of exchange rate regime in two East Asian developing countries. Korea and Taiwan shed light and enrich our understanding, illustrating how external factors may shape exchange rate policy choice which is often regarded as a policy area where domestic factors assume more salient role.

The following discussion substantiates diffusion arguments through in-depth analyses of international diffusion on exchange rate policy of Korea and Taiwan. This chapter starts with case selection and, then examines the exchange rate policies of South Korea in the 1990s and 2000s. The case of Taiwan will be examined in the following chapter.

A. South Korea and Taiwan as Selected Cases

One pitfall of small-N studies is possible selection bias (Strang and Soule 1998; Meseguer and Gilardi 2009). Considering the importance of systematic case selection, cases can be selected in a non-random fashion “in order to assess competing explanatory claims” (Starke 2013, 567–68). In diffusion studies, for instance, Weyland selects “positive cases” for his analysis in which policies concerned are actually spread (Weyland 2006, 14-16) or “intuitive regression” (Collier, Brady, and Seawright 2004). The region of East Asia seems to show “intuitive regression” of geographical pattern of ERR choice: many East Asian countries have similarity in adopting an exchange rate regime which is a managed floating system (Kawai and Ginkō 2002; Kawai 2009). The emergence of literature on “yuan bloc” in

East Asia also seems to suggest similar policy adoption in the region. According to the yuan bloc argument, some East Asian countries shadowed the movement of yuan when it was relatively freely fluctuating from 2005 to 2008.⁷²

Exchange rate regimes for developing countries are critical to achieving sustainable economic growth in East Asian countries' developmental pattern. Exchange rate fluctuations may impact prices and exports substantially. Therefore, investigating diffusion effects in developing countries' policy choices, such as those of East Asia, may provide useful information. Considering the argument that diffusion mechanisms may exert a stronger influence in the developing countries than anywhere else (Gilardi 2010), South Korea and Taiwan offer illustrative cases.

Korea and Taiwan share many socio-economic and political commonalities. In their economic development, both adopted an open export-led growth model, following Japan's lead after World War II (Leftwich 1995; Woo-Cummings 1999; Wong 2004). Both countries have achieved considerable economic growth, and were called as "tigers" or newly industrializing countries (NICs) in East Asia. Korea and Taiwan have close political and economic relationships with the U.S. Lastly, they have similar cultural similarities. Historically, both Korea and Taiwan experienced Japanese colonialism in the early 20th century which affected the trajectories of both countries' modernization. Although Korea and Taiwan use different languages, Chinese classics have been prevalent in many East Asian countries, including Korea. The tradition of Confucianism and Buddhism is deeply rooted in both societies.

⁷² Regarding the yuan bloc, see (Subramanian and Kessler 2012; Ma and McCauley 2011; Henning 2012; Fang, Huang, and Niu 2012; Fratzscher and Mehl 2014; Fang, Huang, and Niu 2012; Pontines and Siregar 2012; Park and Song 2011; Patnaik et al. 2011).

In their exchange rate policy, Taiwan adopted a de jure free floating system since 1989 while Korea did in 1990. However, both countries' de facto regime has been a managed floating as other East Asian countries have. Despite these many similarities, Korea and Taiwan showed slightly different moves in the choice of exchange rate policy. The literature on yuan bloc argues that some East Asian countries show a gradual shifting of their key reference currency to the renminbi (RMB). For example, in the case of Taiwan, most studies find that Taiwan showed closer currency co-movement between the New Taiwan dollar (NTD) and the renminbi. In contrast, even though Korea has been experiencing rapid increase in trade and financial relations with China, the Korean exchange rates presented a different path of movement from the NTD: the Korean won did not quite follow the yuan's movement, rather still closely fluctuating with the US dollar (Fang, Huang, and Niu 2012; Henning 2012; Pontines and Siregar 2012; Park and Song 2011).

Given the comparable trajectories of post-war economic and political developments in their growth-oriented policies, this seemingly different policy choice poses a question of what accounts for the divergent approaches to exchange rate policy between Korea and Taiwan. Hence, an analysis of the causal relationship between different policy outcomes of these two countries would provide useful insight on ERR choice. I highlight the role of international diffusion in policy decision in these cases.

B. Exchange Rate Policy of Korea

1. Overview of Korea's exchange rate policy

In the process of Korea's economic development, the share of trade in the Korean economy has become significant since the 1980s. For a small open economy like Korea, the exchange rate has an immediate effect on output and prices. Moreover, it has been closely

related to Korea's competitiveness in traded goods and current account balance. Hence, the Korean monetary authorities have taken the effects of exchange rate into account on overall economy carefully when choosing an exchange rate regime.

The Ministry of Finance (MOF) and the Bank of the Republic of Korea (BOK) are in charge of exchange rate policy. They have made efforts to maintain currency stability of South Korea, the *won*, in the foreign exchange markets. While Taiwan's Central Bank enjoys independence since its inception, the BOK has been subordinated to the Ministry of Finance since its establishment. For rapid industrialization and government-led development, the government had a direct stake in keeping the Central Bank under its control. Finance was subordinated to the government for implementing economic plans. Since its establishment in 1950, the Central Bank did not obtain any strong legal mandate to pursue independent policy objectives⁷³ and to formulate monetary and financial policies. The Ministry of Finance (later the Ministry of Finance and Economy) dominated the actual policymaking process.

The currency of South Korea, the won, had been pegged to the U.S. dollar until 1980.⁷⁴ Facing worldwide inflation, rising interest rates and economic depression in industrialized countries in the 1980s, the Korean government pursued a new policy goal of external liberalization. In February 1980, the hard peg was abandoned and changed into a managed floating system which allowed the won to fluctuate within a narrow band. It was the 1980s when the significance of exchange rate policy became more important for Korean economy

⁷³ The BOK is often dishonorably called as "a Namdaemun branch office of the Ministry of Finance" due to its subordination to the Ministry of Finance. It was until 1997 when the Central Bank's independence was improved. In the 6th revision of the Bank of Korea Act, the Chairmanship of the Monetary Policy Committee was transferred from the Minister of Economy and Finance to the Governor of the Bank of Korea. Through this revision, the degree of independence of the Bank of Korea was increased to a certain extent.

due to trade liberalization. Some protection measures, such as trade subsidiaries and import protection, were reduced in the 1980s.

The currency basket system made the won to change more flexibly (Oum 1989). Currencies chosen for the basket were assumed to be based on trade relationships; however, the weights applied to the currencies of the major trading partners were not disclosed. The currency basket system became replaced by a “market average rate” system in March 1990 under which the basic exchange rate of the Korean won against the U.S. dollar was determined in the market within a specified range around the weighted average interbank rates of the previous day. The rates against other foreign currencies were then determined by the U.S. dollar rate of the currencies in international foreign exchange markets. This market average rate system allowed a room for the market to play more roles in determining exchange rates (C.-H. Nam 1995; S.-W. Nam and Kim 1999; Chul Park, Chung, and Wang 2001). However, the Bank of Korea tended to intervene in the foreign exchange market frequently. In December 1994, the Korean authority announced a foreign exchange reform plan which would relax its foreign exchange restrictions.

In the next section, the exchange rate policy of Korea in the 1990s and 2000s is discussed in more detail focusing on what determined the choice of ERR in Korea and in particular whether and how international factors might have affected the choice of ERR of Korea. The explanations rest on the four models from international diffusion theory - coercion, competition, learning and emulation.

⁷⁴ It was in the 1980s when Korea started to expand trade liberalization. The measures, such as export subsidies and import protection were lifted gradually since the 1980s.

2. External Pressures and Korea's Exchange Rate Policy

As explicated in the previous section, exchange rate policy has become more significant mainly as Korea pursued trade liberalization and enjoyed trade surplus in the 1980s. Policymakers in developing and emerging market economies have been reluctant to let their exchange rates fluctuate freely for fear of a large depreciation. The policymakers' fear about floating is the potentially devastating effect of sudden large changes in the currency as well as huge fluctuations' effect on U.S. dollar-denominated short-term debts (Calvo and Reinhart 2000; Eichengreen and Hausmann 1999; Goldfajn and Olivares 2000; Mussa et al. 2000). Large fluctuation would cause maturity mismatches on the balance of sheets of banks and companies which hold dollar-denominated short-term debts. As an export-led developing country, Korean policymakers were hesitant to permit a free floating exchange rates system.

The coercion argument assumes the influence of dominant states and international organizations. Powerful foreign states may exert direct and intentional efforts to exercise positive and negative sanctions on their weaker counterparts.⁷⁵ The impact of external factors or pressure on East Asian economic policy making are oft-cited (Cumings 1984; Frankel 1992; Frankel and Wei 1994; Kang 1995; Lindner 1992a; Eichengreen 2004; Woo 1991). In the studies of Korean economic policies from the 1950s to 1980s, several studies addressed how the U.S. Agency for International Development (USAID) had exerted

⁷⁵ This is referred to as the first face of power. The faces of power literature can be applicable to Korean case. Concerning the face of power literature, see (Bachrach and Baratz 1962; Schattschneider 1963; James and Lake 1989; Digeser 1992; Cohen and Chiu 2013). With regard to monetary power, in particular, imputing the burden of adjustment to external imbalances, see (Cohen 2006).

pressures on Korea, especially regarding the latter's levels of currency values.⁷⁶ The international financial institutions (IFIs) were another source of external pressure on exchange rate policy of Korea. Among IFIs, the International Monetary Fund has been most influential on ROK's exchange rate policymaking.

The influence of the U.S. and the international organizations are displayed in the following two cases of Korea's economic policymaking and policy changes: 1) the liberalization process during the early 1990s; and 2) measures taken to cope with the Asian financial crisis and subsequent policy reforms.

Financial reform in the early-1990s and external factors

Developing countries, like Korea, can be under pressure when great powers, like the U.S., verbally mention or criticize their exchange rate policies. Since the 1980s, Korea has had recorded trade surpluses vis-à-vis the U.S. Seoul has been accused of allegedly manipulating exchange rates to gain trade competitiveness. Hence, it was often under pressure not to intervene in the foreign exchange market for devaluation. The American pressure on Korea's exchange rate policy appeared evident in the U.S. "Omnibus Trade and Competitiveness Act of 1988 (OTCA)," also referred to as the Exchange Rates Act. The Exchange Rates Act was passed by U.S. Congress to provide Washington with the ability to threaten retaliation against a broader range of unfair trade practices.⁷⁷ The Act has worked as a more direct pressure for some East Asian nations to adjust their exchange rate policies by

⁷⁶ Studies on exchange rate policy of Korea during the 1980s, see (Cumings 1984; Amsden 1992; Wang 1991; Y. J. Cho 1989; Zhang 2002; Lindner 1992a; Oum 1989; Frankel, n.d.; Lindner 1992b; Woo 1991; Kang 2002b, 1995; Heiber n.d.; Haggard and Zheng 2013; Haggard and Pang 1994; B. K. Kim and Im 2001; E. M. Kim and Kim 2014).

⁷⁷ This Act was strengthened in Trade Facilitation and Trade Enforcement Act of 2015 (TFTEA) or Bennet-Hatch-Carper (BHC) Act. The U.S. Treasury evaluates trading partners' activities and reports to the Congress on April and October.

charging states with current account surpluses with the U.S. as manipulating the rate of exchange between their currency and the U.S. dollar (Frankel 1992; Lindner 1992b).

The annual report by the U.S. Department of Treasury on exchange rate policy, the Report to Congress on International Economic and Exchange Rate Policy since 1988, has worked as a coercive apparatus for applying influences on Seoul. Whenever the period of report release approaches, the Korean won is subjected to great fluctuation – mostly the pressure of appreciation -. Frankel and Wei assert that “it has been the U.S. government that has been pushing Korea and Taiwan to move away from policies to stabilize the value of their currencies against the dollar” (Frankel and Wei 1994, 323).

The influence of U.S. affected the trajectory of Korea’s financial liberalization as well. The U.S. Strategic Plan for International Affairs announced a pronounced goal of financial market liberalization in rapid developing countries, including South Korea and Taiwan in 1997 (The U.S. State Department 1999).⁷⁸ Considering these circumstances, the direction and scope of financial liberalization were deeply affected by these pressures which made the reluctant Korean government accelerate the reform measures, and, in particular, made the choice of ERR toward a free floating system.

In the coercion argument, the international financial institutions (IFIs) are also potentially powerful sources of pressure. Among IFIs, in the area of exchange rate policy, the IMF is the primary organization that has leverage over member states. The IMF has played a significant role in sanctioning and constraining policy options for developing

⁷⁸ “Focus U.S. advocacy, finance, public diplomacy, and other promotion efforts on sustaining, and where possible increasing, exports to key emerging market countries, in particular Argentina, Mexico, Brazil, Poland, Turkey, South Africa, India, China, Taiwan, Korea, Indonesia, Thailand, Malaysia, and the other ASEAN nations” (The U.S. State Department 1999, 17)

countries over the decades.⁷⁹ In particular, Korea's experience during the Asian financial crisis in 1997-98 clearly shows how the IMF imposed coercive effect on Korea's ERR choice.

The IMF article related to IMF's surveillance over member states' exchange rate policy is "the Obligations Concerning Exchange Arrangements" in the Article IV of the IMF Articles of Agreement.⁸⁰ Given that the IMF advocated floating exchange rate regime in the 1990s and early 2000s, IFIs presumably influenced the policy choices of member states.

In these circumstances, the Korean government announced a foreign exchange rate reform plan in December 1994. This reform was a part of President Kim Young-Sam's economic policies. President Kim announced a 1993 Blueprint for Financial Reform and the 1994 Foreign Exchange Promotion Act, which outlined a new plan of more liberalization and integration into the world economy. The reform included a potentially large inflow of capital resulting from full liberalization. Due to financial liberalization, increased capital mobility (Andrews 1994) also affected changes in exchange rate policy of Korea.

The reform targeted to reduce restrictions facing increasing inflow of capital to make the financial market efficient and adjusting before full liberalization. The reform was planned to

⁷⁹ The voice of developing countries in the IMF has been limited. Developing and transitional countries have tried to enhance their formal voting rights and informal influence at the IMF and achieved some progress in 2006 and 2010. In 2006, member states agreed on changes in the vote of developing countries in the Singapore reforms' of 2006 (Weisbrot et al. 2009). Later, in 2010, the G20 finance minister consented to transfer 6 percent of the voting rights at the IMF to developing countries by October 2012 and to double IMF quotas (Gabel 2011).

⁸⁰ "Avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members." IMF, *Articles of Agreement of the International Monetary Fund*. The IMF has the power of surveillance over the member states' exchange rate policy under the '1977 Decision on Surveillance over Exchange Rate Policies.'

be implemented in three stages until 1999 (Uttam 2014). The Korean market became to be exposed to more shocks and potential instability due to eased restrictions. Due to the exchange rate reform and financial liberalization, the foreign exchange market expanded and more capital inflows into Korea in the early and mid-1990s.

Asian financial crisis and exchange rate policy

Globalization of financial markets imposed more challenges on small open economies, like South Korea.⁸¹ After the mid-1990s' reduction of financial restrictions, Korean banks lent short-term loans to Southeast Asian countries. When Thailand's sudden decision to float the Thai baht on 2 July 1997, the Korean won started to depreciate rapidly because of unregulated short-term borrowing and lending to some Southeast Asian countries, in particular Thailand.⁸²

The Asian financial crisis hit the Korean economy, which experienced precipitous depreciation of the won and slowdowns in money and credit growth. Investors' confidence collapsed and capital rushed to leave. The rollover ratio of short-term external borrowings dropped sharply. Stock market prices plunged. The crisis in the financial sector was transmitted to the real sector leading to a deep recession. All these factors caused the depreciation of the won.

⁸¹ With regard to financial globalization, refer to (Andrews 1994; Cohen 1998, 2008).

⁸² Before the crisis, the government's implicit safety net made commercial banks borrow from foreign institutions easier. After the 1993-97 Financial Sector Reform Plan, banks were allowed to have greater discretion over interest rates setting and allocation of loans to financial institutions. Without proper regulation and surveillance, commercial banks continued to increase their foreign currency denominated loans.

At the time of crisis, Korea sought financial assistance from international organizations.⁸³ Then, Seoul was pressured to perform radical restructuring of the economy by the IMF, World Bank and U.S. officials. Facing this unprecedented financial crisis, the Korean government finally asked the IMF for bailout. However, IMF's response to the Korean crisis raised questions whether it was adequate to the situation that Korea faced. It was in the process of bailout negotiation that we can see a direct coercive effect on Korea's exchange rate policy more clearly. Although the crisis was a temporary liquidity squeeze, Korea was required to take austerity measures and to change its ERR to a more flexible one during the bailout negotiation.

The IMF's bailout was not enough to counter market pressure especially at the outset (Lane 1999). Though up to \$58 billion was pledged, by January 9, 1998, with the Korean economy and currency in free-fall, the IMF had only lent Korea a total of \$ 13.1 billion in a series of small payments, each conditioned on agreement by the Korean government to accept additional IMF demands (Crotty and Lee 2004).

Several statements suggest that the IMF acknowledged that its prescriptions for Korea's immediate liquidity problem were not entirely appropriate. In the report on Korea made just before the crisis, in October 1997, the IMF stated that Korea had been hit with a temporary liquidity shortage and "absence of deeper solvency concerns" (IMF 1998). However, IMF's diagnosis on Korea's financial crisis had changed after two months, asserting that the Korea's economic situation was under structural problem and, therefore, called for radical

⁸³ On November 16, the IMF Managing Director Michel Camdessus secretly visited Korea. The government officially announced Korea's application for IMF bailout on November 21, 1997. The bailout negotiation started on November 23. The government and Camdessus signed the bailout agreement on December 3, 1997.

reforms (IMF 2003). Hence, IMF imposed extreme structural conditionality on Korea with the bailout.

The IMF's post-crisis evaluation report of 2003 admitted that the Korean economy would not have experienced the financial and economic crises if the IMF had provided appropriate emergent foreign exchange initially. "A delayed or highly conditional commitment of funds would do nothing to reverse the drive by creditors to liquidate their investments while they still could" (IMF 2003, 193). In the same report, the IMF also admits that the IMF focused more on capital market liberalization without enough attention to "the systemic vulnerabilities introduced by a policy that combined liberalization of short-term flows, controls limiting long-term flows, and poor supervision of some of the institutions that borrowed externally" (IMF 2003, 116).

The Korean authorities were shocked by the IMF's demand for structural changes and did not want to accept the IMF's demands. During the bailout negotiation, the IMF Director Michel Camdessus insisted that the Korean authorities should take radical neoliberal restructuring before any loans were released to Korea. Several studies and articles assert that the IMF had used the financial crisis to force Korea to adopt its own agenda. For example, Wall Street Journal notified the coercive effect of the IMF on Korea: "the Asian crisis was a 'blessing in disguise' because it gave the IMF the leverage to force structural policy changes that the national governments would not otherwise accept" (Wall Street Journal 1998b). In addition, the coercive influence also came from the United States, as America's Treasury officials were deeply involved in. The Wall Street Journal reported that "despite their demonstration of power, many IMF officials feel overshadowed by the U.S. Treasury" (Wall Street Journal 1998a).

Hence, most of policy response to the financial crisis was put in place by the IMF. What the IMF requested was the followings: the short term interest rate was raised from 13 percent in early December to 34 percent just one month later, holding it above 20 percent through mid-1998. Not the Bank of Korea, but the IMF determined interest rate (Crotty and Lee 2004). The IMF also requested restrictive fiscal policy. Closing down banks and implementation of the Basel capital adequacy standards⁸⁴ even worsened the credit supply crunch. The consequences of these policies were lower domestic demand and increased unemployment. Hence, the IMF-directed policies were a main cause of the depression conditions of 1998 and early 1999.

The subsequent reform measures were not what the Korean government ever wanted to pursue. The external factors, in particular, the pressure from the U.S. and the International Monetary Fund, led the Korean government to pursue a market-friendly economic reform. The primary objective of government reform was to transform the state-led economic system into a more market-friendly system. To this end, the administration undertook financial liberalization, corporate restructuring, labor market flexibility, and privatization (Korea Development Institute 1999, 46).

We witness several changes in exchange rate policy during the crisis. The Korean government was not willing to give up its influence over exchange rate by adopting a free floating system. There were several reasons why the Korean authorities were reluctant to adopt further liberalization and a free floating system. One consideration for Seoul to adopt a freely floating ERR is the risks of misalignment which would possibly happen in the long-term equilibrium level and the possible excessive fluctuations. Moreover, the domestic

⁸⁴ It was the first implementation of capital adequacy standards on Korea.

financial and exchange markets were not yet fully developed enough to absorb possible economic shocks. Domestic interest rates were still not well aligned with the international rates. With more financial liberalization, there was the possibility of speculative capital flows.

Korea has gone through big changes in exchange rate regime at this time. It was during the 1997-98 financial crisis⁸⁵ that the Korean government opted to adopt a *de jure* floating system (The Bank of Korea n.d.). As an attempt to defend the local currency, the Korean government widened the won trading band from 2.25 percent to 10 percent on November 19, 1997 and finally abolished the band, allowing the won to float on December 12, 1997 (KIEP, p.12). The formal exchange rate policy of Korea has been independently floating since 1998 (IMF 2001; Levy-Yeyati and Sturzenegger 2005; C. J. Kim and Lee 2004).⁸⁶

Korea's post-crisis exchange rate regime, in practical (de facto) terms, has been neither a free float nor a reversion to the heavy degree of management of the pre-crisis periods. It has been a managed float characterized by both considerable exchange rate flexibility and considerable management. The Korean won used to have the strongest relations with the U.S. dollar and weak linkages with other major currencies. However, the weight of the U.S. dollar in the currency basket of the won was not stable any more during this period. The importance of the yen for won value increased while that of the U.S. dollar gradually decreased.

Starting in September 1998, the Korean won began to appear as more stable. Korea's usable foreign reserves continued to increase after 1998. Such a level of foreign reserves

⁸⁵ The period of financial crisis in South Korea is from July 1997 to December 1998.

⁸⁶ With this change in ERR, the Bank of Korea adopted an inflation targeting in 1998 as one of reforms after the currency crisis.

would serve as an effective buffer against any potential external shock. The accumulation of the foreign reserves also contributed to easing of appreciation pressures induced by the current account surplus and the continued capital inflow through foreign direct and portfolio investment funds (Chul Park, Chung, and Wang 2001, 232).

Furthermore, the government's power over the financial system became weakened after the reforms that the U.S. and the IMF asked Korea to implement as a condition for providing loans.⁸⁷ The IMF intervened and gave pressure on the Korean government's economic policies. For example, the IMF was involved in interest rate policy of Korea in 1998. When Korea was experiencing economic downturn at this time, the IMF urged Korea to have high interest rates (IMF: the 5th Letter of Intent (February 7, 1998). Joyce and Noy (2008) found that the IMF implicitly linked capital account liberalization with its country programs.

The international financial institutions have exercised substantial influence on Korea's economic policymaking. Since underdeveloped countries often need financial aid, donors or IFIs hold leverage as providers of developmental loans or emergency assistance. IFIs may influence private lenders' decisions. IFIs' approval of economic policies affected private lenders' decision to extend loans. As such, great powers and IFIs seem to hold leverage over countries like Korea.

This trend continued in the 2000s. Whenever the release time of the report by the U.S. Treasury came, the foreign exchange market noticed sudden fluctuation of the won. The government was concerned for negative effects on trade and any indirect effects of the report on the economy if Korea would be listed as a currency manipulator. The market expectation

⁸⁷ The administrative reform following the crisis was also evidence of external influence. Three principles of administrative reform announced by the Dae-Joong Kim government were market-oriented, performance-oriented and customer-oriented principles (P. S. Kim 2000, 82).

of government's intervention in the foreign exchange market added appreciation pressure on the won. The report signified to "encourage their [major U.S. trading partners] taking further steps toward more flexible exchange rate regimes where appropriate" (U.S. Department of the Treasury 2001).

China's exchange rate policy reform and Korea

China's exchange rate policy⁸⁸ is of high importance to other East Asian countries since China has been competing with other states over trade and foreign direct investment. China has emerged as a new regional economic power alongside Japan in East Asia. Stackelberg leader-follower game seems situated in the exchange rate policies of some East Asian neighbors. With the economic rise of China, its ERR changes became significant for other regional followers' exchange rate policy choices (Henning 2012).

Given the importance of exchange rates in trade and FDI, these regional relations may lead to changes in policy choice. Considering growing trade relationship between China and South Korea, there might exist some effects of changes in China's ERR on Korea's policy choices. One weighty issue during the 2000s was China's reform of exchange rate policy. China had been pegged to the U.S. dollar since 1994.⁸⁹ Chinese authority announced a change to a more flexible ERR in 2005.

In July 2005, the PBOC announced the revaluation of the currency and a reform of ERR policy. The People's Bank of China (PBOC) announced the yuan's initial appreciation of 2.1

⁸⁸ Regarding China's exchange rate policymaking, see (Anderson 2003; Liew 2004; Dooley, Folkerts-Landau, and Garber 2004; McKinnon 2005; Yi 2011). Liew (2004) and Yi (2011) emphasize the role of institutional actors in exchange rate policymaking.

⁸⁹ China had a dual-track exchange rate arrangement of which had the official exchange rate and market rate until 1994. The Chinese authorities abandoned this dual-track ERR and unified the official rate with the prevailing swap market rate. Since then the renminbi (RMB) was pegged to the U.S. dollar for over a decade.

percent against the US dollar. The nominal exchange rate of the yuan was allowed to appreciate by around 20 percent against the dollar from 2005 to late 2008. In addition, China's peg to the U.S. dollar had been changed to a managed floating regime with reference to a basket of currencies (PBOC 2005, 2008, 2009). In a newly adopted ERR, the PBOC incorporated a reference basket which is decided in terms of foreign trade, external debt, and foreign direct investment. Chinese ERR change seemed to induce variations of East Asian countries' anchor currencies in their softly pegging currency baskets (Cheung, Chinn, and Fujii 2010; Wright 2009; Sun 2010).

Korea had pegged to the U.S. dollar until 1987 and the U.S. dollar's weight in the currency basket was considerable. However, after experiencing the financial crisis of 1997-98 and witnessing the rise of China as an economic power, as Kawai notes, "the traditional practice of choosing the U.S. dollar as the region's sole monetary anchor is no longer the best policy" (Kawai 2008a, 13). During the 1990s, Chinese yuan was pegged to the U.S. dollar and did not show rapid fluctuations. When China's ERR had more flexibility after 2005 reform, some of East Asian countries tended to shadow the yuan's movement (Subramanian and Kessler 2012; Ma and McCauley 2011; Henning 2012; Fang, Huang, and Niu 2012; Fratzscher and Mehl 2014; Fang, Huang, and Niu 2012; Pontines and Siregar 2012; Park and Song 2011; Patnaik et al. 2011).

In the case of Korea, despite the role of China as a regional economic leader and trade interdependence between the two countries, the won did not closely co-move with the yuan: rather, it displayed inertia of tracking the U.S. dollar although there was greater diversity in anchor currency choice. After the crisis, the role of the yen as a key reference currency became significant in Korea's currency basket. Hence, the second face argument provides an explanation for the role of yen as a key currency on Korea's ERR choice during the late

1990s and early 2000s while it does not well account for that of yuan in the mid-2000s. However, the concern over China's exchange rate policy became intense for Korean policymakers as shown in the substantial reports on China published by major government institutions.⁹⁰

3. Intensified Competition and ERR Choice

The competition mechanism posits that the state's choice of ERR may be influenced by the policies of its foreign economic competitors. When competing with other countries to expand export market shares or to attract global capital, governments may want to adopt international business-friendly policies and have more incentive to choose similar exchange rate policy. The assumption of diffusion through competition is consistent with empirical results (Elkins, Guzman, and Simmons 2008; Simmons and Elkins 2004; Simmons, Dobbin, and Garrett 2006) discussed in the previous section. The competition argument appears tangible in explaining Korea exchange rate policies in the 1990s and 2000s since a small divergent policy choice could lead to a loss of competitive advantage in trade, considering heavy weights of foreign trade in Korea's economic growth.

ROK went through a series of economic transformations: the export boom based on manufactured goods leading to their economic growth in the 1960s and the industrial upgrading from light to heavy and manufactured industries since the late 1970s. Korea achieved rapid industrialization centered on several industries, such as textiles and electric machinery; Korean economy experienced a rapid expansion of manufactured exports since

⁹⁰ There was substantial increase in the number of publications on China's economic policies and their influence on Korean economy by Korea's major research institutions, including the Korea Development Institute, Korea Institute for International Economic Policy, Korea Institute of Finance, Hyundai Research Institute, Samsung Economic Research Institute in various issues.

the 1980s and achieved the economic miracle. In the case of South Korea, the manufacturing exports had been higher in 1980s, and experienced a decline from 92 percent in 1990 to 90 percent in 1999 of total exports. This high weight of manufacturing goods among total exports trend continued in the 2000s, composing of around 90 percent⁹¹ (Amsden 1992; Kang 2002a; Lee 2014; Mo and Weingast 2013; Wade 1990; Woo 1991).

Since trade has played a significant role in the process of Korea's economic growth, Seoul paid close attention to international economic environments. Both international and regional competition became more intense as regional and global free trade agreement spread. For example, the negotiation over the ASEAN Free Trade Area (AFTA) started in 1992. The ASEAN Investment Area (AOA) for FDI liberalization in ASEAN was established to provide coordinated investment cooperation and market access. The APEC and the World Trade Organization (WTO) also called for liberalization of trade and FDI.

Facing intensified international trade competition and financial crisis of 1997-99, the Korean government embarked on structural reform policies, including liberalization and deregulation measures in different degrees respectively during the 1990s and 2000s. Seoul reduced its tariff rates and non-tariff barriers gradually. As other East Asian countries began to liberalize their inward FDI since the mid-1980s, Seoul was enthusiastic to attract foreign investment as well.⁹² The restrictions on FDI inflows were slow but gradually removed (Crotty and Lee 2005; Ikenberry and Mo 2013; Kalinowski and Cho 2009; Koo 2014).

⁹¹ Data are from *K-Statistics* provided by the Korea International Trade Association (<http://global.kita.net/>).

⁹² See (Y. J. Cho 1989; Woo 1991; Amsden and Euh 1993; Lindner 1992a; Frankel 1992; H.-J. Chang, Park, and Yoo 1998; Lie 2000; Mo and Weingast 2013; E. M. Kim and Kim 2014).

Korea attempted to deregulate restrictive market measures steadily through the *seggyehwa* or internationalization policy under the Kim Young Sam government during the early 1990s. Korea adopted substantial FDI liberalization measures to attract international investors. Although the degree of financial liberalization had not been high until the mid-1990s, with reference to foreign investment, Korea was regarded as having a favorable macroeconomic environment considering its relatively stable price levels, well-educated workers, which contributed to expanding capital inflows. As such, the competition over attracting FDI among emerging markets had been substantial, and therefore, Korean government was under pressure to reduce barriers and provide incentives to attract global capital.

Hence, with keen competition over exports and FDI among developing countries, Korea could not but avoid choosing a divergent exchange rate policy from those of other competitors. Due to having heavy trade with the U.S. and trade invoicing denominated in the U.S. dollar, the Korean won had been heavily pegged to the U.S. dollar, which was the same for other East Asian competitors. The competition model seems manifest in Korea's exchange rate policies in the 1990s: the Korean won heavily shadowed the movement of the dollar as other East Asian competitors did in the 1990s.

Another reason that ROK had refrained from choosing a divergent exchange rate policy from other East Asian competitors has been remarkably expanded intra-regional trade in East Asia over the last three decades. Intra-East Asian trade's share in East Asian total trade had increased over time: in merchandise intra-regional trade, its share of 34 percent in 1987 increased to 52 percent in 1995, and to 54 percent in 2007 (Kawai 2008c; Athukorala 2009, 6). Regional trade in East Asia had a distinct characteristic of dense production networks. The unique feature was the international division of labor within the region, not by industry, but by production process. Regional supply chains and networks driven by MNCs created

efficient intra-industry trade (Kawai and Urata 1998; Fukao, Ishido, and Ito 2003; Kimura and Obashi 2011; Athukorala 2005, 2011; Kawai 2008b; Goldsmith 2014).

The production process was fragmented into different sub-processes within the same industry; and also into different countries (Kawai and Urata 2004, 15). Manufactured products mainly consisted of this organized production arrangement (Kawai 2008b, 8)⁹³ and the share of parts and components in total intra-regional manufacturing exports and imports of Korea was substantial with other countries in East Asia (Athukorala 2009, 2011).

As discussed in the Chapter III, the characteristic of intra-regional trade is associated with the exchange rate policy of participating countries. Exchange rate volatility negatively affects to parts and components trade within intra-regional production networks in East Asia: exchange rate volatility decreases exports of parts and components in electronics and machinery (Thorbecke 2008; Hayakawa and Kimura 2009).⁹⁴ Production network calls for participants' keeping exchange rate stability for seamless intra-regional trade. Countries participating in production networks have incentive to weigh their partners' exchange rate policy in order to limit fluctuations of exchange rates.

Consequently, in addition to the incentive to choose similar exchange rate policies among competing East Asian countries in the international market, the dense production networks in the region increased the possibility of similar ERR choices among East Asian

⁹³ Major products were capital equipment, parts and components, intermediate inputs, semi-finished goods, and finished manufactured products. "Machines typically consist of a large number of parts and components, each of which is produced by diversified technologies and inputs. Machinery industries are thus particularly suited to the fragmentation of production" (Kimura and Obashi 2011, 1).

⁹⁴ Hayakawa and Kimura (2009) provided further evidence that "the negative impact of exchange rate volatility on trade in machinery parts and components is severe compared to the case of finished products."

economic partners. Korea has been one of major players in intra-East Asian trade in the 1990s and 2000s. As a key player in the network, Korea took into account the benefits and costs of converging or diverging policy choices. Again, the choice of similar policy of tracking the dollar can be understood in this context. Therefore, Seoul might avoid divergent policy choices from other regional partners in the network.

We note more intense trade competition in East Asia in the period of the 2000s. Facing the economic rise of China, neighboring countries are likely to be exposed to a threat of losing exports given their geographical proximity (Kimura and Obashi 2011). Scholars have examined the impact of China's growth on the exports of other East Asian countries (Lall and Albaladejo 2004; Athukorala 2009; Greenaway, Mahabir, and Milner 2008; Eichengreen, Rhee, and Tong 2007), suggesting that neighboring countries of China may face different kinds and intensity of competitive threat from China, "depending on their particular development stage and location advantages" (Kimura and Obashi 2011, 18). More specifically, less-developed East Asian countries felt China's crowding-out effect mainly in markets for consumer goods while more advanced East Asian countries felt it in low technology or labor-intensive manufactured goods in third markets (Eichengreen, Rhee, and Tong 2007).⁹⁵

Korea was competing with China particularly in manufacturing. Korea paid close attention to the Chinese authorities' selection of economic policies. Changes in ERR of China in the 2000s would account for changes in exchange rate policy of Korea. Although

⁹⁵ However, Athukorala notes a positive aspect of the emergence of China: considering that China has played a role in the production networks, which is to "open up opportunities for [other East Asian] countries to specialize in different slices (different tasks) of the production process" (Athukorala 2009, 235), the growth of China makes other countries specialized in their advantages.

Korean won shadowed the dollar closely during this period, the weights of the yuan in the currency baskets showed the tendency of increase.

To summarize, the competition argument clearly helps to account for the choice of Korea's exchange rate policy: Korea has an incentive to choose a similar exchange rate policy with competing East Asian neighbors in the international market; the dense production networks in the region even increased the possibility of ERR choices similar to those of regional partners in the network in order to limit exchange rate fluctuations. In terms of the weights of key anchor currencies in Korea's currency basket, the won shadowed the movement of the dollar despite different extent to which other neighbor currencies did; however, the importance of the yuan in the basket was still less significant than other East Asian competitors.

4. Learning and International Norms in Exchange Rate Policy Making

Countries may learn about the effects of different ERRs by observing the experiments of other countries; these lessons then influence national ERR choice. The likelihood of a state adopting a policy increases when the same policy is broadly adopted by other states which are geographically, politically and socio-economically close. A number of studies on diffusion empirically suggest the significant effects of learning and emulation on policy diffusion (Khamfula 1998; Simmons and Elkins 2004; Meseguer 2006; Weyland 2006; Sugiyama 2008).

Policy leadership and hegemonic ideas influences how policymakers conceptualize their problems and tasks and direct potential solutions (Pahre 1999; Schelling 1960; Wilson and Rhodes 1997). Governments tend to follow an appropriate economic model with theoretical and normative consensus. If the government fails to show conformity with such policy

ideational agreement, it may face public criticism and suffer reputational cost, potentially leading to a loss of legitimacy (Simmons and Elkins 2004).

Several circumstances are found that the similar adoption of ERR among East Asian countries resulted from the spread of new norms and ideas. Specifically, economic policies in the 1990s and 2000s, in particular exchange rate policy, were considerably influenced by neoliberal ideas. The new ideas and values promoted by international organizations could provide an impulse for the diffusion of a similar ERR in East Asia. Economic liberalization was justified by major great powers, such as the U.S. or by international institutions, including the IMF, World Bank and World Trade Organization. Their roles were beyond mere technical assistance; they played major roles in promoting neoliberal ideas and values, and came to shape governmental goals.

The IFIs undertook the efforts to spread market-oriented message and persuaded members of the benefits and general validity of neoliberalism. They produced a wealth of publications and distributed them widely. For instance, the World Bank published reports with positive data and evidence on the effects of trade liberalization (Edwards 1997). They held a large number of international conferences and seminars to lead countries to pay attention to “best practices” that embodied neoliberal maxims in economic policy arenas. The IMF continuously produced widely read reports to assess the effects of a free exchange rate regime.

The international organizations have been quite successful in their promotional efforts. Policymakers and the broader public were attracted by new norms which stand for innovation and legitimacy. ROK was reluctant to fully accept neoliberalism because the interventionist capacity of the state would be reduced substantially (Gills 2000, 396–97). However, it could not escape from the influence of neoliberal ideas. While the Korean

government was sluggish in financial liberalization during the 1980s, it encountered great pressure from foreign and domestic neoliberal supporters in the decade preceding the Asian financial crisis. Thereby, neoliberal ideas which favor free markets and price stability were prevalent and shaped the goals of Korea's policymakers during the 1990s and 2000s (Pirie 2007). The government of Korea, like others, could not be freed from public opinion and reputation cost, and hence often tried to gain public support by initiating an "innovative" or "advanced" policy.

Hence, policymakers of Korea noted others' successful policies or innovation, which would secure the legitimacy of their governments. It is notable that economic policies pursued by four Korean administrations with different ideological inclinations between the mid-1990s and 2000s all shared common commitments toward neoliberal ideas. The four governments here are referring to President Young-Sam Kim (1993-1998), President Dae-Joong Kim (1998-2003), President Moo-Hyun Roh (2003-2008) and President Myung-Bak Lee (2008-2013). Their exchange rate policies mainly aimed at supporting and enhancing neoliberal policies of increasingly open domestic markets.

It was evident in Young-Sam Kim government's (1993-98) *segyehwa* or internationalization policy.⁹⁶ In this period, several American economists influenced the Kim government substantially: Robert Reich, D. Yoffie, M. Porter, P. Krugman, L. Tyson and J. Zysman were among them. The advisers of President Kim equated internationalization with opening the Korean market. The government had put forth neoliberal policies, such as deregulation, capital liberalization, and tax reform. The restrictions on *chaebol*, the conglomerates were considerably deregulated during this time.

When he was a presidential candidate, Young-Sam Kim remarked that his economic policy plans were based on lessons from *The Work of Nations: Preparing Ourselves for 21st-Century Capitalism* written by Robert Reich who was then a professor at Harvard University and was later appointed as Secretary of Labor in the Clinton Administration. In his book, Reich refutes the economic nationalism and addresses that a global economy would dictate the economic future, of which idea influenced Kim and his advisers substantially. After inauguration, President Kim advocated globalization and emphasized enhancing international competitiveness. Korean mass media and governmental officials arbitrarily understood Reich's argument on globalization as opening Korean markets. The slogan of previous governments was that "export is the best way to achieve economic growth." This had been changed into "we need to import goods for exports" under the Kim administration.

However, Kim and his advisers seemed to misconstrue Reich's argument. They ignored that Reich stresses the need for substantial government assistance for encouraging high-value business in the globalized economy. Reich's support for the Super 301 clause for America's industry was a surprise for the Kim government. Hence, the Kim administration pursued an internationalization policy without adequate preparation before it was introduced (Jeong 1994; Uttam 2014). As such, the economic policies of 1990s in Korea suggest how the government and social actors updated information about international economic environment and altered policy options.

Since the Young-Sam Kim government and government-affiliated research institutions advocated an opening of the economy and stressed international competitiveness, exchange

⁹⁶ Kim Young-Sam government initiated *seguehwa* policy and conducted deregulation to meet the conditions to join the Organization for Economic cooperation and Development

rate policy in this period targeted and was managed for helping trade competitiveness. Research institutions surveyed the APEC and the World Trade Organization (WTO)'s call for liberalization of trade and FDI, and the impacts of the Uruguay Round. During and after the financial crisis, research institutions published studies of what exchange rate regime would best serve Korea's economy facing sudden capital flight. Reports on ERR were increasingly published suggesting how a floating ERR would work better for Korea and notably diversifying key anchor currencies (Korea Development Institute various issues; Korea Institute for International Economic Policy various issues; Korea Institute of Finance various issues).

It was during Dae-Joong Kim government when most of financial liberalization was undertaken. In addition to direct pressure from the IMF and the U.S., the opinion was raised that because Korea was late mover toward neoliberal policies, Korea fell into the financial crisis. Times of financial emergency provided impetus of neoliberal ideas for changes in economic policies. Besides, domestic enthusiasts of liberalization, in particular the conglomerates, openly stood by neoliberal policies (S. J. Chang and Hong 2000; S. Kim 2004; Mo and Moon 2003; Uttam 2014). Although Democratic Party's presidential candidate Kim was the only presidential candidate opposing to accepting the IMF's bailout conditionality, he agreed to the requirements for bailout loan in the end and pursued substantial deregulation measures.

From the political ideological stance, we anticipate economic policies of President Moo-Hyun Roh and Myung-Bak Lee placed in the opposite spectrum. President Roh had supports from the middle class and workers. In the aftermath of the financial crisis and the austerity measures imposed by the IMF's loan conditionality, the public expected that the Roh would

(OECD).

reform previously imposed liberal economic measures.⁹⁷ However, policies by Roh government were not much differentiated from previous neoliberal policies (Choi 2009; K. Kim 2011; Kwak 2012). Comparing with the Roh government, economic policies of President Myung-Bak Lee from the conservative party were in a similar neoliberal context.

The advisers and trade and economic technocratic officials during President Roh and President Lee administrations were pro-American and advocates of neoliberal globalization (Choi 2009, 213–14). Economists and policymakers with neoliberal ideas were appointed to central banks and finance ministries. Those professional economists trained in the U.S. universities have influenced the globe (Fourcade 2006). For Korea, the relatively labor-friendly Roh government did not plan and implement economic policies that were different from those of right-oriented government, Myung-Bak Lee. In the time of the global financial crisis starting from the subprime mortgage problem in the U.S., Lee government continued to implement pro-business and deregulation measures (H. Cho 2009; Mo and Weingast

⁹⁷ From the perspective of learning, the Roh government followed the international reform trend. The Roh administration initially emphasized a need for overall “reform.” In addition to the domestic demand for more comprehensive and fundamental reform on political sphere, the Roh government initiated governmental administration reform and designed the Evaluation System on Reform (Kaehyökp'yönggashisüt'em) which developed indices for assessing reform results. This evaluation system was designed under consideration of reform trend: Korea was exposed to the international reform trend and demands for enhancing the efficiency of the government sector. The administrative reform was promoted by Presidential Committee on Government Innovation and Local Government. Studies on the Roh's internal administration reform, Park (2007) points out that the new system was considered and adopted by advanced countries' reform strategies and examples in the name of “innovation” without due consideration of the appropriateness of them to Korea's environment and culture. For example, several measures, such as Balanced Scorecard (BSC), Total Quality Management (TQM), Action Learning, Study Club were introduced to each administrative agency and those adoptions were used for work evaluation (Park, 2007, 238-242). This example of administration reform shows that learning within the governmental organization has become more systematized than previous regimes despite the criticism on the reform that more genuine culture of Korea could not be reflected on the contents of it. The channels of learning were systemized.

2013).⁹⁸ This similarity may be explained by the circumstance that the influence of neoliberal ideological consensus and Korea as a late-modernizer had to absorb more advanced countries' knowledge and prior practices.⁹⁹

The policy decision and implementation have been supported by government-affiliated research institutions, such as Korea Development Institute (KDI) and Korea Institute of

⁹⁸ During President Lee's term, there was a controversy on exchange rate policy facing the global financial crisis. The economic Deputy Prime Minister Man-Soo Kang attempted to intervene in exchange rate more arbitrarily and publically. Kang announced a devaluation of the Korean won in order to enhance economic competitiveness under the name of "exchange rate sovereignty (*hwanrhyuljukwon*)." President Lee emphasized economic growth since his inauguration. The emphasis on economic growth inevitably led to implementing policies to lower interest rates and exchange rate depreciation. Although the period of the late 2000s witnessed a heated debate on the independence of the Bank of Republic Korea, still the MOF's influence over exchange rate policy was substantial. Deputy Prime Minister Kang and the Governor of BOK, Lee Seongtae debated over exchange rates. The Governor Lee regarded Kang's remarks on exchange rate intervention as dangerous in the globalized economy. In particular, Korean government has been accused of having manipulated exchange rates for export competitiveness. However, Kang's remark on devaluation influenced on exchange rate markets and the won was depreciated substantially. The exchange rate policy during this period negatively impacted on domestic economy and Kang became replaced due to his unpopular exchange rate policy. He chose policies to boost economic growth and jobs; however, those policies could not be successful due to the global financial crisis and ensuing slowdown.

⁹⁹ Another example of learning in Korea's monetary policy is the capital regulation during the Lee's term. The government deployed cross-border financial regulations from 2009-2012. These regulations were planned and devised by respective bureaus within its economic and financial agencies such the Ministry of Strategy and Finance (MOSF), the Bank of Korea (BOK), the Financial Supervisory Service (FSS). During President Lee's term, Jae-wan Park was in charge of the Ministry of Strategic Finance. Park is a Harvard's Kennedy school Ph.D and was influenced by many leading economists who advocate the regulation of cross-border finance, such as Rodrik and Hausman. Hyun-song Shin who has written on capital flows and the need for regulation on global finance served as a Blue House Aide for International Economy when he was on leave from the economics department at Princeton University. He also supported capital controls during this time, calling them as 'macro-prudential' measures for banks (Gallagher 2012, 2015; Chwieroth 2013). The backgrounds of major economic policymakers show that their education and experience affected Korea's economic policy in a way that it became advocating more stubborn capital movement. As such, the educational backgrounds and experience of major economic policymakers considerably shaped the direction of Korea's economic policy.

Economy and Planning (KIEP). These economic institutes played the role to study the international economy and provide timely advice or policy suggestions to the government. The Korean authorities have used the data, reports and policy analyses from these institutions for decision making and, sometimes, these institutions rendered reports to buttress government's policies. Given that the information and expertise were concentrated on several government-affiliated research institutions, their support seemed to have substantial ripple effects on the society.

International diffusion may occur through international policy networks which provide channels for the spread of the policy.¹⁰⁰ Policy networks include formal and informal institutions which provide a venue for regular meetings, negotiations, dialogue and consultation. The institutionalization of regional cooperation in East Asia is often regarded as much belated comparing with Europe or North America. However, East Asian countries became more active to discuss institutionalizing regional organizations after the crisis.

The experience of AFC and the trend of establishment of regional cooperative organizations and increasing free trade agreements provided more opportunities for East Asian countries to have connected with each other.¹⁰¹ Policymakers and thinkers in East

¹⁰⁰ There are regional organizations that many East Asian countries are participating, including the Association of South-East Asian Nations (ASEAN), the Asia-Pacific Economic Cooperation (APEC), the Asia-Europe Meeting (ASEM), the Asian Development Bank (ADB), Asian Productivity Organization, and the Chiang Mai Initiatives (CMI). CMI consists of the ten members of the ASEAN plus the three northeast Asian countries of China, Japan, and Korea.

¹⁰¹ In trade, we witness rising movements toward FTAs in East Asia in 2000s. One of examples of increased intergovernmental relations is the trilateral joint research on economic cooperation among China, Japan and South Korea. A joint research project was launched in November 2000, involving three government-designated research institutes. Three institutions are the Development Research Center of China, the National Institute for Research Advancement of Japan, and the Korea Institute for International Economic Policy.

Asia came to have a shared understanding about the impact of speculative short-term inflow on the national economy and questioned the adequacy of the measures and effectiveness of international institutions. The burgeoning of regional financial and trade institutions seems to reflect East Asian policymakers' recognition on the need for risk management capacity and representing their voice.

The AFC has raised the question of whether Asia should depend on the IMF or a regional reserve-pooling arrangement for crisis prevention. Although the IMF appears to have become more flexible and effective, as shown in the adoption of the new Flexible Credit Line, than during the AFC in 1997-1999, many East Asian countries are still reluctant to rely on the IMF in case they experience a crisis.

Two regional financial cooperation initiatives are under way: the Chiang Mai Initiative (CMI) and The Asian Bond Markets Initiative (ABMI). The Chiang Mai Initiative aims to provide liquidity assistance for member states. ASEAN + 3 group established the provision of emergency liquidity assistance in the extended Chiang Mai Initiative Multilateralization (CMIM). The Asian Bond Markets Initiative (ABMI) purports to promote the local currency bond markets.

The regional institutions might have worked as mediators of learning and emulation. We notice conspicuous activities of regional institutions in the 1990s in East Asia, including the Asian Development Fund (ADF); Asian Development Bank (ADB); APEC Finance Ministers' Meeting (APEC FMM); ASEAN+3 Finance Ministers' Meeting (ASEAN+3 FMM), which led to the agreement to establish the Chiang Mai Initiative in 2000.¹⁰²

¹⁰² The Chiang Mai Initiative (CMI) was established by the ASEAN+3 Finance Ministers Meeting (AFMM+3) in 2000 as a network of bilateral currency swap arrangements (BSAs). The goal is to create arrangements for emergency liquidity provision. It is a funding to bail out regional economies caught in currency crises, aiming to provide massive amounts of

Countries tend to learn in the negotiation process and in maintaining their memberships of international institutions (Kahler 1994; Simmons, Dobbin, and Garrett 2006). Through frequent intergovernmental meetings and exchanges between governmental officials of East Asian countries, such networks and relationships enhanced learning and emulation. For instance, learning may occur through papers and data published and documented by these regional institutions. For instance, South Korea referred to working papers on economic policies of neighboring countries in the region published by the Asian Development Bank Institute.

However, East Asian monetary authorities do not have a standing institution for carrying out the CMIM process. Instead, monetary authorities meet as the Economic Review and Policy Dialogue (ERPD) in the ASEAN + 3 Finance Deputy Ministers Meeting for surveillance of their macroeconomic performance and they focus only on domestic macroeconomic variables, such as GDP, inflation, and soundness of the financial sector. Some suggested the monetary authority should discuss the exchange rate issue as a part of their surveillance process, in addition to discussion on domestic macroeconomic policies and the soundness of financial sector (Kawai, Ogawa, and Ito 2004).

In addition, central bankers in the region have sought to reinforce regional cooperation on their exchange rate policy through two series of meetings: the Executives' Meeting of East Asia-Pacific Central Banks and the annual meetings of the South East Asian Central Banks (SEACEN) Board of Governors. Although informal, the central bankers in the region

liquidity in a timely fashion to stem those effects if a crisis does arise. Also, it aims to dissuade investors from mounting speculate. In 2004, the AFMM+3 agreed to have a more advanced framework for liquidity support that focuses on the multilateralization of CMI (CMIM). An enlarged U.S. \$120 billion swap arrangement under the CMIM took effect in March 2010. The CMIM signifies the most important collective response of ASEAN, China, Japan and Korea to the global financial crisis.

formed a network to discuss and consult over the currency market stability. The meetings gradually reached a shared of understanding on regional monetary cooperation and the need for having two anchorage for a currency adjustment, the yuan and yen (The SEACEN Board of Governors 2015).

C. Conclusion

The analysis on exchange rate policy of Korea supported the policy choice through international diffusion. Korean experience suggests a clue of coercive effects on policy choices. Changes in ERR from rigid to more independent floating system in late 1990s was associated with the IMF and the U.S.'s influence. Competition convincingly accounted for similar policy choices of Korea with other trade and capital partners. As a late modernizer, Korea has been an active learner of economic successes of others. The economic policies of Korea in the 1990s-2000s suggested how the government and social actors updated information about international economic environment and altered policy options.

VI. Case Study: Taiwan

This chapter applies the diffusion models to the case of the Republic of China, Taiwan. The case study will illustrate how the three mechanisms of external factors - coercion, competition and learning/emulation – may shape Taiwan’s exchange rate policy in the 1990s and 2000s.

A. Overview

Taiwan is a small and open economy and achieved its economic growth mainly through export-led development. After the export boom based on manufactured goods in the 1960s, Taipei promoted industrial upgrading from light to heavy and manufactured industries since the late 1970s. Rapid industrialization had centered on similar industries, such as textiles and electric machinery. The enormous expansion of manufactured exports since the 1980s led to Taiwan’s economic miracle. The increase of the share of manufactured exports in total exports reached 95 percent in the mid-1990s. Taiwan has made a significant progress in creating a high-tech economy, particularly in the electronics sector. In the process of achieving economic development, exchange rate policy has been crucial for Taiwan since its economic development was achieved mainly through exports (Amsden and Chu 2003; S. Brown 2009; Clark and Tan 2012; Hsiao 2001; S.-J. Liu 1998; Mai and Shi 2001; Meaney 1994; Pack 1992; Zhu 2006; S. Wang 1997).

With scarce financial capital, the government acted as a financier for the economy. The Ministry of Finance and the Central Bank of China had oversight of banking and finance sector and implemented regulatory measures to ensure that the financial industry served the

government's economic plans (Chiu 1992; S. W. Kuo 1983; Tan 2001, 2009, 2016).¹⁰³ The Central Bank of Republic of China (BOC) takes charge of exchange rate policy. While the Bank of Korea was subordinate to the government, the BOC has enjoyed its independence to manage monetary and exchange rate policy (Zhang 2002, 2005).¹⁰⁴ The independence of the central bank since its establishment is deeply rooted in the Kuomintang Party's (KMT) historical experience in its political struggle against the Chinese Communist Party (CCP).

Historical legacy and international environment help shape the characteristics of Taiwan government's macro-economic policies. Two main factors contributed to form the attributes of Taiwan's financial system and account for the Taiwan government's reluctance to open domestic markets. One is the ruling party Kuomintang's experience before the Chinese civil war; and the other is its isolated status in the international arena due to its relationship with the mainland China.

On the one hand, the experience of financial chaos and the KMT's loss in the Chinese Civil War in the late 1940s affected the politicization of the financial system. The KMT failed to manage the economy and to control hyperinflation, which resulted in the KMT's loss of power and exile to Taiwan in 1949. The experience of losing its political base due to high inflation made the management of monetary stability a priority for KMT. Thereby, the civil war experience led to a strong policy priority for macroeconomic stability and tight

¹⁰³ Due to the KMT government's conservatism on finance, state enterprises and large corporations could borrow formal financial capital. However, small and medium enterprises could not but depend more on the so-called curb market, informal lending arrangements (Chiu 1992; Wade 1985; Fields 1995).

¹⁰⁴ For more detailed explanations on the origins and political sources of BOC's independence, see Cheng, Tun-jen. "Guarding the commanding heights: the state as banker in Taiwan." *The Politics of Finance in Developing Countries* (1993): 55-92; Cheng, Shih Jen. 2003. "Guojia Jianli Yu Zhongyang Yinhang Zhi Fuye (State Building and the

governmental controls over the financial system (S. W. Kuo 1983; C. Kuo 1998; Noble and Ravenhill 2000; Wade 1985). Later, for the purpose of implementing its overall economic development plan, the government maintained stringent controls over the financial industry. The government could control the money supply and credit availability under the state-dominated financial system.

On the other hand, Taiwan's diplomatic isolation has had a significant effect on its economic policy. When the United States and most of the international community recognized China as the only legitimate Chinese government, Taiwan was forced to relinquish its official state memberships from all intergovernmental organizations. Hence, Taiwan could not expect help from the IMF or other financial institutions. Due to such constraints in the international arena, Taipei has favored conservative macroeconomic policy, including accumulating considerable foreign reserves preparing for any emergent risk. As such, the isolated status in the international stage influenced exchange rate policy of Taiwan.

With these historical backgrounds and international environment, the BOC could implement an independent exchange rate policy. The exchange rate regime of Taiwan has evolved from pegging to the U.S. dollar to a managed floating system in 1989 and continued to have a de jure floating system since then. The U.S. has been a major trade partner of Taiwan and the New Taiwan Dollar (NTD) had been pegged to the U.S. dollar until January 1979. Like other Asian countries, trade invoicing and settlement were mostly denominated in U.S. dollars. Considering the export-led economic development of Taiwan, the pegging system before 1979 tended to help reduce exporters' uncertainty in international trade, but

Restoration of the Central Bank).” Taiwan: Taiwan Dong-woo University. See also (Pang 1992; T. Cheng 1993; S. J. Cheng 2003).

could increase vulnerability facing external shocks (S. Brown 2009; S.-S. Chen and Wu 2008; Clark and Tan 2012; Li, Ranis, and Fei 1995; Mai and Shi 2001; J.-L. Wu et al. 2012).

Although the de facto ERR since 1989 has been a free floating system,¹⁰⁵ evidence suggests that the Taiwan authorities have intervened to set and adjust exchange rates. On the one hand, it was the Central Bank that has often intervened in the spot exchange rate when the NTD rose or dropped too rapidly, rendering it unable to fully or instantaneously fluctuate in response to market forces. For example, the Central Bank's intervention in the foreign exchange market caused a gap between the market spot rate and market expectation of the future rate of the NTD in the late 1980s. This gap induced large capital inflow into Taiwan (Yu 1999, 299).

On the other hand, statements from the monetary authorities also underscore CBC's frequent interventions. When the U.S. criticized Taiwan government's intervention of NTD in the early 2000s, the Governor of CBC, Fai-Nan Perng (1998-present) explained to the U.S. that the sharp appreciation of NTD was restrained along with the flow of massive amounts of international hot money (China Economic News Services 2003) and emphasized that the exchange rate is more important than interest rate (China Economic News Services 2005). These examples support monetary authorities' intervention in exchange rates.

This chapter covers the exchange rate policy of Taiwan in the 1990s and 2000s. It starts with how external pressures played a role in shaping Taiwan's ERR choice and further explores the effects of the competitive pressures and international norms on Taiwan's ERR choice during these periods.

¹⁰⁵ The basic stance of the Central Bank on the ERR of Taiwan is that the ERR of Taiwan has been a free floating system (Interview with senior researcher of the CBC in January, 2016).

B. International Diffusion and Taiwan's Exchange Rate Policy

1. External influences on ERR choice

Whether and to what extent external pressures have shaped ERR choice of Taiwan is a matter of concern in this section. As the coercion argument assumes the influence of dominant states and international organizations, it was more evident that coercive measures worked explicitly when Taiwan received financial aid from the U.S. in the 1950s and 1960s. American aid officials served to coordinate Taiwan's policy informally and participated in the meeting of the Foreign Exchange and Trade Commission of Taiwan, resulting in strong alliance between aid donors and the host government (T.-J. Cheng, Haggard, and Kang 1998, 97). Foreign aid influenced ERR choice of Taiwan: in particular, the U.S. Agency for International Development (AID) exerted pressures on Taiwan, especially regarding currency values.¹⁰⁶

The United States has been most influential in Taiwan's economic policy. Then, what was the U.S. preference with regard to exchange rate regime? The benefits and costs of an international currency are widely debated.¹⁰⁷ A country of which currency is a major anchor

¹⁰⁶ Regarding the role of USAID on Taiwan's economic policymaking, refer to (Amsden 1992; Y. K. Wang 1991; Zhang 2002; Frankel, n.d.; Lindner 1992; Heiber n.d.; Haggard and Zheng 2013a; Haggard and Pang 1994).

¹⁰⁷ The benefits of key currency include the reduced transaction costs, international seigniorage, macroeconomic flexibility, political leverage and reputation. A country with key currency can enjoy reduced transaction costs since its currency can be widely used in cross-border activities. The benefits of the U.S. dollar as an international currency are called as an "exorbitant privilege": the U.S. could run balance-of-payments deficits without costs since the U.S. dollar was the reserve currency in the international monetary system. The country with key currency can enjoy the seigniorage gain accruing to a key currency (Cohen 1971). As such, the country having a key currency could have monetary power in the system. International currency also has risks such as currency appreciation, external constraint and policy responsibility. With regard to the costs and benefits of international currency, refer to the following studies: (Aliber 1965, 1964; Blinder 1996; Cassell 1965; Chivvis 2006; Cohen

currency in the international monetary and financial system has benefits of reduced transaction costs and flexibility of managing external payments imbalances. In terms of power, an anchor role reinforces its influence in a formal or informal monetary bloc and accordingly helps improve a country's prestige.¹⁰⁸ For instance, the benefits of the U.S. dollar as an international currency are called as an "exorbitant privilege": the U.S. could run balance-of-payments deficits without costs since the U.S. dollar was the reserve currency in the international monetary system (Rueff 1972). Given these benefits of a key currency, the U.S. would have preferred the U.S. dollar's continued core role in the New Taiwan dollar (NTD) basket.

The U.S pursued economic policies based on its own economic interests together with its entrepreneurs' business interests, and these were important factors for shaping Taiwan's economic structure (Chiang and Gerbier 2010).¹⁰⁹ Gills emphasized how American intervention converted Taiwan into a developmental state with export orientations and illustrated how the American market was fundamental to the shape of East Asia (Gills 2000). According to Gills, U.S.'s priorities in this region had shifted from strategic to economic interest. "U.S. tolerance of Asia's deviation from liberal norms turned into open and critical intolerance, expressed in demands for conformity, amid accusations of 'unfair trade

1971, 2012, 2015; Eichengreen and Flandreau 2009; Goldberg 2010; Goldstein 1965; Grubel 1964; Karlik 1968; Kirschen 1974; Kirshner 2008; McCauley 2015; Mundell 1973; Rueff 1972; Salant 1964; Schulmeister 2000).

¹⁰⁸ One of the costs of being an anchor is the constraint on the issuing government's monetary autonomy.

¹⁰⁹ According to Chiang and Gerbier, three great powers' economic policies affected Taiwan's economic transformation: the U.S.'s financial guarantees for American MNCs and security guarantees for Taiwan in the 1960s; Japan's economic policies to make Taiwan participate in production network; after sino-US rapprochement, Taiwan's investment in China (Chiang and Gerbier 2010).

practices' ” (Gills 2000, 390). The U.S. resorted to bilateral pressure for economic concessions from Asian trade partners and sometimes threatened to use the Super 301, punitive trade retaliation.

We note more external pressures during Taiwan's financial liberalization since the 1980s. As discussed in the previous section, the KMT government retained reluctant positions with regard to liberalization, including market-based exchange rates. However, Taipei's conservative stance on liberalization was under intense foreign pressure (P. C. Chow 2000, 211). It was the 1990s when external pressure was heightened as Taiwan enjoyed large trade surplus. Its foreign sector came to account for 95 percent of its GDP in the 1990s.

The late 1990s exhibited a pronounced goal of financial market liberalization in rapid developing countries, such as Taiwan and South Korea (The U.S. State Department 1999).¹¹⁰ There pressures for financial liberalization stemmed from “international organizations, foreign financial institutions and Western, particularly U.S., governments,” which pushed for liberalization either to sustain growth potential, to gain market access or to redress bilateral trade imbalances” (Zhang 2002, 412).

Like Korea, Taiwan was also under pressure from the U.S. as Taiwan benefited from its trade surplus vis-à-vis the U.S since the 1980s (T. Cheng and Haggard 1990; Haggard and Pang 1994). Taipei was accused of manipulating exchange rates to gain trade

¹¹⁰ “Focus U.S. advocacy, finance, public diplomacy, and other promotion efforts on sustaining, and where possible increasing, exports to key emerging market countries, in particular Argentina, Mexico, Brazil, Poland, Turkey, South Africa, India, China, Taiwan, Korea, Indonesia, Thailand, Malaysia, and the other ASEAN nations” (The U.S. State Department 1999, 17).

competitiveness and under pressure of restraining government's intervention.¹¹¹ Two apparatuses were mainly working to bring pressure on Taiwan: the Exchange Rates Act and the Report to Congress on International Economic and Exchange Rate Policy by the U.S. Treasury. Both worked as a more direct pressure for Taiwan to adjust its exchange rate policies by charging states with current account surpluses with the U.S. as manipulating the exchange rate between their currency and the U.S. dollar (Frankel 1992; Lindner 1992). Due to the pressure from the U.S., the New Taiwan dollar appreciated substantially in the late 1980s (S.-S. Chen and Wu 2008, 147–48). Therefore, the U.S. authority had expressed dissatisfaction and its pressure was directed at further opening Taiwanese markets to U.S. exports. U.S. officials believed that Taiwanese dollar to be significantly undervalued (Baldwin and Nelson 1993, 318).¹¹²

Considering the pressure from the U.S. and the IFIs to open financial markets in the name of enhancing the efficiency of financial system, Taipei's implementation of financial liberalization in the 1990s was closely associated with these external pressures. Despite its reluctance to implement financial liberalization, external influence made the Taiwan government set the measures of financial liberalization to work. In 1989, the government began to implement deregulation and liberalization by relaxing restrictions and approving the entry of 15 private commercial banks into the market in 1991 (Lim 2009, 22). Financial liberalization measures included interest rate liberalization, licensing of private banks, the

¹¹¹ With regard to international financial institutions, Taiwan was no longer a member of IMF and World Bank since 1978. Hence, it seems reasonable to assume these two institutions' direct influence on Taiwan is less likely.

¹¹² Regarding U.S-Taiwan trade relations, refer to Baldwin and Nelson (1993). Baldwin and Nelson detail trade relations between the U.S. and Taiwan in terms of political economy perspective (Baldwin and Nelson 1993).

ongoing privatization of state banks, and the abolition of exchange controls on current account. In particular, the monetary authorities adopted a managed floating exchange rate system. In 1987, control on capital flows started to be lifted gradually (P. C. Chow 2000; Central Bank of the Republic of China 2017).¹¹³

More direct impact on changes in ERR of Taiwan was the impact of Asian financial crisis (AFC). Although Taiwan was not directly hit by the financial crisis,¹¹⁴ it could not be insulated from its widespread impacts due to closely related trade relations with other East Asian countries. Taiwan was not directly swept by the financial crisis due to its relatively closed financial market.¹¹⁵ Unlike other crisis-affected countries, Taiwan still maintained a

¹¹³ To promote privatization, the Taiwan government implemented economic programs such as the Economic Revitalization Program in 1993 and the Asia Pacific Regional Operation Center (APROC) Plan in 1995 (Sue 2008, 119). The APROC plan aimed to promote Taiwan as a regional hub in the Asia-Pacific region for MNCs' investment and business activities and to develop an internationalized and liberalized economy in Taiwan (S.-H. Chen and Liu 2000).

¹¹⁴ Scholars point to several variables adduced to explain the ability of Taipei to withstand the AFC. One is the relatively closed financial system of Taiwan as a major reason that Taiwan was not be damaged severely from the crisis. The Taiwan authorities continued to place restrictions on the overseas activities of local financial institutions in the 1990s. These regulations on and supervision of financial institutions' overseas investments made Taiwan less vulnerable to the financial crisis than was the case in Korea as the Asian financial crisis spread around the region (Lim 2009, 20–21). These conservative policies were possible because the Central Bank remained independent in policymaking and continued to manage the direction of monetary policy, the pace of market liberalization and the prudential regulation (Zhang 2002, 2005, 90). Tzong-shian Yu (1999) suggests other factors including: “1) up until 1998 Taiwan had enjoyed a large trade surplus for years, and it has abundant foreign exchange reserves; 2) foreign debt is negligible; 3) national competitiveness is comparatively high; 4) the unemployment rate is low; and 5) the economic growth rate has consistently topped 5 percent over the last 5 years” (Yu 1999, 303).

¹¹⁵ In the late 1980s and early 1990s that the Taiwan government adopted the deregulation of the financial sector. However, the Central Bank of China (CBC) continued to measures to control capital to cope with any sudden speculative capital flight. It also imposed restriction on domestic banks' engagement in heavy short-term foreign borrowing in the 1990s (Y.-H. Chu n.d.).

surplus in the current account amounting 4.5 percent of GDP in 1997. In addition, it had hoarded abundant foreign reserves equivalent to nearly ten months of its import bills, U.S. \$84 billion, in 1997. Taiwan government maintained a manageable government budget deficit and did not have foreign debt in the public sector (P. C. Chow 2000, 211).

Although the impact of the crisis was much lesser than other regional partners, Taiwan experienced the contraction of trade and economic recession during the crisis. The stock market of Taiwan dropped. The NTD showed more swings than pre-crisis and its dollar weights had declined. The Taiwan dollar depreciated 4.2 percent in 1997 and 14.3 percent in 1998. To cope with the fluctuation of NTD caused by the crisis, serious debate was going on whether the government should intervene in the foreign exchange market in late September 1997. Those who advocated government's intervention emphasized exchange rates' extensive and intense influence on the overall economy. A sharp fluctuation of exchange rates may impact negatively on commodity prices, foreign trade and investments. Conversely, those who were against intervention policy claimed that the exchange rate should be determined by market supply and demand. They argue that a wide fluctuation of exchange rates can be adjusted by market forces even when the NTD was under speculative attack (J.-C. Wang 2000, 150–51).

As the New Taiwan dollar was continuously declining against the U.S. dollar, the Taiwan authorities intervened heavily in the foreign exchange market to stabilize the exchange rate against the U.S. dollar in October 1997. The government at this time released more U.S. dollars in order to increase the supply of foreign exchange to curb the further depreciation of the NTD. The Central Bank's sterilized intervention in the economy continued from August 1997 to December 2004. The Central Bank adopted open-market operations and released more foreign exchange. The Central Bank lowered the required

reserve ratio as a means of sterilization and sold nearly U.S. \$7 billion in foreign reserves to decelerate the growth of the money supply in 1997 and 1998 (Moreno and Yin 1992; Li, Ranis, and Fei 1995; Xu 2008; H.-L. Wu 1999; S.-S. Chen and Wu 2008; J.-L. Wu et al. 2012)

The AFC induced some changes in Taipei's exchange rate policy. While Taiwan's ERR was a de facto dollar peg prior to the crisis, the currency basket of Taiwan now displayed diversity than previous periods, composing of U.S. dollar, yen and euro after AFC. The weight of the U.S. dollar in the basket was still significant, but that of the yen increased by a small amount. Taiwan has been an ardent dollar follower and continued its allegiance to dollar pegging even after the Asian financial crisis. Thereby, anchoring on the yen suggests that a Stackelberg leadership model worked in Taiwan's ERR choice.

In May 1998, the Central Bank undertook another measure against any sudden speculative attacks: closing the nondelivery forward transactions which were forward contracts of foreign exchanges without requiring deposits. This measure was purported to reduce any speculative pressure on the foreign exchange market and to further currency depreciation. This policy resulted in only 15 percent depreciation of NTD and a modest 10 percent drop of stock exchange index in 1998 – mild as compared with some other countries in the region.

Taiwan experienced a decline of export growth mainly because of currency devaluations in Southeast Asia and Korea. Facing this difficulty, Taiwanese authority implemented policies to promote domestic demand and reduce interest rates from October 1998 to mid-1999. Several projects were enacted, such as constructing high-speed railways and power plants and boosting high-tech industries. The Central Bank increased the money supply and

lowered interest rates. Unlike other East Asian countries, Taiwan could maintain economic growth rate of 4.76 in 1998 thanks to these policies (Yu 1999, 298–99).

A relatively regulated financial system could prevent a severe economic downturn for Taiwan. However, Taiwan could not escape from the higher pressure for opening markets and deregulation. The Chen Shui-bian government gave priority to restructuring the banking sector in 2000. President Chen launched a second round of financial reform in 2004 aiming at cutting the number of state banks by half and reducing the number of financial holding companies by the end of 2006 (Lim 2009, 24).¹¹⁶ Although the Chen government sought to grasp financial controls to consolidate the new power, it could not but take these measures of liberalization.

The impact of global financial crisis in 2008 did not result in rapid change in exchange rate policy. During the mid-2000s, massive amounts of capital flowed into emerging markets and other developing countries. The global financial crisis caused by the Lehman Brothers' collapse brought about capital flight from emerging markets. Hedge funds began to move to places with healthier economies and with higher interest rates. To cope with the global financial crisis, the advanced countries implemented an expansionary policy by lowering interest rates from 2008 to 2011, which led capital inflows into emerging economies where rates of return were higher (Gallagher 2015).

¹¹⁶ Democratization brought a much greater politicization of economic and financial policy-making. As shown during the Asian financial crisis, Taiwan's economic technocracy was able to respond to the crisis swiftly and efficiently (Clark and Tan 2012; Tan 2001). However, as Tan (2001) argues, the role of economic technocrats has become weakened as Taiwan experienced democratic consolidation and performed institutional reforms after the Democratic Progressive Party (DPP) gained the power in 2000. The relatively autonomous decision-making of technocrats was no longer possible and strong interest groups were rendered influential on economic policymaking.

Taiwan experienced a recession in 2008-2009 during the global crisis. GDP fell by 1.9 percent in 2009 after an only 0.1 percent growth in 2008. This recession resulted from speculative collapse in the most advanced industrial countries. The ROC bounced back fairly rapidly from this pronounced recession. Facing global financial crisis, Taipei introduced several capital control measures while several countries intervened in currency markets by buying dollars in order to sustain their own currency values. Taiwan implemented capital controls: from November 10, 2009, Taipei deployed controls on inflows; December 21, 2010 currency controls; and lastly, on December 30, 2010, the Taiwan authorities used reserve requirements (J.-L. Wu et al. 2012).

Initially, the Taiwan government signaled capital moves to markets in advance. In November 2009, the Taiwan authorities implemented bans on foreign funds' investment in time deposits in order to avoid currency appreciation. In addition, Taiwan limited the percentage of currency that could be held by banks (K. Brown 2010). Gallagher finds that capital controls were associated with a lower level of appreciation and an eventual slowing of the rate of appreciation in Taiwan (Gallagher 2015, 126–27).

China's exchange rate policy reform and Taiwan

The external security environment has been influential in shaping the economic policies of Taiwan due to its history and unique status in the international arena. However, the remote relationship between the mainland and the island started to be changed after the 1980s, and the more economically connected relationship between the two since then has exerted an impact on Taiwan's economic policymaking. It became more evident with further globalization and global financial crisis that independent economic policymaking had become more difficult.

With economic maturity and prosperity, Taiwan began to lose competitiveness in labor-intensive production since the 1980s with wage increases. Moreover, the New Taiwan dollar appreciated considerably in the late 1980s due to pressure from the U.S. As a result, many of Taiwan's businesses increasingly moved offshore in the late 1980s and early 1990s (Amsden and Chu 2003; Gee 1994; S. Wang 1997).

After four decades of almost complete isolation due to the Cold War hostilities between Taipei and Beijing, Taiwan opened the door for cross-strait interactions when it allowed indirect trade through third countries in 1984 and then considerably enhanced the opportunity for indirect trade with and investment in the mainland China over the rest of the decade (T. Cheng and Chang 2003; Clark 2007; Kastner 2009) China aimed at emulating the export-led industrialization of other East Asian states and launched a coastal development strategy to attract the light and labor intensive industries which exited from Hong Kong and Taiwan. Thereby, a substantial complementarity came to exist between the Taiwanese and Chinese economies.

Taiwan's international trade and investment patterns have been changing over the last two decades. Taiwan business's investment in China was negligible until the 1980s, but then took off rapidly. Taiwan investors moved from joint ventures to solely owned enterprises and began to build and supply their own factories. Taiwan companies in the mainland imported machinery and more sophisticated components from Taiwan and assembled them. The production of goods was then exported to third markets. Later, this structure of production was upgraded from simple assembly to heavy and high-tech production by the mid- to late 1990s. This production relation induced a massive flow of outward investment to China. Exports from Taiwan to China also surged from 5 percent of the ROC's total

exports in 1989 to 17 percent in 2000 goods (Amsden and Chu 2003; Clark and Tan 2012, 23).

Since Taiwan's economic restructuring in the 1980s, its economic ties with the mainland China become closer.¹¹⁷ Taiwanese businesses were attracted by Chinese market and cheap labor costs. Although the KMT government tried to slow Taiwanese companies' investment in China, it was not effective. Taiwan experienced a huge trade surplus with China. Since the 1990s, Taiwan's degree of dependence on the Chinese markets for its exports has exceeded Mainland Affairs Council's "warning line" (Chiang and Gerbier 2008). Taiwan's increased economic dependence on China raised fear that Taiwan's industrial base could be hollowed out and might lead to the island's political subordination to China (Cai 2005, 595; Gold 2010; T. Y. Wang 2009).

We note the role of U.S. policy toward China behind the closer ties between the two. The U.S. would have wanted China to be integrated into the capitalist world led by the U.S. in order to have more leverage to negotiate with China in many aspects. Thus, the U.S. foreign economic policy has affected the Taiwan Strait and subsequently Taiwan's economic policy. "It was also one of the U.S. security objectives in Asia to 'foster an environment in which Taiwan and China can pursue a constructive and peaceful interchange across the Taiwan Strait' (White House 1991)." The U.S.'s economic openness to China was an important factor that led to Taiwan's increasing investment in China (Chiang and Gerbier 2010).

¹¹⁷ Not only commercial ties, but also cross-strait travel took place. Since November 1987, the Taiwan government allowed Taiwan citizens to visit relatives on the mainland. The "Straits Exchange Foundation and Association for Relations Across the Taiwan Strait mechanisms" and "Guidelines Governing the Entry of People of the Taiwan Area into the Mainland Area" were established and facilitated the travel of people across the strait (Sutter 2002a).

Facing the situation both of diplomatic isolation and of searching for alternative regions for Taiwanese investors, two major policies were adopted to prevent economic over-dependence on China. Taiwan government has pursued a “Southward Policy”. The ‘Southward Policy’ aimed to divert some parts of investment into China to Southeast Asian countries. Initially some public and KMT-based enterprises and, subsequently, other firms began to invest in Southeast Asia. Following private companies’ investment, the Taiwan government formed trade and investment agreements with Southeast Asian countries (Chiang and Gerbier 2010). However, despite the government’s efforts, this Southward policy did not succeed in discouraging Taiwan business’ investment in China.

Debate between the KMT and DPP was heated up with regard to how further economic interdependence might affect political identity in Taiwan.¹¹⁸ With closer economic relations, the mainland might gain an advantage of leverage over the island. Even the Taiwan government was worried about a possibility that economic activities of Taiwan business might help strengthening military capabilities of the mainland (Weiss 2003, 534). Facing this situation, the government adopted another policy, “Go slow, be patient.” President Lee Teng-Hui announced this “Go slow, be patient” policy which aimed to prevent further economic dependence on China. However, this policy was not so effective as well: investment in Southeast Asia came to be insignificant while investment in China became considerable after 2000 (Chiang and Gerbier 2010, 161).

¹¹⁸ Over cross-strait economic relations, the debate between the KMT and DPP was intensified when the KMT tried to expand these ties by negotiating an Economic Cooperation Framework Agreement (ECFA) with China in 2009 and 2010. The KMT leaders asserted the need of ECFA emphasizing that economic relations across the strait would be vital for maintaining Taiwan’s economic dynamism. The DPP claimed further economic interactions would threaten the country’s sovereignty (Gold 2010; T. Y. Wang 2009).

The trade between Taiwan and China skyrocketed during the first half of the 1990s. Taiwanese exports to the mainland jumped four and one-half times from \$4.4 billion to \$19.4 billion between 1990 and 1995, rising from 7 percent to 17 percent of the ROC's total exports. The 2000s witnessed another huge surge. The bilateral trade relationship became more important for Taiwan than for China as China increasingly surpassed Taiwan in volume of trade. Exports to the mainland from the island in 2005 were \$76 billion which consisted of 28.4 percent of Taiwan's total exports. Moreover, the fact that Taiwan's exports to China had become much more important for the former than the latter in the 2000s accounts for the increasing weight of the yuan in Taiwan's currency basket.

Taiwan's main export destination also changed from the U.S. to China. The U.S. market took 49 percent of Taiwan's total exports in 1984; this dropped to 13 percent by 2007. Since 2000, exports to China have exceeded exports to the U.S. (Mainland Affairs Council 2016). The Mainland Affairs Council (MAC 2008) estimated that the proportion of Taiwan's exports to China of total exports rose from 6.5 percent in 1990 to 30 percent in 2007 (Mainland Affairs Council 2016). Most of the exports to China are parts and accessories for optical and photographic instruments, electronic equipment and mechanical appliances (Chiang and Gerbier 2010, 151).

Moreover, Taiwanese investment in China has increased as well. The Executive Yuan approved the 'Statute for People-to-People Relations between the Mainland Area and Taiwan Area' in 1990. After 1990, the government began to lift bans on indirect investment in China and Taiwan business's investment in China began to shift to projects of technology-oriented production. The 'Methods of Control over Investment and Technological Cooperation' issued by the MOEA provided a list of products that could be produced on the mainland by Taiwan's manufacturers (Lin 1997). The data on Taiwanese investment in

China published by the Mainland Affairs Council include only investment projects approved by the ROC's Ministry of Economic Affairs and, therefore, do not reflect actual investment in China. The total investment in China approved by the Ministry of Economic Affairs was \$6 billion in 2005 and \$10.7 billion in 2008. The investment mostly concentrated on the key electronics sector¹¹⁹ which was composed of 41 percent of Taiwanese investment in China on average from 1991-2010 (Mainland Affairs Council 2016).

Then, what was China's preference with regard to exchange rate regime during this period? China sought to enhance the renminbi's role in the international arena given the benefits of the role of international currency as discussed in the previous section. A country having a key currency in the international system has benefits of reduced transaction costs and flexibility of managing external payments imbalances. In addition, an anchor role reinforces its influence in a formal or informal monetary bloc and accordingly helps improve a country's prestige.¹²⁰ Moreover, China had a clear political goal to keep One China policy. Thereby, Beijing would have preferred their currencies' core roles in the New Taiwan dollar (NTD) basket.

With its economic rise, China has begun to deploy its economic power for strategic objectives. China's deliberate actions related to exchange rate policy were shown in two cases. First, it was in the 1997-98 Asian financial crisis that the influence of China's

¹¹⁹ The key electronics sector includes electronic parts and components manufacturing, computer, electronic and optical products manufacturing, electrical equipment manufacturing.

¹²⁰ With regard to the costs and benefits of international currency, see Aliber 1965, 1964; Blinder 1996; Cassell 1965; Chivvis 2006; Cohen 1971, 2012, 2015; Eichengreen and Flandreau 2009; Goldberg 2010; Goldstein 1965; Grubel 1964; Karlik 1968; Kirschen 1974; Kirshner 2008; McCauley 2015; Mundell 1973; Rueff 1972; Salant 1964; Schulmeister 2000.

exchange rate policy explicitly was manifested toward its regional neighbors. Unlike the economists' expectation that China might attempt to devalue to the renminbi (RMB) confronting the collapse of regional currencies and economic downturn of regional economies,¹²¹ the Chinese government announced in early 1998 that it would not devalue the yuan. This promise kept until June 1999 when the crisis was stabilized. The situation that other regional economies kept close eyes on and were highly concerned with China's action on exchange rate policy exhibit the effect of China's ERR. The decision not to devalue the yuan helped enhance China's reputation during the crisis.

Second, the Chinese government has embarked on a campaign of internationalization of renminbi (RMB). It has deliberately attempted to widen foreign use of the yuan. By doing so, China expected to enhance its influence in the system. Since the mid-2000s, the Chinese government has implemented deliberate actions. China was actively involved in a discussion of creating an Asian Currency Unit as a regional unit of account. A regional basket would consist of thirteen currencies and the yuan has the heaviest weight (Chin and Helleiner 2008). China also supported the Asian Bond Market Initiative and the Chiang Mai Initiative (CMI). These two cases exhibit China's preference to enhance the role of RMB in the international monetary system.

China has already emerged as the most important trading partner and destination for the FDI of Taiwan. In addition, China and Taiwan were active participants in the effective intra-regional trade. Given that volatility of exchange rates among production network partners

¹²¹ "Since exports and FDI had been the twin engines of the rapid growth of the Chinese economy (Lardy 1994), analysts pointed out that China had to devalue its currency to avoid an economic slowdown brought by shrinking exports and foreign investment and to avoid an economic slowdown brought by shrinking exports and foreign investment and to avoid deflation (Barron's 8/17/98; Global Investor 10/98; Business China 2/2/98)" (H. Wang 2003).

could disrupt established economic relations, participating governments valued exchange rate stability (Chung and Eichengreen 2007; Norris 2016; H. Wang 2003). Beijing deployed a coercive leverage strategy from the mid-1990s to Summer 2004 toward Taipei. The logic behind this coercion was to threaten the Taiwan firms' operation in the mainland unless these firms followed China's larger strategic interests. However, the coercive strategy was not effective to achieve its political goals (Norris 2016).

An example of coercive leverage strategy of China was its military exercises in 1995. KMT leaders desired to protect the authority of the CBC with the need for maintaining financial stability in the face of perennial military threats. One event that caused the New Taiwan dollar to further depreciate was caused by missile tests and sabre-rattling military exercises conducted by mainland China in the Taiwan straits in 1995. Due to this military threat, foreign investors left, leading up to an outflow of about U.S. \$7 billion, which resulted in further depreciation. There was a rush among people in Taiwan to change their NTD to U.S. dollars to remit them abroad or deposit them in the foreign currency account in Taiwan banks (Yu 1999, 298–99). In response to this situation, the Central Bank released more U.S. dollars into the foreign exchange market to stabilize the exchange rate.

During the 1990s, the mainland's policy did not work to enhance the renminbi's role in Taiwan's exchange rate policy. On the one hand, the Chinese yuan was pegged to the U.S. dollar and flexible fluctuation was not allowed during this period. Though Taiwan's de jure ERR was free floating, NTD closely shadowed the U.S. dollar. The two maintained a similar exchange rate regime. On the other hand, the coercive strategy of China was not effective enough to alter Taiwan's policy choice.

Later, the mainland employed an interest transformation economic statecraft strategy. As the economic relations between the mainland and island, Beijing sought to transform

interests of Taiwan. China sought to shape and alter the actual strategic preferences of Taiwan by influencing the behavior of actors. In 2005, Taiwan's opposition party – the KMT - leaders visited the mainland. Aiming at redefining the interests of commercial actors in strategically significant sectors, Beijing provided economic rewards of tariffs elimination on Taiwanese fruit (Norris 2016).

The fear of Taipei's increasing economic dependence on China deepened with the negotiation for Taiwan's accession to the World Trade Organization (WTO). In the 1990s, Taiwan was preparing for opening up its domestic market due to its aspiration to become a member of the World Trade Organization (J.-C. Wang 2000). Prior to WTO accession, the Taiwan market banned almost 50 percent of PRC agricultural and industrial goods.¹²² However, restrictions on imports from China could not be sustainable under the WTO rules. Thereby, Taiwanese policymakers worried that further liberalization following WTO accession would accelerate the economic integration with China (Sutter 2002b).¹²³ The Taiwan government was concerned with opening its agricultural sector to PRC imports and its services to PRC investment. It also worried manufacturing sector's even more rapid relocation to the mainland (P. Chow 2008; Sutter 2002a; Tung 2003).

In addition to increased trade volumes between China and East Asian countries, China had begun to FTA negotiations with some more ASEAN countries. Due to China's

¹²² China's exports to Taiwan were tightly controlled according to the Regulations Governing Permission of Trade Between the Taiwan Area and the Mainland Area, which were promulgated in April 1993 and amended in October 1996 by MOEA.

¹²³ China and Taiwan acceded to the WTO on December 11, 2001 and January 1, 2002 respectively. Taiwan acceded under the name of "Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu," or "Chinese Taipei" for short.

objection, Taiwan was not able to initiate FTA talks with East Asian neighbors.¹²⁴ As Cai (2005) argues, the China-ASEAN FTA influenced Taiwan's China policy reflecting Taiwan's concern over the rising movements toward FTAs in the region (Cai 2005, 591).

During the 2000s, we witness the rise of the yuan. Increasing China's influence over East Asia region through increased trade relations might have put pressure on Taiwan's exchange rate policy.¹²⁵ Two factors buttress this trend. On the one hand, as Taiwan's exports have become ever more dependent on the Chinese market, China came to have leverage over Taiwan, preventing Taiwan from moving away. Tanner argues that "When Beijing uses high-profile, high-pressure economic tactics, they have tended to backfire, creating powerful opposition in Taiwan and undermining the political effectiveness of those with a stake in closer cross-strait economic and political ties" (Tanner 2007). In this context, China had the power to gain by rewriting the rules of the game or power to shape frameworks within which China and Taiwan are related to each other.¹²⁶ China's rising monetary power also supports this argument (Chin 2014; Chin and Helleiner 2008; Ross and Feng 2008).

On the other hand, the other aspect is related to the democratic consolidation of Taiwan. The previous autonomous technocracy became no longer impregnable. When the Democratic Progressive Party (DPP) gained the power in the 2000 election, the Legislative

¹²⁴ Taiwan and Singapore signed an economic partnership in November 2013.

¹²⁵ See Chen-Yuan Tung's "Cross-Strait Economic Relations: China's Leverage and Taiwan's Vulnerability," and Murray S. Tanner's *Chinese Economic Coercion Against Taiwan A Tricky Weapon to Use* for the aspects of China to exploit that expanding economic relationship to employ economic coercion against Taiwan (Tung 2003; Tanner 2007).

¹²⁶ With regard to the structural power or second face of power in international political economy, see (Börzel and Risse 2012; Cohen 1977; Strange 1988).

Yuan was still under the KMT's control. This divided government created opportunities for interest groups' influence and involvement over economic policy outcomes. The DPP had been an opposition party over the decades and lack of strong ties with business community (Tan 2001, 2009). These political circumstances of changes in regime and government structure provided the multiple points of access to policymaking and, accordingly, interest groups could get involved in the financial and economic policy outcomes. Hence, Taiwan's influential mainland-invested business community, so-called *Taishang* advocated liberalizing cross-strait trade and investment links. Therefore, the changes in the currency baskets of Taiwan could have considered China's exchange rate policy.

Facing China's rise and increased economic interdependence, the stability against the renminbi seemed a reasonable choice for Taiwan although the weight of yuan was small compared with that of the USD during the mid-2000s.¹²⁷ Stackelberg leadership model worked in the NTD's increasing shadowing of the renminbi during this period. China decided its exchange rates unilaterally and Taiwan decided to follow the yuan's movement. Thereby, the second face of power seemed to account for the increased weight of the renminbi in the Taiwan's currency basket during the mid-2000s.

To summarize, the approach emphasizing external pressures accounts for the changes in exchange rate policy of Taiwan during the 1990s and 2000s. U.S. pressure played a major role in change in ERR of Taiwan to a more flexible exchange rate regime. Whereas the pressure from the IMF was more salient in Korea's exchange rate policy, the IFIs' direct influence over Taiwan was not evident due to two reasons: Taiwan's withdrawal from IFIs and no foreign aid during the 1990s and 2000s. However, the IMF's support for more

¹²⁷ The renminbi was pegged to the U.S. dollar and flexible fluctuation was not allowed during the 1990s.

flexible ERRs and the prevalent neoliberal trend gave pressure for Taiwan's ERR. Therefore, the external pressures from the great powers and the IFIs served as a main causal mechanism making Taiwan's exchange rate regime change to a more flexible system.

2. Economic competition

The competition approach postulates the effects of foreign economic competitors' policy on policymaking. Liberal theories assume that governments vie for export markets and foreign investment. Competitive pressures and technological advancements impel governments to take liberal economic measures. Governments may want to adopt international business-friendly policies and have more incentive to choose similar exchange rate policy when competing with other countries to expand export market shares or to attract global capital (Braun and Gilardi 2006; Gilardi 2012; Simmons, Dobbin, and Garrett 2007).

Globalization raised the costs for the Taiwan government to pursue divergent economic policies. Given high competition in international trade, countries take account of others' policy choices. The competition among East Asian countries became more intensified since China's open door policy of 1979. Beijing adopted an export-led industrialization model and achieved substantial economic growth rapidly. China's total exports heavily concentrated on manufacturing goods as did other East Asian neighbors. Hence, intensified global competition for export markets and foreign investment in the 1990s and 2000s compelled Taiwan to consider adopting policies for international business-friendly environment although the KMT government was reluctant to implement economic liberalization which might reduce the interventionist role of the government.

Taipei was relatively inactive in opening its financial market to foreign investors until the 1990s. However, foreign investment for the economy was not less important. As the

competition over attracting FDI among emerging markets had been substantial, the Taiwan government embarked on structural reform policies to expand export markets and attract more foreign capital, including liberalization and deregulation measures in different degree respectively since the 1980s. The restrictions on FDI inflows were gradually removed. Thanks to its relatively closed financial system, the Taiwan economy was not directly hit by the Asian financial crisis. Nevertheless, the Taiwan government was under pressure to reduce barriers and provide incentives to induce global capital.

Similar ERR choices among East Asian nations were further associated with noticeably expanded East Asia's intra-regional trade. Taiwan's business increased its foreign investment to Southeast Asia and later China from the 1990s onward, initially investing as joint ventures and, later, building own factories. Taiwan companies in China imported machinery and more sophisticated manufacturing-related parts and components and then assembled them in the mainland. During the 2000s, this production pattern moved from simple assembly to advanced heavy and high-tech production. Taiwan played an active role in the network (Amsden and Chu 2003; Y.-P. Chu 2001, 2006; Haggard and Zheng 2006; S.-H. Chen and Liu 2000).

As noted, intense intra-regional trade constrains participants' varying choices of exchange rate policy. Economic partners in the production network have incentives to limit fluctuations of exchange rates for the purpose of preventing exchange rate volatility from discouraging exports of parts and components in electronics and machinery, (Asian Development Bank 2008; Kawai and Urata 2004; Kawai and Wignaraja 2011; Thorbecke 2008).

As such, the keen competition over export and FDI among developing countries prevented Taiwan from choosing divergent exchange rate policies from those of other

competitors. East Asian countries adopted similar choice of exchange rate policy during the 1990s and 2000s: managed floating system and high dependence on the U.S. dollar's movement. East Asian countries were considered as the dollar standard in the 1990s (McKinnon 2001) and the choice of similar policies of tracking the dollar can be understood in this context. As Goldsmith argues, vying for foreign exports between China and developing countries in East Asia drove the diffusion of liberal policies across the region (Goldsmith 2014).

Given that intensified export competition where a small divergent policy choice could lead to a loss of competitive advantage in exporting, it seems understandable that Taiwan would adopt an ERR similar to that of other East Asian competitors. Taiwan has restrained from adopting a varying policy choice. Due to heavy trade with the U.S. and trade invoicing denominated in the U.S. dollar, the NTD had been heavily pegged to the U.S. dollar, which was the same for other East Asian competitors. The competition model seems manifest in Taiwan's exchange rate policies: in the weights of key currencies in their currency baskets, NTD heavily shadowed the movement of the dollar just as other East Asian competitors did in the 1990s and 2000s.

The high intra-regional trade was fairly associated with Taiwan's choice of ERR as well. As other economic partners do, Taiwan also has pegged the NTD to the U.S. dollar. Until the mid-2000s, the U.S. dollar in the currency basket of Taiwan was as highly weighted as it was in its regional economic partners. Hence, this choice of similar ERR choice of East Asian countries could prevent extreme fluctuations of participants in the intra-regional trade which might help maintain regional production networks.

During the period of mid-2000s, there were changes in Taiwan's ERR. When China reformed its exchange rate policy to more a flexible one than before, the currency baskets of

East Asian countries showed variations than before: the role of yuan became significant. Since the mid-1990s, Taiwanese business had a special form of production network with China. According to the Ministry of Economic Affairs, ROC, the geographic distribution of Taiwanese investment had significantly changed from Southeast Asia to China after 1993. Due to Taiwan's massive investment in China, a new division of labor was formed: China imports the intermediate and capital goods from Taiwan and exports finished goods to the developed countries, mainly to the U.S. Due to this specific investment pattern, bilateral trade between Taiwan and China gradually intensified (Clark and Tan 2012; Kastner 2009).

Taiwan has become gradually dependent on the Chinese market for exports¹²⁸ and expanded direct investment in China during the 1990s and 2000s. The negotiation of Economic Cooperation Framework Agreement (ECFA) between China and Taiwan in 2009-2010 added more concerns for Taiwan's exchange rate policy choice. The intensified commercial ties across the Taiwan straits made the two Chinas even more economically interdependent. Therefore, the choice of divergent ERR from that of China might prove costly, which accounts for the island's exchange rate policy: during the time when the yuan was allowed to fluctuate within certain band in July 2005 to June 2009, the NTD closely co-moved with the yuan.

3. Learning and International Norms

The last aspect concerned is the effects of learning and international norms on economic policy making. Countries learn from other states' experiment and innovations. Policymakers note others' successful policies or innovation, update information and revise their beliefs on

¹²⁸ Cai points out Taiwan's trade might fall in deficit without a trade surplus with China since 1993 (Cai 2005).

policy choice. In the domain of exchange rate policy, learning exerts influence on exchange rate empirically (Khamfula 1998; Meseguer 2006; Simmons and Elkins 2004).

Several studies postulate the role of ideological factors on monetary and exchange rate policy (Blyth 2003; Grabel 2003; Gavin 2003; Kirshner 2003). Since the 1980s, neoliberal ideas which favor free markets and price stability spread and became prevalent. The term neoliberal economic policies refer to free-market economic policies, deriving from new-classical economic theory. Grabel argues that developing countries' monetary systems were designed and transformed by adopting a new-classical theory of policy credibility in addition to strong states' political economic influence (Grabel 2003). Studies on the political economy of central banking explain that "increased capital mobility has made national governments subscribe to neoliberal practices and develop keen interests in granting central banks greater autonomy"¹²⁹ (Zhang 2005, 93).

Liberal U.S. ideas penetrated by the economists and government officials trained in the U.S (A. P. Liu 1987). Liberal ideas have effects on structuring political agenda. The Governor of the Central Bank of ROC Kuo-Shu Liang remarked that the financial reforms of Taiwan were spurred by the trend toward global financial liberalization. Governor Liang made clear that "since the 1980s, in response to the world trend toward more liberalized markets, Taiwan had adopted a series of measures aimed at financial liberalization and internationalization" (Liang 1999, 151).

As a late modernizer, the Taiwan government designed economic developmental plans following the Japan's industrialization model in its early times.¹³⁰ Successful model of

¹²⁹ See also (Bowles and White 1994; Maxfield 1998).

¹³⁰ With regard to the role of Taiwanese government, evaluations are ambivalent: some argue that the government's role on economic policy arena was strong; others argue that

others and policy trends were absorbed and pioneered by the government. The policy decision and implementation have been supported by government-affiliated research institutions. In the case of Taiwan, several studies indicate the role of technocrats in promoting policy adoption or change through learning. The technocrats are defined as “communities of practice” (Lave and Wenger 1998). They share “a common language, identity, and problem orientation stored in partly explicit and partly tacit coded knowledge” (Lave and Wenger 1991, 1998, J. S. Brown and Duguid 1991, 2001; Kogut and Macpherson 2008, 106).

The role of technocrats in the Economic Stabilization Board and the Council for United States Aid in Taiwan lay in the similar manner. Zhang notes that those technocrats in the macro-economic agencies were graduated from the same elite universities, shared similar ideology, and long-standing working relationships, which “helped to converge their position on financial and monetary policies towards the conservative ethos” (Zhang 2005, 101–2).¹³¹

To summarize, the analysis of Taiwan’s exchange rate policy demonstrated the effects of diffusion on similar policy choices among East Asian neighbors. Taiwan’s experience suggests evidence of coercive effects on policy choices. Changes in ERR from rigidity to a more independent floating system in 1989 was associated with the U.S.’s pressure and exhortation. Competition convincingly accounts for similar policy choices of Taiwan with other trade competitors. Lastly, the adoption of best practices and influence of neoliberal ideas on economic policies also indicate what helped shape the policy decisions of Taiwan.

Taiwan government has been relatively less active than Japan or Korea. Taiwan has limited role in planning and implementing economic policies (Amsden and Chu 2003; Clark and Tan 2012; Haggard and Zheng 2013b; Lee 1990; Shen and Hakes 1995; Zhang 2002).

¹³¹ On technocrats in Taiwan during the 1980s, see (A. P. Liu 1987).

C. Conclusion

The analyses of the case studies in Chapter V and VI considered how different mechanisms would work under what conditions or how combinations of more than one mechanism would work. Unlike the prevalent assumption that national economic policymaking is independent, the two case studies demonstrate that states' economic policies are interdependent and are influenced by each other among those who are politically, geographically and socio-economically closely related.

The case studies found that countries within the same region tend to adopt a similar type of exchange rate regime. Korea was pegged to the U.S. dollar until 1987 while Taiwan until 1989; Korea adopted a managed floating system in 1990 and changed its system to a more flexible ERR during the Asian financial crisis while Taiwan also showed a similar move to a more flexible exchange rate system and diversified the relative weights of the anchor currencies in its currency basket.

Among the external effects on ERR choice, coercive effects mainly influenced Korea and Taiwan's ERR choice. While the statistical results in Chapter IV which tested the hypothesis of coercion using the indicators of the use of IMF loan and the overall development assistance (ODA) provided vague results of diffusion effects, the case studies showed that external pressure have clearly impacted on exchange rate policy choices.

Competitive pressures for exports and capital propelled an adoption of similar ERR in East Asia during the 1990s and 2000s: managed floating system and high dependence on the U.S. dollar's movement. High intra-regional trade pattern added incentives for governments involved in production networks to refrain from choosing a divergent policy choice in order to limit exchange rate fluctuations. Competition for exports among developing countries in East Asia drove the diffusion of liberal policies across the region.

As late modernizers, Korea and Taiwan searched successful industrialization models and adopted policies for economic development. Liberal ideas penetrated into policymaking and affected political agendas. Economists and policymakers with neoliberal ideas were appointed to major positions in the central bank and finance ministry and set the direction of economic policies and helped to implement them. The adoption of best practices and the influence of neoliberal ideas on economic policies affected policymaking in both economies.

Although the cases of Taiwan and Korea showed similar policy choices of adoption of a managed floating system and a shadow of the U.S. dollar, the two cases exhibited subtle variations of their ERR choices. On the one hand, after the Asian financial crisis, the Korean won basket showed more diverse anchor choices while the New Taiwan dollar displayed a continued close movement against the U.S. dollar. On the other hand, when China's ERR was reformed in the mid-2000s, Stackelberg leadership model worked in the NTD's increasing shadowing of the renminbi during this period while not in the Korean won's movement. China decided its exchange rates unilaterally and Taiwan decided to follow the yuan's movement. China's economic statecraft may explain this variation. As the economic relations between the mainland and island, Beijing sought to transform interests of Taipei for political objectives. In 2005, Taiwan's opposition party – the KMT - leaders visited the mainland. Aiming at redefining the interests of commercial actors in strategically significant sectors, Beijing provided economic rewards of tariffs elimination on Taiwanese fruit. These deliberate actions of Beijing which was absent in the case of Korea account for the ERR choice of Taiwan during the mid-2000s.

VII. Conclusions

With regard to choice of exchange rate regime (ERR), extant studies explain the determinants of certain ERR from national political and economic characteristics, taking ERR choice as mostly national independent decision-making. These explanations are unable to account for an apparently regional clustering of similar exchange rate regime adopted by states. Hence, this dissertation has investigated whether a state's choice of ERR is affected by others' policy decisions and how diffusion effects play a role in ERR choice.

For this research objective, Chapter I presented the importance and relevance of the research question which is the choice of ERR, and the primary argument of interdependence policy choice. The investigation on the movements of East Asian currency baskets revealed a similarity of ERR in the region. Chapter II surveyed and reviewed relevant theoretical approaches to exchange rate regime choice. This chapter suggested that international diffusion theory may provide better accounts for ERR choice than optimal currency area theory or the domestic politics approaches. Chapter III laid out the research design which guided the empirical research on ERR choice. It presented the hypotheses of this research and specified the concepts and measurements of the dependent, explanatory and control variables for statistical testing: the dependent variables were measured by using the Frankel and Wei (1994) model; explanatory variables were spatial lags which incorporated the interdependence of time and space among countries while economic and domestic political conditions were included as control variables.

Chapter IV specified the employed statistical models and reported the statistical results of testing hypotheses. I performed event history model tests that attempted to predict the likelihood of choosing a certain anchor currency in a country's currency basket. These tests

showed a general pattern of ERR choice. Chapter V and VI detailed the analysis of two case studies, which added qualitative evidence for diffusion. By using the case studies of South Korea and Taiwan, diffusion and ERR choices were studied in greater detail and in their proper contexts.

This chapter summarizes the findings of the research and discusses contributions of this project and possible policy implications. The first section of this chapter summarizes the results of this investigation. This section presents the lessons learned from the statistical tests and from the case study research. The second section describes some of the implications of this research for understanding exchange rate policy in developing countries - in particular, how systemic factors might have impacted on a state's exchange rate policy. The last section discusses other new indicators and evidence for future studies.

A. Summary of the Findings

The major finding is international diffusion's effects on ERR choice. This dissertation has made the case that the evidence presented in previous chapters has confirmed diffusion hypotheses. Among three sets of diffusion hypotheses – namely, coercion, competition, and learning/emulation – tested to estimate diffusion effects on ERR choice, economic competition and learning/emulation argument provided insight about ERR choice. The economic competition argument supported the diffusion of policy choice. Policies of capital competitors held a significant effect.

Statistical results provided evidence a tendency of observing, learning and imitating their neighbors' choice of ERR. A conspicuous success had a significant effect on policy decision. States tend to adopt policies similar to those of a successful state. Learning from joint membership yielded mixed results: policies of preferential trade agreement (PTA) partners

hold significant effect, but they had a negative effect on altering a policy. Lastly, coercion variables provided ambiguous results: the use of IMF credit had an effect only in the test of choosing the U.S. dollar as an anchor while it did not yield a significant effect in seven other anchors. Besides, the effect was negative, meaning that the use of IMF credit (versus non-use) decreased the odds of the adoption of anchor choice.

In a test for selected East Asian countries' ERR choices, an additional variable of measuring production network participation was included in the models to estimate how the participation in the East Asia's intra-regional production network may affect a country's ERR choice. This variable produced an ambiguous result: the policies of network partners had a significant impact on altering a policy; however, the direction of the effect was unexpectedly negative. This result means that when production partners shift their policies by one unit, the odds of adopting a similar ERR decreases. Hence, it appears that a state's participation in the production network is negatively associated with its ERR choice.

There were limitations to test empirically the effects of some diffusion mechanisms, such as coercion, international norms and ideas on ERR choice, due to the difficulty of operationalization for statistical tests. Two indicators of testing coercive effects were confined to the use of IMF credit and the overall development assistance (ODA) and the statistical results in Chapter IV which tested the hypothesis of coercion provided vague results of diffusion effects. In addition, an impact of salient ideas and norms on altering policy was difficult to measure and were unable to yield statistically meaningful results.

Hence, the cases of South Korea and Taiwan provided two examples for further analysis of coercive and learning diffusion effects. Case studies support the argument of the policy choice resulted from international diffusion. The analysis of exchange rate policy of Korea and Taiwan exhibited similar policy choices with East Asian neighbors during the 1990s and

2000s. Korea was pegged to the U.S. dollar until 1987 while Taiwan until 1989; Korea adopted a managed floating system in 1990 and changed its system to a more flexible rate during the Asian financial crisis while Taiwan also showed a similar move to a more flexible exchange rate system and diversified its anchor currencies in its currency basket after the crisis.

Changes in ERR from rigid to more independent floating system in the late 1990s were associated with the influence of the IMF and the U.S. Both governments were reluctant to liberalize because its interventionist role would be reduced substantially. The coercive measures of imposition of restrictive austerity measures and loan conditionality, and neoliberal pressures on liberalization made both governments to alter policy and adopt liberal measures including a free floating regime. The findings of neoliberal pressures' effect support existing studies of the diffusion of liberal economic policies (Elkins, Guzman, and Simmons 2006; Meseguer 2004, 2006; Simmons and Elkins 2004).

Competitive pressures for exports and capital propelled an adoption of similar ERR in East Asia: managed floating system and high dependence on the U.S. dollar's movement. High intra-regional trade pattern added incentives for governments involved in production network to refrain from adopting a divergent policy choice in order to limit exchange rate fluctuations. Competition for foreign exports among developing countries in East Asia drove the diffusion of liberal policies across the region.

The evidence that governments tend to learn from and respond to a notable policy success is relatively strong. As late modernizers, Korea and Taiwan searched successful industrialization models and innovation. Learning from a model of actual policy success led policymakers to adopt an export-led development plan. Liberal ideas penetrated into policymaking and helped to structure political agenda. Economists and policymakers with

neoliberal ideas were appointed to the central bank and finance ministry and set the direction of economic policies. The adoption of best practices and influence of neoliberal ideas on economic policies indicate interdependent policymaking by both authorities.

Although the cases of Taiwan and Korea showed similar policy choices of adoption of a managed floating system and a shadow of the U.S. dollar, the two cases exhibited subtle variations of their ERR choices. On the one hand, after the Asian financial crisis, the Korean won basket showed more diverse anchor choices while the New Taiwan dollar displayed a continued close movement against the U.S. dollar. On the other hand, when China's ERR was reformed in the mid-2000s, Stackelberg leadership model worked in the NTD's increasing shadowing of the renminbi during this period while not in the Korean won's movement. China decided its exchange rates unilaterally and Taiwan decided to follow the yuan's movement. China's economic statecraft may explain this variation. As the economic relations between the mainland and island, Beijing sought to transform interests of Taipei for political objectives. Taiwan's opposition party – the KMT – leaders' visited the mainland in 2005 and economic rewards of tariffs elimination on Taiwanese fruit were examples of redefining the interests of commercial actors in strategically significant sectors. These deliberate actions of Beijing which was absent in the case of Korea account for the ERR choice of Taiwan during the mid-2000s.

Thereby, these cases present that diffusion occurred with diversity in East Asia. Comparison between the two cases showed that diffusion produced the spread of similarity, but did not lead to convergence. There were subtle differences in similar policy choices. Thereby, this research supports that a characteristics of diffusion, similarity among diversity, exhibited in the ERR choice.

Taken together, these findings from statistical analysis and exchange rate policy experience of two cases provide evidence of diffusion effects in ERR choice. Hence, unlike the prevalent assumption that national economic policymaking is independent, this research demonstrated that the policy choice of governments was affected by others' prior policy decisions. External factors exert effects on exchange rate policy: governments are influenced by one another, among those who are politically, geographically, and socio-economically closely related.

B. Implications and Suggestions for Future Research

1. Implications

This research's major finding is international diffusion's effects on ERR choice. These findings extended the application of the theory of international diffusion to the domain of exchange rate policy. The possibility of interdependence among states' policy choices which have been ignored by economic theories and the domestic politics approaches, was empirically tested and provided the results of how diffusion mechanism tend to work in ERR choice. These findings suggest how diffusion mechanism may work in a government's policy adoption and implementation.

The results of this dissertation also suggest more explanations for developing countries' policymaking. Since most studies of international diffusion concentrate on Europe and North America, a study with a focus outside of the Western developed countries may provide useful insight on exchange rate policy. The analysis of the pattern and determinants of ERR choice of East Asian countries suggest how external factors alter their policy choices.

Lastly, from a methodological perspective, applying a spatial lag model to exchange rate policy study extend the understanding of policy choice by incorporating spatial and temporal

interdependence in the model. Since diffusion phenomena are difficult to measure directly, a spatial lag model detected whether interdependent policymaking can be found in the domain of foreign economic policy making. In addition, a more specified measurement of exchange rate regime of East Asian countries based on the Frankel and Wei method (1994) help provide variations on the dependent variable for the statistical test.

2. Suggestions

This dissertation has confirmed diffusion hypotheses. Nevertheless, the research in this dissertation could be improved and extended in a number of ways. First, further research will incorporate new indicators for diffusion mechanisms in addition to existing indicators. This dissertation created explanatory variables that measured economic and social relations. Future research will attempt to operationalize variables that reflect other types of spatial measures. For instance, for the learning mechanism, several indicators could be constructed by measuring the frequency of intergovernmental meetings and interactions between governmental officials.

Second, future research will be conducted with updated statistical data. This research covered the period of 1995 to 2012. Some exchange rate data for the early 1990s were recorded monthly or yearly while this dissertation used a daily exchange rate of each country. Hence, some periods were dropped in the statistical tests, which reduced the number of observations. Future studies will include the 2010s data that covers daily exchange rates more inclusively.

Third, further study will be concerned with changes in the international economic environment. In particular, the Chinese authorities have pursued a policy of internationalization of the RMB. The yuan became incorporated in the Special Drawing

Rights (SDR) in 2015 and is increasingly used for bilateral transactions in trade. Future research will attempt to investigate how the changes in the yuan's significance in the international arena may influence East Asian neighbors' exchange rate regime choice.

Lastly, the exploration of other East Asian countries' ERR choice will extend the understanding of developing country's exchange rate policy. On the one hand, countries such as Indonesia, Thailand and Vietnam adopted a managed floating system, but display variations in their anchor currency choices. Experience of the Asian financial crisis and subsequent policy changes in Thailand and Indonesia would provide a good opportunity to observe possible effects of external factors on exchange rate policy. On the other hand, due to lack of data availability, Brunei, Cambodia, Lao People's Democratic Republic (Lao PDR), and Myanmar were excluded in the statistical test. Future research with more recent data from these countries may help supplement existing studies.

C. Conclusion

High international capital mobility complicates the ERR choice of governments that make efforts to maintain domestic control over monetary and exchange rate policy. Governments in East Asia are sensitive to the impact of exchange rate policy on trade and FDI for further economic growth. The period of early 1990s witnessed a remarkable diffusion of managed floating system in East Asia. The post-crisis period from 1999 to mid-2005 exhibited more diversity in exchange rate baskets than before. Crisis-affected countries moved toward greater exchange rate flexibility. A notable change is that the weights of major international currencies became more diverse than those of pre-crisis period while the U.S. dollar-based exchange rate stabilization policies persisted. This dissertation suggests that these changes of ERR are the results of interdependent policy choices.

With regard to the apparent similarities in East Asian countries' ERR choice, a variety of existing literature emphasize security and trade relations with the U.S. as the most salient factor for ERR choice. However, in addition to these reasons, other external factors played roles: the U.S. and IFIs pressures for liberalization, intensified global competition over trade and FDI, and learning from others' actual policy success. Thereby, governments in East Asia, coping with constraints coming from the international economic environment, adopt and alter their policies. Interdependence through different forms existed in ERR choice. External factors shape the actual pace and depth of adoption of ERRs in the region.

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Appendix

Appendix 1: List of Parts and Components¹³²

a. Harmonized system codes

381800,392113,392119,392630,400920,400930,400940,400950,401011,401012,401013,401019,401021,401022,401023,401024,401029,401693,401699,420400,482110,560122,560311,560312,560790,580710,590900,591000,591110,591120,591131,591132,621220,621230,621290,650300,650400,650700,660310,660320,660390,670100,681310,700711,700721,700910,701710,702000,731519,732010,732020,732211,732219,732290,820220,820231,820239,820240,820291,820299,820713,820719,820720,820730,820740,820750,820760,820770,820780,820790,820810,820820,820830,820840,820890,820900,821194,821195,830230,830810,830890,840140,840290,840390,840490,840590,840690,840710,840729,840731,840732,840733,840734,840790,840810,840820,840910,840991,840999,841090,841111,841112,841121,841122,841181,841182,841191,841199,841210,841290,841330,841391,841392,841490,841520,841590,841690,841790,841891,841899,841990,842091,842099,842123,842131,842191,842199,842290,842390,842490,842542,843110,843120,843131,843139,843141,843142,843143,843149,843290,843390,843490,843590,843691,843699,843790,843890,843991,843999,844090,844190,844240,844250,844390,844811,844819,844820,844831,844832,844833,844839,844841,844842,844849,844851,844859,845090,845190,845230,845240,845290,845390,845490,845530,845590,846610,846620,846630,846691,846692,846693,846694,846791,846792,846799,846890,847149,847150,847160,847170,847180,847190,847310,847321,847329,847330,847340,847350,847490,847590,847690,847790,847890,847990,848110,848120,848130,848140,848180,848190,848210,848220,848230,848240,848250,848280,848291,848299,848310,848320,848330,848340,848350,848360,848390,848410,848420,848490,848510,848590,850110,850120,850131,850132,850133,850134,850140,850151,850152,850153,0220,850300,850421,850422,850423,850432,850433,850434,850450,850490,850511,850519,850520,850530,850590,850690,850710,850720,850730,850740,850780,850790,850890,850990,851090,851110,851120,851130,851140,851150,851180,851190,851210,851220,851230,851240,851290,851390,851490,851590,851690,851790,851890,852210,852290,852431,852439,852440,852452,852453,852460,852491,852499,852520,852721,852729,852731,852732,852739,852790,852910,852990,853010,853080,853090,853190,853210,853221,853222,853223,853224,853225,853229,853230,853290,853310,853321,853329,853331,853339,853340,853390,853400,853510,853521,853529,853530,853540,853590,853610,853620,853630,853641,853649,853650,853661,853669,853690,853710,853720,853810,853890,853910,853921,853922

¹³² These codes are from earlier studies on network trade studies, including Thorbecke (2008) and Hayakawa and Kimura (2009).

a. Harmonized system codes (Continued)

853929,853931,853932,853939,853941,853949,853990,854011,854012,854020,854040,
854050,854060,854071,854072,854079,854081,854089,854091,854099,854110,854121,8
54129,854130,854140,854150,854160,854190,854212,854213,854214,854219,854230,85
4240,854250,854290,854311,854319,854390,854411,854419,854420,854430,854441,854
449,854451,854459,854460,854470,854511,854519,854520,854590,854610,854620,8546
90,854710,854720,854790,854890,860711,860712,860719,860721,860729,860730,86079
1,860799,870600,870710,870790,870810,870821,870829,870831,870839,870840,870850
,870860,870870,870880,870891,870892,870893,870894,870899,870990,871411,871419,
871420,871491,871492,871493,871494,871495,871496,871499,871690,880310,880320,8
80330,880390,900211,900219,900220,900290,900390,900590,900661,900662,900669,90
0691,900699,900791,900792,900890,900990,901090,901190,901290,901390,901490,901
590,901790,902230,902290,902490,902590,902690,902890,902920,902990,903090,9031
90,903210,903220,903290,903300,910400,911011,911012,911019,911090,911110,91112
0,911180,911190,911210,911280,911290,911410,911420,911430,911440,911490,920910
,920920,920930,920991,920992,920993,920994,920999,930529,930610,940110,940120,
940190,940390,940591,940592,940599,950291,950299,960610,960621,960622,960719,9
60720,961390

b. SITC codes

58291, 59850, 61210, 62142, 62143, 62144, 62145, 62921, 62921, 62929, 65621, 65720, 65751, 65771, 65773, 65791, 65792, 66382, 66471, 66472, 66481, 66591, 66599, 69551, 69552, 69553, 69554, 69555, 69559, 69561, 69562, 69563, 69564, 69680, 69915, 69933, 69941, 69941, 71191, 71192, 71280, 71311, 71319, 71321, 71322, 71323, 71332, 71333, 71381, 71391, 71392, 71441, 71449, 71481, 71489, 71491, 71499, 71610, 71620, 71631, 71631, 71651, 71690, 71819, 71878, 71899, 72119, 72129, 72139, 72198, 72199, 72391, 72392, 72393, 72399, 72439, 72449, 72461, 72467, 72488, 72491, 72492, 72591, 72599, 72635, 72689, 72691, 72699, 72719, 72729, 72819, 72839, 72851, 72852, 72853, 72855, 73511, 73513, 73515, 73591, 73595, 73719, 73729, 73739, 73749, 74128, 74135, 74139, 74149, 74155, 74159, 74172, 74190, 74220, 74291, 4295, 74363, 74364, 74380, 74391, 74395, 74419, 74443, 74491, 74492, 74493, 74494, 74519, 74519, 74519, 74529, 74539, 74568, 74593, 74593, 74597, 74610, 74620, 74630, 74640, 74650, 74680, 74691, 74699, 74710, 74720, 74730, 74740, 74780, 74790, 74810, 74821, 74822, 74839, 74840, 74850, 74860, 74890, 74920, 74920, 74991, 74999, 75230, 75260, 75270, 75290, 75290, 75910, 75990, 75991, 75993, 75995, 75997, 76211, 76212, 76281, 76282, 76289, 76432, 76481, 76491, 76492, 76493, 76493, 76499, 77111, 77119, 77125, 77129, 77220, 77231, 77232, 77233, 77235, 77238, 77241, 77242, 77243, 77244, 77245, 77249, 77251, 77252, 77253, 77254, 77255, 77257, 77258, 77259, 77261, 77262, 77281, 77282, 77311, 77312, 77313, 7314, 77315, 77317, 77318, 77322, 77323, 77324, 77326, 77328, 77329, 77423, 77429, 77549, 77579, 77589, 77611, 77612, 77621, 77623, 77625, 77625, 77627, 77629, 77629, 77631, 77632, 77633, 77635, 77637, 77639, 77641, 77643, 77645, 77649, 77681, 77688, 77689, 77812, 77817, 77819, 77821, 77822, 77823, 77824, 77829, 77831, 77833, 77834, 77835, 77848, 77861, 77862, 77863, 77864, 77865, 77866, 77867, 77868, 77869, 77871, 77871, 77879, 77881, 77882, 77883, 77885, 77886, 77889, 78410, 78421, 78425, 78431, 78432, 78432, 78433, 78433, 78434, 78435, 78436, 78439, 78535, 78536, 78537, 78689, 79199, 79291, 79293, 79295, 79297, 81211, 81215, 81219, 81380, 81391, 81392, 81399, 82111, 82112, 82119, 82180, 84552, 84841, 84842, 84848, 87119, 87139, 87149, 87199, 87319, 87325, 87329, 87412, 87414, 87424, 87426, 87439, 87454, 87456, 87461, 87463, 87469, 87479, 87490, 88112, 88113, 88114, 88115, 88123, 88124, 88136, 88422, 88431, 88432, 88433, 88439, 88571, 88591, 88597, 88598, 88599, 89121, 89195, 89281, 89395, 89423, 89423, 89860, 89865, 89867, 89879, 89890, 89935, 89949, 89983, 89985, 89986, 89992

Appendix 2: Comparisons Among Temporal Dependence Models (USD)

Mechanism	Explanatory Variable	Ordinary Logit	Time Dummy	Time Dummy (cloglog)	Log Time	Cubic Polynomial Time	Lowess
		coef/se	coef/se	coef/se	coef/se	coef/se	coef/se
Coercion	Use of IMF credits	-1.271* (0.707)	-0.483 (0.415)	-0.345* (0.208)	-0.832 (0.534)	-0.556 (0.405)	-1.247* (0.701)
	Foreign aid per capita	-0.061 (0.118)	-0.023 (0.098)	-0.014 (0.066)	-0.033 (0.106)	-0.016 (0.096)	-0.059 (0.117)
Competition	Policies of export competitors	0.056 (0.077)	0.027 (0.056)	0.027 (0.042)	0.025 (0.064)	0.032 (0.056)	0.051 (0.077)
	Policies of export sector competitors	-0.026 (0.061)	0.003 (0.050)	-0.002 (0.035)	-0.003 (0.055)	0.006 (0.049)	-0.026 (0.061)
	Policies of capital competitors	0.154 (0.295)	-0.040 (0.271)	-0.007 (0.194)	0.024 (0.285)	0.031 (0.261)	0.195 (0.299)
Learning/	Mean global policy	-0.084 (0.214)	-0.022 (0.182)	-0.022 (0.135)	-0.026 (0.190)	-0.021 (0.177)	-0.076 (0.214)
	Policies of high growth countries	0.179* (0.094)	0.207** (0.089)	0.112** (0.051)	0.209** (0.090)	0.218** (0.088)	0.172* (0.094)
Emulation	Policies of RTA partners	0.124 (0.374)	0.151 (0.318)	-0.033 (0.180)	0.180 (0.334)	0.102 (0.310)	0.114 (0.373)
	Policies of PTA partners	-0.200* (0.110)	-0.136** (0.067)	-0.073 (0.048)	-0.184** (0.079)	-0.138** (0.065)	-0.197* (0.108)
	Policies of BIT partners	0.015 (0.037)	0.016 (0.035)	0.009 (0.021)	0.020 (0.035)	0.013 (0.034)	0.012 (0.037)
	Policies of religion peers	-0.232 (0.406)	-0.238 (0.238)	-0.173 (0.166)	-0.255 (0.289)	-0.222 (0.232)	-0.231 (0.398)
	Policies of language peers	-0.333 (0.594)	-0.109 (0.356)	-0.040 (0.234)	-0.185 (0.437)	-0.143 (0.347)	-0.343 (0.586)
	Policies of history peers	0.407 (0.341)	0.263 (0.191)	0.223* (0.122)	0.296 (0.246)	0.254 (0.187)	0.435 (0.336)

Appendix 2: Comparisons among temporal dependence models (USD) (Continued)

Control	Current account/GDP (t-2)	0.006 (0.029)	0.011 (0.023)	0.004 (0.013)	0.013 (0.025)	0.007 (0.023)	0.007 (0.029)
Variables	GDP growth	0.098** (0.044)	0.122*** (0.040)	0.075*** (0.020)	0.109*** (0.041)	0.120*** (0.038)	0.101** (0.044)
	GDP per capita	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
	Foreign reserves	-0.132 (0.176)	-0.167 (0.114)	-0.111* (0.067)	-0.136 (0.130)	-0.145 (0.110)	-0.128 (0.173)
	World interest rates	-0.096 (0.073)	-0.062 (0.065)	-0.061 (0.041)	-0.062 (0.067)	-0.057 (0.063)	-0.092 (0.074)
	Currency crisis(t-1)	0.175 (1.092)	0.098 (1.118)	-0.404 (0.771)	0.088 (1.070)	0.244 (1.048)	0.221 (1.095)
	Degree of openness	1.780 (1.978)	1.800 (1.447)	1.630 (1.151)	1.657 (1.623)	1.357 (1.380)	1.761 (1.943)
	Democracy	-0.234*** (0.082)	-0.097** (0.048)	-0.075** (0.037)	-0.149** (0.072)	-0.105** (0.047)	-0.230*** (0.083)
	Policies of neighboring countries	-0.003 (0.004)	-0.003 (0.002)	-0.002* (0.001)	-0.002 (0.003)	-0.003 (0.002)	-0.004 (0.004)
	Policies of border countries	0.581 (1.144)	1.030 (0.821)	0.636 (0.451)	0.932 (0.942)	0.843 (0.794)	0.535 (1.136)
	Trade with U.S.	0.066*** (0.019)	0.029*** (0.009)	0.018*** (0.006)	0.043*** (0.015)	0.027*** (0.009)	0.063*** (0.019)
	No. of previous adoption		0.431*** (0.069)	0.312*** (0.060)	0.219** (0.094)	0.429*** (0.067)	0.025 (0.048)
	Time dummies/T1		5.513*** (1.090)	4.095*** (0.953)			
	T2		5.252*** (1.068)	3.980*** (0.969)			
	T3		5.396*** (1.031)	4.084*** (0.900)			
	T4		4.739*** (1.040)	3.532*** (0.879)			
T5		4.523*** (1.014)	3.380*** (0.832)				
T6		3.550*** (0.991)	2.757*** (0.921)				

Appendix 2: Comparisons among temporal dependence models (USD) (Continued)

T7		4.326***	3.125***			
		(0.988)	(0.833)			
T8		4.013***	2.882***			
		(0.967)	(0.865)			
T9		4.648***	3.293***			
		(0.979)	(0.803)			
T10		3.496***	2.547***			
		(0.965)	(0.764)			
T11		2.907***	2.155***			
		(0.948)	(0.754)			
T12		3.296***	2.478***			
		(0.969)	(0.736)			
T13		3.203***	2.520***			
		(1.016)	(0.716)			
T14		2.333**	1.717***			
		(0.945)	(0.645)			
T15		1.380	0.849			
		(0.950)	(0.670)			
T16		2.219**	1.534**			
		(1.054)	(0.648)			
T17		(dropped)	(dropped)			
Log time				-0.682**		
				(0.300)		
Polynomial						
Tim1					-0.525**	
					(0.263)	
Tim2					0.053	
					(0.035)	
Tim3					-0.002*	
					(0.001)	
Lowess						3.861
						(5.119)
Constant	3.722	-3.073	-2.775	2.943	2.731	1.566
	(4.584)	(3.177)	(2.299)	(3.437)	(2.921)	(5.123)
/lnsig2u	0.707	-13.776		-0.905	-13.354	0.626
	(0.438)	(25.012)		(1.388)	(25.809)	(0.515)
Number of observations	592	592	592	592	592	592
R2						

note: *** p<0.01, ** p<0.05, * p<0.1