The Asian Currency Crisis

The Role of Industrial Policy and Imbalanced Embedded Autonomy

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Abstract: Over the past few decades, East Asian countries achieved unprecedented rates of economic growth. Starting with Japan’s post-World War II economic miracle, followed by South Korea, Taiwan and Singapore, the region raised itself from an abyss of poverty to glorious economic prosperity. The grace of the East Asian model continued with great economic success, only to see its ultimate collapse in the Asian Financial Crisis in the late 1990s. This paper argues that certain sectoral dynamics combined with industrial policy had led to the imbalance of embedded autonomy. This imbalance is accountable for various policy consequences that generated perception noise among international portfolio investors. Through these observations, investors inferred about the high risk of industrial policy and launched massive speculative attacks on the victims of the Asian Financial Crisis in 1997.

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Introduction

Industrial policy has been one of the main driving forces of economic growth in East Asia over the half of the twentieth century. Proponents of industrial policy believe that its core tenets of informed state intervention and public investment can facilitate efficient allocation of capital in the market (choosing the winners) in order to expedite economic development. The notion of industrial policy has clashed with the Washington Consensus, which advocates market fundamentalism over state planning as a growth prescription. For instance, two of the most rapidly developing countries in the world, South Korea and Taiwan had shown significant divergence from the consensus.¹ However, after the Asian Financial Crisis of 1997, scholars started paying in-depth attention in rethinking Asia’s economic miracle. The main question is whether industrial policy was responsible for the Asian economic flu that swept throughout the region. My answer to the question is affirmative. I argue that certain types of industrial policy create market inefficiencies and encourage risky behavior in the era of globalization due to information asymmetry between governments and globalizing sectors. Speculators observe these trends and act accordingly, causing currency speculation and financial panic. Prior to answering this question in detail, I want to set up some background information to illustrate what a currency crisis is and why this information is relevant to my central argument.

¹ Rodrik 2007, 18.
1. Background Information: Financial Crises in Emerging Economies

A financial crisis in an emerging economy can be characterized as a three-stage process. During the first stage, financial market participants observe economic and political characteristics of emerging markets and decide whether to launch speculative attacks on domestic currencies. A speculative attack involves selling short their assets, hoping to buy them again when the value of domestic currency hits the bottom. Selling short results from the expectation that a currency will be severely devalued by exerting speculative pressure on a peg. Currency speculators often take out domestic loans from emerging markets and exchange them for a strong stable currency, often the U.S. dollar through the foreign exchange market prior to a crisis. When the domestic currency depreciates after a crisis, currency speculators can pay back their loans with substantially less dollars compared to the pre-crisis rate, making significant profits by forcing countries to float exchange rates.

The second stage involves government’s response to market speculation. They can try to defend the currency or let it float freely. While the benefit of successfully defending the currency is considerable, failing to defend it or letting it float can spark various economic, political and even electoral outcomes. Whether government attempts to defend its peg depends on a variety of factors. I would like to illustrate these factors to understand why defending the peg may be beneficial to emerging economies that rely on industrial policy and export-led growth strategies.

According to the Mundell-Fleming model, “with international capital mobility, governments must choose between monetary policy autonomy and exchange rate variability.” The logic is simple. When government manipulates money supply by purchasing or selling money to control the exchange rate, it limits the ability to adjust interest rates to respond to domestic economic conditions.

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2 For more information, see Chapter 3 (Baker) in Thailand Beyond the Crisis edited by Peter Warr, 2005.
3 Bearce 2003, 373. The model is also known as the Impossible Trinity.
government securities, the value of domestic currency vis-à-vis foreign currencies automatically fluctuates as investment comes in and out of the country under capital mobility. In order to maintain a fixed exchange rate, governments should have sufficient foreign reserves to intervene in the foreign exchange market. Yet, manipulating money supply through interest rates will exert significant pressure on this commitment, and the fixed exchange rate regime will be eventually abandoned when this pressure is sufficiently intensified. Therefore, keeping exchange rates fixed implies less monetary autonomy for governments within domestic economies because they must adjust interests rates to maintain interest parity conditions. Among other victims of the Asian Financial Crisis, Thailand was “attempting to use domestic monetary policy to ‘sterilize’ the domestic monetary effects of inflows of FDI.”

This generated massive pressure on the peg between the baht and the U.S. dollar and degraded the Thai government’s credibility to defend its currency against speculative attacks.

Governments want to keep exchange rates stable for a variety of reasons. First, it promotes trade by reducing uncertainty and associated transaction costs. Figure 1.1 shows this benefit of fixing exchange rates. Floating exchange rates create some uncertainty regarding future transactions. For instance, the value of U.S. dollar is vulnerable to some fluctuations. A foreign exporter to the U.S. might want to forecast what the future exchange rates will be and make contracts according to these expectations. This factor among many others has led many emerging economies to peg their currencies to the U.S. dollar. It is noteworthy that the majority of the victims during the Asian Financial crisis depended heavily on their exporting sectors. Pegging their currencies was an important step to secure their continuous flow of wealth from exports.

In the meantime, some governments prefer to have monetary autonomy over exchange rate stability to use monetary tools in order to increase their chance of remaining in power. Whether a government prefers monetary autonomy or exchange rate stability under international capital mobility can be analyzed at the domestic level. As Bearce notes, “political science has well-developed models of divergent societal preferences.” Generally, internationally oriented actors (both exporters and importers) and financial market participants prefer a fixed exchange rate regime while domestically oriented actors prefer to receive various benefits from governments through monetary autonomy. These societal preferences can be translated into policy-making. For instance, economic pluralism states that “[t]he state tends to be an underdeveloped or weak actor, functioning as a referee among competing among societal interests.” In this case, various interest groups will lobby for their own preferable exchange rate regimes.

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5 Feenstra and Taylor 2008.  
6 Bearce 2003, 373.  
7 Frieden 1991.  
8 Bearce 2003, 374.
rate regimes with the larger and more economically powerful groups winning the competition. Yet, this lobbying behavior is relatively rare in empirics.⁹

In the exchange regime literature, this puzzle has been brought into a debate with various political models. The fundamental notion of these models concerns collective action problem. While the costs for lobbying are very high, the distributional consequences of success are broad. So, this deters intensive lobbying behavior among interest groups. Moreover, albeit challenged by several scholars, it has been argued that exchange rate regime policies are intellectually less accessible to interest groups than trade policies. For instance, Krasner contends that “decisions about monetary policy have been taken in the White House, the Treasury Department, and the Federal Reserve Board arenas that are well insulated from particular societal pressures.”¹⁰ In other words, interest groups and the legislature generally do not have formal veto power in making exchange rate policies.¹¹ The magnitude of policy insulation, however, differs from state to state depending on the political arrangements of foreign economic policy-making. Most notably, Bearce (2003)’s party-as-agent model has advanced the literature significantly by assessing the circumstances under which lobbying takes place in achieving particular exchange rate regimes.

The third stage involves the outcome of currency speculation when the attack (defense) becomes successful (unsuccessful). Domestic firms may go bankrupt due to insolvency, generating non-performing loans. Banks, in turn, are unable to operate with numerous loan defaults. Although this interaction between developing countries and speculators in the real

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⁹ Bearce 2003, 374.
¹¹ Setzner 2006, 113; Broz and Frieden 2001, 327.
world is more complicated than the logic I have illustrated, it is helpful to see the interaction as in Figure 1.2.

Figure 1.2: Strategic Interaction between Markets and Governments (Revised)

Note, however, that defense is not always successful. Market participants engage in a credibility game to see if governments are sincerely committed to the status quo exchange rate regime (willingness). Moreover, their foreign reserves indicate their ability to defend the peg. If either willingness or ability is absent, then a currency crisis occurs.

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12 Leblang 2003, 536.
2. The Significance of Asian Financial Crisis

The Asian Financial Crisis made a significant impact on the welfare of citizens in the affected countries. A constant series of large capital flights in net portfolio liabilities took place from 1997 to 1998. Figure 2.1 shows the fluctuation of portfolio investment liabilities in Asia (in billions of U.S. dollars). IKMPST signifies Indonesia, Korea, Malaysia, the Philippines, Singapore, and Thailand.

**Figure 2.1: Portfolio Investment Liabilities Trend in Asia (1980s – 2000s)**

It was only in the early 1990s when the region started attracting international capital in a large scale. The deep trench in Figure 2.1 between 1995 and 2000 shows the severity of massive capital flight. The regional economy eventually recovered and attracted a lot more portfolio investment than the pre-crisis period.

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13 Source: IMF, Balance of Payments Statistics (Yearbook 2009)
14 Let me be clear that I am primarily interested in the movement of portfolio capital. Thus, I am relying on the data of portfolio liabilities.
The impact of capital flight on GDP is even more striking. Figure 2.2 summarizes the deleterious aftermath of the Asian Financial Crisis in 1997.

**Figure 2.2: Investment Indicators: Percentage Change from 1996-1998**

![Chart showing percentage change in GDP and investment indicators for Indonesia, Malaysia, Philippines, and Thailand from 1996 to 1998.](chart)

As indicated by the solid black bars with measures on the left-hand side, the GDP declines in these countries were shockingly large. Given that the IMF estimates average GDP contractions for emerging markets in financial crises at 8%\(^{16}\), these large estimates of the countries’ GDP indeed deserve much scholarly attention.

3. The Review of Institutional, Structural, and Political Approaches

As political scientists have pointed out, economic variables alone do not sufficiently explain the causes of currency speculation and further problems associated with crisis.

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15 McIntyre 2003.

Note: GDP figures are percentage point change in the rate of growth. Capital inflows = foreign direct investment + portfolio investment + other inflows (banks, etc.).

Source: GDI and GDP figures are from the Asian Development Bank. Capital inflow figures are from the IMG (IFS 1999), except for the 1998 figures for Malaysia, which are from the Malaysian central bank.

16 Goldstein et al. 2000, 12.
management; political variables indeed do matter from the perspective of currency speculators. However, it is uncertain how currency speculators perceive various political institutions, conditions, and precisely which factors they take into consideration before making investment decisions. Moreover, an investor’s payoff for a particular decision depends on others’ strategies.\textsuperscript{17} With highly mobile capital in an open economy, it is difficult to see how investors behave in response to these political variables. This section serves as a literature review. I aim to elaborate where the political science literature stands in studying currency crises and suggest why more attention should be given to the role of industrial policy.

The previous research has focused on a wide range of institutional, structural, and political variables. These classical causal variables of currency speculation are at the center of attention in studying how domestic politics in emerging economies interact with economic agents in the international monetary system. First, institutionalists argue that industrial policy without proper regulatory institutions has caused an inevitable economic collapse under financial liberalization and capital-account opening.\textsuperscript{18} Yet, I believe that this is not the end of story. While there is no doubt that insufficient financial regulation is certainly responsible for financial panics, I later argue that certain types of industrial policy account for partial presence of financial deregulation.

Second, while institutional variables have significant effects on the likelihood of currency crisis across regions and over time, a particular regional crisis like the Asian Financial Crisis deserves a more customized approach; the outbreak of the Asian Financial Crisis still remains puzzling. Given the region’s outstanding economic performance for several decades, one must wonder why speculators started panicking in 1997, while the region was still experiencing steady

\textsuperscript{17} This is to be elaborated further in Section 4.
\textsuperscript{18} Rodrik 2007, 157; Haggard and Mo 2000.
economic growth rates. Structuralists argue that the region’s financial sector could not structurally “catch up” with the influx of foreign capital.\(^\text{19}\) While this argument certainly sheds light on the analysis of how short-term loans had been handled by domestic firms, the financial sector is only an intermediary causal step through which the risk of short-term loans is intensified. What comes before the financial sector is a government’s decision to liberalize the financial market in order to attract more capital. Given the East Asian Tigers’ enormous economic success in utilizing industrial policy, it seems enigmatic how the governments were not aware of or did not implement adequate policies in response to the severity associated with weak financial markets. I will later argue the traditional notion of industrial policy began to crumble since industrial sectors joined the flow of rapid globalization with the influx of foreign capital and knowledge. Industrial policy becomes mere state intervention with asymmetric information in this respect, causing potential panic among international investors and ultimately leading to severe speculative attacks.

Third, political variables such as democracy, elections, types of government and the number of veto points have been shown to matter in the likelihood of currency speculation. While currency crises have frequently occurred in industrial countries, emerging economies’ more volatile political circumstances, in general, exhibit more interesting questions for political scientists. The following figures show historical trends of speculative attacks and defenses in ninety countries (both developed and developing) and the number of speculative attacks for selected developed countries.

\(^{\text{19}}\) Stubbs 2005, 203.
As shown in the figures, the level of development and democracy were not determinant factors for deterring speculative attacks. Each open country faces some threat of speculative attacks.

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20 Leblang 2003, 535.
21 Leblang and Bernhard 2000, 292.
regardless of its level of development and regime type. Without any doubt, an array of economic fundamentals is considered by market participants in launching speculative attacks. Yet, if both developed and developing countries are facing threats of speculation, there must be something else markets care about besides pure economic variables. This criticism has been posed by many political scientists.  

Leblang and Satyanath (2008) acknowledge the importance of “perception noise” among market participants when new information about political arrangements and policies are introduced. They rely on the Morris and Shin (1998) model of currency crises to see how uncertainty plays a role in speculation. Uncertainty is indeed a critical component of strategic interaction with limited or asymmetric information. Using a probit forecasting model, they examine if certain types of political variables have any effect on the probability of a currency crisis. They find that divided government has a significant effect on the probability.

But, what does a divided government exactly imply from the perspective of international investors? MacIntyre answers this question with a simple, yet very convincing model by exploring how particular political arrangements are perceived by markets and how they alleviate or exacerbate problems associated with currency speculation. With the quantifiable measures of institutional rigidity and volatility, measured by the number of veto points, MacIntyre posits that both excessively rigid and volatile political institutions are negatively perceived by speculators. These institutions potentially signal governments’ inability to defend their exchange rate regimes. McIntyre’s simple U-shaped curve shows this illustration in a remarkably clear way.

With rigid institutions, for instance, characterized multiple veto points, governments are perceived to be incapable of undertaking necessary reforms for improving economic fundamentals and sustaining exchange rates. With volatile institutions, for instance, characterized by a president’s concentrated power, market participants may feel uncertain about future policy outcomes.

So far, I have explored the three main approaches to the study of currency speculation with respect to its very first stage involving panic among portfolio investors. The last of the three has been at the center of debate among political scientists for its apparent political aspect. While I value these three approaches, I aim to present a new argument by focusing my attention on the role of industrial policy. I limit my case studies to the countries hit by the Asian Financial Crisis to assess how state intervention in economic development had contributed to the occurrence of speculative attacks. I hypothesize that industrial policy with its particular

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23 MacIntyre 2001.
measures of embeddedness and autonomy exacerbated the severity of capital flight in each country and undermined state capacity for crisis management. Yet, I exclusively focus on the causes of speculative outbreak with a careful assessment on the preferences of international portfolio owners and why severe currency speculation occurred in the first place. The role of industrial policy and imbalanced embedded autonomy in crisis management remains as a separate research topic.

4. Industrial Policy and Financial Crises

Over the past few decades, East Asian countries achieved unprecedented rates of economic growth. Starting with Japan’s post-World War II economic miracle, followed by South Korea, Taiwan and Singapore, the region raised itself from an abyss of poverty to glorious economic prosperity. The so-called East Asian economic model has been replicated by other developing countries in Southeast Asia, such as Thailand and Indonesia. The grace of the East Asian model continued with great economic success, only to see its ultimate collapse in the Asian Financial Crisis in the late 1990s.

Both economists and political scientists have suggested various theoretical frameworks to assess what caused the crisis. Economists tend to focus on macroeconomic indicators and variables concerning domestic banking sectors, while political scientists look at political institutions such as the number of veto points, elections, regime types and other characteristics of governments. These variables might have contributed to the likelihood of speculative attacks leading to severe financial crises. Yet, several factors distinguish the Asian Financial Crisis from other financial crises.
The region has experienced tremendous economic success by subsidizing and promoting exports under industrial policy through which government expands “beyond simply ensuring property rights, contract enforcement, and macroeconomic stability” by “performing a strategic and coordinating role in the productive sphere.”

This high level of economic performance had been sustained over several decades. South Korea even joined the Organization for Economic Cooperation and Development (OECD) in 1996 right before the crisis. Given these circumstances, the causes of the Asian Financial Crisis remain very puzzling. Among many other causal variables, there is a link between the implementation of industrial policy and the crisis. This approach as a whole is nothing new in the literature. Krugman (1998), for instance, notes that industrial policy generates implicit moral hazard among firms, encouraging them to borrow excessively from foreign investors. While moral hazard certainly played a role in causing speculative attacks, it is necessary to outline detailed causal processes. More importantly, various forms of industrial policy have generated “policy noise” among investors besides the risk of moral hazard. It is not only moral hazard that is induced by industrial policy, but also the breakdown or imbalance of embedded autonomy, causing panic among international investors. The following diagram summarizes my argument. I will elaborate on this summary by defining relevant concepts and outlining causal steps.

24 Rodrik 2007, 100.
Embeddedness

Embeddedness “implies a concrete set of connections that link the state intimately and aggressively to particular social groups with whom the state shares a joint project of transformation.”

1. Governments are unable to capture critical market information, implementing industrial policies that place firms in more risky positions (i.e. encouraging excessive loans from abroad without further consideration of market performance in the future).

2. Market participants misinterpret governments’ intention in implementing policies. This leads to moral hazard and risky investments.

The majority of studies that link industrial policy and financial crises have focused on the second element of diminishing embeddedness. Moral hazard has been frequently discussed by both economists and political scientists. Yet, I focus on the first element to suggest a possible link between industrial policy and currency speculation. While scholars have warned about linking industrial policy and currency speculation, I aim to propose a sector-based model to see why this link should not be dismissed immediately.26

Autonomy

Autonomy is governments’ ability to implement policies without being captured by myopic private interests. Evans states that the notion of developmental autonomy is “an autonomy embedded in a concrete set of social ties that bind the state to society and provide institutionalized channels for the continual negotiation and renegotiation of goals and policies.”27 Autonomy requires sufficient bureaucratic insulation from domestic interest groups and economic agents. Embeddedness without autonomy can create rent-seeking behavior and corruption, which in turn generate an inefficient allocation of capital, making the domestic economy more susceptible to speculative attacks. The existing literature has a well-founded theory linking corruption and the likelihood of financial crisis.28

26 See Haggard and Mo (2000) for their caution about linking industrial policy and financial crises in emerging markets.
Embedded Autonomy

Peter Evans (1996) defines embedded autonomy as the following:

“Embedded autonomy combined Weberian bureaucratic insulation with intense connection to the surrounding social structure, offering a concrete resolution to the theoretical debate over state-society relation.”

Industrial policy without balanced embedded autonomy is susceptible to inefficient policy prescriptions and implementation, which may raise a red flag among financial market participants. I argue that imbalanced or low embedded autonomy is negatively perceived by international investors; they observe some risky prescriptions of industrial policy resulting from imbalanced embedded autonomy, which subsequently leads to currency speculation.

Each victim of the Asian Financial Crisis exhibited various levels of embeddedness and autonomy right before the crisis. Most of them had combinations of broken embeddedness and undermined autonomy. While undermined autonomy has been the main focus of the existing literature through the study of corruption, how embeddedness can diminish in a developmental state is not so clear.

Industrial Policy and Globalization

I propose that embeddedness may wither away if government implements industrial policy in a sector that is globalized and/or technologically advanced, which I will call the GTA sector from now on. I have decided to use these two somewhat ambiguous terms, globalization

29 Measures of embeddedness and autonomy are provided in the empirical test of the model.
and technological advancement in order to emphasize the two most important forces against embeddedness. First, the level of globalization within a sector implies how much foreign capital is present within a sector as a source of investment. This often involves foreign direct investments, joint ventures, and short-term loans from abroad. The more globalized a sector is, the more dependent it is on foreign capital. This, in turn, implies that governments have less to say and know about the sector; the traditional notion of industrial policy is neither efficient in, nor compatible with the particular sector type.

Second, the level of technological advancement is often associated with the level of globalization. This point should appear intuitive. As a sector requires cutting-edge technologies, it is more likely to rely on foreign capital and resources from developed countries. It is inevitable for technologically advanced sectors to become more globalized due to the abundance of foreign capital, opportunities for joint ventures, and fierce competition in a relatively open economy. Both technological advancement and globalization may imply less room for government industrial policy and more room for international capital owners. Hence, governments are less likely to have critical market information in the most globalized and technologically advanced sectors anymore.

Governments face a trade-off between long-term risk and short-term competitiveness when dealing with GTA sectors through industrial policy. While GTA sectors receive substantial foreign capital and assistance, they are still domestic firms, generating wealth and producing many positive externalities within the domestic economy. Governments with industrial policy have an incentive to assist these sectors in many ways such as creating a legal channel through which GTA firms can get foreign capital. Yet, without critical market

30 See page 122 in Rodrik (2007) for more information about the feasibility of industrial policy under globalization.
information (embeddedness), emerging economies are exposed to long-term risks associated with excessive foreign loans. In the meantime, without foreign capital, these sectors cannot compete globally. Governments are also concerned about short-term competitiveness of their industries and have an incentive to implement useful policies for these sectors. The trade-off implies that governments should implement a certain level of industrial policy that optimally lies somewhere between long-term risk and short-term competitiveness. However, this picture is not clear to governments due to the characteristics I have described regarding GTA sectors. In the era of globalization, embeddedness is not only broken, but also creates serious market inefficiencies when governments employ some form of industrial policy without necessary information in GTA sectors.

*The Behavior and Preferences of International Investors*

The question now comes down to how international investors perceive the incompatibility between industrial policy and GTA sectors in emerging markets. Emerging markets are “characterized by a recently instituted, or recently revitalized, set of domestic financial market.”31 It is worth noting that South Korea, Indonesia, Thailand, Malaysia and the Philippines belonged to the group of top twenty emerging markets that attracted foreign investment in 1997.32 Given that these countries received a substantial amount of foreign capital, it is necessary to identify the factors which international investors take into consideration in allocating their capital. According to one of Mosley’ interviewees, investors are especially

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31 Mosley 2003, 103.
32 Ibid., 106.
cautious about political variables in emerging markets.

“Politics are much more important [in developing countries] than in developed markets. Every aspect of policy/performance generates politically related concerns.”

Mosley identifies three different types of risk in emerging markets from investors’ perspectives. While inflation and exchange rate risk remain important, financial market participants also care about the risk of default, which is a much higher possibility in developing nations than developed nations. What’s interesting about her argument is that financial market participants use a narrow amount of information for markets with low default risk and a broad range of information for markets with high default risk. High default risk implies more uncertainty and more asymmetric information problem; governments may be more aware of their own “utility functions, cost-benefit analyses, and current economic and political constraints.” This is why investors try to collect a broader set of information in order to make better sense of riskier markets.

This behavior of market participants is relevant to my argument. The relationship between industrial policy and GTA sectors is only one of the many factors investors consider. I hypothesize that countries like South Korea exhibited lower default risk due to less political instability, stronger macroeconomic fundamentals, etc. This may have led investors into looking at a very narrow amount of information such as the imbalance of embedded autonomy in the country’s GTA sectors while inferring about future policy risks associated with this imbalance.

33 Ibid., 102.
34 Ibid., 112.
35 Ibid., 113.
In addition, currency speculation is not only a mere punishment by market participants for high default risk associated with inefficient policies and weak macroeconomic fundamentals. More importantly, it is a complex information game between emerging economies and investors. Currency risk becomes a concern when market participants believe that pegs will not be maintained. Devaluation of currency means that the values of their assets in emerging markets will decrease. A former top portfolio manager for George Soros’s Quantum Fund, Rob Johnson tells that “the exchange rate to the investor is integral to how you value his investment.”36 The chance of devaluation for open emerging markets not only depends on governments’ willingness and ability to defend their pegs, but also depends on the magnitude of potential currency speculation. If you are an investor with reasonable speculation that other investors will be selling short their assets in an emerging market, you have no other choice, but to act quickly to join the rest of investors in action. This payoff function of an investor often makes the likelihood of currency speculation unpredictable.

While many investors may not have been able to detect the imbalance of embedded autonomy in GTA sectors, there are some perceptive investors, moving ahead of everyone else. Investors indeed draw inference from other “smarter” or “larger” investors’ actions that they know something.37 To be clear, investors do not know who is selling short, but they can see that someone is selling short by looking at asset prices in an emerging economy. When the scale of shorting is large and credible, investors act like a herd, causing more severe pressure on a peg.

The main point of this section is to argue that the majority of investors do not need to perceive the imbalance of embedded autonomy in GTA sectors as a necessary condition for a currency crisis. Currency speculation is not an isolated game between an individual investor and

36 Lewis 2009, 97.
37 Ibid., 102.
government, it is more like an \( n \)-person game with a relatively small number of initial speculators with ability to see political instability, policy pitfalls and other variables that are not evident through government data. More fieldwork should be conducted to see whether investors were aware of the negative side of industrial policy under globalization at the time of the Asian Financial Crisis, but I posit that there was a channel through which such information could be transmitted to some investors who initiated speculative attacks, given their rational profit-seeking behavior.

5. The Model

The following mathematical model is to serve as an illustrative method to examine the relationship between policy risk and embedded autonomy. This model is more comprehensive than my central argument. Whether a country employs industrial policy in GTA sectors is not mapped into the model, but it captures the perverse effect of low or imbalanced autonomy on policy risk. This gives the model a little more flexibility to be incorporated into other cases in addition to countries with industrial policy in GTA sectors. I define policy risk as a broad indicator of potential asset loss due to inefficient government policies, primarily caused by political variables. This is to be taken from an investor’s point of view. Moreover, the simple model exhibits some characteristics of embedded autonomy, of which I was not initially aware. I will go over these characteristics with a graphical representation in the later portion of this section.
\[ \text{PolicyRisk} = \frac{1}{1 + x + y - 1.5|y - x|} + \alpha_i \]

\(0 < x, y < 10\)

\(x = \text{embeddedness}\)

\(y = \text{autonomy}\)

\(\text{RiskLevel: } \alpha_i \geq 0\)

To be clear, the ranges of \(x\) and \(y\) are constructed arbitrarily. I have decided to place embeddedness and autonomy between 0 and 10 for mathematical reasons. First, when both \(x\) and \(y\) are zero, policy risk may be greater than 1 if \(\alpha_i\) is greater than zero. \(\alpha_i\) is a group of factors captured by neither embeddedness nor autonomy, which contribute to increasing policy risk. Examples include elections, inflation and other macroeconomic indicators. Its subscript \(i\) is to recognize that each country has different levels of these variables. An ideal way to build a model is to include these variables, but I ignore this possibility to focus on the impact of embedded autonomy on policy risk. I limit the maximum value of policy risk to be 1 in order to make the model simple.

Notice that when the values of both embeddedness and autonomy are close to 10, meaning there is a very high level of balanced embedded autonomy, the level of policy risk is very low. Yet, \(\alpha_i\) is still present to capture some risk level associated with other political and economic variables, which I assume to have no effect on embeddedness and autonomy. This is a very strong assumption, but I believe that embeddedness and autonomy as broader concepts for government-business relations are representative measures of well-known political variables,
such as electoral politics, interest group influence, the number of veto points, and others. For simplicity, I assume that $\alpha$ does not have effect on $x$ or $y$.\textsuperscript{38}

The model also shows an important relationship between embeddedness and autonomy in terms of policy risk. Evans notes that “either autonomy or embeddedness may produce perverse results without the other.”\textsuperscript{39} Suppose that autonomy is 10 and embeddedness is 5. Substituting the values into the model, policy risk is:

$$PolicyRisk = \frac{1}{5 + 10 - 1.5|5 - 10|} + \alpha_i = \frac{1}{7.5} + \alpha_i = 0.133 + \alpha_i$$

The policy risk is higher than when both autonomy and embeddedness are 5. This feature captures the perverse effects of excessive autonomy. As an additional note, the value in front of the absolute term does not have to be 1.5; it could be replaced by some arbitrary constant $\delta$.

Depending on how much weight one wants to give on the perverse effects of imbalance between autonomy and embeddedness, one can assign an arbitrary value to an extent that policy risk remains positive. For simplicity, I also assume that $x$ and $y$ are exogenous and independent.

To illustrate this concept more visually, I have constructed a three-dimensional graph with $x$ (Embeddedness), $y$ (Autonomy), and $z$ (Policy Risk) with $\delta = 1.5$.

\textsuperscript{38} While this assumption is strong, I believe it is plausible. Embeddedness and autonomy are heavily influenced by economic and political institutions. These institutions persist over time and will not react dramatically to macroeconomic indicators and other factors not captured by $x$ and $y$.

\textsuperscript{39} Evans 1996, 59.
As embeddedness and autonomy increase symmetrically, policy risk decreases. The change is more dramatic in the beginning and more gradual in the end. The model indeed shows a diminishing marginal effect in reducing policy risk, implying that additional symmetric levels of embeddedness and autonomy have less effect on policy risk as they reach higher values. Once
sufficient levels of embedded autonomy are achieved, policy risk depends less on embedded autonomy, but more on other economic political factors. As an additional note, varying $\delta$ does not change this characteristic of diminishing marginal effect. The higher $\delta$ is, the more weight is given on the effect of imbalance between embeddedness and autonomy, making the flat plateau-shaped portion of the graphical model steeper. But, there is an obvious reason for $\delta$ to be greater than 1. The following table computes the values of policy risk when $(x, y)$ is $(10, 5)$ and $(5, 5)$ respectively.

<table>
<thead>
<tr>
<th>Case 1: (8, 4)</th>
<th>Case 2: (4, 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy Risk</td>
<td>$1/8 + \alpha_i$</td>
</tr>
</tbody>
</table>

Notice that the policy risk for each case is the same. This does not make sense. Case 1 exhibits a significant imbalance while Case 2 does not. Yet, they exhibit the same level of policy risk. This is why I assigned 1.5 for $\delta$. It may be greater in empirics, but for now, I maintain this value.

**Figure 5.2: Diminishing Marginal Effect of Embedded Autonomy**
In Figure 5.2 Full embeddedness and full autonomy are shown at the lowest \( z \)-level, marked by *. Policy risk converges to 0 as embeddedness and autonomy approach infinity. Yet, I argue that no developing country lies at this point. There are two reasons for this assumption. First, both embeddedness and autonomy are costly to maintain. For embeddedness, there should be extensive government-business networks through which critical market and policy information is exchanged. These networks are not limited to a few top performing sectors, but should embrace other potentially competitive sectors. Achieving high embeddedness becomes incredibly difficult since most economically powerful sectors have exclusive access to these networks.

For autonomy, bureaucracies must be able to insulate themselves from selfish private interests. Evans, for instance, compares autonomy levels of Brazil and South Korea by looking at exam-based civil service recruitment, meritocratic civil service examinations, and persistence of these historical traditions.\(^4^0\) In addition, Rodrik notes that “industrial policy is open to corruption and rent-seeking.”\(^4^1\) Any of the networks created by governments to facilitate communication with private sector agents can easily transform into non-transparent rent-seeking channels. Furthermore, inefficient institutions (i.e. non-meritocratic bureaucratic recruitment) are highly immune to changes since they are aggressively exploited and persistently maintained by those in power, the elites.\(^4^2\) Institutional persistency makes both embeddedness and autonomy difficult to achieve.

The graphical model exhibits more interesting features. Holding embeddedness close to 0, increasing autonomy does not reduce policy risk. This is intuitive since autonomy without

\(^{40}\) Evans 1996, 51.
\(^{41}\) Rodrik, 2007, 111.
\(^{42}\) For more information on institutional persistency, see Acemoglu, Johnson and Robinson 2001.
embeddedness implies uninformed state intervention and more policy uncertainty for investors. On the other side, holding autonomy at 0, higher embeddedness does not induce lower policy risk for two reasons. First, without policy autonomy, governments are easily swayed by powerful interest groups and elites whose interest often conflict with Pareto-optimal policies. Second, markets without institutions are not self-creating, self-regulating, self-stabilizing, or self-legitimizing. In a rapidly changing open-world economy, institutions should not be static, but dynamic, adjusting themselves in response to new types of crisis and policy challenges. Without policy autonomy, institutions cannot exist in the first place and cannot evolve further. The absence of policy autonomy does not imply laissez-faire. No investor would want to put her money into such a vulnerable market.

What I have described so far through the graphical model is similar to what Evans and Rodrik have elaborated in the economic development literature. Yet, my use of the model is not intended for development diagnostics, but to analyze how international speculators perceive various levels of embedded autonomy. Haggard and Mo (2000) maintain a cautious view on inter-connecting the role of industrial policy, corruption, and financial crisis. Instead, they give greater emphasis to “the politically motivated conduct of macroeconomic policy and to risks associated with deregulation.” In response to their concern, I argue that the 3-D model captures their emphasis in the following way. First, deregulation stems from a country’s obsession with development. As I have explained previously, government faces a trade-off between short-term growth and long-term risk. Deregulation may increase the volume of economic transactions in a short term, but may reduce the quality of transactions in a long term. Deregulation can occur if there is imbalance between embeddedness and autonomy. First, when

---

43 Rodrik 2007, 156.
44 Haggard and Mo 2000, 198.
there is more embeddedness than autonomy, various domestic interest groups have more leverage in advocating deregulation in favor of their economic activities. Second, when there is more policy autonomy, government may maintain insufficient regulation to promote economic activities and transactions, especially in the financial market. This latter channel to imbalance is what my main argument addresses, but the model can be easily applied to the former.

Compared to MacIntyre’s U-shaped model, the 3-D model also has an advantage. While the U-shaped model only shows the relationship between policy risk and the number of veto points, the 3-D model captures a dynamic nature of policy autonomy characterized by the number of veto points and Weberian scores. Note from the diagram below that when the symmetric value of embedded autonomy is small, policy risk is much more responsive to changes in embeddedness and autonomy. When there is imbalance between embeddedness and autonomy with small values of x and y, policy risk responds dramatically. On the other hand, when there is a high symmetric value of embedded autonomy, policy risk becomes less responsive to changes in x and y. Yet, as I mentioned before, both embeddedness and autonomy are costly to improve. I assume that most developing countries lie in the narrower portion of the graphical model with East Asian Tiger situated close to the center. This implies relatively high fluctuations of policy risk among developing countries once their balance between embeddedness and autonomy is broken. Each cross section of the model represents a particular curve of U-shaped function, meaning each country faces different policy risk functions depending on their constraints of embeddedness and autonomy. MacIntyre’s curve, however, assumes a uniform model for Indonesia, Malaysia, Philippines, and Thailand. I argue that each country should be studied from its respective curve.
The following two-dimensional figures show how policy risk curves are unique for each level of embeddedness and autonomy.

**Figure 5.3: Dynamic Nature of Policy Risk 3D**

**Figure 5.4: Dynamic Nature of Policy Risk with Embeddedness (2D)**
This figure shows how policy risk responds to an increase in embeddedness, holding autonomy measures constant. Countries with low autonomy exhibit higher policy risks when embeddedness increases beyond a certain point. This is intuitive since more embeddedness with less autonomy implies rent-seeking behavior and corruption.

**Figure 5.5: Dynamic Nature of Policy Risk with Autonomy (2D)**

This figure shows how policy risk responds to an increase in autonomy, holding embeddedness measures constant. Countries with low embeddedness exhibit higher policy risks when autonomy increases beyond a certain point. This is intuitive since more autonomy with less embeddedness implies uninformed state intervention that might counteract market efficiencies. Note that MacIntyre’s U-shaped curve is symmetric and categorizes each country with its number of veto
points and policy risk. Countries with low embeddedness (represented by $L$) show a curve very similar to MacIntyre’s. This is not a coincidence since mere autonomy can be interpreted to imply a lower number of veto points. Yet, this dynamic model captures what MacIntyre misses; he held embeddedness as a constant variable. Embeddedness is fundamentally a different concept from the number of veto points. Just because a state has multiple veto points, this does not mean that wealth of market information is flowing into bureaucracies. The concept of veto points contains more of political connotation while embeddedness implies both political and economic channels through which market information is effectively transmitted to appropriate bureaucracies. The two by two table on the next page summarizes the model as an application for my central argument in the paper.

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45 The definition of autonomy I use is different from that of some scholars. My perception of autonomy features the concept of bureaucratic competency. This is to be discussed in Section 6, an empirical test of the model.
6. An Empirical Test of the Model

What the model is missing

First, the model is subject to criticisms for assuming the same level of embeddedness across various economic sectors within a country. For instance, embeddedness in the high-tech sector may be substantially lower than embeddedness in the agricultural sector either because the high-tech sector is relatively new in the economy or because of some information costs incurred

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46 While it might be puzzling to see very high risk in the LOW-HIGH and HIGH-LOW quadrants and high risk in the LOW-LOW quadrant, I argue that as long as embeddedness and autonomy are not too low, the imbalance of embedded autonomy places emerging economies at more risky positions. This classification is to be proven by the model in the later section.
by governments (i.e. difficulty in hiring competent bureaucrats with expertise in this sector). The best way to deal with this problem is to get specific values of embeddedness and policy autonomy for GTA sectors only. Yet, data are not yet available on these measures. Second, the model does not account for the contagion effect. Since Thailand abandoned its peg, speculators turned their eyes to its neighboring countries. This may have caused more scrutiny and speculation in the region. I aim to use case studies in order to reconcile any potential discrepancies between the model’s predictions and empirical findings.

Dependent variable: policy risk

Several organizations provide credit indicators for developing and developed countries. Such organizations include Standard & Poor (S&P)’s sovereign credit ratings and Euromoney’s bi-annual country-risk index. They measure the ability and willingness of governments to finance external debts in the future. While the indicators rely on a variety of economic and political factors, I instead use the actual portfolio investment liabilities data from 1996 and 1999 as indicators of policy risk from the investor’s point of view. As I have argued previously, currency speculation is not a mere market punishment. As long as governments are not deemed credible with their commitment to the pegs, speculation will occur regardless of credit ratings. Regardless, I still maintain the assumption that financial market participants are rational profit-seeking actors. Yet, they still need to justify their speculation decisions even in the midst of an ongoing crisis. The following table provides portfolio investment liabilities from 1996 to 1999 in Indonesia, South Korea, the Philippines, and Thailand.

47 Evans 1996, 93.
48 For more information on the contagion effect during the Asian Financial Crisis, see Chapter 4 in “The East Asian Currency Crisis” by Mihir Rakshit.
Table 6.1: Portfolio Investment Liabilities (US $ Billion)\textsuperscript{49}

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>5.01</td>
<td>-2.63</td>
<td>-1.88</td>
<td>-1.79</td>
<td>-137.52%</td>
</tr>
<tr>
<td>South Korea</td>
<td>21.51</td>
<td>13.31</td>
<td>0.77</td>
<td>7.91</td>
<td>-96.42%</td>
</tr>
<tr>
<td>Philippines</td>
<td>5.13</td>
<td>0.6</td>
<td>-0.33</td>
<td>3.92</td>
<td>-106.43%</td>
</tr>
<tr>
<td>Thailand</td>
<td>3.72</td>
<td>4.57</td>
<td>0.34</td>
<td>-0.11</td>
<td>-90.86%</td>
</tr>
</tbody>
</table>

Independent variables: embeddedness and autonomy

I am aware that embeddedness and autonomy are very broad terms to portray government-business relations. Yet, I employ the following data sources in Table 6.2 to test the model. The measure of embeddedness is characterized by Regulatory Quality. This measure is controversial since it measures embeddedness when there is sufficient bureaucratic competence. My justification for using this measure for embeddedness comes from the fact that no high regulatory quality is possible without embeddedness. Reading the detailed description of the measure on the World Bank website, I believe this represents a fair view of embeddedness.

Table 6.2: Measures of Embeddedness and Autonomy\textsuperscript{50}

<table>
<thead>
<tr>
<th>Embeddedness</th>
<th>Autonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regulatory Quality</strong> measures the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.</td>
<td><strong>Control of Corruption</strong> measures the extent to which public power is exercised for private gain, including petty and grand forms of corruption, as well as “capture” of the state by elites and private interests.</td>
</tr>
<tr>
<td><strong>Government Effectiveness</strong> measures the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies.</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{49} Source: IMF, Balance of Payments Statistics (Yearbook 2009). Malaysia has been excluded for the data discrepancy between IMF and the Bank of Malaysia.

\textsuperscript{50} The data and descriptions are from the World Banks’ Worldwide Governance Indicators, 1996 – 2008.
The raw data, however, need to be adjusted to the model. First, I set *Regulatory Quality* of the United States as 7.5 to be used as embeddedness in the model. While there is no justifiable reason for this value, I believe that this value is high enough to portray the regulatory quality of the United States in 1996. Then, I use this value as a basis to calculate the other two values of the United State and make subsequent calculations for other countries. Second, I take the average of *Control of Corruption* and *Government Effectiveness* to calculate the level of autonomy. *Control of Corruption* is an important factor of autonomy. This indicator measures the degree of policy insulation from private interests. Without policy insulation, a state cannot be considered to be autonomous. In the meantime, *bureaucratic effectiveness* is another important trait of autonomy. Let me clarify that the concept of autonomy used in this paper does not represent mere insulation from egotistic private interests. An autonomous state consists of competent bureaucrats recruited through competitive national civil exams. Mere policy insulation without bureaucratic competency lacks policy transparency, which is an important indicator of whether a state makes independent policy decisions. Yet, *bureaucratic effectiveness* does not overlap with the concept of embeddedness. A competent bureaucracy does not necessarily imply high embeddedness. Bureaucratic competency measures bureaucrats’ ability to comprehend complex information about various economic and political phenomena. This, however, does not mean that they have access to the most accurate information about the market in the first place; embeddedness indicates whether bureaucrats have access to critical market information.

While different weights could be given to the two measures, I have chosen to use the average for simplicity. The following table shows adjusted data for Indonesia, South Korea, the
Philippines, Thailand and the United States. Detailed calculation procedures are provided in Appendix A.

<table>
<thead>
<tr>
<th>Country</th>
<th>Weberian Score</th>
<th>Embeddedness</th>
<th>Autonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>N/A</td>
<td>4.72</td>
<td>3.83</td>
</tr>
<tr>
<td>South Korea</td>
<td>13</td>
<td>5.03</td>
<td>6.04</td>
</tr>
<tr>
<td>Philippines</td>
<td>6.0</td>
<td>5.38</td>
<td>4.08</td>
</tr>
<tr>
<td>Thailand</td>
<td>8.0</td>
<td>4.95</td>
<td>4.61</td>
</tr>
<tr>
<td>United States</td>
<td>N/A</td>
<td>7.50</td>
<td>7.52</td>
</tr>
</tbody>
</table>

I added a column for Evans’ Weberian scores to see the comparability between my measure of autonomy and Evans’ Weberian scale, which “offers a simple measure of the degree to which core state agencies are characterized by meritocratic recruitment and offer predictable, rewarding long-term career.”\(^{51}\) The autonomy indicator provides the measure of bureaucratic effectiveness with which governments interpret information influx from the private sector and implement optimal policies for development: autonomy. Note that the ranking of Weberian scale and the ranking of autonomy are the same for the selected countries in the table.

Using the formula in the model, each country’s respective policy risk prediction is calculated in the following table. Note that policy risk does not mean the probability of losing asset values. Rather, it is to be used as relative values to rank each country in terms of policy risk.

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\(^{51}\) See Evans and Rauch (1999) for more information about the Weberian scale.
Table 6.4: Embeddedness and Autonomy for Selected Countries in 1996

<table>
<thead>
<tr>
<th></th>
<th>Embeddedness</th>
<th>Autonomy</th>
<th>Policy Risk</th>
<th>% Change 96-98</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>4.72</td>
<td>3.83</td>
<td>14.53%</td>
<td>-137.52%</td>
</tr>
<tr>
<td>South Korea</td>
<td>5.03</td>
<td>6.04</td>
<td>9.47%</td>
<td>-96.42%</td>
</tr>
<tr>
<td>Philippines</td>
<td>5.38</td>
<td>4.08</td>
<td>11.75%</td>
<td>-106.43%</td>
</tr>
<tr>
<td>Thailand</td>
<td>4.95</td>
<td>4.61</td>
<td>9.95%</td>
<td>-90.86%</td>
</tr>
</tbody>
</table>

The correlation between policy risk and net portfolio change during the crisis is strikingly high, approximately -0.971, meaning there is a strong negative correlation between policy risk and portfolio inflow; as policy risk goes up, portfolio inflow decreases. Figure 6.1 shows this relationship with adjusted values of Policy Risk and % Change in Portfolio Liabilities. The values have been made comparable with Policy Risk multiplied by 10 and $ Change in Portfolio Liabilities multiplied by -1.

Figure 6.1: Adjusted Policy Risk and % Change in Portfolio Liabilities in 1996
While the sample size is too small to be tested statistically, the model has turned out to be quite accurate. Moreover, South Korea’s autonomy is significantly higher than its embeddedness, which was my initial prediction. For Indonesia, the Philippines, and Thailand, embeddedness is greater than autonomy. Although these countries are tangential to my central argument on the role of industrial policy in GTA sectors, the simple formal model presented here is capable of dealing with the opposite scenario in which embeddedness exceeds autonomy. In order to test the model qualitatively, I employ two case studies on South Korea and Indonesia. The Indonesian case will be used to test my model in assessing potential causal channels through which Indonesia’s high embeddedness relative to its autonomy sparked massive portfolio capital flight. Moreover, the complexity of Indonesian politics is interesting in studying how politics played a role in dragging the country into a financial debacle.

7. Case Study I: South Korea

The Embedded Autonomy

According to Table 6.4, South Korea’s embedded autonomy shows a significant imbalance with autonomy higher than embeddedness by almost 20%. This discrepancy could be seen as an indicator that the South Korean government had exerted strong influence in 1996. Compared to the other three developing states in the table, South Korea had much more influence in its industrial policy with a high Weberian score. Some scholars, however, disagree on this point. For instance, looking at the auto industry, Lew argues that “Career bureaucrats did not exercise any decisive influence on the development of the South Korean automobile industry
In 1960s.\textsuperscript{52} Lew also has termed the state’s policies “inconsistent and incoherent” due to the pervasiveness of the automobile chaebol’s influence on Korean developmental plans.\textsuperscript{53} The South Korean automobile industry is one of the important GTA sectors in my argument. And, if these scholars are right, my assertion that South Korea had more autonomy than embeddedness might not be valid anymore.

In order to defend my argument, I bring up two issues with the literature of South Korean corruption. First, regardless of the level of private influence in policy making, South Korea’s economic success was a direct result of the state’s ability and capacity to implement effective industrial policy.\textsuperscript{54} Compared to other developing countries in the region, South Korea has exhibited high bureaucratic competence and effectiveness. In 1980, the Korean government even introduced a plan “to merge Hyundai Motors with Daewoo’s Saehan subsidiary to produce passenger cars, while forcing Kia Industries out of the passenger car market.”\textsuperscript{55} Although the plan did not come into effect, that the government was able to design and try to implement such pervasive state intervention shows a very high level of autonomy. Second, what Lew noted about the automobile industry was in the 1960s, in which Park’s authoritarian regime continued its reign with a large political campaign budget paid by the owners of chaebol. Kang (2002) portrays this relationship between the state and chaebol through the concept of mutual hostages, meaning both the ruling party and chaebol were in need of each other for their own gains. Yet, the political atmosphere dramatically changed after the first civilian party came into power under Kim Young Sam’s political leadership. While the vestiges of corruption certainly remained, the South Korean institutions became more transparent in the 1990’s.

\textsuperscript{52} Lew 1992, 151.
\textsuperscript{53} Kang 2002, 111.
\textsuperscript{54} Amsden 1989.
\textsuperscript{55} Kang 2002, 111.
While I understand that transparency does not necessarily imply more independence of the state from private interests, I also want to point out that policy inconsistency does not mean less bureaucratic competence. As I have argued before, less embeddedness is indeed an important causal factor for policy inconsistency; without necessary market information, bureaucrats try to implement a poorly applicable policy, which often yields policy inconsistency and incoherence. This is a whole separate debate in the development literature, and much more assessment should be given to whether South Korea was a strong state. Yet, relying on Table 6.4 and my justification provided in this section, I assert that South Korea had sufficient autonomy to offset strong pressure from chaebol.

The Economy

The most striking feature of the South Korean economy is the presence of giant conglomerates, called chaebol. These enterprises account for a significant portion of the South Korean gross national product. They not only had leading roles in boosting the growth of economic development in almost every sector during the golden era of industrial policy, but also had invested in highly globalized and technologically advanced sectors such as semi-conductors and auto industries. Some of the chaebol mentioned in this section are well-known not only in their home country, but also globally. For these characteristics, the South Korean case is an important example for my central argument. The following table shows the historical trend of the top four chaebol’s economic influence in the country.

56 See Kang 2002, 169 for more information about chaebols’ over-diversification.
Figure 7.1: Value Added to GNP by Four Largest Chaebol, 1986-1995 (%)\textsuperscript{57}

![Graph showing value added to GNP by four largest chaebol, 1986-1995.](image)

Table 7.1: Value Added to GNP by Korea’s Four Largest Chaebol, 1986-1995 (%)

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyundai</td>
<td>1.90%</td>
<td>1.90%</td>
<td>1.90%</td>
<td>2.10%</td>
<td>2.00%</td>
<td>2.20%</td>
<td>2.30%</td>
<td>2.30%</td>
<td>2.40%</td>
<td>2.90%</td>
</tr>
<tr>
<td>Samsung</td>
<td>1.20%</td>
<td>1.30%</td>
<td>1.60%</td>
<td>2.20%</td>
<td>2.00%</td>
<td>1.80%</td>
<td>1.90%</td>
<td>2.00%</td>
<td>2.40%</td>
<td>3.10%</td>
</tr>
<tr>
<td>LG</td>
<td>1.20%</td>
<td>1.20%</td>
<td>1.30%</td>
<td>1.40%</td>
<td>1.40%</td>
<td>1.60%</td>
<td>1.60%</td>
<td>1.80%</td>
<td>2.10%</td>
<td></td>
</tr>
<tr>
<td>Daewoo</td>
<td>1.40%</td>
<td>1.30%</td>
<td>1.10%</td>
<td>1.20%</td>
<td>1.20%</td>
<td>1.20%</td>
<td>1.30%</td>
<td>1.20%</td>
<td>1.20%</td>
<td>1.20%</td>
</tr>
<tr>
<td>Total</td>
<td>5.70%</td>
<td>5.70%</td>
<td>5.90%</td>
<td>6.90%</td>
<td>6.60%</td>
<td>6.60%</td>
<td>7.00%</td>
<td>7.20%</td>
<td>7.80%</td>
<td>9.30%</td>
</tr>
</tbody>
</table>

In 1995, the top four chaebol’s economic influence accounted for 9.3% of the entire South Korean economy. This extraordinary high concentration of economic power implies that GTA sectors were the single most important driving force of economic development. More strikingly, their debt-equity ratios in 1996 were extremely high as shown in Figure 7.2.

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Table 7.2: Debt/Equity Ratio of Korean Chaebol, 1996 (%)\textsuperscript{58}

<table>
<thead>
<tr>
<th></th>
<th>Hyundai</th>
<th>Samsung</th>
<th>LG</th>
<th>Daewoo</th>
<th>Top 1 - 4</th>
<th>Top 5 – 10</th>
<th>Top 11- 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt (% of Equity)</td>
<td>373.29</td>
<td>207.60</td>
<td>313.08</td>
<td>334.35</td>
<td>295.50</td>
<td>360.97</td>
<td>503.85</td>
</tr>
<tr>
<td>Rank in Sales</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Given these data, currency speculators sensed the high vulnerability of the economy before the initial speculation. However, this is not the end of story. As I have argued about the preferences of portfolio investors, they closely examine policy risk and political indicators.

South Korea’s rapid development in the 70’s and 80’s attracted the attention of numerous economists and international investors. The East Asian model of economic growth was deemed to be effective and efficient despite its obvious contradiction with the Washington Consensus. Yet, in 1995 the crisis, the chaebol were struggling with loans especially those from foreign investors. More scrutiny about industrial policy probably rose among international investors who witnessed the high debt/equity ratios and the fall of the Thai Baht in July 1997. Moreover, these investors were able to infer about the state’s institutional characteristics by looking at improper regulations in GTA sectors.

The puzzle is why proper regulatory measures did not take place. While corruption certainly played a role in the delay of improving regulations in GTA sectors, I argue that the lack of embeddedness in these sectors and the state’s obsession with development left the government uninformed. In addition, given their economic significance in the country, any of these companies’ downfalls would have been deemed detrimental to the whole economy.

GTA Sectors

In his 1996 book, *Embedded Autonomy*, Evans acclaims South Korea’s information technology sector for its high level of embedded autonomy and significant success. He argues that “Networks of concrete ties connecting the state and the relevant firms were crucial to developing local information technology capacities.”59 In fact, all of the top four *chaebol* maintained business in the electronics industry, which was initially selected by the Park Chung Hee regime as one of the six industries to be promoted under the Heavy and Chemical Industry in Plan 1973.60 Despite being a late starter compared to India and Brazil, “Korea was well on its way to having a formidable IT industry by the mid-1980s.”61

While these close government-business relations facilitated the initial stage of instituting the sector, the forces of globalization inevitably made it difficult to maintain embedded autonomy. Evans does not overlook this possibility. He cites the World Bank report (1993, 183), which states “relations between government and business have become more distant and the meeting [between them] less frequent.”62 The more globalized the sector became, the less information the state had about the sector. The South Korean state as a social planner of economic development had sufficient policy autonomy with insufficient information in GTA sectors.

As embeddedness started diminishing, the government began to loosen regulations regarding external loans. Firms became less dependent on government channels to get foreign loans at the end of the 1980s; they were directly pursuing capital abroad on their own.63

Moreover, the banks and *chaebol* were even allowed by the government “to borrow overseas in

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60 Ibid., 125.
61 Ibid., 126.
order to finance increased industrial expansion.”\textsuperscript{64} Due to its relatively new developmental state status and thirty-five years of colonialism followed by the devastating Korean War, South Korea’s capital market was seriously weak.\textsuperscript{65} As the country’s chaebol shifted to GTA sectors, there was an urgent need for abundant capital. The state’s desire to continue its economic miracle, combined with chaebol’s aggressive expansion generated a significant amount of external debts of which “short term debt was more than three times the size of its reserves, a higher ratio than for any other country in the region.”\textsuperscript{66} Once seen as a balanced embedded autonomy, South Korea’s growing GTA sectors contributed to the diminishing information exchange between bureaucracies and agencies. The state’s obsession with rapid development resulted in insufficient regulations for the rapidly-expanding chaebol and made bureaucratic agencies implement uninformed policies.

A different view is presented by Haggard (1996). Haggard argues that “pressures from business were compounded by broader political factors,” which subsequently resulted in bureaucratic inability to implement “an important set of financial reforms.”\textsuperscript{67} This strong pressure from the private sector coupled with the fragmentation of the ruling party and the presidential election contributed to “a more general uncertainty about the capacity of the government to respond to the crisis.”\textsuperscript{68} While Haggard places more emphasis on the role of diminishing autonomy, my argument focuses on the role of diminishing embeddedness, which appears to be contradictory at first glance. However, both Haggard and I are focusing on the same intermediate causal process, insufficient regulations. I argue that more strict regulations did not take place due to state’s inability to get critical market information about GTA sectors.

\textsuperscript{64} Stubbs 2005, 205.  
\textsuperscript{65} Evans, 1996, 232.  
\textsuperscript{66} Stubbs 2005, 205; Smith 1998.  
\textsuperscript{67} Haggard 1996, 55.  
\textsuperscript{68} Ibid.
This inability comes from the structural nature of GTA sectors; the government was unable to catch up with the trend in the sectors, while promoting short-term competitiveness for these sectors.

Haggard argues that the inability comes from the aggressive lobbying behavior of chaebol, which implies high embeddedness without sufficient autonomy. However, Table 6.4 indicates a high level of autonomy and a low level of embeddedness. The policy autonomy measure I provided in the earlier section gives more weight to my argument that high autonomy combined with low embeddedness was the one that created regulatory pitfalls. While it may be too simplistic to argue that the measure of embeddedness is adequately represented by Regulatory Quality, it is a new way of looking at the cause of insufficient regulation. Perhaps, it is the case that lobbying activities in maintaining the status quo regulations were successful due to governments’ inability to capture accurate market information. Regardless, the relationship between diminishing embeddedness and insufficient regulations suggests a convincing argument that the literature has been focusing excessively on corruption and domestic interest group politics in studying the causes of currency crisis; it offers a new perspective in assessing the sources of delayed regulatory reforms. Yet, more fieldwork should be done specifically on the nature of embedded autonomy within the South Korean GTA sectors to support the central argument of this paper.

*The Collapse of the Won and After*

South Korea along with Indonesia experienced the most serious impact of the Asian Financial Crisis. The heavily indebted chaebol were struggling with their down-sloping performance in the export sector, on which the entire South Korean economy relied. Given
chaebol’s inability to repay debts and inefficient business strategies, speculation took place, and the won was eventually abandoned. This was not a mere market punishment in response to the low economic performance with heavy external debts. The won started depreciating rapidly as shown in Figure 7.2.

Figure 7.2: Exchange Rate Fluctuations of the Won (per U.S. $) from 1997 to 1998

The South Korean currency crisis was an expression of the market’s scrutiny over industrial policy in GTA sectors. The GDP declined by 5.8 percent in 1998, but recovered rapidly in 1999. At the same time, foreign portfolio investment started flowing into the economy. Yet, compared to the country’s 1996 level, the investment level in 1999 was still very low. It was not until 2003 when the country restored its pre-crisis investment level.

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69 See Table A6.1.3 in Rakshit 2002; Source: The Economist
70 Stubbs 2005, 207.
Regardless, South Korea showed a remarkably fast recovery progress. It may be due to the post-crisis reforms that restored the balanced embedded autonomy to a certain extent. While the scope of this paper is limited to the causal role of industrial policy during the initial process of currency speculation, industrial policy also might have a significant role in the recovery process. This question remains an interesting future research topic.

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8. Case Study II: Indonesia

The Embedded Autonomy

Even though Suharto’s sole dominance in the Indonesian politics as one single veto player could depict Indonesia as a highly autonomous state, I want to start with a refutation of this myth. As I have discussed previously, the presence of one single veto player lacks policy transparency, an essential factor of autonomy.\textsuperscript{72} While I acknowledge the regime’s “enviable record of macroeconomic management and a capacity to respond swiftly in the face of looming crises,” its micro-interventions were corruption-prone and vulnerable to “being captured” by private interests.\textsuperscript{73} Moreover, its embeddedness still is the lowest of the four countries in Table 6.4, meaning it had the worst regulatory quality with the least amount of information inflow from the private sector. This indicates that the regime’s interventions in the market were under high scrutiny of international investors. Yet, the Indonesian economy managed to perform exceptionally well prior to the crisis. While this is an interesting question within the economic development literature, I solely focus on why Indonesia experienced the worst economic downfall given the measures in Table 6.4.

Not only Indonesia has the lowest measures of embeddedness and autonomy, the discrepancy between the two measures is also quite large. I have discussed why higher autonomy with lower embeddedness could raise policy risk for international investors in the South Korean case. Yet, it is worth putting some thoughts in the opposite scenario. Note that the measure of policy autonomy is a synthesized indicator of corruption and bureaucratic effectiveness, while the measure of embeddedness is constructed by regulatory quality. Indonesia’s imbalanced embedded autonomy therefore can be interpreted as a relatively corrupt

\textsuperscript{72} See MacIntyre 2001 for his classification of Indonesia as a single-veto-player state.
\textsuperscript{73} Hill 1996, 166.
ineffective government with some regulatory quality. That there is higher regulatory quality than autonomy means some private information is flowing into bureaucracies. Yet, the types of information ties and policy implementation channels are not transparent because of less bureaucratic effectiveness and corruption. I argue that some regulatory quality was achieved through a small circle of powerful private interests and core support groups of Suharto. Yet, lower autonomy still means Indonesian bureaucracies were not able to implement the most optimal policies for the whole country, given the amount of market information. Suharto’s political dominance and his act of rewarding his children’s firms and support groups indeed undermined the policy autonomy of the state while increasing his own dominance; Indonesia’s autonomy was captured by its own leader and Suharto’s allies under its regime.

Indonesia’s embedded autonomy was not only imbalanced, but also significantly weak, which further exacerbated policy risk for international portfolio investors. Pepinsky (2009) characterizes this business-government structure as the New Order that “rested on an alliance between the military and small coterie of ethnic Chinese Indonesian entrepreneurs.”74 Since Suharto seized power in 1996 with the support of the Armed Forces of Indonesia (ABRI), he and his allies within ABRI started building up “business empires” in sectors such as construction, real estate and forestry.75 More importantly, ABRI continued acting like a sociopolitical force within the Indonesian economy in addition to its traditional role as the defender of national security. With military personnel in the Indonesian policy-making realm, it is difficult to see that bureaucrats were well insulated from egotistic private interests. Moreover, policy-making processes were hardly transparent.

74 Pepinsky 2009, 40.
75 Ibid., 47.
Yet, what’s striking about Indonesia is that it managed to maintain some regulatory control, which could not be achieved without embeddedness. The presence of Chinese Indonesian financier explains this puzzle.

“With the protection of ABRI, a small number of well-placed ethnic Chinese businessmen developed giant corporate empires, known as *konglomerat*, with diversified interests and large pools of investment capital.”

Historically, Chinese Indonesians suffered severe discrimination as an ethnic minority (3% of the population) in Indonesia. With Indonesia’s New Order coming into existence, the ethnic Chinese did not forgo this opportunity. They built intimate political and business relationships with Suharto and ABRI figures, providing the regime with a cut of their profits and facilitating “the entry of ABRI figures into business.” Yet, the *Konglomerat* “retained an important source of leverage against the potential for expropriation.” They were capable of launching capital flight in case of political turmoil. The presence of this political leverage implies that the regime was somewhat embedded in the interests of the ethnic Chinese in Indonesia.

*The Economy and Sectoral Transition*

Compared to South Korea, Indonesia’s economy was more concentrated in the primary sector, mainly agricultural and mining. Yet, over the course of economic development in the late
twentieth century, the Indonesian economy swiftly moved into more manufacturing production. Figure 8.1 shows this transition with three major sectors of the economy.

Does this sectoral transition have anything to do with my central argument on the role of imbalanced embedded autonomy in exacerbating policy risk for international portfolios? My answer to this is affirmative. First, the manufacturing sector exceeded the agricultural sector around 1990. This point coincides with the influx of massive foreign capital in the 1990s. Figure 8.2 shows the influx of both FDI and Portfolio capital.

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Under the capital liberalization of the 1980s and 1990s, both FDI and portfolio capital started flowing into the Indonesian economy at a very rapid rate. The manufacturing sector maintained steady growth rates due to this constant inflow of foreign capital. Yet, the main beneficiaries of the liberalization were Chinese Indonesians who dominated the emerging private sector. Indonesia’s growing manufacturing sector was characterized by the political relationships between the ethnic Chinese and Suharto, which were “more likely to be personal, clientelistic, and nontransparent, exactly the circumstances under which corruption and private dealing flourished.”

Second, Suharto had access to petrodollars due to the country’s increasing oil production, consumption, and exports during the 1990s. Figure 8.3 shows this trend. The Indonesian petroleum market was completely monopolized by the state-owned oil company, Pertamina until

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82 Haggard 2000, 44.
83 Ibid., 45.
October 2001 when the new Oil and Gas Law forced the company to “relinquish its role in granting new oil development licenses and limited the company’s monopoly in upstream activities.”

Suharto’s access to petrodollars provided “the opportunity for a variety of programs that advanced *priyumi* businesses, from preferential awarding of contracts to bank lending.”

As the Indonesian manufacturing sector was growing in the hands of Chinese Indonesian *konglomerat*, the firms were relying on Suharto’s corrupt industrial policy. Oil money gave more political and economic power to Suharto while undermining the state’s effective bureaucratic autonomy. Although more fieldwork is required to see if these factors were taken into consideration by major initial speculators, Indonesia’s secotral transition and corrupt industrial policy with the Chinese Indonesian *koglomerat* suggests a possible causal relationship between its imbalanced embedded autonomy and currency speculation.

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**Figure 8.3: Crude Petroleum Market in Indonesia ('000 m.t.)**

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85 Haggard 2000, 45. Also, see Winters 1996, Chapter 3.
The Collapse of the Rupiah and After

The rupiah’s fall came as a surprise from the perspective of economics. The country’s macroeconomic indicators showed few warnings of currency speculation while the current account deficit was low relative to Thailand.\(^87\) In addition, the signs of overinvestment or an asset bubble were non-existent.\(^88\) One way of assessing this puzzle, like many other scholars, is through the contagion effect that was initiated when the Thai baht fell. In addition to immediate economic consequences of an initial crisis in the region, investors also care about what others will do tomorrow. In fact, once a crisis breaks out, investors start playing an \(n\)-person game to maximize (minimize) their gains (losses). Besides economic indicators, investors look at political institutions and conditions to find whether others will withdraw their capital from a particular country. If the majority of investors choose to do so, then an individual investor has no other choice, but to join the herd. During this process, scrutiny about government policies is intensified; investors closely examine a variety of variables in addition to economic indicators. Imbalanced imbedded autonomy within a sector indeed is one of these political variables from the perspective of investors.

Moreover, *Konglomerat* had close connections with domestic banks in Indonesia. The detrimental influence of the imbalanced embedded autonomy was spreading into the Indonesian banking sector through these firms and became an importance source for the government’s failure to “restrain money supply growth and raise interest rates to levels high enough to protect

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\(^87\) Haggard 2000, 65.
\(^88\) Ibid.
the rupiah exchange rate.”

“Demands from connected firms to ease tight liquidity conditions” contributed to the government’s inability for hedging against speculative attacks.

Figure 7.2: Exchange Rate Fluctuations of the Rupiah (per U.S. $) from 1997 to 1

The rupiah was the far worst of all during the crisis in terms of magnitude and the period of fluctuation. Moreover, the real economy was the largest fall in output among other crisis-hit countries. Policy Risk in Table 6.4 confirms this magnitude of the Indonesian crisis. The crisis not only left an unforgettable scar on the memories of the Indonesian people and their economy, but also caused the breakdown of Suharto’s regime. While the goal of this paper is to explore the role of industrial policy and imbalanced embedded autonomy in causing speculative attacks during the Asian Financial Crisis, whether a particular type of embedded autonomy accounts for each country’s capability to perform efficient crisis management remains interesting. I leave this question as a future research topic.

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89 Pepinsky 2009, 94.
90 Ibid.
91 See Pepinsky (2009) for more information on the relationship between economic crises and authoritarian regimes.
Conclusion

The study of financial crises in developing countries is much more complex due to the apparent interactions between politics and economics. Investors examine the politics within developing countries with much more scrutiny and base their decisions on a variety of political factors. The political science literature on the Asian Financial Crisis has focused on one or several individual political factors at a time to assess the dimensions of politics that could account for the outbreak of the crisis. Yet, a large number of variables should be studied at the same time due to the importance of their interactions. While my model is employing somewhat ambiguous concepts: embeddedness and autonomy, I believe a large number of political variables are mapped into these concepts in a comprehensive way as a trade-off. The model is subject to criticisms for its oversimplification and lack of adequate data sources. Yet, there is much room for improvement in the future as more fieldwork and specific data gathering are conducted. Moreover, the relationship between embeddedness and autonomy provides a sound theoretical foundation in studying the role of industrial policy as a cause of currency speculation.

Sectoral dynamics combined with industrial policy generated different effects on embedded autonomy. In South Korea, the government became less embedded as firms started moving into GTA sectors. The state’s obsession with development exacerbated the consequences of imbalanced embedded autonomy by promoting short-term competitiveness through deregulation in these sectors. In Indonesia, the Suharto regime’s relationship with a small group of the Chinese Indonesian entrepreneurs contributed to its particular imbalanced embedded autonomy. This imbalance was further exacerbated as the konglomerate-dominated manufacturing sector was growing larger under the liberalization of the 1980s and 1990s. The coalition formed by Suharto, ABRI and konglomerat was at the center of creating this
imbalanced embedded autonomy. When Thailand unsuccessfully defended its peg, investors moved swiftly to assess its neighboring countries and launched subsequent speculative attacks. The model and my assessment on the behavior and the preferences of international investors imply that industrial policy played an important role during the Asian Financial Crisis.

Furthermore, my argument suggests that corruption is neither a sufficient condition nor a necessary condition for deregulation. Deregulation can result from low embeddedness and a state’s obsession with development. While corruption certainly plays a role in increasing the likelihood of deregulation, a more thorough research should be conducted on the sources of deregulation and how deregulation from each source differs from others. Also, the literature on the behavior and preferences of portfolio investors is still underdeveloped. Although Mosley’s book, *Global Capital and National Governments* provides a useful illustration, investors’ views on very narrow political variables still remain uncertain. In order to assess potential political variables in the study of currency speculation, more fieldwork and survey interviews need to be conducted in addition to statistical analysis.
Appendix A: Measures of Embeddedness and Autonomy

The following data are retrieved from the World Bank’s Worldwide Governance Indicators (WGI), 1996 – 2008. These are percentile ranks for each indicator. For instance, Government Effectiveness for the U.S. is 97.6, meaning the U.S. has better Government Effectiveness than 97.6% of the world. Instead of using the raw scores, I have decided to use percentile ranks for two reasons. First, the raw scores are in the range of -2.5 and +2.5. The higher one’s scores are, the more effective one’s government is. The presence of negative values makes it hard to normalize each country’s indicators for my model. Second, what matters in the global world is not an absolute score a state is assigned, but how it is perceived relative to its neighboring countries. While the raw scores may capture more accurate values of these measures, I want to make sure that they are in relative terms because international investors assesses how their host country is doing compared to other options.

<table>
<thead>
<tr>
<th></th>
<th>Government Effectiveness</th>
<th>Control of Corruption</th>
<th>Regulatory Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>63</td>
<td>33.5</td>
<td>59.5</td>
</tr>
<tr>
<td>South Korea</td>
<td>81</td>
<td>71.4</td>
<td>63.4</td>
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<tr>
<td>Malaysia</td>
<td>79.6</td>
<td>73.8</td>
<td>74.1</td>
</tr>
<tr>
<td>Philippines</td>
<td>58.3</td>
<td>44.7</td>
<td>67.8</td>
</tr>
<tr>
<td>Thailand</td>
<td>73.5</td>
<td>42.7</td>
<td>62.4</td>
</tr>
<tr>
<td>United States</td>
<td>97.6</td>
<td>92.2</td>
<td>94.6</td>
</tr>
</tbody>
</table>

Using the United States as the basis, I converted Regulatory Quality (94.6) to 7.5 for the model. As I have mentioned in the paper, there is no legitimate justification for choosing 7.5. Yet, given the characteristics of my model, I believe that this value is high enough for a country like the U.S. in 1996. Then, I applied the following constructed formula to convert every raw score into an adjusted_value = raw_score \left( \frac{7.5}{94.6} \right). Note that the fraction is obtained from using Regulatory Quality of the U.S. as a basis. Even if I use a number greater than 7.5, but less than
10 (for the sake of the model), it does not change the end results. Since I am using adjusted values to compare with percent changes in each country’s portfolio liabilities (finding the correlation between the two). The following table is now obtained.

<table>
<thead>
<tr>
<th>Country</th>
<th>Government Effectiveness</th>
<th>Control of Corruption</th>
<th>Regulatory Quality</th>
<th>Average of GE and CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>4.99</td>
<td>2.66</td>
<td>4.72</td>
<td>3.83</td>
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<td>South Korea</td>
<td>6.42</td>
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<td>6.04</td>
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<td>Malaysia</td>
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<td>5.85</td>
<td>5.87</td>
<td>6.08</td>
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<tr>
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<td>3.54</td>
<td>5.38</td>
<td>4.08</td>
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<tr>
<td>Thailand</td>
<td>5.83</td>
<td>3.39</td>
<td>4.95</td>
<td>4.61</td>
</tr>
<tr>
<td>United States</td>
<td>7.74</td>
<td>7.31</td>
<td>7.50</td>
<td>7.52</td>
</tr>
</tbody>
</table>

Note that I have calculated the average values of Government Effectiveness and Control of Corruption in order to use them as representative measures of autonomy. Regulatory Quality alone is used for embeddedness. Then, I substituted the values of embeddedness and autonomy into the formula in the model to calculate each country’s Policy Risk.

<table>
<thead>
<tr>
<th>Country</th>
<th>Embeddedness</th>
<th>Autonomy</th>
<th>Policy Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>4.72</td>
<td>3.83</td>
<td>14.53%</td>
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<tr>
<td>South Korea</td>
<td>5.03</td>
<td>6.04</td>
<td>9.47%</td>
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<tr>
<td>Malaysia</td>
<td>5.87</td>
<td>6.08</td>
<td>7.91%</td>
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<td>Philippines</td>
<td>5.38</td>
<td>4.08</td>
<td>11.75%</td>
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<tr>
<td>Thailand</td>
<td>4.95</td>
<td>4.61</td>
<td>9.95%</td>
</tr>
</tbody>
</table>
Selected Bibliography


