

EXPLAINING POLICY RESPONSES TO SPECULATIVE ATTACKS

The Political Economy of Currency Crises

Dissertation submitted to

ETH Zurich

for the degree of

Doctor of Sciences

Presented by

STEFANIE WALTER

Diplom-Verwaltungswissenschaftlerin, University of Konstanz

born 9 June 1977

citizen of Germany

Accepted on the recommendation of

Prof. Dr. Thomas Bernauer (ETH Zurich), examiner

Prof. Dr. Thomas D. Willett (Claremont Graduate University), co-examiner

Prof. Dr. Katharina Michaelowa (University of Zurich), co-examiner

for my parents

ACKNOWLEDGEMENTS

This dissertation is the outcome of several years of work. During this time I have accumulated a large debt of gratitude to many friends and advisors who helped me during the course of this research. As my main advisor, Thomas Bernauer provided guidance and advice at every stage of the project. Tom Willett not only allowed me to spend seven stimulating months at Claremont Graduate University, but also greatly helped me to improve on my work with his demanding, supportive, and fun character. Katja Michaelowa agreed to be on my committee even though she had only recently arrived in Zurich. Vally Koubi deserves a lot of gratitude for being a constant source of encouragement and advice.

During the course of this project, I greatly profited from discussions with Thomas Sattler, who proved invaluable as co-author, colleague, and office mate. Robin Hertz, Patrick Kuhn, Dirk Leuffen, and Markus Stierli not only gave helpful comments but also made for great lunchtime companions. Parts of this dissertation have been presented at various conferences, where I was grateful to receive useful comments by Xinyuan Dai, John Freeman, Eric Helleiner, Hyeok Yong Kwon, Quan Li, Michael Pisa, David Steinberg, Christoph Trebesch, and Duncan Wood. Thanks also go to my colleagues from Claremont's research groups on international money and finance, in particular Joshua Walton, for making me part of their group and offering their thoughts on my work. Writing the chapter on the Asian Financial Crisis only became possible because numerous interviewees agreed to patiently answer my questions. Jungsik Kim, Ek Nitithaprapas, Ning Sitthiyot, Calvin Lin, and Wen-Cheng Chiu deserve great thanks for guiding me through Seoul, Bangkok, and Taichung. At various stages of this project I also benefited from valuable advice from John Aldrich, Mark Abdollahian, Lars-Erik Cederman, Art Denzau, Jim Granato, Simon Hug, Hanspeter Kriesi, and Jacek Kugler. Elena Bechberger and Nils Weidmann gave much appreciated support with final proof-reading.

Many thanks go to my friends, especially Jörn Tenhofen, who patiently endured my occasional disappearance from the social world and boring dissertation talk. I feel greatly indebted to my parents. Apart from instilling in me the curiosity necessary for doing research, they have always supported me in everything I do. I dedicate this dissertation to them.

TABLE OF CONTENTS

ZUSAMMENFASSUNG	8
SUMMARY	9
CHAPTER I: INTRODUCTION	11
Motivation	13
Literature Review: The Political Economy of Exchange Rates	16
Macroeconomic Conditions	17
The Economic Structure of the Domestic Economy	19
Politics: Preferences, Institutions, and Political Events	19
<i>Preferences</i>	20
<i>Institutions</i>	23
<i>Political Instability</i>	29
Discussion	30
Studies on the Outcome of Speculative Attacks	31
Summary and Outlook	34
 CHAPTER II: THE IMPACT OF COMPETITIVENESS AND BALANCE SHEET VULNERABILITIES ON EXCHANGE RATE LEVEL PREFERENCES	 37
Introduction	39
Private Sector Vulnerabilities and Exchange Rate Level Preferences	42
Vulnerabilities to Exchange Rate and Monetary Policy Changes	40
Deducing Preferences from Actors' Locations in the Vulnerability Space	44
Preference Dynamics	46
From Preferences to Policy Outcomes	47
Empirical Evaluation: Four Comparative Case Studies	48
Taiwan: Prompt Depreciation	52
Thailand: Unsuccessful Defense (I)	56
South Korea: Unsuccessful Defense (II)	59
Hong Kong: Successful Defense	62
Conclusion	65
 Appendix	 68
List of Interviewees	69
Sample Questionnaire	71

CHAPTER III:	POLITICAL REGIMES AND EXCHANGE RATE DEFENSES	75
Introduction		77
Theoretical Model		79
Model Setup and Equilibrium		79
Comparative Statics and Hypotheses		84
Data and Method		88
Results		94
Conclusion		102
 CHAPTER IV:	 POLITICAL SURVIVAL IN TIMES OF CRISIS: THE EFFECT OF ELECTORAL TIMING ON CURRENCY CRISIS OUTCOMES	 103
Introduction		105
Elections and Speculative Attacks: A Political Business Cycle Model		107
Empirical Analysis		114
Data and Operationalization		114
Electoral Timing and Policy Responses to Speculative Pressure		120
Severity of Attack and Policy Response		125
Policy Response and Re-Election		126
Conclusion		128
Appendix		130
 CHAPTER V:	 CONCLUSION	 131
 REFERENCES		 139
 CURRICULUM VITAE		 151

ZUSAMMENFASSUNG

Diese Dissertation analysiert wie die Politik auf Währungskrisen reagiert. Im Gegensatz zur weit verbreiteten Auffassung, dass die Politik ihre Handlungsautonomie gegenüber internationalen Finanzmärkten verloren habe, zeigt sie sowohl theoretisch als auch empirisch auf dass politische Entscheidungsträger einen gewissen Spielraum haben, um auf solchen Druck zu reagieren. Kapitel I zeigt in einem Literaturüberblick auf, dass die Entscheidung für eine Abwertung oder eine Verteidigung der Währung nicht nur eine wirtschaftliche, sondern auch eine tief politisch motivierte Entscheidung ist.

Die nächsten Kapitel untersuchen welche politischen Faktoren diese Entscheidung im Detail beeinflussen. Kapitel II beginnt mit einer Analyse gesellschaftlicher Präferenzen über den Wechselkurswert und schlägt einen neuen Ansatz vor, mit dem Wechselkurs-Präferenzen durch die Kombination Wettbewerbs- und Finanzierungsabwägungen auf eine genauere Art als bisher möglich bestimmt werden können. Vergleichende Fallstudien von vier Währungskrisen in Hong Kong, Korea, Thailand und Taiwan zeigen nicht nur, dass Verletzlichkeiten gegenüber Zins- und Wechselkursschwankungen Wechselkurspräferenzen erklären können, sondern auch dass die Präferenzen einflussreicher Interessengruppen den Ausgang von Währungskrisen mit beeinflusst hat. Die nächsten zwei Kapitel beschäftigen sich mit dem Einfluss von Institutionen. Kapitel III (ko-autoriert von Thomas Sattler) untersucht den Effekt von Demokratie. Während des formale theoretische Modelle keinen theoretisch eindeutigen Effekt findet, deuten die empirischen Ergebnisse ganz klar in Richtung eines positiven Effekts demokratischer Strukturen auf die Wahrscheinlichkeit einer Verteidigung. Die Resultate der Duration-Selections-Modelle für 106 spekulative Attacken in weniger entwickelten Staaten von 1983-2003 zeigen auch, dass Demokratien nicht signifikant häufiger spekulativen Attacken ausgesetzt sind als Autokratien. Kapitel IV untersucht, ob und bis zu welchem Grad Politiker gewillt sind, Wirtschaftspolitik zu manipulieren um ihre Wahlchancen zu erhöhen – und ob die Wähler die daraus resultierenden Abweichungen von der optimalen Politik honorieren oder bestrafen. Es entwickelt ein rationales politisches Konjunkturzyklus-Modell, bei dem Amtsinhaber einem Trade-Off zwischen ihrem Wunsch, Kompetenz auszustrahlen, und den hohen Kosten einer Verteidigung in Zeiten von Währungskrisen gegenüberstehen. Das Modell sagt voraus, dass Manipulationen bei mittelstarkem Druck auf die Währung wahrscheinlich ist. Die Ergebnisse des empirischen Überprüfung des Modells anhand von 48 Industriestaaten und Emerging Markets (1983-2003) zeigen dass Verteidigungen kurz vor und Abwertungen kurz nach dem Wahltermin am wahrscheinlichsten sind, und dass die Wahrscheinlichkeit einer Abwertung mit steigendem spekulativen Druck zunimmt. Dazu haben Amtsinhaber, die den Wechselkurs kurz vor den Neuwahlen gegen mittelstarken Druck verteidigen, eine höhere Wahrscheinlichkeit wiedergewählt zu werden.

Die Dissertation gibt viele neue theoretische und empirische Einblicke in die politische Ökonomie von Währungskrisen. Sie unterstreicht die Bedeutung der Politik für das Krisenmanagement solcher Krisen und zeigt, dass die Politik auch in Zeiten der Globalisierung gegenüber den internationalen Finanzmärkten einen gewissen Handlungsspielraum besitzt. Innerhalb der durch die Wirtschaftslage gesetzten Grenzen bestimmen politische Präferenzen und Institutionen, wie die Politik auf Währungskrisen reagiert.

SUMMARY

This dissertation analyses policy responses to speculative attacks on national currencies. Contrary to the popular notion that policymakers have lost their policy autonomy to financial markets, it shows both theoretically and empirically that policymakers have some latitude in choosing how to respond to an attack on their exchange rate. Chapter I shows in its literature review that the decision to defend or to devalue the exchange rate is not just an economic, but also a thoroughly political decision.

The subsequent chapters investigate which political considerations influence this decision in detail. Chapter II begins by looking at exchange rate level preferences. By taking into account the impact of monetary policy, the joint effect of competitiveness and balance sheet considerations, and the dynamics of preference formation, this paper proposes a more nuanced and dynamic identification strategy for such preferences. Comparative case studies of currency crises in Hong Kong, Korea, Thailand, and Taiwan show not only that vulnerabilities to exchange rate and interest rate changes can explain actors' exchange rate level preferences, but also that these preferences affected policy outcomes. Focusing on the effect of institutions, the next chapter (co-authored with Thomas Sattler) looks at the effect of democracy per se. While the formal theoretical model finds a theoretically ambiguous impact of democracy on the outcome of currency crises, the empirical results clearly adjudicate in favor of a positive effect of democracy on the likelihood of an exchange rate defense. The estimation results from duration-selection models for 106 speculative attacks in developing and emerging market economies from 1983 to 2003 also suggest that there is no significant difference in the vulnerability of autocratic and democratic countries' currencies to speculative attacks. Chapter IV considers the extent to which politicians are willing to manipulate economic policy in return for better re-election chances and whether voters reward or punish the resulting deviations from economically optimal policy. It develops a rational political business cycle model in which incumbents face a tradeoff between their wish to signal competence and the high cost of exchange rate defense in response to currency crises. The model predicts that manipulation occurs at intermediate levels of exchange market pressure. The model's empirical implications are tested with a sample of 48 emerging market and industrialized democracies (1983-2003). The results show that defense is more likely before and devaluation more likely after elections, and that policymakers are more likely to devalue as the intensity of the crisis increases. In addition, and as predicted, incumbents who defend their exchange rate before elections have a higher probability of being re-elected when pressures on exchange rates are at an intermediate level.

Overall, the dissertation provides many new theoretical and empirical insights into the political economy of currency crises. It underscores the importance of politics in crisis management and demonstrates that globalization has not obliterated policymakers' room to maneuver in response to international capital markets. More importantly, it presents theoretical and empirical evidence that despite increasing globalization policymakers do retain some room to maneuver. Within the limits imposed by the country's macroeconomic situation, policy preferences and political institutions shape policymakers' decisions in response to exchange rate crises.

CHAPTER I

INTRODUCTION

1 Motivation

For globalization skeptics, currency crises are manifestations of their worst fears about the effects of the world's increasing economic integration. Currency crises have occurred frequently in the last decades, affecting countries as diverse as Britain, Mexico, and Korea. The consequences of these crises have often been very painful for the distressed countries. Widespread capital account liberalization and the resulting surge in international capital flows in recent years have considerably increased the ease with which financial markets can launch speculative attacks against countries' currencies. Currency speculators have been identified as globalizations' robber barons, forcing essentially healthy economies to devalue their currencies at their whim. Globalization, so the story goes, has stripped governments' of their policy autonomy, and nowhere is this loss more apparent than in the realm of exchange rate crises.

It seems quite clear that globalization does restrain countries' policy autonomy in the long run. However, it is less clear whether and to which extent globalization curtails states' political capacity to act in the short to medium run. To investigate this question, my dissertation analyses the choice of policy responses to speculative attacks on national currencies from a political economy perspective. It is undisputed that globalization has had a particularly potent effect in the area of international financial markets. It is equally undisputed that currency crises can affect countries which did not pursue irresponsible macroeconomic policies.¹ Nevertheless, the notion that policymakers inevitably have to succumb to speculative pressure seems exaggerated when one takes a look at the evidence. Faced with speculative pressure, governments can either defend their exchange rate by selling foreign reserves and increasing short-term interest rates, or devalue the exchange rate to a level at which the speculative pressure subsides. A sample of 198 speculative attacks for the period 1983-2003 shows that only 55% of all attacks actually resulted in a devaluation (see Figure 1). Policymakers successfully defended their exchange rates against speculative pressure in almost every second case. Contrary to the belief that increasing capital mobility has decreased policymakers' ability to withstand international financial markets, the empirical evidence indicates that policymakers have in fact retained considerable room to maneuver.

¹ For a discussion of the different types of crises see the literature review.

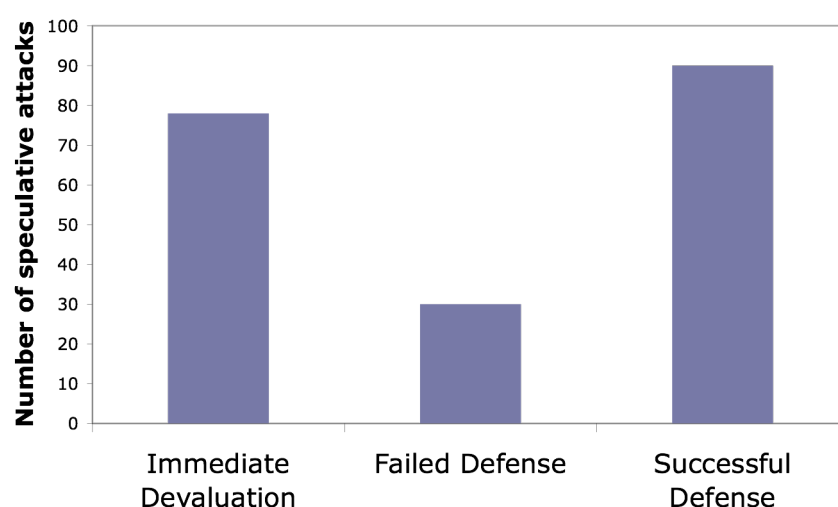
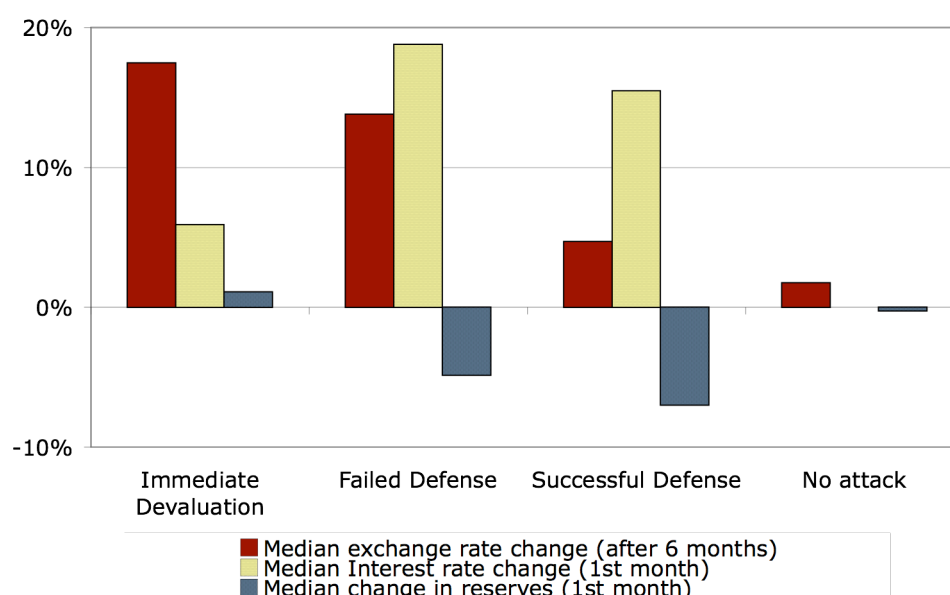
Figure 1: Outcomes of Speculative attacks, 1983-2003

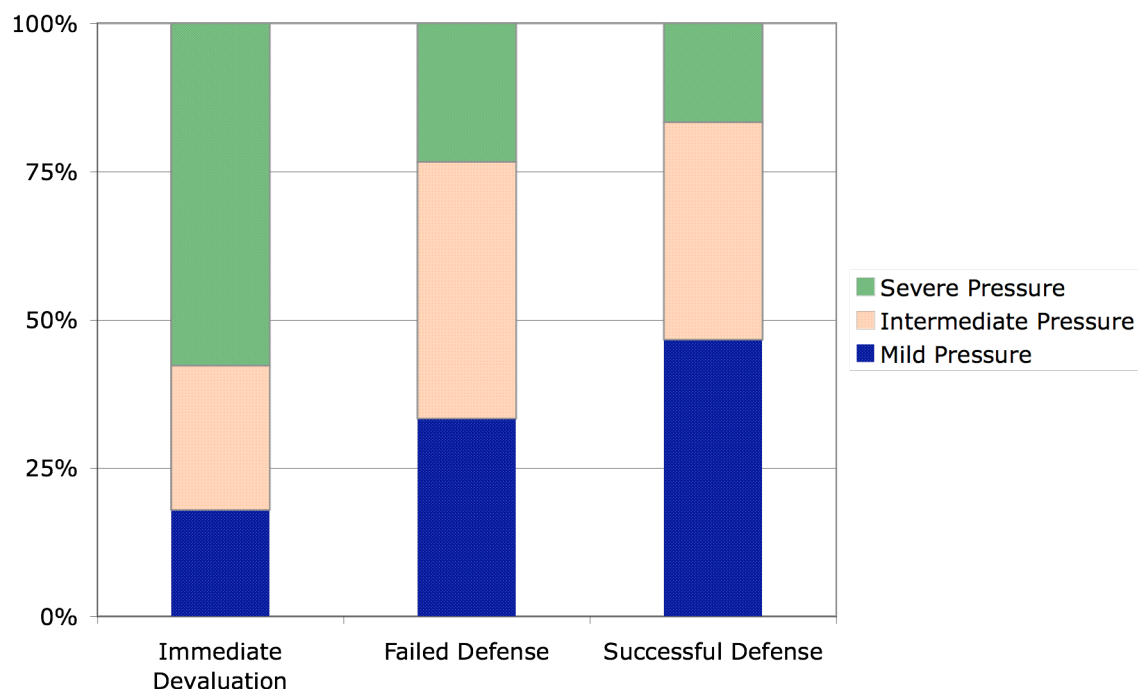
Figure 2 shows that the policy instruments implemented by policymakers in response to crisis strongly differ between instances in which policymakers decide to immediately devalue the exchange rate and those in which policymakers defend or attempt to defend the exchange rate.² In the latter two cases, policymakers appear significantly more willing to raise interest rates and to tolerate a substantial loss in foreign reserves than in the case of immediate devaluations. It also shows that failed defenses are tragic cases which combine the worst possible outcomes: in addition to a sharply depreciated exchange rate, episodes in this category result in substantial foreign reserve losses as well as a marked tightening of monetary policy.

Figure 2: Policy Instruments by Policy Response to Speculative Pressure

² Chapters 3 and 4 provide detailed information on how speculative attacks, crisis outcomes, policy instruments, and speculative pressure were operationalized.

These stylized facts raise the question under what circumstances policymakers defend their currencies and when they devalue. Surprisingly, most currency crisis models imply that once speculators decide to launch a speculative attack against a given country's exchange rate, policymakers have no real option but to succumb to that pressure and to devalue the currency. Only a few studies have investigated the choice of policy responses to speculative attacks from an economic viewpoint. The main insight of these studies is that while economic variables constrain policymakers' scope for action, they cannot sufficiently explain why some authorities devalue while others defend (Eichengreen et al. 2003; Kraay 2003). Neither does more severe speculative pressure necessarily result in a devaluation. Figure 3 shows that even though policymakers often devalue in response to severe pressure, some policymakers withstand such pressure. Other policymakers devalue even though the pressure on their exchange rate is comparatively mild. One study that has investigated this phenomenon more closely, summarizes this lack of evidence by stating that "it is striking that we are unable to detect differences in the pre-crisis state of the economy that can explain the very different post-crisis performance in cases where speculative attacks succeed and cases where they fail" (Eichengreen and Rose 2003: 63).

Figure 3: Crisis Severity and Policy Responses to Speculative Attacks



Since economic variables cannot fully account for the variance in crisis outcomes, political considerations come to mind as an alternative explanation for governments' decisions about how

to respond to speculative exchange market pressure. While the macroeconomic environment limits policymakers' option, which one of the economically feasible options governments implement is a political decision. Since the different policy options have strong redistributive consequences, the choice of one policy option over another always involves a trade-off between the interests of various constituencies. Politics guides policymakers' decisions of whose interests should be given priority.

What explains these differences in policy responses to speculative attacks? Why do some policymakers devalue in response to speculative pressure while other policymakers defend? Why do other policymakers initially defend but subsequently devalue, as a result experiencing the worst of both worlds? What role do political considerations play in the decision-making process? My dissertation sets out to answer these questions.

This introductory chapter is structured as follows: Section 2 reviews the literature on the determinants of currency crisis outcomes. While this literature is still in its infancy, this section draws on related research to discuss how economic and political variables influence the choice of policy responses to speculative attacks. The third section discusses the shortcomings of the few papers that have addressed the outcome of speculative attacks. The last section then outlines the contributions of this dissertation and shortly previews the dissertation's results.

2 Literature Review: The Political Economy of Exchange Rates

Interestingly, only few studies have so far focused on the outcome of speculative attacks. Even fewer studies have analyzed the political determinants of the different policy responses to such attacks. If one considers that policymakers' political survival tends to be on the line during currency crises – finance ministers and prime ministers are significantly more likely to lose office if they devalue the currency (Cooper 1971; Frankel 2005; Leblang 2005) – this lack of scientific inquiry is surprising. Nevertheless, the findings of several related research fields, particularly those concerning exchange rate regime choice, political sources of exchange rate volatility and the emergence of currency crises, provide a good starting point for an investigation of the politics of responding to speculative pressure.

How policymakers respond to speculative pressure depends to an important degree on a country's macroeconomic conditions and its economic structure. Very bad macroeconomic fundamentals necessarily curtail policymakers' ability to defend the exchange rate. However, in the much larger range of vulnerable (but not bad) fundamentals, the scope for different policy responses is much bigger. Here political considerations play an important role. The following section discusses how these economic and political variables influence the choice of policy responses to speculative attacks. It first presents the constraints imposed by macroeconomic fundamentals and the short-run state of the economy. The second section focuses on structural characteristics of the domestic economy, in particular financial sector health and a country's trade orientation. Finally, the third section investigates how political considerations shape policymakers' choices within the range of options delineated by these economic constraints. It shows that both preferences and institutions have a potentially powerful influence on how policymakers respond to speculative pressure.

2.1 Macroeconomic Conditions

Bad macroeconomic fundamentals are one of the prime causes of currency crises and heavily constrain policymakers' room to maneuver in response to such crises. Early models of speculative attacks, so-called first-generation-models, provide the theoretical underpinnings for this finding (e.g. Krugman 1979; Flood and Garber 1984; for an overview see Agénor et al. 1992; Blackburn and Sola 1993; Saxena 2004). In these models, governments pursue expansionary fiscal policies inconsistent with their pegged exchange rate regime. In order to finance their budget deficits, policymakers increase the money supply. As investors anticipate a devaluation, they withdraw their capital and this in turn leads to an outflow of capital and a depletion of the country's foreign reserves. When the level of reserves reaches a certain threshold, there is a sudden balance-of-payments crisis that leads to a loss of the remaining reserves and forces the government to devalue or float the exchange rate.

In first-generation models, speculative attacks always result in a devaluation or a float of the exchange rate. Consequently, policymakers' options of responding to speculative pressure are limited when they are faced with poor fundamentals – high budget deficits coupled with high growth rates of money and domestic credit, overvaluation and large current account deficits. Bad fundamentals should thus always lead to a devaluation of the exchange rate.

Not all speculative attacks result in devaluations, however, as I have demonstrated above. Neither do all currency crises occur because of bad fundamentals.³ Instead, a second generation of crisis models emphasizes the role of investors' expectations and government credibility (Obstfeld 1994, 1996; Drazen and Masson 1994; Bensaïd and Jeanne 1997; Ozkan and Sutherland 1995; for an overview see Flood and Marion 1998). Governments face a trade-off between exchange rate stability and other policy goals such as low unemployment. When investors lose confidence in a government's willingness to sacrifice these other goals in exchange for maintaining its exchange rate peg, they begin to anticipate a devaluation and launch an attack on the currency. In these models, speculative attacks arise from the existence of multiple equilibria, where increasing uncertainty about the government's degree of commitment can induce a switch from a good equilibrium (exchange rate stability) into a bad one (speculative attack). These models imply that speculative attacks can occur even when economic fundamentals are merely vulnerable – but not bad – and that speculation can be self-fulfilling. Speculators' mere belief that speculation will be successful can cause an attack, which then leads to a devaluation of the currency.

The trade-off between domestic policy goals and exchange rate stability becomes particularly acute when the economy is doing poorly in terms of growth and unemployment. Second-generation models suggest that low or negative growth rates and rising unemployment rates lower policymakers' willingness to defend the exchange rate against speculative pressure. However, other than in first generation models, negative short-run economic circumstances merely increase the likelihood of a devaluation rather than fully determine the outcome of an attack. To what extent policymakers value high employment more than exchange rate stability, and whether they consequently decide to defend or devalue their currency, is a function not only of the short-run economic situation, but also of their preferences and their institutional environment. I will return to this issue below.

Very bad macroeconomic conditions leave policymakers little choice but to devalue or float. The success of speculative attacks on countries whose fundamentals are of an intermediate quality is less certain, however. When fundamentals are merely vulnerable, policymakers have the discretion to defend or devalue the exchange rate in response to speculative pressure. It is therefore not surprising that economic variables alone cannot entirely account for the outcome of speculative attacks.

³ For example, first-generation models fail to explain the crisis of the European Exchange Rate Mechanism in 1992 (Obstfeld 1994; Eichengreen and Wyplosz 1993).

2.2 The Economic Structure of the Domestic Economy

In addition to the macroeconomic conditions, the economic structure of the economy influences the outcome of currency crises. In this respect, a third generation of crisis models has highlighted the importance of microeconomic factors (e.g. Krugman 1999; Chang and Velasco 2001; Aghion et al. 2004). By focusing on the capital account, the quality and strength of firms' balance sheet, as well as financial sector soundness, these models have convincingly argued that weaknesses in the corporate and financial sector can cause currency crises. Yet, the effect of these weaknesses on currency crisis outcomes is not clear. While third generation models contend that they exacerbate downward pressure on the exchange rate, thus making devaluation more likely, the high costs associated with a devaluation in face of pervasive liability dollarization increase the probability of a defense (Fiess and Shankar 2005).

An additional characteristic of a country's economic structure is its trade orientation. The theory of optimum currency areas (OCA) suggests that larger, less trade dependent economies should find the costs of exchange rate adjustments lower in terms of aggregate economic efficiency. In contrast, for small open economies the costs of interest rate defenses should be lower (Mundell 1961; McKinnon 1963; for a review see Masson and Taylor 1993; Frankel 1999). However, recent discussions of OCA analysis have stressed that the aggregate economic efficiency effects stressed by traditional OCA analyses are often not the major factor influencing policy (see for example Cohen 2003; Willett 2005). Rather, it has been argued that the decision to defend or to devalue is not a purely economic question but one of great political significance as well (Leblang 2003b). I therefore now turn to the political determinants of policy responses to speculative attacks.

2.3 Politics: Preferences, Institutions, and Political Events

Both defenses and devaluations have strong redistributive effects. Which policy response policymakers opt for, then, boils down to the question how much pain they want to inflict on certain groups and which groups they want to spare. Most authors observe that political considerations are particularly relevant in exchange rate policy "since the tradeoffs governments must weigh are largely among values given different importance by different sociopolitical actors" (Broz and Frieden 2001: 319). When the economic circumstances grant policymakers some room to maneuver, their decision to defend or devalue their exchange rate is not so much a

question of economic contingencies, but a question of political priorities.⁴ The sources of these priorities can be grouped into three broad categories: Policy preferences, political institutions, and political instability.

2.3.1 Preferences

Interest group preferences

The considerable distributional implications of exchange rate policy lead a country's socioeconomic groups to prefer different exchange rate policies. In an influential study, Jeffrey Frieden (1991) argues that in a world of mobile capital these policy preferences depend on whether a group attaches greater value to currency stability or national monetary policy autonomy. He contends that groups heavily involved in foreign trade and investment should prefer stable exchange rates, while domestically-oriented producers prefer flexible exchange rates. Several subsequent studies have supported the notion that interest group preferences have a significant influence on the implementation of exchange rate policies and that analyses of exchange rate politics need to take the real effects of exchange rate policies on trade and investment into account (Frieden 1996, 1998, 2002; Hefeker 1997, 2000; Helleiner 2005). Frieden (1997) shows that governments also face these political pressures when they are experiencing currency crises.

One line of this research has focused predominantly on the competitiveness effects of exchange rate policy. Many studies argue that producers of tradable goods and services prefer a more depreciated exchange rate than producers of non-tradable goods and services (Frieden and Stein 2001; Pisa 2006; Steinberg 2006). Since the real exchange rate tends to appreciate under fixed exchange rate arrangements, this argument implies some tension between the export-oriented sector's preference for a depreciated exchange rate and its supposed preference for exchange rate stability. Nevertheless, in a study of 25 Latin American countries, Frieden, Ghezzi and Stein (2001) and Blomberg, Frieden and Stein (2005) find that a larger manufacturing sector decreases the government's willingness to maintain a fixed exchange rate. In contrast, in one of the few quantitative analyses of policy responses to speculative attacks Leblang (2003b) does not find a

⁴ Some authors even argue that the policy response to speculative attacks is always a purely political decision. They maintain that technically, defending the peg is always possible regardless of the severity of speculative pressure (Obstfeld and Rogoff 1995).

significant effect of export sector strength on the probability that the exchange rate will be defended.

A second line of research focuses on balance sheets and argues that domestic groups tend to advocate those exchange rate policies that reduce their particular financial vulnerabilities. Shambaugh (2004) shows that the reliance on different types of capital generates distinct capital-specific policy preferences about exchange rate regime choice. Looking at financial vulnerabilities in the banking and corporate sector, Hall (2005) and Woodruff (2005) argue that severe currency mismatches in these sectors' balance sheets lead to a strong preference against depreciation. Consistent with this argument, Kinderman (2005) finds that firms that have hedged their foreign currency exposure lobby less against changes in the exchange rate level.⁵

While these studies do not discuss private sector preference in the face of speculative exchange market pressure, their findings are insightful in several respects. First, they indicate that balance sheet vulnerabilities of important interest groups should increase the likelihood exchange rate defense. In addition, devaluations should be more likely when groups with a preference for exchange rate flexibility and/or a depreciated exchange rate are politically influential. Case studies of currency crisis episodes do indeed find that business-government relationships influence the choice of policy responses (e.g. Haggard and MacIntyre 2000; Haggard 2000; Haggard and Mo 2000). However, large-N research has not found that special interests influence policy choices during periods of heightened exchange market pressure (Leblang 2003b). The failure to identify private sector influence on a quantitative basis caused by the fact that private sector preferences are quite complex and cannot easily be captured by simple concepts such as export share. A more accurate representation of groups' overall vulnerability to depreciation and monetary tightening could be achieved by combining the competitiveness and balance sheet approaches. The first paper in this dissertation presents such a combined approach and teases out the conditions under which policymakers defend the exchange rate against speculative pressure.

Partisan Preferences

Interest groups are not as directly involved in policymaking as political parties. Several authors have therefore investigated the impact of partisan preferences on exchange rate policy choices.

⁵ Cleeland Knight (2005) presents evidence that points in a similar direction and argues that the spread of hedging instruments lead to less mobilization of US exporters on the issue of exchange rate policy.

Nevertheless, “the literature is divided about the effect of partisanship on exchange rates” (Sadeh 2006: 356). A definite conclusion to be drawn from this work remains elusive.

On the issue of exchange rate regime choice, Simmons (1994) and Oatley (1997) conclude from their comparative case studies on selected European countries that right governments prefer fixed exchange rate regimes, while left governments favor flexibility. However, in a quantitative study of twenty industrial democracies in the post-Bretton Woods period, Bernhard and Leblang (1999) found no relationship between partisanship and exchange rate regime choice. Similarly, the authors showed in a related paper (Bernhard and Leblang 2002) that the incumbent’s partisanship does not affect the risk premium on the exchange rate in election periods, and that partisan change of government does not have any statistically significant effect either.

With regard to other aspects of exchange rate policy, the evidence has been inconclusive as well: analyzing the causes of exchange rate volatility, Frieden (2002) finds that exchange rates are significantly more volatile under right-wing governments, while other authors (Bearce 2003; Freeman et al. 2000) present statistical evidence showing the opposite. Frieden (2002) finds that right-wing governments are associated (albeit not at statistically significant levels) with higher depreciation rates, whereas Blomberg and Hess (1997) show that the exchange rate appreciates when right wing governments are elected into office.

Previous research agrees more about the effect of partisanship on the probability of speculative attacks. Several authors show that left-leaning governments face a significantly higher likelihood of experiencing periods of extreme exchange market pressure than right-leaning governments (Leblang 2002; Block 2003). Leblang and Bernhard (2000) show that the crisis probability also significantly rises when there is a shift in the government’s partisan orientation to the left, while a shift to the right has no significant effect. The increase in crisis risk is particularly strong when a right government comes to an end unexpectedly, but “markets do not seem to care whether the Left government survives or perishes” (Leblang and Bernhard 2000: 319).

These responses of financial markets to partisanship and particularly to changes in the government’s partisan orientation would lead one to expect that left governments should be more likely to devalue their exchange rate in face of speculative pressure, a finding which is confirmed by Simmons (1994) and Sattler (2006b).⁶ In contrast, a large-N analysis of currency

⁶ The partisanship coefficient in Sattler’s analysis of crises in OECD countries is not statistically significant.

crises in developing countries shows that left-leaning governments are significantly more likely to defend their exchange rates against speculative attacks (Leblang 2003b). A possible explanation for this somewhat contradictory evidence on the effect of partisanship on the choice of policy responses to speculative pressure is that left governments might face a higher probability of being attacked, but defend their currencies more strongly than right governments. This issue warrants further research.

Beliefs and ideas

Both the impact of interest group and partisan preferences on exchange rate policies have been debated in the literature. In particular, authors have wondered why interest group mobilization on exchange rate policies has at times been very limited. Some of these authors (Odell 1982; Ikenberry 1993; McNamara 1998, 1999) have argued that the reason for this apparent lack of interest is the highly complex nature of exchange rate politics. Other authors (Gowa 1988) have pointed out that this problem is compounded by the immense collective action problems inherent in exchange rate policy.

Given the supposed difficulties of interest group and party preferences to articulate clear policy positions with regard to the exchange rate, some authors have emphasized the importance of the beliefs and ideas of policymakers themselves (Sandholtz 1993; Andrews and Willett 1997; McNamara 1998, 1999; Helleiner 1994, 2005). These authors argue that prevalent mental models – such as the belief in Keynesian state intervention or in neoliberalism – guide policymakers' attitudes with regard to exchange rate policy. In this context, some authors have noted that the causal arrow between economic interests and political ideas runs both ways: Changing perceptions of interest can lead to changes in ideas, while changes in ideas can equally influence the perception of economic interests (e.g. Risse et al. 1999).

The role of ideas in choosing whether to defend or to devalue the exchange rate in face of speculative pressure is not unambiguously clear. It seems that certain ideas, such as the importance of monetary credibility, should encourage a higher propensity to defend, while the prevalence of other ideas, e.g. that of competitive devaluations, would encourage the opposite strategy. Unfortunately, the measurement of beliefs and ideas is inherently difficult. A possibility to capture these trends empirically in large-N research would be to include period dummies for time periods in which certain beliefs were quite widely shared.

2.3.2 Institutions

Preferences, whether of societal, partisan or ideational origin, do not directly translate into policy outcomes. Rather, they are mediated by political institutions. The same set of preferences can result in very different policy outcomes depending on a country's institutional structure. Political economists have therefore focused a lot of attention on the influence of institutions on economic policy. The conclusion from this research is that certain institutions can significantly shape the choice of exchange rate regimes, daily exchange rate management, as well as the crisis-proneness of the currency. It is therefore not surprising that institutions should also influence how policymakers respond to speculative pressure.

Political Regime Type

Several authors have shown empirically that democratic countries are more likely to implement flexible exchange rate regimes than autocratic countries (Leblang 1999; Broz 2002; Bearce and Hallerberg 2006; Stierli 2006). The rationale for this finding has been twofold: on the one hand, in a world of high capital mobility exchange rate flexibility allows policymakers to autonomously conduct monetary policy, while fixed exchange rates limit monetary policy autonomy in such a context (this is the classic open-economy trilemma, see e.g. Obstfeld and Taylor 1998). On the other hand, Broz (2002) has argued that monetary commitment transparency and the transparency of the political system are complements. Because autocracies have a less transparent political system, he argues that these regimes rely more frequently on fixed or pegged exchange rates than democratic countries. The finding that more democratic countries tend to have more flexible exchange rate regimes holds both with regard to de jure and de facto exchange rates. Somewhat contradictory to that finding, Alesina and Wagner (2006) find that "fear of floating", i.e. countries' propensity to officially announce a flexible exchange rate regime while in fact intervening so as to prevent true floating, is more pronounced in democratic countries, while "fear of pegging" is less prevalent.

The question whether exchange rates in democracies are less often attacked by speculators than autocracies' currencies has generated contradictory answers. Based on analyses of several Asian countries, some authors argue that young democracies in developing countries are more vulnerable to crisis than autocracies (Haggard 2000; Hays et al. 2003; Satyanath 2006). In contrast, based on large-N analyses other authors judge that democracies are in fact less likely to experience speculative attacks (Block 2003; Leblang 2003a).

The finding that being democratic reduces the risk of speculative attacks is somewhat puzzling, given that democracies have to respond to larger electorates than autocracies and therefore have a harder time implementing painful policy measures. Eichengreen (1996) and Simmons (1994) show that the collapse of the Gold Standard in the 1920s can at least partly be attributed to the enfranchisement of large segments of the population. As the size of the electorate increased, policymakers were less insulated from political pressure to address the growing imbalances by adjusting externally (i.e. by devaluing) rather than internally (by implementing high interest rates and tolerating high levels of unemployment). Both authors therefore argue that in response to speculative pressure, democracies should be more likely to devalue their exchange rates. To clarify this question, I perform large-N analyses of 106 modern crises in developing countries and emerging markets in this dissertation (Paper II, co-authored by Thomas Sattler). Contrary to the hypotheses put forth by Eichengreen and Simmons, we find that democracies were in fact significantly more likely to defend than autocratic countries. This result is consistent with those presented by Pisa (2006), who argues that economically open autocracies are more likely to pursue competitive devaluation strategies than open democracies. The debate about the effect of the regime type is hence far from resolved.

As a group, democracies thus behave differently from autocracies. Nevertheless, within the group of democracies we can observe heterogenous behavior as well. Democratic institutions such as the electoral system, the timing of elections, divided government, and central bank independence are natural candidates for explaining this variance in exchange rate policy choices.

Electoral system

The electoral system is one of the main sources of institutional diversity among democratic countries. Unfortunately, however, findings about its effect on exchange rate policy have been contradictory. Leblang (1999) finds that democratic polities with majoritarian electoral systems are more likely to choose fixed exchange rates than those with proportional systems. In contrast to this finding, in a related paper co-authored with William Bernhard (Bernhard and Leblang 1999), the authors show that “majoritarian-low opposition influence”-systems are least likely to fix. In addition, they show that flexible exchange rates are more likely in countries in which the timing of elections is exogenously determined. Freeman, Hays and Stix (2000) present evidence that majoritarian systems are associated with higher volatility, while Leblang and Bernhard (2006)

show that cabinet dissolutions lead to more exchange rate volatility in proportional systems than in majoritarian systems.

Given these contradictory findings, it is difficult to estimate how the electoral system influences policymakers' responses to speculative exchange market pressure. It is not clear, for example, whether the higher clarity of policy accountability in majoritarian systems and their "all or nothing" nature increases their propensity to defend or to devalue. Preliminary evidence on the effect of exogenous vs. endogenous electoral timings does not indicate a strong difference between these two forms of electoral systems: I show in this dissertation (paper III) that defenses are significantly more likely when elections are pending – irrespective of whether they have been called early or whether their date has been exogenously fixed.

Elections

In contrast to the electoral system per se, the timing of elections has been shown to exert a larger influence on the management of exchange rates. While Bernhard and Leblang (1999) do not find a statistically significant relationship between electoral timing and exchange rate regime choice in parliamentary democracies, Schamis and Way (2003) demonstrate that the introduction of exchange-rate based stabilization programs is most likely when elections are pending.

The effect of elections appears to be strongest with regard to the exchange rate level. Several studies present evidence in favor of the existence of a political business cycle in exchange rate policy, where devaluations tend to be delayed until after the election in order to preserve voters' purchasing power until election day (Blomberg and Hess 1997; Frieden et al. 2001; Frieden 2002; Stein and Streb 2004; Blomberg et al. 2005). Post-election devaluations are particularly likely after elections that resulted in a transfer of executive power (Eichengreen et al. 1995; Klein and Marion 1997). In addition, Leblang and Bernhard (2006) argue that political events like elections do not necessarily affect the mean of the exchange rate, but instead have an effect on exchange rate volatility. They show that campaign periods tend to increase volatility, a result that is also supported by other studies (Bernhard and Leblang 2002; Frieden 2002; Martínez and Santiso 2003).⁷ Other studies have shown that the risk premium on the forward exchange rate increases in the periods surrounding election day (Bachman 1992; Bernhard and Leblang 2002).

⁷ In contrast, Moore and Mukherjee (2006) claim that the uncertainty generated by elections and similar political events causes traders to reduce the respective volume of currency trading and that this, in turn, leads to a decline in both the mean and volatility of exchange rates.

In light of this evidence, one would expect speculative attacks to be significantly more likely in the period surrounding elections. However, the evidence supporting this proposition is mixed. Leblang (2002) shows that speculative attacks are more likely to occur in the months following upon an election. I confirm this finding in this dissertation and additionally show that currency pegs are more crisis prone in the six to four months preceding an election and when an election has been called early. The latter finding squares with Leblang and Bernhard's (2000) results that the risk of a speculative attack increases with rising market expectations of a cabinet collapse. Leblang and Satyanath (2006) show that recent turnover in government increases the probability of a currency crisis. In contrast, other authors (Eichengreen et al. 1995; Block 2003) find no statistically significant impact of electoral timing on the likelihood of an attack.

This research suggests that electoral concerns are likely to play an important role in policymakers' choice of policy response to speculative pressure, an intuition that is supported by case study evidence (see for example Haggard and Mo 2000 on the Korean 1997 crisis). Leblang (2003b) finds that exchange rate defenses are significantly more likely both in the campaign period and immediately after elections. Sattler's (2006b) results imply the opposite. Looking at a larger sample of crises, this dissertation finds that defenses are more likely during the campaign period, while devaluations are the more likely crisis outcome in the post-election period.

Veto Players and Divided Government

Several authors have pointed out that the number of veto players also shapes exchange rate policy choices. For example, Hallerberg (2002) shows that countries with multiple party players are significantly more likely to have fixed exchange rate regimes than countries with a one-party-veto player.⁸ In contrast, Edwards (1996) argues that stronger governments, i.e. governments with fewer veto players, have a tendency towards pegged systems. Looking at exchange rate valuation, Steinberg (2006) argues that higher numbers of veto points lead to more exchange rate overvaluation.

While the question of the impact of the veto player configuration on exchange rate regime choice seems as yet unresolved, several analyses show that divided governments face a higher risk of speculative attacks (Block 2003; Willett 2006; Chiu and Willett 2006; Leblang and Satyanath

⁸ He also finds that federalist countries are not significantly more likely to choose fixed exchange rates than unitary countries.

2006). MacIntyre (2001) proposes a U-shaped relationship between the number of veto players and the policy risk for investors,⁹ because only a medium number of veto players can find a balance between policy volatility and rigidity. In contrast, if the number of veto players is too low, exchange rate policy tends to be characterized by too much volatility, while a high number of veto players prevents the timely introduction of adequate adjustment measures. Both high volatility and a high degree of rigidity then increase the crisis-proneness of the exchange rate regime.

These findings are consistent with the argument that divided governments find it more difficult to implement painful but necessary internal adjustment policies and therefore are more likely to devalue when confronted with speculative pressure than unified governments (Keefer and Stasavage 2002; Willett 2006). The empirical evidence for this prediction is however fairly weak: Leblang (2003b) finds that divided governments are more likely to devalue in response to a speculative attack, but the coefficient does not reach conventional levels of significance.

Central Bank Independence

One institution that is very closely linked to exchange rate politics is central bank independence: Central bank independence (CBI) and fixed exchange rates are two possible solutions to the same time-inconsistency problem of monetary policy, because both can decrease the inflationary bias (Bernhard et al. 2002). Independent central banks are generally assumed to have more conservative preferences than elected governments (Rogoff 1985). In addition, they are more sheltered from popular demands for more employment and concern about tight monetary policy. Since central banks are the agents responsible for the day-to-day exchange rate management, including foreign reserve management and monetary policy, it can be expected that independent central banks should facilitate exchange rate defenses against episodes of heightened exchange market pressure. Sattler (2006b) confirms this finding in a study on OECD countries in the post-Bretton Woods era by showing that central bank independence significantly decreases the hazard that an exchange rate peg collapses in response to a speculative attack. With the finding that countries with independent central banks tend to have more appreciated exchange rates (Freitag 1999b, 1999a).

⁹ Angkinand (2005) also finds a U-shaped relationship between the number of veto players and severity of banking crises.

While other scholars have rarely tested this proposition for the outcome of speculative attacks, there has been plenty of research on the impact of central bank independence on related policy outcomes. For example, Henning (1994) and Frieden (2002) show that the exchange rates of countries with independent central banks exhibit significantly lower short-term volatility. CBI also appears to lower the risk of experiencing a speculative attack (Shimpalee and Boucher Breuer 2006), even though other authors find that CBI is not a statistically significant predictor of currency crises (Leblang and Bernhard 2000).

Institutional Quality and Transparency

Recent research has increasingly focused on the importance of transparency and, relatedly, the quality of the institutional environment. Several authors have argued that exchange rate pegs can substitute for political system transparency and are therefore more likely and more effective in politically intransparent regimes such as autocracies (Broz 2002; Keefer and Stasavage 2002). In contrast, Alesina and Wagner (2006) propose a U-shaped relationship between institutional quality and the degree of exchange rate flexibility: both countries with poor institutions and those with very good institutions are more likely to float their exchange rate.

Moreover, less transparent emerging market democracies exhibit higher rates of exchange rate volatility (Hays et al. 2003). Less transparency has been shown to increase the probability of a speculative attack (Morris and Shin 1998; Satyanath 2006). Sattler (2006b; 2006a) confirms that low transparency can increase the probability of an attack that would not occur under full information. Low institutional quality as evidenced by high levels of corruption and weak enforcement of law and order have been shown to increase crisis-risk (Shimpalee and Boucher Breuer 2006). Similarly, Aizenman and Marian (2004) argue that high levels of corruption decrease governments' time horizons and therefore induce them to hold lower levels of international reserves. This should in turn make them more crisis prone. Willett (2006: 31) summarizes this literature by pointing out that in general, "good government will make any exchange rate regime work better."

The degree of transparency and institutional quality also influences how successful policymakers are in their attempts to defend their exchange rate against speculative pressure. Alesina and Wagner (2006) argue that countries with poor political institutions break their commitment to pegging more often than countries with good institutions. Sattler (2006b; 2006a) argues that

uncertainty can help to stabilize the exchange rate under very specific circumstances, but it is unlikely to help when problems are “home-made”

2.3.3 Political Instability

Preferences and institutions matter most in stable political environments. However, currency crises have often been intricately linked with periods of political instability. For example, the Mexican crisis 1994 was (in part) provoked by the assassination of a presidential candidate and an uprising in the Mexican province of Chiapas. This section therefore briefly discusses the effect of political instability on the likelihood of currency crises and the ability and willingness of policymakers to defend their exchange rates in a situation of political crisis.

Since political instability is mostly a temporary phenomenon, most authors focus on its short-term effect on exchange rate policy, rather than long term policy choices such as exchange rate regime choice (exceptions are Frieden et al. 2001, who find that political instability increases the likelihood of adopting fixed rates; and Edwards and Savastano 1999, who find the opposite). Unexpected political events and political risks raise forward exchange rates (Bachman 1992) and often increase exchange rate volatility (Leblang and Bernhard 2006). Consistent with this observation, several authors argue that unstable governments and political uncertainty increases the likelihood of currency crises (Haggard and MacIntyre 2000; Leblang and Bernhard 2000; Chiu and Willett 2006; Shimpalee and Boucher Breuer 2006; Willett 2006).

Given the inherent policymaking problems in times of political instability, it appears unlikely that policymakers will be able to implement the painful internal adjustment measures required for a successful defense of the exchange rate. Devaluations thus seem the most likely outcome of speculative attacks in countries characterized by high degrees of political instability.

2.4 Discussion

The literature review suggests three main conclusions. First, the outcome of speculative attacks has so far received very little attention. In view of the disruptions and costs generated by currency crises this suggests that research efforts in this area should be intensified.

Second, most economic research on speculative attack completely ignores politics. None of the economic models on speculative attacks can explain why governments differ in their response to speculative attacks. In first-generation models speculative attacks always lead to a devaluation. In these models, governments are unwilling or incapable of reversing the implementation of potentially destructive policies. Second-generation models are less restrictive but give no information as to what kinds of governments or institutional structures encourage governments to defend their currencies.

Third, in recent years a buoyant literature has emerged on the political economy of exchange rates. These studies have directed scholars' attention to questions of preferences, institutions and political events. However, these studies exhibit some shortcomings. Most of the existing political economy explanations are static explanations. Preferences and institutions do not change quickly. These approaches consequently have difficulties to explain switches of exchange rate regimes or devaluations. Moreover, many empirical studies focus on standard political science variables, at times oversimplifying the processes at play. Finally, many studies do not propose the causal mechanism through which political variables affect exchange rate policy. Future studies would benefit from a clearer specification of political processes. What is clear from these studies, however, is the high explanatory potential of political variables for the explanation of policy responses to speculative attacks

3 Studies on the Outcome of Speculative Attacks

In contrast to the emergence of speculative attacks, the outcome of these episodes has been analyzed much less frequently. Most of the economic literature on crisis outcomes has focused on whether high interest rates really help to defend currencies during speculative attacks (e.g. Furman and Stiglitz 1998; Dekle et al. 2001, 2002; Kraay 2003; Sattler 2006b). These studies have produced inconclusive results and whether a tight monetary policy really leads to failed attacks is therefore still an open question. More importantly from a political economy perspective, these studies neglect political variables. Eichengreen and Rose (2003) compare pre-and post-crisis behavior of important economic variables and shows that there is little evidence of systematic differences in pre-crisis performance between countries that successfully defend and those that devalue. The authors claim that introducing political variables does not change their result. Their findings suggest that the decision to defend is a random decision, which, as Martin Eichenbaum

notes, seems “improbable” (ibid., p.84). A possible explanation for this puzzling finding is the study’s operationalization of successful and failed attacks: if (preceded by a year of stability) the exchange rate declines by over 10%, the episode is counted as a successful attack, while a decline in nongold reserves by over 20% is defined as a failed attack. Barring the fact that this operationalization appears a bit arbitrary, it exhibits two shortcomings: First, it does not account for the fact that countries could simultaneously lose reserves and devalue the exchange rate (Korea is a case in point). Second, it neglects the importance of interest rates in defending against speculative pressure.

The few existing studies that explicitly analyze the outcome of speculative attacks from a political economy perspective emphasize the importance of political variables in the choice of policy responses to speculative attacks. Nevertheless, most of them also have some shortcomings. Using a refined index of exchange market pressure, which combines changes in exchange rates, foreign reserves, and interest rates, Eichengreen, Rose, and Wyplosz (2003) demonstrate in a study of 20 industrial countries that relative to times of tranquility devaluations are more likely to occur after elections in which the incumbent government failed. Looking forward, they find that a government loss in the next election increases the likelihood of a defense. Unfortunately, no theoretical framework explaining these findings is provided. In addition, the sample limitation to 20 industrial countries impedes the generalizability of these results.

In a qualitative study of political and economic developments in Thailand, South Korea, Malaysia, and Indonesia during the Asian crisis in 1997-98, Haggard and MacIntyre (2000) investigate the influence of electoral and non-electoral challenges to incumbent governments, inefficiencies in the government’s decision-making processes, features of business-government relations, as well as the regime type on both the onset and initial course of the crisis. They find that these political factors did play a major role in governmental policy choices. These results are very informative and provide a lot of in-depth insights into the mechanism of crisis management. However, given the small number of cases, these results cannot easily be generalized.

Sattler (2006b) investigates currency crises in OECD countries in the post-Bretton Woods era with the help of duration and duration-selection models. He focuses on the effectiveness of interest rate increases for defending the exchange rate and finds that they significantly decrease the hazard of an exchange rate collapse. In addition, he examines the impact of political variables. He finds that central bank independence, the de jure exchange rate regime, and post-election

periods significantly influence the outcome of speculative attacks. The coefficients for partisanship and the pre-election periods do not reach conventional levels of significance. However, his focus on OECD countries limits the generalizability of his results to industrialized countries.

Leblang (2003b) provides one of the most comprehensive studies about governments' policy reactions to speculative attacks. He addresses the question why some policymakers choose to devalue when faced with a speculative attack while others decide to defend the exchange rate by developing a game of strategic interaction between governments and markets and distinguishing between the ability to defend (based on policy decisiveness and economic factors, most notably interest rate policy and reserve holdings, and capital controls) and the policymaker's willingness to defend (based on political factors such as electoral timing, partisan interests, and institutional constraints). He tests his hypotheses for a sample of 90 democratic developing countries from 1985-1998 using a strategic probit model and finds that political factors – in particular elections and partisanship - were important in determining the success or failure of speculative attacks. However, as Sattler's study his research neither addresses differences between developing and developed countries, nor between democratic and autocratic regimes.

Despite the interesting insights these studies offer, research on the political determinants of governmental policy responses to speculative attacks is still underdeveloped. Considering that about every second attack fails, the question why and when a government decides to defend or to devalue its currency has not been sufficiently answered by existing research. Most economic models ignore the effect of politics completely. The existing political economy research on policy responses also suffers from shortcomings: First, there is a lack of an encompassing theoretical framework explaining governmental policy choices during speculative attacks. Second, the existing empirical studies do not provide enough evidence for robust results about the probability of a successful exchange rate defense across different types of countries. Consequently there is a need for additional research that specifies more accurately, both in theoretical and empirical terms, the conditions under which governments choose to defend an exchange rate that has come under speculative pressure.

4 Summary and Outlook

To improve our understanding of why governments favor one response over the other, and to address the shortcomings of the existing research, my dissertation examines the political and institutional determinants of policymakers' willingness to defend their exchange rate against speculative pressure. I focus particularly on the political dimension of this question and analyze how institutions and special interests shape the authorities' response to a speculative attack. The core of the dissertation comprises three papers, which address the issue of policy responses to speculative attacks from different angles and investigate the effects of interest group pressure, the political regime type, and the electoral cycle.

Chapter II, titled "The Impact of Competitiveness and Balance Sheet Vulnerabilities on Exchange Rate Level Preferences" looks at exchange rate preferences. The paper argues that in deciding about defending or depreciating their currencies against speculative foreign exchange pressure, policymakers consider private sector vulnerabilities to a depreciation and monetary tightening. These vulnerabilities differ between periods of mild and severe pressure. Faced with mild pressure, socioeconomic groups evaluate the effects of the two policy options based only on their exposure to depreciation. Only when pressure intensifies, they increasingly weigh their vulnerability to interest-rate increases against their depreciation vulnerability. In this case, high interest-rate exposure can result in a re-assessment of a group's preferred policy response, leading groups that initially preferred a defense to favor depreciation. Comparative case studies of speculative attacks on the currencies of Hong Kong, Korea, Thailand, and Taiwan support the argument's empirical implications. The case studies show that policymakers strongly defended their currencies against mild pressure when the private sector's vulnerability to depreciation was high. However, when pressure intensified, these defenses were subsequently abandoned in countries where interest group vulnerabilities to a monetary tightening exceeded the potential costs of depreciation.

Chapter III on "Political Regime Type and Exchange Rate Defenses" (co-authored with Thomas Sattler) starts with the observation that the question whether and how a country's political regime type influences government reactions to speculative attacks has generated contradictory answers from political economists. While some studies suggest that democratic governments are more likely to devalue their currencies than autocratic governments, others imply the opposite. We present a game-theoretic model of a speculative attack and its outcome to examine the theoretical

mechanisms underlying these competing hypotheses. We test the model's empirical implications for 106 speculative attacks in developing and emerging market economies from 1983 to 2003. The estimation results from duration and selection models show that democratic governments are significantly more likely to defend their exchange rate against speculative attacks than autocratic policymakers. Exceptions are oil-exporting autocracies, which in our sample always defend their pegs. The hazard of an exchange rate collapse during the six months after an attack is lower when the level of foreign exchange reserves is high and inflation is low. Real economic growth does not influence the outcome of an attack.

Finally, the fourth chapter, "Political Survival in Times of Crisis: The Effect of Electoral Timing on Currency Crisis Outcomes," investigates this result more clearly by focusing on one of the core institutions of democratic countries: elections. Previous empirical research has shown that elections significantly influence both the probability that a currency crisis emerges and the government's policy responses to such crises. This paper provides a theoretical explanation for these empirical findings and presents a political business cycle model on exchange rate policy, in which incumbents face a tradeoff between their wish to signal competence and the high cost of exchange rate defenses in response to currency crises. The model predicts that competent incumbents are more likely to defend in response to crises occurring before elections, while incompetent policymakers always devalue. Attacks occurring after elections are predicted to result in devaluations for all types of policymakers. Several empirical implications are derived from the model and are tested for a sample of 61 developing and developed countries for the time period 1970-2003. The results support the predictions of the model and show that 1) defense is more likely before and devaluation is more likely after elections, 2) incumbents who defend their exchange rate before elections have a higher probability of being re-elected, and 3) policymakers are more likely to devalue as the intensity of the crisis increases.

Contrary to the widespread claim that globalization has curtailed states' autonomy to act (e.g. Strange 1996), the findings of my dissertation demonstrate that politics matters for the resolution of currency crises. Within the limits imposed by the macroeconomic circumstances, institutions and policy preferences shape policymakers' decisions in response to exchange rate crises. Policymakers take into account private sector vulnerabilities and try to minimize the harmful effects for important sectors. Democratic policymakers are more likely to defend the exchange rate than autocratic policymakers. Policymakers in democratic countries are significantly more likely to defend the exchange rate when an attack occurs shortly before an election. By clarifying

the impact of political and institutional variables both theoretically and empirically, the dissertation thus contributes to a better understanding of the political economy of currency crises.

Overall, the dissertation provides many new theoretical and empirical insights into the political economy not just of currency crises, but of monetary policymaking in general. It underscores the importance of politics in crisis management and demonstrates that globalization has not obliterated policymakers' room to maneuver in response to international capital markets.

CHAPTER II

THE IMPACT OF COMPETITIVENESS AND BALANCE SHEET VULNERABILITIES ON EXCHANGE RATE LEVEL PREFERENCES

ABSTRACT

Existing classifications of exchange rate level preferences do not consider the complex interrelationship between exchange rate and monetary policy and the effects of these policies on balance sheets. By taking into account the impact of monetary policy, the joint effect of competitiveness and balance sheet considerations, and the dynamics of preference formation, this paper proposes a more nuanced identification strategy for exchange rate level preferences. It argues that in periods of exchange rate tranquility, exchange rate preferences are purely framed in terms of depreciation or appreciation effects. When speculative pressure emerges, interest groups increasingly weigh their vulnerability to interest-rate increases against their depreciation vulnerability. In this case, high interest-rate exposure can result in a re-assessment of a group's preferred policy outcome, leading groups that initially preferred exchange rate stability to favor depreciation. Comparative case studies of currency crises in Hong Kong, Korea, Thailand, and Taiwan show that vulnerabilities to exchange rate and interest rate changes can explain interest groups' exchange rate level preferences. These preferences also affected policy outcomes. Exchange rate stability was maintained when the private sector's vulnerability to depreciation was high. However, when pressure intensified, exchange rates were subsequently depreciated in countries, where interest group vulnerabilities to a monetary tightening exceeded the potential costs of depreciation.

Previous versions of this paper have been presented at the 1st Annual GARNET Conference in Amsterdam, September 27-29, 2006, the American Political Science Association 2006 Annual Meeting in Philadelphia PA, August 31 - September 3, 2006, the 'Political Events, Financial Markets, and Trade Workshop' in Konstanz, 27 January 2007, and the International Studies Association Annual Conference in Chicago IL, February 28 – March 3, 2007. I would like to thank Thomas Bernauer, Eric Helleiner, Patrick Kubn, Dirk Leuffen, Quan Li, Katja Michaelowa, Michael Pisa, Thomas Sattler, David Steinberg, Jörn Tenbofen, Christoph Trebesch, Tom Willet, and Duncan Wood for helpful comments. My thanks go to all the experts who agreed to be interviewed for this project. This paper greatly benefited from their insights.

1. Introduction

The question how distributional effects of economic policies affect preferences has been an important topic in international political economy research. Like trade, exchange rate politics has widespread distributional implications. Some actors benefit from a fixed exchange rate, but others are hurt by such a regime. Similarly, some actors benefit from an appreciated exchange rate, while for others a more depreciated currency is more advantageous. In combination with domestic and international institutions, the societal pressures that arise from these distributional welfare concerns strongly affect exchange rate policy outcomes (Broz and Frieden 2001). Gaining a good understanding of who will endorse and who will oppose certain exchange rate policies is thus central to understanding how exchange rate policy is made. An essential concern in this endeavor is to correctly identify different actors' exchange rate policy preferences.

Interest in this topic has surged in recent years. Many studies have underscored the impact of interest group preferences on exchange rate policymaking (Frieden 1991, 1996, 2002; Frieden and Stein 2001; Hefeker 1997, 2000; Blomberg et al. 2005; Hall 2005; Helleiner 2005; Pisa 2006; Steinberg 2006). The workhorse model for much of this work has been Jeffrey Frieden's (1991) influential classification of interest group preferences regarding the flexibility and the level of the exchange rate. However, while most evidence supports the classification's predictions on exchange rate flexibility, there has been less support for the predicted exchange rate level preferences. For example, recent survey research shows that respondents frequently report other exchange rate level preferences than expected (Cleeland Knight 2007; Duckenfield and Aspinwall 2007). Similarly, Leblang (2003) does not find a significant effect of export sector strength on the probability of a depreciation in periods of speculative exchange market pressure. This research suggests that a more nuanced understanding of exchange rate level preferences is needed.

The current classification of short-term exchange rate level preferences distinguishes mostly between tradables and non-tradables producers. This distinction neglects three crucial aspects of exchange rate policy: First, in today's world of mobile capital, choices regarding the level of the exchange rate are intricately linked to monetary policy. For example, maintaining an appreciated exchange rate quite often requires tight monetary policy in order to attract sufficient international capital. Choosing an exchange rate level therefore not only involves a trade-off between international competitiveness concerns and national purchasing power, but also one between the effects of a change in the exchange rate and the effects of a change in the interest rate. Second, private

interests do not only worry about their international competitiveness, but also about their balance sheets. Recent studies have drawn attention to this fact by arguing that domestic groups tend to advocate those exchange rate policies that reduce their particular financial vulnerabilities. Looking at such vulnerabilities, Hall (2005) and Woodruff (2005) show that severe currency mismatches in interest groups' balance sheets – a relatively common phenomenon in developing countries and emerging markets – lead to a strong preference against depreciation. Shambaugh (2004) shows that reliance on different types of capital generates distinct capital-specific exchange rate regime preferences. In combination with studies that have highlighted the importance of competitiveness concerns (e.g. Frieden et al. 2001; Frieden 2002; Blomberg et al. 2005; for a study finding no effect see Leblang 2003), these findings indicate that both balance sheet and competitiveness effects affect exchange rate level preferences. As changes in the exchange and in the interest rate can have different effects on actors' competitiveness and balance sheets, exchange rate level preferences are likely to be influenced by the interaction of these effects, rather than their separate effects alone. The third limitation of existing studies is that they present static predictions of short-run preferences.¹ They thus fail to explain why short-run preferences about exchange rate policy outcomes sometimes change quite suddenly from maintaining exchange rate stability to depreciating and vice versa.

This paper offers a dynamic explanation of exchange rate level preferences that builds on previous work but addresses these three shortcomings. It focuses on the choice between exchange rate stability and depreciation² and argues that individuals and firms favor or oppose depreciating the currency depending on their vulnerability to such an exchange rate adjustment relative to their vulnerability to policies required for maintaining exchange rate stability, in particular monetary tightening. Actors' overall vulnerability consists of three different components: their competitiveness vulnerability, their balance sheet vulnerability to depreciation, and their balance sheet vulnerability to interest rate increases. Changes in the price of imported and exported goods and services affect actors' competitiveness and purchasing power. Balance sheets are affected when exchange and interest rate movements change the value of liabilities and assets. By combining these components and accounting for mutually offsetting effects in a *vulnerability space*, each actor's overall vulnerability to depreciation and to maintaining (or “defending”) currency stability can be determined. Based on the assumption that actors always prefer those policy outcomes to which they are least vulnerable, each actor's preferred policy choice can then be

¹ They do provide dynamic arguments for long-term preference change (e.g. Frieden 1994).

² Most often exchange rate level preferences center on the question of whether to depreciate or not. The argument can easily be extended to include the less frequent case of voluntary appreciation.

deduced on the basis of this overall vulnerability. The dynamics of changing policy preferences arise because actors' initially often perceive vulnerability in terms of depreciation concerns only, rather than as a trade-off between their vulnerabilities to depreciation and monetary tightening. As these perceptions of vulnerability are adjusted, exchange rate level preferences can change as well.

The predictions of this argument are empirically evaluated with four comparative case studies of speculative attacks on the currencies of Hong Kong, Korea, Taiwan, and Thailand in 1997/8, for which I analyze the direction and the intensity of exchange rate level preferences and their effect on policy outcomes. All four countries initially maintained exchange rate stability, but responded differently when strong speculative pressure emerged. The case studies show that perceived and actual vulnerabilities can account for variation in actors' exchange rate and monetary policy preferences. In tranquil periods, actors preferred exchange rate stability when their perceived or actual vulnerability to depreciation was high. However, when strong pressure emerged, actors whose vulnerabilities to monetary tightening exceeded their vulnerability to depreciation began to favor depreciation instead. The case studies also suggest that societal preferences influenced policy outcomes in these countries. When the private sector's vulnerability to depreciation was high, the authorities typically defended the exchange rate. In countries where influential actors were highly vulnerable to interest-rate increases, these defenses were later abandoned when pressure intensified.

The paper's main contribution is threefold: First, by taking into account the impact of monetary policy, the joint effect of real price and balance sheet considerations, and the dynamics of preference formation, it proposes a more nuanced identification strategy for exchange rate level preferences. Second, it shows empirically that this approach can account for variation in these preferences across actors and across time. In particular, it offers an explanation for the puzzling cases of Korea and Thailand, where policymakers delayed devaluation until an orderly exit from the peg was no longer possible. Finally, it shows that time-inconsistent policymaking can be encouraged not just by institutions, but that policy preferences can have a strong short-term bias as well.

2. Private Sector Vulnerabilities and Exchange Rate Level Preferences

This section lays out the theoretical argument that actors' vulnerabilities to exchange rate and interest rate changes drive their exchange rate level preferences. The argument applies to firms and individuals alike. Whether the preferences of these actors actually influence policy outcomes depends on their ability to organize and the institutional setting.

2.1 Vulnerabilities to Exchange Rate and Monetary Policy Changes

Firms' and individuals' overall vulnerability to changes in exchange rate and monetary policy consist of three components: their concern about competitiveness and real prices, the vulnerability of their balance sheets to depreciation, and their balance sheet vulnerability to interest rate increases. Of course, in the long-run these exchange rate and interest rate vulnerabilities are endogenous to the exchange rate regime type and other institutions such as central bank independence or the quality and extent of government regulation. The focus here is on short-term preferences, however, because these are likely to matter most in a policymaking context (Frieden 1991). In the short term, these vulnerabilities act as exogenous constraints on the process of preference formation.

Competitiveness and Purchasing Power Concerns

Changes in the exchange rate strongly affect real prices, at least in the short to medium run. Depreciation lowers the international price of exports and thus increases their international competitiveness, fostering export growth (see Forbes 2002; Echeverry et al. 2003; Pratap et al. 2003 for some empirical studies on this topic). The resulting output stimulus for the export-oriented sector can spread to the economy as a whole, especially when the depreciation contributes to a realignment of the currency. Consequently, export-oriented industries are usually believed to favor a more depreciated exchange rate (Frieden 1991; Frieden et al. 2001; Frieden 2002; Forbes 2002; Leblang 2003; Blomberg et al. 2005). However, depreciation also increases the price of imports and puts upward pressure on the inflation rate. Such price increases hurt consumers and firms that strongly rely on internationally tradable inputs and imported goods. If exchange rate stability and the resulting stability of the investment environment is one of the main comparative advantages of a country's financial sector, depreciations can also damage financial firms' competitiveness.

These positive and negative effects can partially offset each other (Frieden et al. 2001). Most export-oriented firms also use imported intermediate goods and inputs such as machinery,

technology, or commodities, and everyone is affected by depreciation-induced domestic inflation. Depreciations can therefore have an ambiguous overall effect on competitiveness and profitability, a finding that several firm-level empirical studies confirm (Dollar and Hallward-Driemeier 2000; Forbes 2002; Blaszkievicz and Paczynski 2003). Gauging the overall effect of exchange rate policy on an actor's competitiveness thus requires taking both the positive and negative effects of depreciation into account. The more a firm relies on exported rather than imported goods, the more it will profit from depreciation. Similarly, the competitiveness of firms with a high exposure to inflation or a high reliance on imported goods is very vulnerable to depreciation. In contrast to depreciation, a monetary tightening does not directly affect competitiveness.³

Balance Sheet Vulnerability to Depreciation

Exchange rate and monetary policy also profoundly affect balance sheets. Whether an actor prefers exchange rate stability or a depreciation thus not only depends on his price vulnerability but also on the composition of his assets and liabilities. Changes in the exchange rate affect foreign-currency denominated balance-sheet positions. Such positions are not uncommon: any firm with cross-border transactions will typically exhibit items denominated in foreign currencies in its balance sheets. More importantly, and particularly common in emerging markets, market participants borrow abroad (or domestically but in a foreign currency), either because international interest rates are lower than domestic rates or because they are simply unable to borrow in their own currency (Eichengreen and Hausmann 2005). As a consequence, their balance sheets can contain sizeable positions of foreign-currency denominated liabilities. With such liabilities, a depreciation of the exchange rate considerably increases the debt burden (in terms of domestic currency), particularly when these liabilities are unhedged. This effect is especially detrimental when balance sheets are mismatched, i.e. when assets – in contrast to liabilities – are predominantly denominated in domestic currency.⁴ Those whose balance sheets contain sizeable and unmatched positions of foreign-currency denominated liabilities can consequently be expected to favor exchange rate stability.⁵

³ In the long run monetary tightening can weaken competitiveness by making access to capital more expensive and not depreciating can indirectly cause a loss in competitiveness if it leads to overvaluation.

⁴ Even companies with balanced balance sheets can be harmed by depreciation if their customers exhibit a mismatched portfolio. Since depreciation raises the risk of default, they create a considerable indirect credit risk (Mishkin 1996). Many recent economic models (e.g. Chang and Velasco 2001; Aghion et al. 2004) have highlighted the role of such financial sector and balance sheet weaknesses in the emergence of currency crises.

⁵ Ffies and Shankar (2005) show that currency stabilization programs are more likely when levels of foreign-currency denominated liabilities are high.

Balance Sheet Vulnerability to Monetary Tightening

In contrast, changes in the interest rate affect balance sheet positions denominated in domestic currency. Higher interest rates increase the debt servicing costs on domestic liabilities, making it more difficult and costly to repay these loans or to undertake new investments. This effect is particularly severe when the loans' interest rates are closely tied to short-term interest rates and when debtors have not hedged their liabilities.⁶ Monetary tightening is most painful for those debtors who are either highly leveraged or already have difficulties to service their debts. In such instances even a small increase in interest rates can cause major difficulties for borrowers. The current problems of low-quality mortgage holders in the US housing market provide a vivid example of a group with a high vulnerability to monetary tightening.

Most actors exhibit a mix of domestic-currency denominated and foreign-currency denominated assets and liabilities. Actors with mixed balance sheets weigh their vulnerability to depreciation relative to their vulnerability to interest-rate increases. The higher an actor's weighted overall vulnerability to depreciation, the more painful exchange rate adjustment are likely to be. Similarly, debtors with a higher overall balance sheet vulnerability to interest-rate increases will be harmed more by an interest-rate defense than a depreciation.⁷

2.2 Deducing Preferences from Actors' Locations in the Vulnerability Space

It should be clear by now that vulnerabilities to exchange rate and monetary policy are far from homogeneous. Which policy outcome an actor prefers depends on his overall vulnerability, i.e. the combination of the three components just discussed. To capture the interaction of the three types of vulnerability, I construct a *vulnerability space* in which the vulnerabilities are combined. For representational purposes, I collapse the three dimensions into a two-dimensional space by combining the two balance sheet vulnerabilities.⁸ This new dimension, the vertical axis of the vulnerability space in Figure 1, represents an actor's overall balance sheet vulnerability, i.e. his balance sheet vulnerability to depreciation less his balance sheet vulnerability to interest-rate increases. Actors located in the upper half are highly vulnerable to depreciation. In contrast, the balance sheets of actors located in the lower half are more vulnerable to increases in domestic interest rates. The horizontal axis represents the competitiveness and purchasing power vulnerability to depreciation and hence the classic distinction between tradables and non-

⁶ Central banks usually raise short-term interest rates to defend the exchange rate.

⁷ Of course this always also depends on the relative sizes of the changes in interest and exchange rates.

⁸ The two dimensions are not necessarily independent for all actors. For example, exporters tend to have both a low competitiveness vulnerability and a low balance sheet vulnerability to depreciation as they are naturally hedged. For many other actors, however, the two dimensions are not correlated.

tradables producers. The higher an actors price vulnerability, the less beneficial are the effects of a depreciation. Actors situated to the left – such as export and import-competing firms – are least vulnerable to (or may even benefit from) depreciation, while firms using high quantities of imported inputs can typically be found at the right-hand side of the continuum.

Figure 1: The Vulnerability Space

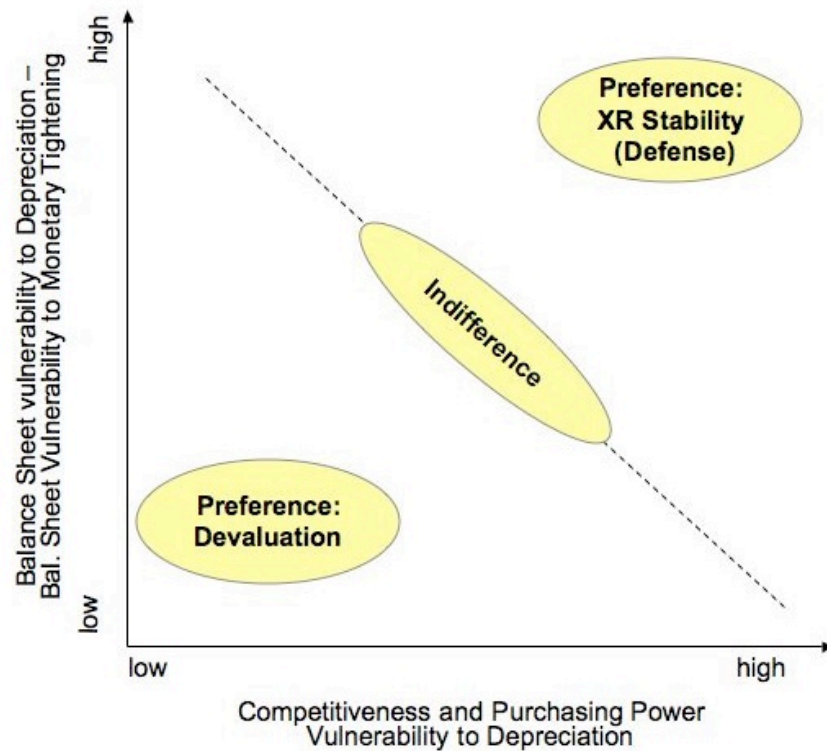


Figure 1 shows how an actor's position in this vulnerability space affects his preferences on exchange rate stability vs. depreciation. Real price and balance sheet effects can either offset or reinforce each other. The combination of the two effects in one space makes it possible to deduce each actor's preferred policy outcome. Actors located in the upper right hand corner display a very high overall balance sheet vulnerability to depreciation while at the same time being very exposed to price changes in imported goods. These actors can be expected to strongly prefer a defense to a depreciation. In contrast, depreciations increase the competitiveness of actors located in the lower left hand corner and their balance sheet vulnerability to interest rate increases greatly exceeds their balance sheet vulnerability to depreciation. These actors can be expected to strongly prefer depreciation to an interest-rate defense. Most actors are likely to be located in neither of these two corners, but more towards the middle of the vulnerability space. Since these actors face offsetting balance sheet and real price effects, their preferences regarding exchange rate stability or depreciation are less clear. All else equal, actors positioned around the diagonal

connecting the upper left-hand and the lower right-hand corner can be expected to be indifferent or in favor of an intermediate response such as a combination of exchange rate and interest rate adjustment. The farther away an actor is located from the diagonal, the more pronounced is his preference for a defense or a depreciation, with actors in the upper-right triangle favoring an interest rate defense and actors in the lower-left triangle favoring an adjustment through changes in the exchange rate.

2.3 Preference Dynamics

Why do certain actors sometimes switch from preferring exchange rate stability to depreciation (and vice versa)? The dynamics arise because maintaining exchange rate stability in tranquil times is very different from periods of severe exchange-market pressure. In tranquil times, when the exchange rate is properly valued and faces no upward or downward market pressure, maintaining a given exchange rate level comes at relatively little cost in terms of monetary policy. Similarly, mild speculative pressure can be countered by sterilized intervention in the foreign exchange market, which also has a very limited effect on domestic interest rates. In periods of severe pressure, however, sterilized reserve sales typically are no longer sufficient to offset market forces. Rather, maintaining exchange rate stability in the face of severe pressure requires painful measures, most notably a significant tightening of monetary conditions. Higher interest rates make investments in domestic currency more attractive and hence stop, or at least slow down, the outflow of capital, while at the same time signaling the government's commitment to the exchange rate peg.

While monetary tightening has a strong negative effect on actors with a high vulnerability to interest-rate increases, these actors are not negatively affected by sterilized sales of foreign reserves. In periods of tranquility or mild exchange market pressure, they therefore tend to discount their interest rate vulnerability and only focus on the effects of a potential depreciation on real prices and their foreign-currency denominated balance sheet positions. They therefore bias their perceptions of their vulnerability towards the effects of a depreciation, while the potential effects of a monetary tightening are discounted. This emphasis on the effects of depreciation shifts their *perceived* position in the vulnerability space vertically upwards.⁹ With a high discount rate, this shift corresponds roughly to the amount of each actor's interest rate vulnerability. In contrast, in periods of speculative pressure the full trade-off between exchange rate and interest stability becomes

⁹ This is because the vertical axis then represents the difference between an actor's balance sheet vulnerability to depreciation and his discounted balance sheet vulnerability to monetary tightening.

acute. Actors consequently base their policy preference on their *actual* overall vulnerability in these periods. The difference between their *perceived* and their *actual* vulnerability can cause certain actors with a high interest rate vulnerability to prefer different policy responses in tranquil and mild-pressure periods than in severe-pressure periods, preferring exchange rate stability in the former and a depreciation in the latter case.¹⁰

Despite this change in strategies, actors are consistent in their preference structure and always prefer the policy outcome to which they are least vulnerable. It is the change in their *perceived* overall vulnerability that leads to a reassessment of their preferred policy outcome. Two factors cause rational actors to perceive their vulnerability differently in tranquil and in speculative environments: discounting and uncertainty. Discounting means that individuals and firms place greater weight on short-term trade-offs than on possible long-term trade-offs. Starting from a no-pressure environment, actors discount the possibility that interest rates may need to be raised in the future to keep exchange rates stable. They consequently focus only on the effects of a depreciation on their competitiveness and their balance sheets. The uncertainty surrounding exchange rate policy reinforces the discounting mechanism. Since it is uncertain whether and when severe pressure will actually materialize in the future, the discount factor for the potential effects of a monetary tightening is further increased. Moreover, the complex interrelationship between the exchange rate and the interest rate is not commonly understood (McNamara 1998), again prejudicing the perceived vulnerability against the inclusion of interest rate concerns in tranquil periods.

2.4 From Preferences to Policy Outcomes

Whether and how these preferences translate into policy depends both on actors' ability to organize and on the institutional setting. Small groups of actors with similar vulnerabilities (and hence preferences) are much easier to organize and than large groups, especially when the latter have heterogenous preferences (Olson 1965). This advantage of small groups is enhanced when actors sharing similar vulnerabilities concentrate along pre-existing organizational lines. For example, when banks in a country share similar competitiveness and balance sheet vulnerabilities to changes in the exchange and interest rate, they can easily mobilize based on the pre-existing structure of a banking association. When the issue of exchange rate and monetary policy is salient for these groups, they are likely to mobilize and effectively lobby the authorities for policies in

¹⁰ Of course, actors' actual vulnerability can change as well. Firms may for example decide to hedge when they fear that severe speculative pressure is about to emerge. However, a significant shift of an actor's position in the vulnerability space usually requires a restructuring to an extent that is not possible in the short-run.

their favor.¹¹ Whether certain actors have similar vulnerabilities and whether these vulnerabilities correspond to pre-existing group-structures is likely to vary from country to country. Larger, less organized, and more heterogeneous groups of actors are less likely to influence policy outcomes in their favor. However, certain institutional settings can increase their influence on policy outcomes in an indirect way (Walter and Willett 2007). Upcoming elections, for example, give voters – and hence, for example, consumers and homeowners – much more voice than they would have in non-election periods. The effect of their preferences on policy outcomes is indirect: they are unlikely to lobby the authorities, but when elections are approaching the government is nevertheless likely to take their preferences into account.

All else equal, whether policymakers maintain exchange rate stability or depreciate consequently depends on the distribution of (politically influential) proponents and opponents of these policy outcomes in the vulnerability space. In countries, where influential actors favor exchange rate stability regardless of the severity of speculative pressure (and therefore cluster in the upper right-hand corner of the vulnerability space), policymakers can be expected to defend the exchange rate at all cost. When most actors are concentrated in the lower left-hand side of the vulnerability space, policymakers should show little enthusiasm for exchange rate stability. In a third type of economy, influential actors *perceive* their vulnerability to lie in the pro-defense triangle in tranquil periods even though their *actual* vulnerability lies in the pro-depreciation triangle. In these countries policymakers should maintain exchange rate stability as long as this can be achieved through reserve sales, but should depreciate as soon as a defense requires a significant monetary tightening. While this is not optimal in the long-run, policymakers' regard for short-run vulnerabilities is enhanced by their tendency to discount the future more heavily than ordinary people because institutions such as elections can shorten their time horizon (Willett 1988, 2006).

3. Empirical Evaluation: Four Comparative Case Studies

To empirically evaluate the usefulness of the vulnerability argument for preference identification, I analyze exchange rate level preferences in the context of emerging speculative pressure on exchange rates. Currency crisis episodes are particularly fit for an analysis of the vulnerability argument because exchange rate preferences are very visible during such crises (Broz and Frieden 2001) and because the monetary policy dimension becomes salient as speculative pressure turns severe. Exchange rate policy outcomes during currency crisis periods can be classified into three

¹¹ Graphically, the degree of salience increases with a group's distance from the indifference-diagonal depicted in the vulnerability space.

ideal types: (1) prompt depreciation, in which policymakers depreciate as soon as mild speculative pressure emerges, (2) successful defense, in which the exchange rate level is successfully maintained, and (3) the puzzling case of unsuccessful defense, in which policymakers defend the exchange rate until reserves are (almost) depleted and subsequently let the currency depreciate. If policymakers are susceptible to societal preferences, different exchange rate policy outcomes should be a result of different distributions of influential actors' positions in the vulnerability space.

To evaluate the usefulness of the vulnerability argument, this paper compares the distribution of societal preferences in Hong Kong, South Korea, Taiwan, and Thailand during the Asian Financial Crisis of 1997/8.¹² The research strategy is two-fold: the analysis focuses both on the question whether actors' preferences corresponded to their positions in the vulnerability space and on the question to which extent these preferences affected how policymakers responded to the currency crises in their countries. The analysis is based on information obtained in thirty semi-structured expert interviews with central bankers, government officials, IMF staff, and academics, who had detailed knowledge about the condition and preferences of firms and interest groups in these countries.¹³ This information was augmented with information from secondary literature, newspaper sources, and central bank and government documents (an appendix with details about the materials and research strategies employed in the case studies is available from the author). Several commonalities make the speculative attacks in these four countries particularly suitable cases for comparison. First, since all speculative attacks took place at roughly the same time, the attacks occurred among the same bearish global market conditions and similar speculator sentiments. Second, the authorities in all four countries had been routinely intervening in the foreign exchange market for quite some time. Third, at the time of the crisis all four countries were export-oriented and had begun liberalizing their capital accounts, enabling domestic economic actors to accumulate foreign-currency denominated positions in their balance sheets. Fourth, in 1997 these countries displayed comparable levels of civil liberties, an important prerequisite for domestic interest group politics.

¹² Since a selection of cases based on the independent variable was impossible due to the complex nature of the independent variable (actors' perceived and actual locations in the vulnerability space), I selected the cases in a way that maximized variation on the dependent variable, held important control variables constant, and did not include any prior knowledge about the values of the independent variable (as suggested by King et al. 1994). Several other Asian Crisis cases were not chosen because certain features made them unsuitable candidates for comparison. Indonesia was excluded because of its authoritarian political regime, the Philippines because they were not strongly affected by the crisis and Malaysia because of its unorthodox strategy of imposing capital controls.

¹³ Interviews were conducted between February and April 2006. Interviewees were granted anonymity and are therefore not personally identified.

Table 1 summarizes how the authorities in the four countries responded to speculative pressure. It presents a series of puzzles: What explains the different degrees to which the authorities relied on interest rate or exchange rate adjustment and reserve sales? Why, despite a very high level of foreign currency reserves in both countries, did Taiwan choose to let its currency depreciate and Hong Kong to defend? Why were the authorities in Thailand and Korea willing to spend almost all their reserves in a desperate attempt to stabilize their exchange rates while simultaneously shying away from a significant increase in interest rates?

Table 1: Policy Responses to Speculative Pressure in Hong Kong, Korea, Taiwan, and Thailand

	Hong Kong		Korea		Taiwan		Thailand	
Intensity of speculative pressure	Mild Jul-Sep 97	Severe Oct 97 Jun 98 Aug 98	Mild Jul-Oct 97	Severe Nov 97 – Jan 98	Mild Jul-Sep 97	Severe Oct 97	Mild Jul 96 – Apr 97	Severe May–Jul 97
Interest Rates	↑	↑↑↑	→/↑	↑, later ↑↑*	↑	↓	↑	↑, later ↑↑*
Foreign Reserve Sales	↑	↑	↑↑	↑	↑↑	→	↑↑↑	↑
Exchange Rate Level	→	→	→	↓↓↓	→	↓↓	→	↓↓↓
Alternative policy measures	Tax relief	Stock market intervention	Some capital account liberalization	Roll-over agreement with foreign banks				Some capital controls
Policy Outcome	Exchange Rate Stability	Exchange Rate Stability	Exchange Rate Stability	Depreciation	Exchange Rate Stability	Depreciation	Exchange Rate Stability	Depreciation

* mostly because of IMF conditionality

The four cases are particularly interesting because the most prominent alternative explanations for policy responses to speculative pressure can only partially account for the variation in policy outcomes. One set of alternative explanations points to the different quality of countries' economic fundamentals and foreign reserves. Countries experiencing fundamentals-based first-generation crises should be much more likely to depreciate than countries struck by expectations-based, second-generation-type crises. While the nature of the speculative attacks during the Asian Financial Crisis has been hotly debated (see for example Furman and Stiglitz 1998; Radelet and Sachs 1998; Willett et al. 2005), it can be argued that Thailand was most vulnerable to attack, followed by Korea and, to a smaller extent, Hong Kong and Taiwan (Athukorala and Warr 2002; Corsetti et al. 1999). The crisis-type argument can thus explain Thailand's and Korea's decision to depreciate in response to severe exchange market pressure as well as the variance among Tai-

wan's and Hong Kong's responses (their sound fundamentals and high level of reserves enabled them to choose either policy response) but it fails to answer why Thailand and Korea desperately tried to hold on to their exchange rate pegs for so long and why Taiwan's approach to resolving the crisis was so different from Hong Kong's. The related argument that countries with more (potential) access to international funds – in particular Hong Kong and Korea – are more capable of defending than countries like Taiwan, which lacked access to foreign funds,¹⁴ can explain that Hong Kong defended while Taiwan depreciated fairly quickly and that Thailand and Korea initially tried to defend their currencies, but fails to explain why Thailand lost even more reserves than Korea and why both countries only asked the IMF for help after they already had depreciated.

Various political economy explanations also fail to explain the observed variance in exchange rate policy outcomes in the four cases. Frieden's well-known interest group argument (Frieden 1991, 2002; Frieden and Stein 2001), for example, can explain the policy outcomes in Hong Kong and Taiwan, but cannot account for Thailand's and Korea's determined but fruitless efforts to defend the exchange rate. Frieden argues that international traders and investors, a very influential group in the Hong Kong economy, have a preference for fixed (and potentially overvalued) exchange rates. In contrast, he expects exporters, especially of standardized products, to have a preference for a depreciated and more flexible exchange rate. While the prompt devaluation in Taiwan supports Frieden's argument, it cannot explain why Korea and Thailand, two equally export-oriented countries, were so reluctant to devalue. Especially Thailand's unwillingness is striking as the country exports highly standardized products. With regard to the political regime type (Simmons 1994; Sattler and Walter 2006) the only regularity seems to be that the more democratic countries (Thailand and Korea) were those that chose the intermediate and painful path of first defending and then devaluing. The argument that defenses are more likely shortly before elections, while devaluations are more likely after elections (Leblang 2003; Walter 2006) has more traction. The defenses in Hong Kong in the fall of 1997 and the initial exchange rate defense in Korea can be attributed to upcoming elections. Similarly, Taiwan's prompt depreciation is in line with this argument since it occurred only months after the last elections. However, the electoral-timing-explanation has less leverage with regard to the Thai case and to Hong Kong's defenses in the summer of 1998, where the fact that elections were not scheduled for several years would lead us

¹⁴ China's pledge to support the exchange rate link gave Hong Kong the largest access to foreign funds. South Korea's geopolitical and economic importance also endowed it with considerable access to foreign emergency funds. This access was more limited for Thailand. Given its difficult diplomatic status and lack of membership in the Bretton Woods institutions, Taiwan's access to international financing was very limited.

to expect a rapid devaluation. It also has some difficulty in explaining why the Korean authorities abandoned their exchange rate just one month before election day.

Finally, it could be argued that the different policy outcomes can be explained by assuming an apolitical benevolent dictator who aims to maximize social welfare. As I show below, the Taiwanese economy overall was much less vulnerable to a depreciation than Hong Kong's. The authorities decision to devalue in the former and to defend in the latter case is consequently consistent with the benevolent-dictator explanation. The explanation is much less convincing with regard to the Thai and Korean cases, however. In both countries an early depreciation would have caused significantly less pain than the authorities' actual decision to tenaciously defend the exchange rate as long as possible and then to devalue nevertheless. This strategy caused the currencies to overshoot and required drastic and painful counter measures, which could have been avoided had the authorities abandoned their currency defense earlier. In this context it is interesting to note that the IMF had been recommending more exchange rate flexibility for both countries for some time before the crises erupted.¹⁵ The authorities in both countries were consequently aware of the risks involved in not depreciating. Nevertheless, they implemented this strategy, an unlikely outcome for a social welfare-maximizing policymaker.

This discussion shows that the very different policy outcomes in the four countries are indeed puzzling. Alternative explanations have particular difficulties with explaining the cases of failed defenses. For this reason, two of these cases, Thailand and Korea, are included in the analysis. In what follows I show that the vulnerability argument offers an explanation for this variance.

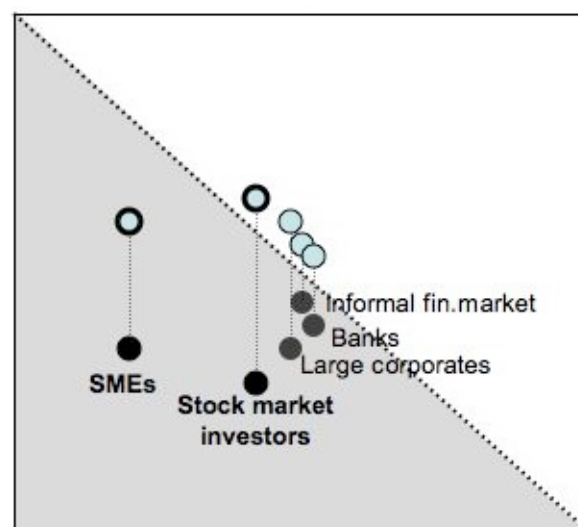
3.1 Taiwan: Prompt Depreciation

In 1997, most actors in Taiwan's highly export-oriented but financially domestic-oriented economy were not very vulnerable to exchange rate changes but highly vulnerable to changes in the interest rate. Taiwanese firms, predominantly small and medium-sized enterprises (SMEs), specialize in high-value-added and high-tech exports for which imported inputs are of relatively modest importance. In such a setting depreciation overall has a favorable effect on exporters (Interview 10), even though as international traders they benefit from currency stability as well. Taiwanese exporters hence exhibited a very low competitiveness/purchasing power vulnerability to depreciation. Other actors, in particularly non-tradable goods producers and importers were to some degree vulnerable to depreciation, especially to increases in the price of oil. While some

¹⁵ The IMF recommended more flexible rates for Thailand from 1994 onwards, for Korea starting in 1996.

variation exists, the average competitiveness vulnerability of Taiwanese exporters was low, that of non-exporters moderate, especially since Taiwan's fairly sound macroeconomic fundamentals made a currency collapse of the proportions seen in the other Southeast Asian countries unlikely and thus lessened the potentially negative effects of a depreciation. There was even less reason to worry about balance sheet vulnerability to depreciation. Taiwanese companies had not borrowed substantial amounts in foreign currency¹⁶ and foreign assets greatly exceeded foreign liabilities in 1997 (Corsetti et al. 1999: 339). Balance sheets would consequently gain rather than suffer from an exchange rate depreciation, resulting in a low balance sheet vulnerability to depreciation for a large majority of Taiwanese firms and individuals. However, balance sheets of most Taiwanese firms and individuals were vulnerable to interest rate increases. A history of high savings had enabled Taiwanese companies to borrow predominantly in domestic currency (Hsu 2001), making the domestic interest rate the main determinant of the debt burden. The interest rate vulnerability of SMEs varied a lot, but on average they more leveraged than large corporations. The main sources of financing were bank loans, the informal financial market, and Taiwan's dynamic capital market, in which one in three Taiwanese – both individuals and companies - had invested in 1997 (Chu 1999). As a result, the performance of the Taiwanese stock market, with its strong emphasis on individual and domestic investors, was a major concern for policymakers. Since interest rate increases have a negative effect on stock returns, the interest rate vulnerability for stock investors was on average high.

Figure 2: Taiwan's Vulnerability Space



Light dots indicate perceived vulnerability, dark dots actual vulnerability
 Bold print indicates the most influential groups

¹⁶ Between 1993 and 1996, external liabilities of the private sector averaged only 10.6% of GDP (Chu 1999: 186).

Figure 2 summarizes the positions of Taiwanese firms and individuals grouped along certain pre-existing characteristics in the vulnerability space. The positions and degree of influence of each group (as well as those in the other country studies) were obtained by triangulating information obtained in expert interviews, official documents, press articles, and secondary literature. In many cases this information was validated using confidential information from the archives of the German Bundesbank. While subnational statistics on currency and interest rate exposure as well as the overall trade position do not exist, the available qualitative information allowed me to approximate the average perceived and actual positions for each group of actors, especially whether they were located in the pro-devaluation or the pro-defense triangle. The positions thus represent the *average* vulnerability of each group. The heterogeneity of actors' vulnerabilities varies among groups. For example, the large number of stock market investors suggests that the variance among this group should be much higher than that of the banking sector. This implies that the variance will be larger for some groups than for others, influencing actors' ability to organize and actively lobby the authorities. To keep the illustration readable, the variance is not indicated graphically but discussed in the text and to included in the rating of certain groups as influential.¹⁷

Figure 2 shows that in the tranquil/mild-pressure period, which lasted until the early fall 1997, most Taiwanese actors *perceived* their (discounted) vulnerability close to the indifference zone indicated by the diagonal. While the export-oriented SMEs display a weak preference for depreciation, the other groups, including stock market investors, coalesce around a weak pro-defense preference. In line with these expectations a Taiwanese central banker confirmed that exporters had wanted a depreciation, while importers had been more concerned about price stability (Interview 20). The argument predicts that in this specific setup the authorities should have had a weak preference for exchange rate stability. This is in line with the Taiwanese experience: When market jitters caused by the floating of the Thai baht in July 1997 began to exert some speculative pressure on Taiwan's currency, the New Taiwan (NT) dollar in the fall 1997, the Taiwanese authorities responded by selling several billion US dollars of their sizeable foreign reserves. Taiwanese central bankers and politicians defined "maintaining financial stability" (defined as exchange-rate, interest-rate and stock-market stability) as their policy priority (China Post (CP), 5.9.1997, 8.9.1997, 9.10.1997). As long as pressure remained mild, Taiwan's central bank, the Central Bank of China (CBC), was able to achieve all of these goals by sterilizing most of its foreign reserve sales. Convinced that the currency was appropriately valued, the authorities were

¹⁷ The influence of groups was determined by asking the interviewed experts to name and rank influential groups.

initially even willing to temporarily accept modestly higher short-term interest rates in return for exchange-rate stability (CP, 9.10.1997). However, since reserve sales were not fully sterilized, the resulting credit squeeze began to hurt the economy and particularly the stock market in September.

As speculative pressure grew more severe and monetary tightening became inevitable for maintaining exchange rate stability, the *actual* vulnerability became the salient determinant of policy preferences. All actors' actual vulnerabilities fall in the pro-depreciation zone, reflecting their low tolerance for pain inflicted by interest rate increases and low vulnerability to depreciation. In such a situation, the vulnerability argument predicts that exchange rate stability will promptly be abandoned in order to stabilize interest rates. The available evidence points to such a shift in coalitions and a corresponding change in official policy. As high interest rates and the continuous outflow of foreign funds began to take a heavy toll on the stock market in October, the public debate in Taiwan increasingly centered on the trade-off between stock-market performance and currency stability (CP, 6.10.1997, 13.10.1997, Interview 21). On October 8, 1997 the leaders of the nation's major industry and commerce associations publicly called for lower interest rates, a demand that was echoed by stock buyers (CP, 9.10.1997). At the same time, exporters increasingly and successfully lobbied the national parliament for a depreciation, as a Taiwanese central banker recalls (Interview 20, CP, 9.10.1997). Since the CBC politically answers to the parliament, these demands did not remain unheard. Faced with the choice to either further raise interest rates or to stop defending the NT dollar, the authorities chose the latter option on October 17, 1997 and let the currency depreciate "in order to minimize the adverse impact on the real sector and on financial markets" (Chen 2000: 56). This decision was taken even though the authorities still held very large funds of foreign currency reserves (IMF 2004) and although exchange market pressure was not (yet) particularly severe.

The Taiwanese experience shows how a low tolerance for painful monetary tightening in combination with a strong export-orientation and a comparatively low balance sheet vulnerability to depreciation rapidly turned initial weak pro-defense preferences into strong pro-depreciation preferences when the pressure on the exchange rate increased only slightly. Since most actors valued low interest rates and competitiveness gains higher than exchange rate stability, they opted for monetary stability rather than exchange rate stability. In light of this situation the government was unwilling to continue defending the currency and depreciated instead.

3.2 **Thailand: Unsuccessful Defense (I)**

The Thai experience was quite different. During the build-up to the currency crisis, which culminated in a float on 2 July 1997, most of Thailand's influential interest groups, especially banks, finance companies, and industrial exporters,¹⁸ simultaneously exhibited a very high vulnerability to depreciation and to interest rate increases – a situation which one IMF official referred to as a “double bind” (Interview 5). In such a setting the vulnerability argument suggests that when speculative pressure is mild, most groups should perceive themselves very vulnerable to depreciation. As pressure increases and their interest rate and hence the actual vulnerability becomes salient, however, these groups should prefer a devaluation to an interest rate defense.

Thailand's economy is fairly export-oriented, but the majority of exporters produce industrial goods that require many imported inputs. A devaluation was therefore likely to have a smaller positive competitiveness effect for Thai exporters than for their Taiwanese counterparts (Interview 24). Businesses producing for the domestic market and consumers were also worried about the potential negative effects of a devaluation on the prices of imports (Hall 2005: 70). While the variance is quite high, a majority of Thai firms and individuals therefore exhibited a moderate to high degree of competitiveness vulnerability to depreciation. The balance sheet vulnerability to depreciation thus varied among Thailand's firms. Most vulnerable were the finance companies, followed by banks and big companies with high foreign currency exposure and only limited foreign currency earnings. Since the capital account liberalization in the early 1990s, considerable amounts of foreign capital had poured into Thailand. Relying on the long-standing stability of the baht, financial intermediaries had borrowed substantially in foreign currency and re-lent these – mostly unhedged¹⁹ – funds at higher interest rates on the domestic market (Tsurimi 2000). This practice resulted in severe currency mismatches, where liabilities denominated in foreign currency stood against assets denominated in domestic currency. Having matched their substantial foreign-currency borrowings with unprofitable investments in the faltering domestic property sector, the finance companies were most seriously affected. For this small, concentrated and homogenous group of actors the stability of the baht rapidly became a “life or death issue” (Interview 29).

¹⁸ Thai banks' fairly homogenous vulnerability structure, the economy's high reliance on bank-based credit and its close ties with the political elite contributed to the political influence of the banking sector (Hall 2005). Large industrial exporters were influential because of their similar vulnerability profile, their small number and their importance for Thailand's economic development strategy. Finance companies were influential because almost all of them shared very high exchange rate and interest rate vulnerabilities and a widespread collapse of these companies was feared to threaten the stability of the whole financial system (interviews 26 and 29). Moreover, “many, perhaps a majority, of the country's leading political figures had direct interests in the finance and property companies.” (Overholt 1999:1011).

¹⁹ Approximately 80% of short-term loans in foreign currency (almost 38 billion US\$ in 1996) were unhedged (IMF 1998d: 78; Dollar and Hallward-Driemeier 2000).

Large exporters also borrowed substantially in foreign currency but were to some extent ‘naturally hedged’ through their export earnings. In contrast, most SME did not borrow abroad (Interviews 24 and 29),²⁰ so that balance sheets were not very vulnerable to depreciation. In contrast to banks and finance companies, the large majority of Thai firms still borrowed only in baht – and did so extensively (Dollar and Hallward-Driemeier 2000). With a private-loan-to-GDP ratio of 147%, the Thai corporate sector was highly leveraged (IMF 1998d). Consequently, balance sheets were even more vulnerable to interest-rate increases than to depreciation. An IMF official observed that “the corporate sector would have been much more hit by an interest-rate shock than an exchange rate shock” (Interview 8). Interest rate vulnerability was highest for those who held large baht-denominated liabilities, most notably large corporates, SMEs, and exporters. Banks and finance companies were indirectly exposed because high interest rates increase the ratio of non-performing loans.

Figure 3: Thailand’s Vulnerability Space

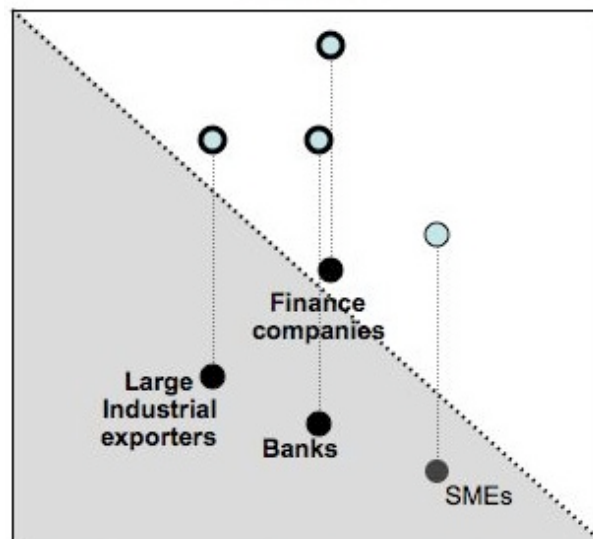


Figure 3 shows that until the eruption of severe speculative pressure in May 1997, the average *perceived* vulnerability of most groups, including the two very influential groups of finance companies and the banks, lay well within the white pro-defense space. Except for the finance companies, however, their *actual* vulnerability lay in the pro-depreciation space. This setup predicts preference structures that correspond to those attributed to the different actors by various experts:

²⁰ Dollar and Hallward-Driemeier (2000: 12) note that „of the 1,200 firms surveyed, only 140—predominantly large exporting firms with ties to foreign companies—reported that their liabilities were denominated in foreign currencies. Three-fourths of these reported that their foreign currency debt was less than the value of their baht-denominated debt at the end of 1996; half of the 140 said their foreign currency liabilities were less than 50 percent of the value of their baht liabilities in 1996. “

Finance companies preferred higher interest rates and were strongly opposed to a devaluation. Banks, while opposed to interest-rates increases, were also worried about devaluation. The Thai Banker's Association chairman Olarn Chaipravat repeatedly warned against devaluation (Bangkok Post (BP), 17.3.1997 and 2.7.1997). Exporters were indifferent to positive about devaluation (Interviews 26 and 29). Not surprisingly, even though sluggish export performance caused great concern, "devaluation was not an argument at all for promoting exports" (Interview 26).

Statements from Bank of Thailand (BOT) and government officials indicate that the authorities gave much thought to the balance sheet effects of a potential baht devaluation, while trade "was not an issue" in this context (Interview 29). Starting in the summer of 1996, Thailand had experienced a prolonged period of repeated mild speculative attacks on its long-standing peg, caused by a worsening current account deficit and the piecemeal policy measures implemented to address weaknesses in the Thai economy. The BOT initially fiercely resisted speculative pressure by selling almost all of Thailand's foreign reserves,²¹ modestly raising interest rates,²² and even introducing some capital controls designed to deter foreign speculators. In February 1997 a BOT official said that "any policy to devalue the currency would cause more damage to the overall economy than could be offset by the gains expected from improved price competitiveness. Most importantly, devaluation would lead to inflationary pressure and more costly imports. At the same time, the private sector would find it more difficult to service overseas debts" (BP 19.2.1997). The BOT's preferred option against mild pressure was thus to stabilize the exchange rate by secretly selling reserves and simultaneously maintaining interest-rate stability (Interview 29). The large foreign debt held by the private sector was of particular concern to Thai officials (Nukul Commission 1998: 99; Overholt 1999: 1015; Interview 26). At the same time, the authorities were reluctant to further increase interest rates because they feared the consequences for the highly indebted financial sector and the real economy (Interview 5 and 27). It is particularly noteworthy that the BOT chose to sterilize its reserves sales through massive and secret swap transactions because it hoped that this strategy would prevent interest rates from skyrocketing (Nukul Commission 1998: 64). Nevertheless, monetary conditions were tight (by Thai standards, but low by crisis standards), which prompted several politicians, including Finance Minister Amnuay and the Parliaments' Fiscal Policy, Banking and Finance chairman, to call for lower interest rates (BP, 19.2.1997, 20.2.1997, 17.3.1997, 6.4.1997, 25.4.1997, 2.7.1997). In May 1997 the attacks grew very severe and the authorities discussed but nevertheless dismissed the option to stop ster-

²¹ Most of these sales were unreported so that only a small circle of central bankers was aware of the dwindling reserves.

²² Nominal interest rates were not sufficiently raised to deter speculation and some evidence suggests that real interest rates did not consistently increase at all (Goldfajn and Baig 1998).

ilizing reserve sales, partly because this would have caused interest rates to rise substantially (Nukul Commission 1998: 78f.). Instead they imposed some capital controls for offshore market transactions, which led to an increase in offshore interest rates but allowed domestic interest rates to remain stable (Nukul Commission 1998: 80f.). However, when the pressure continued and the BOT had to inform the government that hardly any reserves were left, the authorities chose to float the baht on July 2, 1997. In this context it is interesting to note that a significant increase in interest rates was never seriously considered. Interest rates were only raised later as a consequence of IMF conditionality and despite fierce resistance by Thai officials (Blustein 2001).

The Thai crisis offers a classic case of initial, strong defense with a subsequent depreciation. It shows how changing domestic coalitions of proponents and opponents of depreciation can explain the puzzle why the authorities switched from a fierce defense of the currency to a float. High foreign currency mismatches among influential groups and the economy's high dependence on imported goods initially encouraged the authorities to follow the widespread preferences for exchange rate stability. When defending was no longer viable without significant interest-rate increases, the Thai authorities abandoned the defense out of considerations for the highly leveraged private sector and its very high overall balance sheet vulnerability to monetary tightening.

3.3 South Korea: Unsuccessful Defense (II)

Like Thailand, the Korean experience represents a case of a failed defense. This is not surprising because the distribution of perceived and actual vulnerabilities in Korea resembles that of Thailand. Korea's economy is highly-export oriented with a focus on technologically advanced, high-value-added products. Accordingly, many Korean firms are either exporters or indirectly linked to exporters as suppliers. These firms were on average not particularly vulnerable to the competitiveness effects of depreciation. Non-tradables producers, the majority of which were small and medium-sized companies, had a higher average competitiveness vulnerability to depreciation, especially when they strongly relied on imported inputs. The balance sheets of SMEs in general had little exposure to foreign debt. In contrast, the large, export-oriented, and highly influential²³ industrial conglomerates (the so-called chaebol) and Korean banks had a very high balance sheet vulnerability to depreciation. As in Thailand, Korea's financial market liberalization in the 1990s had allowed Korean banks to take advantage of the lower interest rates abroad and borrow sub-

23 The influence of the chaebol originates in their small number, similar and large vulnerabilities and traditionally strong ties to the political arena (Haggard 2000). SMEs were actively supported by the government, but their large number and heterogeneity lessened their influence. The banking sector had little political influence, because the state remained strongly involved in Korean banks.

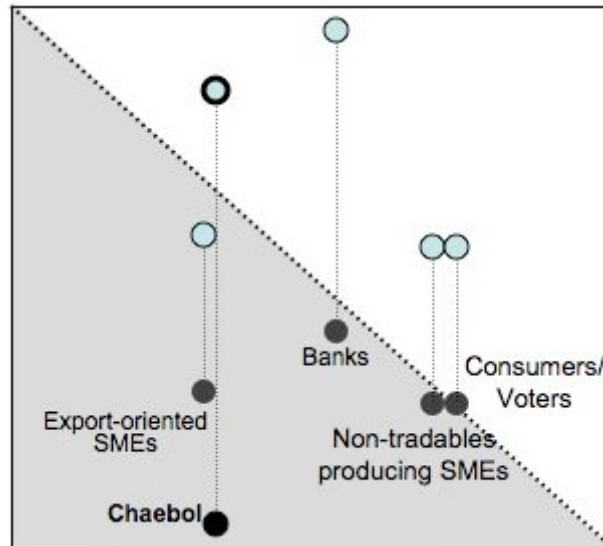
stantial amounts of short-term money abroad, which they then re-lent domestically as long-term loans (Blustein 2001).²⁴ The massive currency and term structure mismatches that resulted from this practice made Korean banks extremely vulnerable to exchange rate fluctuations. The chaebol also borrowed substantial amounts of money abroad. Most of these foreign-currency liabilities were unhedged (Interviews 7 and 17), further increasing interest groups' balance sheet vulnerability to depreciation. Nevertheless, Korean companies were even more vulnerable to interest-rate increases. Debt ratios were extraordinarily high, on average exceeding a staggering 400% for the top 30 chaebol. Most of this debt was short-term and won-denominated (IMF 1998b). The liabilities of SMEs, especially in the non-tradables sector, were almost entirely denominated in won (Interviews 4 and 12), were also vulnerable high interest rates, even though their interest exposure of these companies varied far more than that of the chaebol. Overall, the corporate sector was much more vulnerable to an interest-rate shock than an exchange rate shock (Interview 8). Banks, who theoretically could pass on higher interest rates to their customers, were indirectly exposed through their borrowers' decreasing ability to repay their debts, especially since many loans to the chaebol were of low quality (Haggard and Mo 2000). Since elections were scheduled in Korea for mid-December 1997, the vulnerabilities of a fifth group of actors indirectly influenced the authorities' decisionmaking process: the group of voters/consumers. Vulnerabilities in this group varied widely. On average, however, consumers were vulnerable to price increases and held most of their debt in domestic, rather than foreign currency, creating a similar overall vulnerability structure as that of domestically-oriented SMEs.

Figure 4 illustrates that most Korean firms' *perceived* vulnerability was located in the pro-defense area. Absent strong speculative pressure, banks should therefore exhibit the strongest preference for a defense, closely followed by consumers, non-tradables producers and the chaebol, while export-oriented SMEs should weakly favor depreciation. However, the *actual* vulnerabilities suggest that all groups except the banks should prefer depreciation in the face of severe pressure. These predicted preferences largely correspond to the preferences actually observed: the chaebol and many SMEs favored a defense against mild pressure but a depreciation when pressure became severe (Interview 13 and 19). As soon as severe speculative pressure emerged and consistent with the expectation that the chaebol should exhibit the biggest aversion to an interest-rate defense, the Federation of Korean Industries, the chaebol-association, called for lower interest rates (Asia Pulse, 23.9.1997). Banking institutions troubled with bad loans but facing painful consequences either way said that they saw "some need for depreciation" rather than a marked monetary tight-

²⁴ In 1996, short-term external liabilities of Korea's financial institutions amounted to 78 billion US\$, 16% of GDP (IMF 1998c).

ening when pressure had increased (Interview 13) and called for aid from the central bank (LG Economic Research Institute 1997). Finally, middle-sized exporters initially did not articulate any strong preferences (Interview 18), even though some preferred a depreciation (Interview 16).

Figure 4: South Korea's Vulnerability Space



The Korean authorities were sympathetic to the private sector's vulnerabilities when the Korean won came under increasing speculative pressure in the fall of 1997. They intervened extensively, but interest rates were raised only marginally.²⁵ "We were afraid of the bankruptcies in the corporate sector," a Bank of Korea (BOK) official recalls (Interview 19). As in Thailand, balance sheet concerns outweighed potential competitiveness considerations (Interview 8). Initially, the authorities were chiefly concerned with the impact of a depreciation on foreign liabilities. At the same time, "the Korean government would never have dreamed of raising interest rates" because of the corporate sector's high leverage (Interview 17). In addition, the upcoming elections increased the weight the governments gave to voters' preferences, increasing their indirect influence on policymaking. Even after the speculative attacks intensified at the end of October, the authorities did not significantly tighten monetary policy and instead abandoned the defense of the won on November 17, 1997. Some weeks later, in the negotiations with the IMF and in the face of a dramatically deteriorating situation, Korean officials still tenaciously tried to avoid higher interest rates because they were deeply concerned about the potential effects on Korea's highly indebted corporations (Blustein 2001), but as in Thailand ultimately had to accept monetary tightening in return for an IMF rescue package. The Korean case thus supports the vulnerability approach's implications that a high vulnerability to depreciation of influential actors

²⁵ Real interest rates did not considerably increase at all before the depreciation (Goldfajn and Baig 1998).

initially prompts the authorities to fiercely fight for exchange rate stability through sterilized intervention. When pressure intensifies and interest rate increases become necessary, an even higher vulnerability to interest rate increases will subsequently prompt policymakers to abandon the defense.

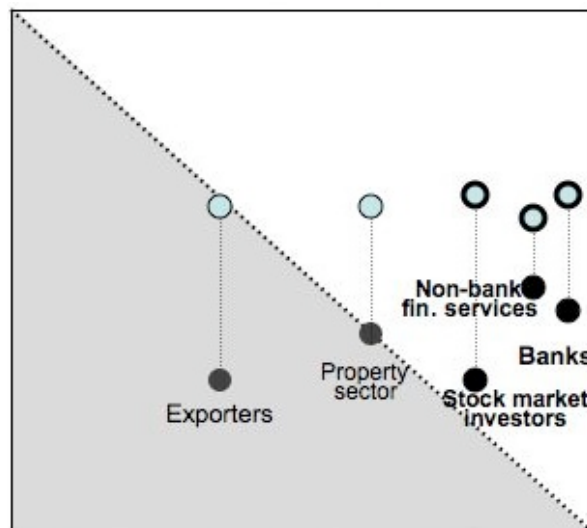
3.4 Hong Kong: Successful Defense

In Hong Kong, both the perceived and the actual vulnerability of influential actors lay in the pro-defense zone. As an extremely open economy that imports almost everything – including drinking water –, export competitiveness and the price of imported goods are important issues (Interview 10). However, as a highly service-oriented economy and an important trading port, Hong Kong's economic structure differs from those of the other three countries in this study. In 1997, manufacturing only accounted for 7.3 % of GDP, while services, especially financial service industries (banks and non-bank financial services), made up 84.4 % of GDP (Hong Kong Industry Department 1999). In contrast to export-oriented manufacturing firms, the competitiveness of service-oriented firms is generally not very sensitive to (real) exchange rate movements.²⁶ As a regional financial center, two alternative factors determine Hong Kong's international competitiveness: financial stability and competitive domestic prices such as wages and property prices. In this context, the currency board plays a pivotal role, reducing volatility, uncertainty and transaction costs. Abandoning the exchange rate link would seriously threaten this stability and would thus result in a marked loss, rather than gain, in competitiveness for most of Hong Kong's service-oriented firms. It would also seriously undermine the attractiveness of Hong Kong stocks and property as international investment venues. In addition, a depreciation was also likely to fuel a further increase in the already very high domestic asset prices, while an interest-rate defense would lead to asset price and wage deflation and consequently a boost in Hong Kong's competitiveness (IMF 1997: 10). To conclude, giving up the currency board and devaluing the Hong Kong dollar was likely to be advantageous for competitiveness gains to some firms, most notably in manufacturing and tourism, but would have detrimental effects on the competitiveness of influential companies in the financial and trading services, as well as on the stock market and the property sector. Balance sheets were less vulnerable to depreciation. Since Hong Kong's business relations are based on the exchange rate link, both the financial and the real sector hold considerable foreign-currency assets and liabilities. However, in 1997, these foreign-currency assets and liabilities were largely matched, so that most balance sheets were only modestly exposed to depreciation. The average interest-rate vulnerability of Hong Kong firms' and individuals' balance

²⁶ One notable exception is the tourism industry.

sheets was considerably higher, especially since HK\$-denominated liabilities mostly have variable interest rates (IMF 1997). But since companies in Hong Kong were less leveraged than their counterparts in the region, these effects were unlikely to be as lethal (Carse 1998). The high capitalization and prudent regulation of Hong Kong banks meant that high interest rates would affect their profitability rather than their solvency. Property and stock investors, a heterogeneous group which comprised a majority of Hong Kong's citizens and firms, making stock and property prices an important determinant of household spending (IMF 1998a), were most vulnerable to higher interest rates. In sum, most actors in Hong Kong exhibited a considerable vulnerability to interest rate increases.

Figure 5: Hong Kong's Vulnerability Space



The interplay of these vulnerabilities is illustrated in Figure 5, which shows that both the *perceived* and *actual* vulnerability of most actors lies in the pro-defense triangle. Except for exporters, most actors are located in the pro-defense space. It is noteworthy that the best-organized groups, banks and financial service firms (Interview 10), also had very homogenous and high vulnerabilities to depreciation. The predicted preferences coincide with the preferences voiced in the public debate. In October 1997, the chairman of the Hong Kong General Chamber of Commerce, James Tien Pei-chun, suggested that the authorities should “rethink the peg,” as the local tourism and manufacturing industries were suffering from the currency’s strength against its regional rivals (South China Morning Post (SMCP), 22.10.1997). This comment prompted immediate rebuttals from powerful banking groups. The Chairman of HSBC Holdings, Sir William Purves, said that the peg was a great force of stability and should therefore be defended (SMCP, 24.10.1997). Hong Kong Bank’s general manager Chris Langley maintained that the crisis had

been inspired by a loss of competitiveness, which indicated a need for domestic adjustment (including wage restraint and property price deflation), rather than for a devaluation (SMCP, 25.10.1997). Even though the losses inflicted by the sharp fall in property and stock prices hurt most residents of Hong Kong, support for the currency board remained high (Interviews 11 and 27). Given the stock market's high vulnerability to interest-rate increases, however, the stock-market intervention in August 1998 received widespread support as local and foreign investors were "grateful for the protection of their asset values" (Lim 1999: 105).

The private sector's preferences were of concern to policymakers when the speculative attacks on the Hong Kong (HK) dollar that hit the currency between July 1997 and August 1998.²⁷ During the entire period, the authorities made it very clear that exchange rate stability was their top policy priority. They consistently stressed their commitment to the currency board and dismissed demands by exporters for devaluation. Financial Secretary Sir Donald Tsang made it clear very early that he had "no wish to meddle with [the] exchange rate to please the exporters" (SMCP, 24.10.1997). In line with this position and following the preferences of firms in the financial services sector, they allowed interest rates to rise sharply, with the overnight rates surging to a peak of 280 % on October 23, 1997. Even though the high rates plunged the Hong Kong economy into recession, the authorities continued to rely on tight monetary policy as their main defense tool (IMF 1997: 11). Nevertheless, policymakers were not immune to the plight of small-scale property owners, influential property developers, and industrialists (Lim 1999). When speculative pressure resurfaced in 1997, the authorities decided in a surprise move to heavily intervene in the stock market to keep stock prices from falling while simultaneously maintaining exchange rate and interest rate stability, providing another example of how societal preferences can indirectly affect policy outcomes.²⁸ This move proved successful and Hong Kong successfully maintained exchange rate stability.

The vulnerability approach gives us a handle for explaining the authorities' willingness to bear the painful consequences of the currency defense: even though the balance sheets of most actors were more vulnerable to interest-rate increases than to depreciation, the very negative long-term competitiveness effects associated with abandoning the currency board outweighed the balance sheet considerations in Hong Kong. This resulted in an overall preference for exchange rate stability. When the pain caused by interest rate increases became too intense, the authorities found a way to relieve interest-rate pressures without compromising their commitment to the fixed ex-

²⁷ Particularly severe speculative attacks occurred in October 1997 and June and August 1998.

²⁸ The stock-market intervention was highly controversial at the time (Interviews 10 and 11).

change rate by intervening in the stock market. While this approach is unconventional and was only possible because of Hong Kong's extraordinarily high level of public funds, the stock-market intervention is consistent with the private sector vulnerability approach.

4. Conclusion

This paper has presented a more nuanced identification approach for exchange rate level preferences. It has argued that actors' vulnerabilities to depreciation and monetary tightening influence these preferences, which in turn affect whether policymakers choose to maintain exchange rate stability or to depreciate their currencies. Case studies of four Asian Crisis countries demonstrate that interest group preferences depend on the interaction of competitiveness concerns, balance sheet vulnerabilities, and the severity of exchange market pressure. Since the balance sheets of Taiwanese firms were much less vulnerable to depreciation than to interest-rate increases, they mostly strongly favored a depreciation over an interest rate defense. While highly vulnerable to depreciation, many influential Thai and Korean firms were even more vulnerable to interest-rate increases. This made them unwilling to tolerate a significant monetary tightening, even though they had initially strongly supported a defense of the currency through reserve sales. In contrast, the paramount importance of exchange rate stability for Hong Kong's financial service firms can explain the strong pro-defense preference and willingness to endure the painful consequences of very high interest rates in Hong Kong. The case studies also suggest that the traditional approach of assuming that tradables producers prefer a depreciated currency, while non-tradables producers prefer an appreciated exchange rate does not capture important variations among the preferences of these groups. By mapping the changing pattern of coalitions in favor of defenses or depreciations to the actual policy outcomes, the case studies show that societal preferences directly or indirectly affected policy outcomes. When the private sector's vulnerability to depreciation was high, the authorities typically defended the exchange rate. In countries where interest group vulnerabilities to interest-rate increases exceeded the vulnerability to depreciation, these defenses were later abandoned when pressure intensified. Vulnerability considerations can therefore explain the tragic cases of the Thai and Korean crises, in which the authorities defended the currency for a prolonged period of time only to subsequently allow it to depreciate substantially – in the process experiencing the worst of both worlds.

The results show that the vulnerability approach can account for the variation in exchange rate level preferences across different actors and across time in the four Asian Crisis countries. How-

ever, the framework's applicability is not limited to these cases. Because of its generic focus on actors' vulnerabilities, it can explain exchange rate level preferences in very different socioeconomic contexts, for example in developing and developed countries where the actors' balance sheets are likely to exhibit quite different compositions of foreign and domestic positions. One example is the prompt 1992 devaluation in Britain, where depreciated exchange rate promised large competitiveness gains and where homeowners, who almost exclusively held Pound-denominated mortgages, were extremely sensitive to interest increases. Another example is Argentina, where the government defended the peso-dollar link against speculative attacks in 1995 because businesses, public agencies, and citizens had accumulated large quantities of dollar-denominated loans and hence exhibited a high balance sheet vulnerability to depreciation. In contrast, in 2002 real overvaluation had made Argentine products so uncompetitive that competitiveness concerns surpassed the balance sheet concerns, leading the authorities to abandon the currency board.

The findings have implications for some broader political economy research questions. First, they underscore the importance of understanding how societal preferences directly or indirectly influence policymakers' willingness to implement certain policies. A correct specification of the relevant preferences complements and improves explanations focusing on the macroeconomic and institutional decision-making context that delineate policymakers' ability to implement exchange rate and monetary policy (Leblang 2003; Broz and Frieden 2001). Second, by emphasizing how short-run concerns can outweigh the long-run benefits of exchange rate adjustments, the findings draw attention to the importance of combining time asymmetries and distributional concerns in the study of exchange rate politics. While time-inconsistent policy-making is usually analyzed in the context of institutions that encourage policymakers to discount the future, the vulnerability approach suggests that a short-term bias can exist in policy preferences as well. Political economy research consequently needs to investigate in more detail the interplay between distributional issues and time-inconsistent incentives created by institutions. Certain institutions such as elections can for example be expected to enhance the influence of societal actors' bias for their short-term vulnerabilities, while other institutions (e.g. central bank independence) are likely to counteract this tendency by promoting a more long-term view (e.g. Willett 2006; Walter and Willett 2006). Third, the paper raises several questions for future research. One of these concerns policymakers' preferences. Given the importance of balance sheet considerations, how does the government's own debt situation affect its policy preferences? Another question concerns speculators. To what extent is the fact that speculative pressure emerges endogenous to the position of interest groups in the vulnerability space? Given that countries like Thailand and Korea were easy

targets for speculators because of their reluctance to raise interest rates, shouldn't we see a particularly high risk of currency crisis in countries in which perceived and actual vulnerabilities widely diverge?

The results also have several policy implications. First, policymakers and policy advisors need to understand that societal preferences can provide powerful incentives to deviate from economically efficient outcomes. Ignoring these incentives makes the implementation of good economic policies difficult at best and impossible at worst. International policy advisors, such as IMF staff, have often been scolded for advocating one-size-fits-all policies in response to crises. The findings presented here suggest that a stronger consideration of the political constraints under which domestic policymakers operate is likely to improve the ease with which the recommended policies can be implemented politically. While the desirability of some of these constraints may be debatable, taking them into account will lead to more feasible policy advice. Second, while it is important to recognize these political constraints, some of them can be alleviated if addressed in good time. For example, the findings show that large unhedged foreign currency liabilities can lead to a policy bias against timely devaluations. To avoid such a bias, policymakers should introduce measures to prevent the accumulation of such liabilities in the first place. This could be achieved by implementing more carefully designed and well-sequenced capital account liberalization measures or by designing regulatory systems that encourage hedging and discourage the accumulation of large currency or maturity mismatches. The findings presented here suggest that prevention is the key to preserving policy autonomy in face of speculative pressure. As an added benefit, such increased autonomy makes speculative attacks less likely in the first place.

APPENDIX

List of Interviewees
Sample Questionnaire

List of Interviewees

The names of the interviewed experts are listed in alphabetical order.
Titles were those held during the Crises. Current titles are denoted by an asterisk

Caroline Atkinson, Senior Deputy Assistant Secretary for International Monetary and Financial Policy, US Treasury

Paul Blustein, Journalist, Washington Post

Jack Boorman, Director Policy Development and Review Department, IMF

Michael S.F. Chang, Senior Specialist, International Funding Division, Department of Foreign Exchange, The Central Bank of China, Taiwan*

Robert Dekle, Economist, Asia and Pacific Department, IMF

Kokwang Huh, Director International Department, Bank of Korea

Ho Lok Sang, Director of the Centre for Public Policy Studies and Chair of the Lingnan Institute of Humanities and Social Sciences, Lingnan University, Hong Kong*

Suradit Holasut, Honorary Advisor to the Prime Minister of Thailand*

Kang Kyong Sik, Minister of Finance and the Economy, Ministry of Finance and Economy (MOFE), Korea

Kim Jung-Sik, Professor of Economics, Yonsei University, Korea*

Donald Kirk, Journalist, Korea

Timothy Lane, Policy Development and Review Department, IMF

Calvin Lin, Professor of Economics, Taichung National Institute of Technology, Taiwan*

James Lister, Director Office of International Monetary Policy, US Treasury

Min Sang Kee, Professor of Finance, Seoul National University, Korea*

Ekniti Nitithanprapas, Fiscal Policy Office, Ministry of Finance, Thailand*

Oh Jong-Nam, Executive Director, IMF*

Oh Jung-Gun, Deputy Director General, Institute for Monetary & Economic Research, Bank of Korea

Olarn Chaipravat, Chairman of the Thai Bankers' Association

David O'Rear, Chief Economist for the Economist Intelligence Unit Asia, Hong Kong

David Robinson, Division Chief for Thailand, Asia and Pacific Department, IMF

Anoop Sing, Deputy Director Asia and Pacific Department, IMF

Thitithep Sitthiyot, Ministry of Finance, Thailand*

Frank Tsai, Department for Foreign Exchange, Central Bank of China, Taipei, Taiwan

Wanda Tseng, Deputy Director Asia and Pacific Department, IMF

Ya-Hwei Yang, Director, Center for Economic and Financial Strategies, Chung-Hua Institution for Economic Research, Taiwan*

Eddie Yue, Executive Director, Monetary Management and Infrastructure Department, HKMA, Hong Kong*

Two additional interview partners were granted anonymity.

Sample Questionnaire

Questionnaire Thailand

PART I: The Speculative Attacks on the Thai Baht (May-July 1997)

1. During the speculative attack on the Baht, how influential were the following political, economic and social actors had a potential to influence on the decision to defend or to devalue the exchange rate?

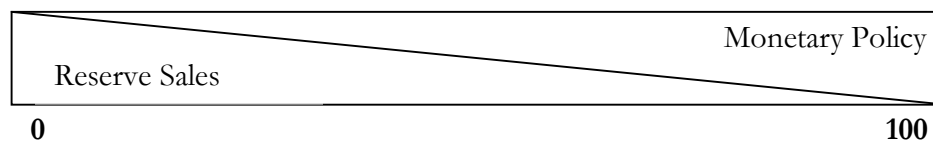
The most influential actor is awarded 100 points. Rate the other actors relative to this actor. For example, if actor A has 100 points, actor B 60 and actor C 50, then the coalition of B and C should be able to override A.

- | | |
|--|---|
| <ul style="list-style-type: none"> • Finance Ministry • Bank of Thailand • President • Coalition Parties • Banks • Finance Companies | <ul style="list-style-type: none"> • Export sector • SMEs • IMF • Labor Unions • Speculators • Others (Specify) |
|--|---|

2. **Policy Preferences: Policymakers can respond to speculative pressure by selling foreign reserves, raising interest rates and letting the exchange rate depreciate. Regarding these options**

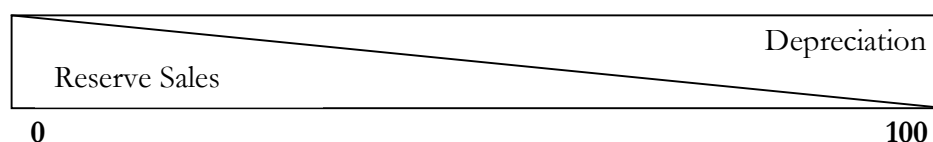
i. which policy mix of reserve sales and interest rate increases did each actor prefer for a defense of the exchange rate?

Please indicate each actor's position on a scale from 0 (defense only by reserve sales) to 100 (defense only monetary tightening).



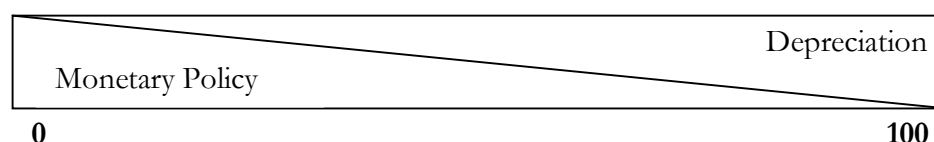
ii. Which policy mix of reserve sales and exchange rate depreciation did each actor prefer?

Please indicate each actor's position on a scale from 0 (only reserve sales) to 100 (float with no intervention).



iii. Which policy mix of interest rate increases and exchange rate depreciation did each actor prefer?

Please indicate each actor's position on a scale from 0 (only interest rate increases) to 100 (float with no intervention).



3. Given the set of all issues the actor faced during the speculative attack, how much time would each actor dedicate to the question of how to respond to the pressure on the Thai baht?

No time	All his time
0	100

4. How much was each actor concerned about the effects of the policy response on export competitiveness vs. the prices of imported goods?

Only about effect on imports	Only about effect on exports
0	100

5. How much was each actor concerned about the effects of the policy response on foreign-currency denominated vs. domestic-currency denominated net liabilities?

Only domestic currency net liabilities	Only foreign currency net liabilities
0	100

6. How important were trade-related issues relative to balance-sheet considerations for each actor?

Trade only concern	Balance-Sheet effects only concern
0	100

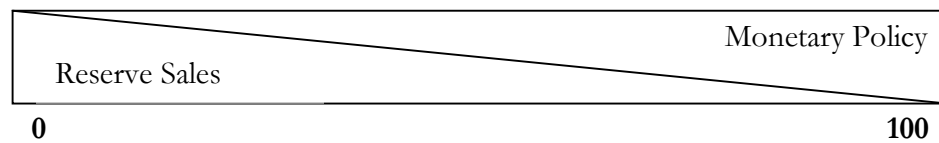
7. Of these actors, whose agreement was necessary to reach an agreement (veto players)?

PART II: The Build-Up to the Crisis (1996 and first half of 1997)

8. In the months preceding the severe attacks on the baht of May-July 1997,

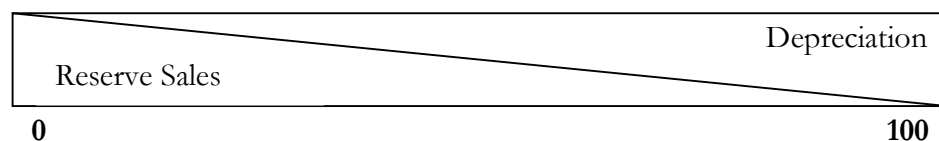
i. which policy mix of reserve sales and interest rate increases did each actor prefer for a defense of the exchange rate?

Please indicate each actor's position on a scale from 0 (defense only by reserve sales) to 100 (defense only monetary tightening).



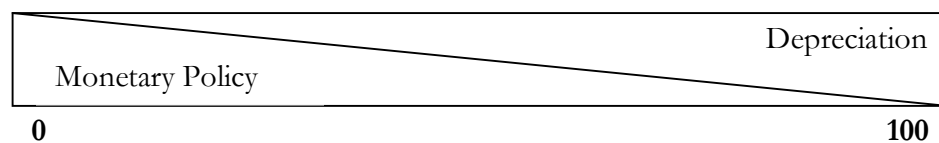
ii. Which policy mix of reserve sales and exchange rate depreciation did each actor prefer?

Please indicate each actor's position on a scale from 0 (only reserve sales) to 100 (float with no intervention).



iii. Which policy mix of interest rate increases and exchange rate depreciation did each actor prefer?

Please indicate each actor's position on a scale from 0 (only interest rate increases) to 100 (float with no intervention).



9. Given the set of all issues the actor faced during the speculative attack, how much time would each actor dedicate to the question of how to respond to the pressure on the Thai baht?

No time

All his time

0

100

10. How much was each actor concerned about the effects of the policy response on export competitiveness vs. the prices of imported goods?

Only about
effect on imports

Only about effect
on exports

0

100

11. How much was each actor concerned about the effects of the policy response on foreign-currency denominated vs. domestic-currency denominated net liabilities?

Only domestic currency net liabilities	Only foreign currency net liabilities
0	100

12. How important were trade-related issues relative to balance-sheet considerations for each actor?

Trade only concern	Balance-Sheet effects only concern
0	100

CHAPTER III

POLITICAL REGIMES AND EXCHANGE RATE DEFENSES

co-authored with Thomas Sattler

ABSTRACT

Political economy research suggests contradictory answers to the question whether and how a country's political regime type influences government reactions to speculative attacks. While some studies suggest that democratic governments are more likely to devalue their currencies than autocratic governments, others imply the opposite. We present a game-theoretic model of an exchange rate defense to examine the theoretical mechanisms underlying these competing hypotheses. We test the model's empirical implications for 106 speculative attacks in developing and emerging market economies from 1983 to 2003. The estimation results from duration and selection models show that democratic governments are significantly more likely to defend their exchange rate against speculative attacks than autocratic governments. Exceptions are oil-exporting autocracies, which in our sample always defend their pegs. The hazard of an exchange rate collapse during the six months after an attack is lower when the level of foreign exchange reserves is high and inflation is low. Real economic growth does not influence the outcome of an attack.

This research is supported by the Swiss National Science Foundation under grant number 101412-962 and by ETH Zurich under grant number 0-20206-04. We thank Thomas Bernauer, Xinyuan Dai, John Freeman, Robin Hertz, Simon Hug, Patrick Kuhn, Hyeok Yong Kwon, Thomas Willett and the participants of the CIS Brown Bag seminar for valuable comments.

1 Introduction

In the last three decades, widespread capital account liberalization has vastly increased the importance of international capital flows. While this development has been beneficial in many respects, it has also increased the danger of global financial crises. As the Asian Financial Crisis demonstrated, a successful speculative attack in one country can cause a chain reaction of currency crises throughout a whole region (and beyond). The prevention of such crises has therefore been the subject of much research. What is striking, though, is that most research has focused on the emergence of speculative attacks, while much less thought has been given to possible policy responses. Contrary to the belief that increasing capital mobility has decreased policymakers' ability to defend their currencies against such pressure, the empirical evidence indicates that policymakers often successfully withstand speculative pressure. Approximately every second speculative attack fails, implying that governments successfully defend their exchange rates quite frequently. This raises the question under what circumstances policymakers defend their currencies. Do certain institutional frameworks, e.g. political regime type, enhance policymakers' ability and willingness to defend their exchange rate pegs?

Large-N analyses of crisis outcomes have so far either focused on democratic countries (Eichengreen et al. 2003a; Leblang 2003b) or disregarded political explanations completely (Kraay 2003). The political willingness to defend the exchange rate peg, however, is likely to vary across governments whose political survival depends to a different degree on the support from the population. Democratic governments have to evaluate the political costs of economic policies and outcomes much more carefully than autocratic governments. And as previous research has shown, exchange rate policy in non-crisis periods differs significantly across democratic and autocratic governments (Bearce and Hallerberg 2006).

The literature yields contradictory implications about the impact of political regime type on the choice of policy responses to speculative attacks. Drawing on evidence from the collapse of the Gold Standard in the interwar period, some scholars have argued that democratic regimes are more likely to devalue their currencies in response to exchange rate pressure than autocratic regimes (Eichengreen 1996; Simmons 1994). Looking at crises during the post-Bretton Woods era, other scholars have found democracies seem to be less likely to fall victim to a speculative attack than autocratic regimes (Leblang 2003a; Block 2003). These results are counterintuitive. If

autocratic regimes are more likely to defend their currencies, they should be attacked less frequently than democracies. But speculators seem to attack autocracies more often, even though some researchers predict that these attacks are more likely to fail.

We present a game-theoretic model of an exchange rate defense to explore the theoretical mechanisms underlying these competing hypotheses. By modeling the impact of political regime type on speculative behavior and governments' policy responses explicitly, we are able to derive three competing hypotheses. First, if the effect of democracy on the costs of devaluation dominates its effect on the costs of defense, democracies are more likely to defend their currencies. Second, if being democratic raises the costs of defending beyond the costs of devaluing, democracies are more likely to defend. Finally, the model also suggests that regime transparency may decrease the probability of an attack of government commitment to the exchange rate peg. Because autocracies generally are less transparent than democracies, autocratic countries may be attacked more often than those in countries with equally committed democratic governments. Failure to account for this non-random selection into the samples of crises may therefore lead to biased conclusions.

We test the model's competing predictions with data for 106 speculative attacks on the currencies of emerging market economies and developing countries from 1983 to 2003. Our results show that democratic governments defend their exchange rates significantly more often than autocratic governments. Exceptions are oil-exporting autocracies, e.g. Kuwait and Saudi-Arabia, that – contrary to the general pattern across the other autocratic countries – always defend their currencies in our sample. These results are robust to a variety of specifications. Controlling for other domestic political variables that might affect government decisions in democratic countries, such as elections and government partisanship, does not change our results. Moreover, we do not find any significant effect of these variables on crisis outcomes. The empirical analysis also shows that high pre-crisis levels of foreign exchange reserves and low inflation rates decrease the probability of a devaluation. Real GDP growth has no effect on the outcome of speculative attacks.

In addition to showing the positive effect of a democratic regime type on the probability of an exchange rate defense, our analysis also addresses a number of other unresolved issues in the currency crisis literature. First, studies in economics have shown that economic variables alone cannot account sufficiently for the success or failure of speculative attacks (Eichengreen et al.

2003a; Kraay 2003). We complement the crisis literature by analyzing the determinants of political commitment to exchange rate pegs. Second, we use a less restrictive definition of crisis outcomes than other studies on government reactions to attacks (Kraay 2003; Leblang 2003b). While these studies have primarily analyzed the policymakers' immediate reactions to attacks, we examine how long the exchange rate peg survives after the onset of a crisis. This is more consistent with the observation that crises generally last several months rather than several days. Third, we use econometric techniques that better capture the characteristics of a crisis than the methods used in earlier research. The duration models better reflect the dynamics of a crisis than the previously used probit and strategic probit analyses. We also control for potential non-random selection of crises by explicitly modeling the selection process with duration-selection models. Overall, these refinements increase our confidence in the estimation results.

2 Theoretical Model

2.1 Model Setup and Equilibrium

To examine the different theoretical mechanisms underlying the competing hypotheses on government behavior in times of heightened exchange market pressure, we develop a game-theoretic model that allows us to analyze the impact of the political regime type on crisis outcomes. For this purpose, we follow the tradition of second generation currency crisis models and emphasize the role of government commitment to the XR peg and speculators' devaluation expectations (Obstfeld 1994; Bensaid and Jeanne 1997; Drazen 1999; Drazen and Masson 1994). We start with a government that follows a pegged exchange rate regime. The extent of its commitment to the peg depends on θ , the political cost associated with abandoning the peg. Government types are continuous, i.e. $\theta \in [\underline{\theta}, \bar{\theta}]$. Speculators are uncertain about the extent of government commitment to the exchange rate peg. The speculators' prior beliefs about the government's type are uniformly distributed across this interval.

At the beginning of the game, a random economic shock, η , occurs, which is observed by both speculators and the government. Nature decides whether the shock is negative, increasing the costs of maintaining the exchange rate peg, or nonnegative, implying the opposite. After

observing the shock, speculators decide whether or not to speculate against the country's currency.¹ If speculators decide to speculate, the government can use its policy instrument, the interest rate i , to stop speculation. By raising interest rates to a high level, i^H the government can defend its exchange rate. If the government decides not raise interest rates to reduce speculation, the exchange rate has to be devalued by an exogenous amount δ , and speculators realize a profit. The government faces a trade-off between the costs of devaluing and the costs of defending the exchange rate peg. Failure to defend the exchange rate against an attack is politically costly because devaluations have adverse economic effects, put the government's economic policy competence into question and reduce its monetary credibility.² Defending the exchange rate is also costly, because the required monetary tightening depresses investment and growth. To model this situation, the utility of the government is

$$U^G(\theta, i, \eta) = \begin{cases} \theta - \gamma i - \eta & \text{if } \Delta e = 0 \\ 0 & \text{if } \Delta e = \delta. \end{cases} \quad (1)$$

where Δe denotes the behavior of the exchange rate. The costs of keeping the peg are increasing in the choice variable i . The parameter γ determines how much a specific interest rate level affects government utility. The costs of keeping the peg also increase when a shock decreases economic performance, $\eta > 0$ and decrease when the opposite is the case, $\eta < 0$. This implies that both higher interest rates and worse economic circumstances, as represented by the economic shock, decrease the government's utility from defending the peg.

We assume that the minimum interest rate to defend is

$$i^H = \delta p. \quad (2)$$

This implies that to stop capital outflow, the government has to increase the cost of speculation such that interest on domestic capital is at least as high as the weighted rate of return from devaluation, i.e. the size of the devaluation multiplied by the probability that this devaluation will occur, p . Sattler (2006a) explicitly derives equation (2) from the speculators' optimization problem.

¹ To keep the model simple, we do not model speculator behavior explicitly. For a model that explicitly addresses the optimization problem of speculators, see Sattler (Sattler 2006a).

² Devaluations also have a positive long-run effect because they increase export competitiveness. However, governments are more likely to get blame for the negative short-run effects than credit for the positive long-run effects.

In equilibrium, there are three possible outcomes. In the first case, all governments devalue and therefore always attack. In a second case, all governments defend the exchange rate peg and no attack occurs. In these cases, all governments behave in the same manner (pooling). In the third case, speculators attack the peg and relatively strongly committed governments defend, while other, relatively weakly committed governments devalue. Which outcome occurs depends on the structure of speculators' prior beliefs about the government's resolve to defend the exchange rate peg, i.e. on the values of $\bar{\theta}$ and $\underline{\theta}$ compared to the other exogenous parameters.

If observable indicators of government characteristics suggest that commitment to the exchange rate is low, then speculators always attack and the government always devalues. Specifically, if speculators' prior beliefs are such that $\bar{\theta} < \bar{\theta}^{\min}$ with $\bar{\theta}^{\min} = \gamma\delta + \eta$, the probability of devaluation is one. In this case, speculators know that the cost of a devaluation is always smaller for the government than the cost of a defense. If the government is a strongly committed government type, i.e. if $\bar{\theta} > \bar{\theta}^{\min}$ and $\underline{\theta} > \underline{\theta}^{\max}$ with $\underline{\theta}^{\max} = \eta$, it never devalues and the probability of devaluation is zero. Speculators anticipate this and therefore do not attack. Finally, for intermediate government types, i.e. if $\bar{\theta} > \bar{\theta}^{\min}$ and $\underline{\theta} < \underline{\theta}^{\max}$, speculators attack and some governments devalue while the others defend. The ex-ante probability of devaluation is $p = (\eta - \underline{\theta}) / (\bar{\theta} - \underline{\theta} - \gamma\delta)$. Governments devalue if $\theta < \hat{\theta}^i$ and defend otherwise, with $\hat{\theta}^i = \gamma\delta p + \eta$. The term $\hat{\theta}^i$ represents the government type that is indifferent between devaluation and defense.

The extension to multiple periods is straightforward, but substantially complicates the model. The key insights of the model also hold for multiple periods. In a multiple period model, governments can signal their commitment to the exchange rate by raising interest rates. Speculators can extract information about the government's type from the government's reaction to the attack. The multiple period game suggests that crises do not necessarily come to an end after one period, but can last several periods (Sattler 2006a; Drazen 1999, 2000). This is consistent with calibration exercises by Bensaid and Jeanne (1997). The insight that crises can last several months will be important for the operationalization of crises and crisis outcomes in the empirical section.

2.2 Comparative Statics and Hypotheses

It is now possible to derive hypotheses about the impact of the political regime type on outcomes of speculative attacks. To do this, we first discuss how the regime type influences the relevant parameters in the model, specifically the costs of devaluation and defense and the extent of uncertainty about government commitment to the peg. Based on comparative statics analysis for these parameters, we then derive three competing hypotheses that will be tested in the empirical section.

The political economy literature suggests that exchange rate defenses are more costly for democratic governments than for autocratic ones. The high level of interest rates required for a successful exchange rate defense reduces growth and increases unemployment. Defenses thus have a negative effect on large segments of the economy, most notably the nontradables sector. Since the power of democratic governments rests on gaining the approval of a majority of voters, democratic policymakers are less insulated from popular pressure to avoid the painful domestic adjustment measures required for an exchange rate defense (Bearce and Hallerberg 2006; Eichengreen 1996). This reduces their willingness to subordinate other policy goals, such as low inflation, to the goal of exchange rate stability (Obstfeld 1994, 1996). In contrast, since autocratic governments generally depend on a small elite rather than the support of broad segments of society, it is politically less costly for them to repel a speculative attack (Eichengreen 1996). This does not mean that defenses are costless for autocratic governments. Autocrats usually have strong relationships with the business elite, who are opposed to extreme monetary tightening if this puts the economy into a deep recession. Autocratic governments thus also face political costs from a defense, but the political costs borne by democratic governments are likely to be larger.

To model this situation formally, recall from the last section that the parameter γ reflects how much a specific interest rate level negatively affects government utility. In terms of the model's parameters, higher costs of defense for democracies thus imply that the parameter γ increases with higher levels of democracy. This means that $\gamma'(r) > 0$, where $\gamma'(r)$ is the first derivative of γ with respect to the regime type r . A higher r denotes a more democratic governments.

Confronted with speculative pressure, governments face the dilemma that devaluing is costly as well. First, devaluations make imported goods more expensive and cause inflationary pressure, reducing nontradable industries' competitiveness, workers' real incomes, and consumers'

purchasing power (Broz and Frieden 2005; Frieden 1991). The negative economic effects of devaluations are particularly strong in developing countries, where devaluations tend to be outright contractionary (Frankel 2005). Devaluations thus have economically painful consequences for large segments of the population. Second, the exchange rate is also a political symbol. Voters monitor the exchange rate to assess how well policymakers are managing the economy and how healthy the economy is (Hibbs 1982). A devaluation is often regarded as a broken promise and a sign of incompetent policymaking. Combined with the negative economic effects, such a signal strongly decreases governments' popularity. Aware of this problem and dependent on voter approval, democratic governments often postpone devaluations until after the next elections (Blomberg et al. 2005; Frieden et al. 2001; Klein and Marion 1997; Stein and Streb 2004) and those who nevertheless devalue during campaign periods tend to lose their bid for re-election (Walter 2006; Leblang 2005). But devaluations decrease governments' prospects of staying in power regardless of the electoral cycle (Frankel 2005; Cooper 1971), an effect that is about two thirds stronger in democratic, as opposed to non-democratic countries (Frankel 2005: Table H). The political cost of devaluations is consequently higher for democratic than for autocratic policymakers.³

In our model, the political costs of devaluation are represented by the parameter θ . Since the exact value of θ is unknown to the speculator, we can model higher costs of devaluation by varying the upper limit of the distribution of θ , i.e. $\bar{\theta}$. A higher $\bar{\theta}$ implies that the mean of the distribution of types increases and, therefore, the government's expected costs of devaluation rise. Since we assume that the political costs of devaluation are higher for democratic governments, $\bar{\theta}$ increases with rising levels of democracy, i.e. $\bar{\theta}'(r) > 0$, where $\bar{\theta}'(r)$ is the first derivative of $\bar{\theta}$ with respect to the political regime type r .

While the literature indicates which types of costs policymakers incur from responding to speculative pressure, it does not specify which one of the effects prevails and which policy response democratic policymakers are therefore more likely to choose. To assess the overall impact of the regime type on the probability of devaluation, we derive p with respect to r , which yields

³ Autocratic policymakers sometimes use an exchange rate peg as a substitute for central bank independence (Broz 2002). In these instances, a devaluation causes a loss of monetary credibility, but the costs associated with this loss are long-term costs. Since we are chiefly concerned with the political costs of devaluations, we place greater emphasis on short-term costs such as lower purchasing power or voter dissatisfaction.

$$\frac{\delta p}{\delta r} = -(\bar{\theta}'(r) - \delta\gamma'(r)) \cdot (\eta - \underline{\theta}) \cdot (\bar{\theta}(r) - \underline{\theta} - \delta\gamma(r))^{-2} \quad (3)$$

Equation (3) shows that when r increases, the resulting change in the probability of devaluation depends on the relationship between $\bar{\theta}'(r)$ and $\gamma'(r)$. For $p \in (0,1)$ both the second and third terms in equation (3) are positive and therefore do not influence the sign of the derivative. Therefore,

$$\frac{\delta p}{\delta r} \begin{cases} \geq 0 & \text{if } \bar{\theta}'(r) \leq \delta\gamma'(r) \\ < 0 & \text{if } \bar{\theta}'(r) > \delta\gamma'(r). \end{cases} \quad (4)$$

A more democratic regime type increases the probability of devaluation if the regime type's impact on the costs of a devaluation is smaller than its impact on the costs of a defense, and vice versa. The model thus yields two competing hypotheses about the impact of the regime type on the probability of devaluation based on the regime type's effect on the parameters $\bar{\theta}$ and γ .

Fig. 1: Comparative statics results for costs of defense, γ , and costs of devaluation, $\bar{\theta}$. Higher r denote more democratic regimes.

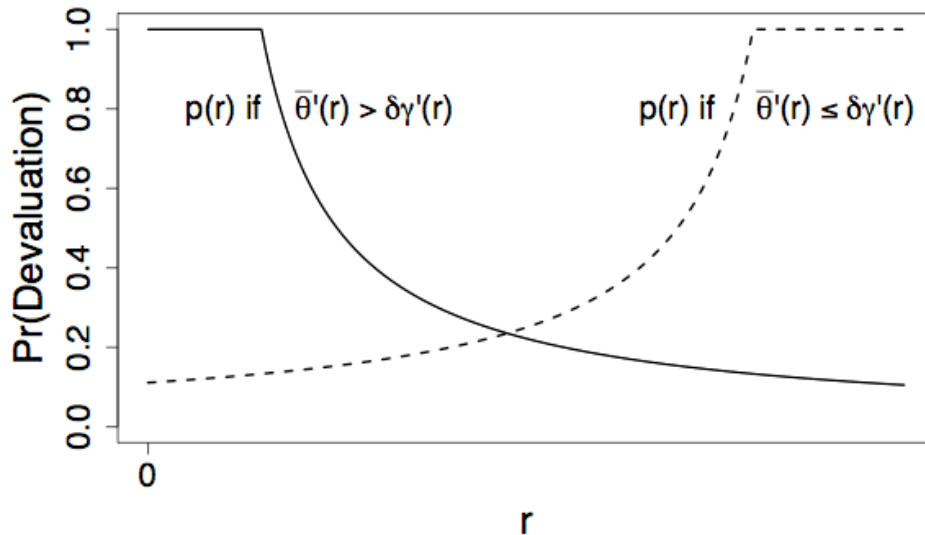


Figure 1 illustrates this result graphically.⁴ The solid line shows how the political regime type's effect on the probability of devaluation changes when its impact on the political cost of a defense

⁴ We set $\underline{\theta} = 0$, $\eta = 1$, $\gamma\delta = 0.5$, $\bar{\theta}'(r) = 1$ and $\gamma'(r) = 0$ for the solid line. For the dashed line, $\underline{\theta} = 0$, $\bar{\theta} = 9$, $\eta = 1$, $\bar{\theta}'(r) = 0$ and $\gamma'(r) = 1$.

$\bar{\theta}$ dominates its impact on γ . Here, being democratic increases the political costs of devaluation more than the political costs of defense. The implication of this situation is that:

H1: Democratic governments are more likely to successfully defend their exchange rates than autocratic governments.

The dashed line represents the case in which the effect of the regime type on γ dominates its effect on $\bar{\theta}$. Higher levels of democracy increase the costs of devaluation less than the costs of defense. This situation implies that

H2: Autocratic governments are more likely to successfully defend than democratic governments.

The model implies a third possible mechanism that echoes the view that exchange rate choices are not the product of domestic political considerations (Simmons and Hainmueller 2004). In this case, the impact of regime type on government decisions about responding to a speculative attack is negligible. Rather, the empirical finding that speculators attack the currencies of autocratic states more frequently than those of democratic countries could be related to the degrees of transparency of the political systems, because political transparency has significant effects on foreign exchange market behavior.⁵ For example, exchange rate volatility decreases with rising levels of transparency (Hays et al. 2003). Since autocracies are generally less transparent than democracies (Rosendorff and Vreeland 2006), speculators face more uncertainty about autocrats' potential responses to speculative pressure than about democratic policymakers' potential behavior. While they can anticipate the outcome of an attack in a democratic country fairly well, this is much more difficult in non-democratic countries. To test the resolve of an autocratic policymaker to defend, market participants have to attack the currency, often resulting in failed attacks. This implies that autocratic countries may be attacked more frequently than democratic countries, regardless of their true commitment to the peg. The finding that autocracies are more likely to experience a speculative attack although they are more likely to defend thus can be reconciled when political system transparency is considered.⁶ To account for the impact of

⁵ Freeman et al. (2000) show that political institutions mediate the impact of uncertainty on foreign exchange market behavior.

⁶ Although a greater degree of uncertainty means that speculators know less about the government, this does not imply that speculators attack less often. As we will show below, increasing uncertainty may increase rather than decrease the probability of devaluation from the speculators' point of view. What matters for speculators is not what they know per se, but their perceived probability of a devaluation.

transparency on the likelihood of a speculative attack, we analyze how changing degrees of transparency affect speculators' assessment of the probability of devaluation. The model suggests that higher degrees of uncertainty can increase the probability of a speculative attack. To demonstrate this outcome, we analyze the case of a strongly committed government that always defends under complete information. In this example, the exchange rate is never attacked in a highly transparent situation, but speculators attack when uncertainty is high.⁷

The government always defends under complete information if $\theta > \hat{\theta}^c$ with $\hat{\theta}^c = \gamma\delta + \eta$. The term $\hat{\theta}^c$ corresponds to the marginal government type under complete information, i.e. the government type that is indifferent between devaluation and defense when there is no uncertainty.⁸ Under complete information the marginal type $\hat{\theta}^c$ is equivalent to $\bar{\theta}^{\min}$.⁹ For our example, we assume that $\theta = \hat{\theta}^c + z$ with $z > 0$. Since z is a positive number, the government in our example is more strongly committed to the exchange rate than the marginal government type that is indifferent between devaluation and defense. Since $\hat{\theta}^c$ and $\bar{\theta}^{\min}$ are equivalent, the condition $\theta = \hat{\theta}^c + z$ implies that $\theta = \bar{\theta}^{\min} + z$. In the case of complete information, speculators take this into account and therefore never attack the country's currency. We now introduce uncertainty by setting $\bar{\theta} = \theta + \varepsilon$ and $\underline{\theta} = \theta - \varepsilon$. A greater ε reflects a greater variance of the distribution of types and therefore higher uncertainty. If $\varepsilon = 0$, there is no uncertainty because the upper and lower boundaries of speculators' prior beliefs correspond to the government's actual type, i.e. $\bar{\theta} = \underline{\theta} = \theta$.

⁷ The impact of uncertainty / intransparency differs depending on the government's true commitment to the peg. We choose a situation where the government always defends to illustrate a possible mechanism why autocratic regimes are attacked more often although they are not more likely to devalue than democratic governments. The scenario that speculators attack strongly committed autocracies more often than equally committed democracies is a theoretically plausible explanation for the contradictory findings in the existing literature. For a discussion of all possible scenarios, see Sattler (2006a).

⁸ Suppose speculators know that the government type is smaller than $\hat{\theta}^c$. Then they attack with full intensity implying that the government has to raise interest rates to $i^H = \delta$ if it wants to defend. Therefore, government utility of defense is $U^G(i^H = \delta) = \theta - \gamma\delta - \eta$. If $\theta < \hat{\theta}^c$ with $\hat{\theta}^c = \gamma\delta + \eta$, the government's utility of defense is smaller than zero, $U^G(i^H = \delta) < 0$, and it devalues. If $\theta > \hat{\theta}^c$, the government's utility of defense is greater than zero, $U^G(i^H = \delta) > 0$, and it defends.

⁹ See p. 5.

Fig. 2: Effect of higher uncertainty ε on the probability of a speculative attack when the government is fully committed to the peg.

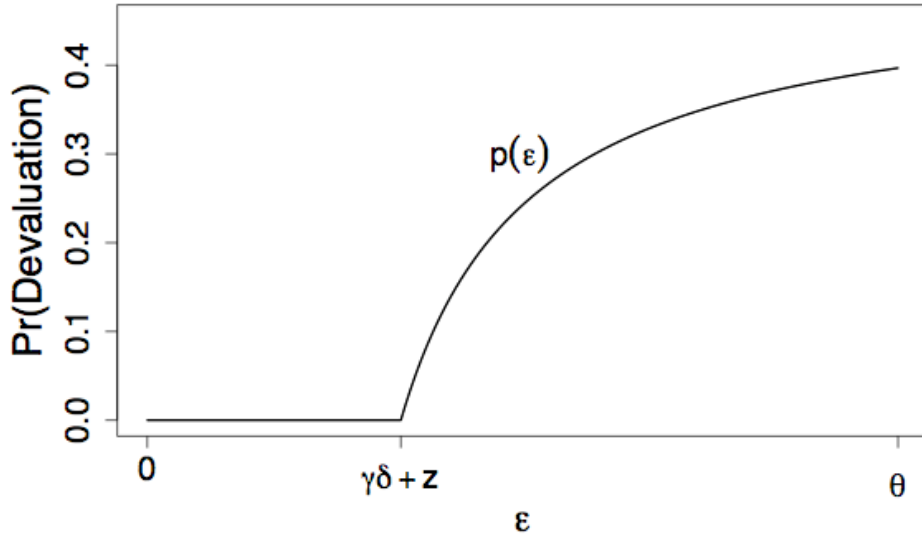


Figure 2 illustrates the effect of increasing uncertainty on speculators' assessment of the probability of devaluation changes.¹⁰ In our example, the ex-ante probability of devaluation is zero in a fully transparent situation because we have assumed that the government is fully committed to the peg. Knowing for certain that the government will always defend, speculators refrain from attacking the currency. When uncertainty increases symmetrically, however, the distribution of government types increasingly includes more and more weakly committed government types. From the speculators' perspective, it thus becomes increasingly likely that the government might devalue in response to a speculative attack – although the government remains fully committed to defending the peg. Figure 2 demonstrates that higher degrees of uncertainty considerably increase speculators' assessment of the probability of devaluation. This implies that large uncertainty can trigger an attack although the government is strongly committed to the peg.

Our analysis thus implies that higher uncertainty can produce a higher number of attacks that fail because, contrary to speculators' expectations, policymakers successfully defend their exchange rates. Since autocracies generally are less transparent than democracies, we would expect that autocratic countries are attacked more often. As we have seen, such attacks can be unrelated to

¹⁰ We set $\gamma = 0.5$, $\eta = 1$ and $z = 0.01$.

the government's actual degree of commitment to an exchange rate peg. Hypothesis 3 summarizes the implication of this discussion.

- H3: Exchange rates of autocratic countries are attacked more frequently than those of more democratic countries, even if policymakers are equally committed to their pegs.

3 Data and Method

The previous section identified three competing hypotheses about the effect of the political regime type and crisis outcomes, which predict either a positive, a negative, or no direct, but a selection effect. To evaluate these hypotheses, we use monthly data of 52 emerging markets and developing countries¹¹ for 1983-2003. The analysis is limited to this period for two reasons. First, we start in 1983 to exclude the Latin American debt crises, which followed different dynamics than those described in our model and might hence bias our results. Second, since the focus of this study is on the effect of policymaking in an economically integrated world, we focus on the time period in which capital accounts were increasingly liberalized.

Speculative attacks occur in countries whose authorities intervene in the foreign exchange market to influence the behavior of their exchange rates. In fully floating regimes, the exchange rate automatically moves downward in response to pressure, so that policymakers never actually face the choice between defending and devaluing the exchange rate. For this reason, we exclude countries with floating exchange rate regimes from the sample. Intermediate regimes such as crawling pegs are included into our analysis, because at least some intervention is possible in these regimes. Since we are interested in the actual rather than the announced behavior of the authorities, we rely on the classification of “de facto exchange rate regimes” by Reinhart and Rogoff (2004). The measure classifies exchange rate regimes on a 15-point scale based on both the officially announced regime and the actual exchange rate behavior.

¹¹ The countries are Argentina, Armenia, Azerbaijan, Bolivia, Brazil, Bulgaria, Chile, China, Colombia, Costa Rica, Croatia, Czech Republic, Ecuador, El Salvador, Estonia, Guatemala, Honduras, Hungary, India, Indonesia, Israel, Kazakhstan, Kuwait, Kyrgyz Republic, Laos, Latvia, Lithuania, Macedonia, Malaysia, Mexico, Moldova, Myanmar, Nepal, Nicaragua, Pakistan, Paraguay, Philippines, Peru, Poland, Romania, Russia, Saudi Arabia, Singapore, Slovak Republic, Slovenia, South Korea, Sri Lanka, Thailand, Tunisia, Ukraine, Uruguay, Venezuela

Our analysis includes all periods with de facto exchange rate regimes that are classified as noncrawling bands that are narrower than or equal to $\pm 2\%$, and any stricter classification. This corresponds to all regimes equal to or below category 11 on the Reinhart/Rogoff scale.¹² Using a more restrictive threshold to determine which exchange rates are pegged means that important crises, such as the 1997 crisis in the Czech Republic, would be excluded. Although it may be useful to use lower cut-off points in other contexts, e.g. for analyses of exchange rate regime choice in non-crisis situations, this does not seem adequate for the study of speculative attacks.

Table 1: List of Speculative Attacks

Azerbaijan 1999m7	Honduras 1992m10	Malaysia 1984m10	Singapore 1991m3
Azerbaijan 2002m1	Honduras 1993m7	Malaysia 1986m3	Singapore 1997m7
Bolivia 1988m1	Honduras 1994m6	Malaysia 1992m12	Singapore 1998m5
Bolivia 1989m8	Honduras 1996m7	Malaysia 1997m7	Slovak Republic 1998m10
Bolivia 1991m1	Hungary 1993m9	Mexico 1990m3	Slovenia 1995m10
Bolivia 1993m11	Hungary 1994m6	Mexico 1994m4	South Korea 1997m11
Brazil 1998m9	Hungary 1995m2	Mexico 1994m12	South Korea 1997m3
Bulgaria 1997m2	India 1991m5	Myanmar 1996m4	Sri Lanka 1983m7
Chile 1989m4	India 1993m3	Nepal 1984m10	Sri Lanka 1993m1
Chile 1999m6	India 1995m10	Nepal 1985m12	Sri Lanka 1998m6
China 1992m12	India 1998m1	Nepal 1991m6	Thailand 1984m11
Colombia 1985m4	Indonesia 1983m3	Nicaragua 1993m8	Thailand 1997m2
Colombia 1998m6	Indonesia 1984m7	Nicaragua 2001m6	Tunisia 1986m4
Costa Rica 1983m11	Indonesia 1986m9	Pakistan 1993m9	Tunisia 1989m9
Costa Rica 1984m11	Indonesia 1997m8	Pakistan 1995m11	Tunisia 1991m4
Costa Rica 1991m1	Israel 1991m10	Pakistan 1996m10	Ukraine 1998m9
Costa Rica 1992m7	Israel 1998m10	Pakistan 1998m10	Uruguay 1991m1
Costa Rica 1998m11	Kazakhstan 1999m4	Pakistan 1999m7	Uruguay 1998m9
Croatia 1997m4	Kuwait 1984m5	Pakistan 2000m9	Uruguay 2001m7
Czech Republic 1997m5	Kuwait 1986m3	Peru 1998m6	Uruguay 2002m1
Ecuador 1995m11	Kuwait 1987m6	Peru 1999m2	Venezuela 1998m7
Ecuador 1995m2	Kuwait 1989m3	Philippines 1983m7	Venezuela 2002m1
El Salvador 1990m5	Laos 1995m9	Philippines 1986m2	
El Salvador 2000m12	Latvia 1994m5	Philippines 1990m11	
Estonia 1996m11	Latvia 1998m9	Philippines 1995m3	
Estonia 1997m11	Latvia 2001m1	Philippines 1997m7	
Guatemala 1999m9	Lithuania 1998m9	Russia 2001m12	
Honduras 1990m3	Macedonia 1997m7	Saudi Arabia 1994m1	

We operationalize speculative attacks as proposed by Eichengreen, Rose and Wyplosz (1995) and define speculative attacks as periods of extreme pressure in the foreign exchange market. We use a modified version of the index and operationalize exchange market pressure (EMP) as an unweighted monthly average of standardized exchange rate changes, standardized reserve changes, and standardized changes in the interest rate differential relative to the interest rate in a

¹² The analysis thus includes strict pegs (category 1), pre-announced horizontal pegs and bands (categories 2 and 3), de facto horizontal pegs (category 4), crawling pegs and bands (categories 5-10) and noncrawling bands (category 11).

stable reference country.¹³ The rationale is that governments can respond to currency crises either by devaluing or floating their currency, by tightening monetary policy, or by spending foreign reserves. Large values of the EMP index indicate that speculative pressure is high. The data needed for calculating this index is available on a monthly basis from the *International Financial Statistics* provided by the IMF.

To identify crises episodes, we define crises as those periods where the index exceeds the country-specific mean by at least two standard deviations. The resulting sample of crises is listed in Table 1. It includes many well-known crisis events such as the Mexican Peso crisis in December 1994 or the speculative attacks on the Thai baht in 1997.

To operationalize the dependent variable – the outcome of a speculative attack – we examine whether the government devalued the exchange rate within the six months following upon the initial attack.¹⁴ This variable measures both whether and how long the exchange rate was defended against a speculative attack. It counts how many months the authorities kept the exchange rate stable after the exchange rate was first attacked. If the exchange rate was not devalued during the six-month period, we count it as a successful defense. The dependent variable thus takes values 1 to 7, where 1 represents a case in which the exchange rate was devalued in the month in which it was attacked. A value of 7 represents cases in which the exchange rate was defended for at least six months after the onset of speculative pressure. Since this implies that we may have exchange rate pegs that survive the period of analysis, but collapse later on, our dependent variable is right-censored (Box-Steffensmeier and Jones 2004, pp. 16-19). In combination with the appropriate econometric model, this allows us to apply a plausible definition of crisis length without imposing strong restrictions about the duration of a specific crisis.

¹³ Different versions of this indicator have been used in the literature. Examples are Leblang (2003b) and Leblang and Bernhard (2000). For an overview, see Kaminsky et al. (1998). Following the suggestion by Nitithanprapas and Willett (2000) we use a modified unweighted version of the index because weighting each component by its country specific variation will lead to an understatement of unsuccessful speculative attacks on fixed exchange rates. We set the US dollar as reference currency for all countries except for the Eastern European countries. For Eastern Europe, the Deutsche Mark (until 1998) and the Euro (from 1999 onwards) are used as reference currencies. For interest rates we use (short-term) money market rates (IFS line 60b) as first choice and discount rates (IFS line 60) as second choice if money market rates are not available.

¹⁴ Based on calibration exercises, Bensaid and Jeanne (1997) conclude that currency crises are more a matter of months than of days (p. 1472-1473). They refer to Moutot (1994) who suggests that crisis episodes in France during the EMS crisis lasted up to five months. We use this crisis length as a reference point for the operationalization of the dependent variable. As we discuss below, duration models can account and correct for the possibility that a crisis may last longer than the six-month period following the attack as specified here.

To determine whether and when countries devalued, we use a behavioral criterion that evaluates exchange rate behavior based on the pre-attack type of de facto exchange rate regime (Reinhart and Rogoff 2004). Such a criterion grants intermediate regimes more policy flexibility than fixed exchange rate regimes. A small depreciation of the exchange rate may be in accordance with the rules of a relatively flexible regime, such as a pre-announced crawling band, but might violate the requirements of a stricter regime, such as a hard exchange rate peg. In operationalizing our devaluation-criterion, we therefore grant regimes with little exchange rate flexibility less freedom to depreciate than countries that follow more flexible exchange rate regimes.

The devaluation criteria employed in our study are presented in Table 2. We take into account two different criteria: First, we look at the amount of depreciation in each individual month compared with the previous month. Second, we consider the overall amount of depreciation in each month compared with the pre-attack level of the exchange rate. For comparatively flexible exchange rate regimes (Reinhart-Rogoff categories 5-11) the overall depreciation is higher than the individual monthly criterion. The first month in which either of these criteria indicates a devaluation is counted as the month of devaluation. According to this operationalization, governments successfully defended their exchange rate in 47,2% of all cases. 34.9% of speculative attacks resulted in a devaluation within the month of the attack, while governments initially defended, but subsequently devalued in response to 17.9% of all speculative attacks in the sample.

Table 2: Devaluation criteria, based on the de facto exchange rate regime type (Reinhart and Rogoff (RR) fine classification)

	Devaluation if...	
	...depreciation in one of the 6 months following the speculative attack exceeds	...overall depreciation after the speculative attack exceeds
Preannounced Peg (RR 2)	1%	1%
Preannounced Horizontal Band (RR 3)	2%	2%
De Facto Peg (RR 4)	2%	2%
Preannounced Crawling Peg (RR 5)	2.5%	5%
Preannounced Crawling Band (RR 6)	2.5%	5%
De Facto Crawling Peg (RR 7)	4%	8%
De Facto Crawling Band (RR 8)	4%	8%
Preannounced Crawling Band (5%) (RR 9)	5%	10%
De facto crawling band (5%) (RR 10)	5%	10%
noncrawling band (2%) (RR 11)	5%	10%

To estimate the effect of the explanatory variables on the probability of a devaluation, we use different duration models (Box-Steffensmeier and Jones 2004). These models estimate the probability that a government devalues in a specific month after the attack, conditional on not having devalued until then. The specification of the outcome equation is

$$y_{1i} = \alpha_0 + \alpha_1' \cdot x_i + \varepsilon_{1i}$$

where y_{1i} measures the number of months between an attack and the collapse of the fixed exchange rate; x_i is a vector of several economic and political variables; and ε_{1i} is a random error. The explanatory variables in x_i include the political regime type, operationalized as the POLITY IV score (Marshall et al. 2002), a continuous variable that ranges from -10 (very autocratic) to +10 (very democratic), and additional variables identified as important by the theoretical and empirical literature on currency crises. On the economic side, these include the level of foreign reserves relative to the money base, real GDP growth, and the inflation rate, all lagged by one month.¹⁵ Unless noted otherwise, data are from the IMF's *International Financial Statistics (IFS)*. We further include a dummy variable for oil-exporting countries and an interaction term between this dummy and the political regime type. To account for the potential impact of various political variables discussed in the literature, we also analyze the effects of the de jure exchange rate regime, partisanship, and electoral timing.¹⁶

We primarily use parametric models with lognormal and Weibull distributions because they are more efficient in small samples than the less restrictive, semi-parametric models (Box-Steffensmeier and Jones 2004, p.148-151). To check whether the underlying assumptions about the shape of the hazard rate are justified, we compare the results from the parametric models with those from a semi-parametric Cox model. For all models, statistical inference is based on robust standard errors that cluster on countries. Besides explicitly modeling the survival of the exchange rate, duration models have the advantage that they account for right-censoring. This is

¹⁵ Foreign Reserves are total reserves held by the central bank in U.S. dollars minus gold (IFS line 11.d), divided by the monetary aggregate M1 (IFS line 34). For real GDP growth we use the average annual growth rate in real GDP for the previous three months (calculated using data from the IFS and the World Bank's *World Development Indicators*). Inflation rates are computed as the annual percentage change in the consumer price index (IFS line 64). We use the average inflation rates for the three pre-attack months.

¹⁶ Data on the de jure exchange rate regime are from Ghosh et al. (2002). The indicator varies from 1 to 15 with higher numbers denoting more flexible regimes. For partisanship we include a dummy variable for left governments, which takes the value of 1 if the government head belongs to the political left and 0 otherwise. Pre-election periods are coded as 1 during the six months prior to an election and 0 otherwise. Post-election periods are coded as 1 during the six months after an election and 0 otherwise. Data for both partisanship and the election variables we taken from the Database of Political Institutions (Beck et al. 2001).

particularly useful for the analysis of crisis outcomes when it is unclear how long a specific crisis lasts and where, as in our case, the dependent variable might consequently be right-censored.

Speculative attacks do not occur at random. Speculative pressure increases when financial markets believe that the probability of devaluation is high. Statistical analyses of policy responses to attacks may be biased if we do not take into account that the sample of crises is not random. We therefore use an empirical model that estimates a) the probability that a speculative attack occurs (selection), and b) the probability that the government successfully defends given that an attack has been launched (outcome). The selection process is modeled using the standard latent variable specification:

$$y_{2i}^* = \beta_0 + \beta_1' \cdot z_i + \varepsilon_{2i}$$

$$y_{2i} = \begin{cases} 1 & \text{if } y_{2i}^* > 0 \\ 0 & \text{if } y_{2i}^* \leq 0 \end{cases}$$

where y_{2i} denotes whether a crisis occurs ($y_{2i} = 1$) or not ($y_{2i} = 0$); z_i is a vector of empirically observable measures of economic conditions and government characteristics; and ε_{2i} is a random error. We rely on existing research on the emergence of speculative attacks (Kaminsky et al. 1998; Kaminsky and Reinhart 1999; Leblang 2002; Leblang and Bernhard 2000; Leblang 2003b) to identify the set of variables included in z_i . These variables include the country's political regime type, reserves/M1, real GDP growth, inflation, real exchange rate overvaluation, and contagion.¹⁷ Table 3 presents the descriptive statistics for our sample of crises.

To estimate the complete model, we use an estimator developed by Boehmke et al. (2006; 2005) that simultaneously estimates the duration and selection processes. The estimator takes into account that the dependent variable of the outcome equation y_{1i} can be observed only if a crisis

¹⁷ Real Exchange Rate Overvaluation is measured as the difference between the real exchange rate and the long-run real exchange rate path, which was calculated using a Hodrick-Prescott filter ($\lambda = 14400$) that isolates the long-term trend component of a series. The real exchange rate is the nominal exchange rate (IFS line rf) adjusted for differences between foreign and domestic (consumer) price levels (IFS line 64). This procedure follows Goldfajn and Valdés (1998) and Leblang (2003b). Contagion is a dummy variable, which takes the value of 1 if there is more than one crisis in the international financial system within the same month. The other variables are operationalized as described above.

occurs, i.e. if y_{2i} takes the value 1. It estimates the hazard that the authorities devalue the exchange rate conditional on the probability that an attack occurred.¹⁸

Table 3: Descriptive Statistics for sample of speculative attacks

	Obs	Mean	Std. Dev.	Min	Max
Duration	106	4.302	2.792	1	7
Polity	106	3.830	6.337	-10	10
Reserves/M1 _{t-1}	106	1.141	1.906	0.02	18.19
Real GDP Growth _{t-1} *	106	0.165	0.489	-2.33	2.73
Inflation _{t-1} *	106	14.851	36.087	-10.13	343.57
OPEC*Polity	106	-0.585	2.625	-10	8
OPEC-Dummy	106	0.104	0.306	0	1
De Jure XR Regime _{t-12}	99	10.192	3.859	2	15
Left	106	0.255	0.438	0	1
Pre-election period (3m)	106	0.094	0.294	0	1
Post-election period (3m)	106	0.075	0.265	0	1

* three-month averages

4 Results

The results for the parametric duration models are presented in table 4. All models are estimated in the accelerated time-failure metric. The distribution underlying the specific model is listed on top of each column. Positive coefficients imply that higher values of the respective explanatory variable increase the duration of the exchange rate peg, or, equivalently, decrease the probability that the peg collapses. In total, the exchange rate pegs of the countries in the sample were at risk during 456 months.¹⁹

The first column of table 4 shows the results of an economic baseline model. The economic variables are lagged by one period because we assume that the decisions of governments and speculators are based on information from the previous month. The results imply that the probability of devaluation increases when the ratio of reserves to the money base decreases. The reserve level reflects the government's technical ability to defend the exchange rate. If the reserve level is so low that the attack depletes the remaining stock of reserves, the government cannot

¹⁸ As an alternative, we could use strategic probit models (Signorino 1999). These models, however, impose very restrictive assumptions about the structure of a speculative attack, e.g. the length of a crisis, and are not able to account for right-censoring.

¹⁹ The number of observations is lower for model 5 because data on de jure exchange rate regimes are only available until 1999 (Ghosh et al. 2002).

accommodate further capital outflow and has to devalue. This suggests that crises in our sample generally are caused by policies that are inconsistent with exchange rate pegs. If the government, for instance, runs a budget deficit over a longer period of time, inflation often increases, which leads to constant capital outflow and a decreasing stock of reserves. Once the reserve level falls below a specific threshold, a speculative attack depletes the remaining stock of reserves and the government is forced off the peg (Krugman 1979; Flood and Garber 1984).

The coefficients for growth and inflation imply that a higher inflation rate prior to the attack increases the probability that the peg collapses, but real GDP growth does not have any statistically significant impact on the outcome of crises. This confirms the developing and emerging market countries typically face fundamentals-based, first generation crises. Inflation is particularly relevant for crises that are caused by policies inconsistent with a pegged exchange rate. Economic growth, however, is more important for second generation crises that occur when market participants have doubts about the government's commitment to the peg, and less important when weak economic fundamentals, such as reserves, trigger the attack (Obstfeld 1996). In an empirical study of crises in OECD countries, Sattler (2006b) shows that, unlike in emerging market economies, reserves and inflation do have a statistically significant influence in the industrialized world.²⁰

The second column in table 4 presents the estimation results for a model that includes the political regime type as explanatory variable. This analysis includes both developed and developing countries and shows that more democratic countries are significantly more likely to defend their exchange rate against speculative pressure. More developed countries have a stronger tendency to defend, as the positive (but not significant) coefficient of the OECD variable shows. As mentioned above, the crisis dynamics in less developed countries is likely to differ from that of industrialized countries. In what follows, we therefore focus our analysis on developing countries and emerging market economies. This first test for the sample of less developed countries (model 3) implies that more democratic governments are more likely to defend than more autocratic governments, although the coefficient is not statistically significant. An outlier analysis of model 3 shows that this result is mainly driven by oil-exporting autocracies, such as Kuwait and Saudi-Arabia. Contrary to the general trend across autocracies, these highly

²⁰ In this context it is not surprising that fundamentals-based first-generation models were developed in response to currency crises in developing countries during the 1970s and the early 1980s., while expectations-based second-generation models were developed in response to crises in industrialized countries, such as the 1992-93 European Monetary System crisis.

undemocratic governments always defend when speculators attack their currency. To control for the influence of these countries, we re-estimate model 3 by including a dummy variable for OPEC countries and an interaction term for these countries with the political regime type. [include motivation for inclusion of OPEC dummy]

Model 4 shows that controlling for the disproportionate influence of the oil-exporting autocracies increases the estimated impact of the political regime type on crisis outcomes considerably. The estimated coefficient also becomes statistically significant. The results thus strongly support Hypothesis 1, which states that democratic governments defend more often than autocratic governments. This finding, however, is only valid for those countries that are not large oil exporters. The interaction term between the political regime type and OPEC membership indicates that oil-exporting autocracies defend more often than democratic oil-exporting countries.²¹

We test the robustness of these findings in several ways. First, we examine to what extent the results depend on the models' underlying assumptions about the shape of the hazard rate. Re-estimating the specification in the third column with a Weibull parameterization (model 5) hardly changes the results. Moreover, the results of the Weibull model in the proportional hazard (PH) metric correspond to those from a less restrictive Cox proportional hazard model that leaves the particular form of the duration dependency unspecified (not reported in the table). An analysis of the Schoenfeld residuals indicates that the PH assumption are not violated for these models and thus implies that the proportional hazard models are appropriate (Box-Steffensmeier and Jones 2004, p.131-137).

The model fit statistics at the bottom of the table indicate that we should favor the log-normal over the Weibull model. Both the Akaike and the Schwartz Bayesian Information Criteria show lower values for the log-normal model. For the Weibull model, the shape parameter p is smaller than 1 implying that the hazard rate is monotonically decreasing (Box-Steffensmeier and Jones 2004, p.25-31). This, indicates that the hazard of an exchange rate collapse, at a particular point in time, given that the rate has survived until then, decreases over time. Since $\sigma > 1$, the hazard rate of the log-normal model rises to its peak quickly and then also falls

²¹ Thus, for oil-exporting countries hypothesis 2 holds. It should be noted, however, that the number of OPEC countries in our sample of crises is very low. The inclusion of the OPEC dummy and the OPEC*regime type interaction is primarily designed to capture the outlier effect of these countries and not to systematically test a theoretical proposition about oil-exporting countries.

Table 3: Duration of exchange rate peg after attack, accelerated failure-time metric

Variable / Distribution	(1) Log-normal	(2) Log-normal	(3) Log-normal	(4) Log-normal	(5) Weibull	(6) Log-normal	(7) Log-normal	(8) Log-normal
Regime Type _t		0.046* (0.024)	0.027 (0.030)	0.067*** (0.022)	0.064*** (0.024)	0.075*** (0.023)	0.069*** (0.021)	0.071*** (0.023)
Reserves _{t-1} / M1 _{t-1}	0.220** (0.101)	-0.017 (0.075)	0.220** (0.095)	0.254** (0.100)	0.210** (0.100)	0.224** (0.105)	0.303*** (0.107)	0.256** (0.107)
Growth _{t-1}	0.096 (0.246)	0.215 (0.197)	0.138 (0.216)	0.047 (0.262)	0.139 (0.245)	0.049 (0.276)	0.095 (0.253)	0.089 (0.262)
Inflation _{t-1}	-0.005*** (0.002)	-0.005*** (0.01)	-0.005*** (0.002)	-0.005*** (0.002)	-0.006*** (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.005*** (0.002)
OECD		0.238 (0.343)						
OPEC _t				-0.180 (0.496)	-0.330 (0.512)	-0.346 (0.589)	-0.046 (0.500)	-0.155 (0.451)
Regime _t *OPEC _t				-0.216*** (0.065)	-0.232*** (0.065)	-0.249*** (0.070)	-0.217*** (0.063)	-0.224*** (0.061)
De jure regime _t						-0.010 (0.035)		
Left government _t							0.385 (0.389)	
Pre-election _t (3m)								-0.1343 (0.487)
Post-election _t (3m)								-0.859* (0.466)
Constant	1.472*** (0.220)	1.416*** (0.225)	1.366*** (0.253)	1.084*** (0.191)	1.659*** (0.191)	1.147*** (0.418)	0.898*** (0.227)	1.134*** (0.067)
Shape parameter	$\sigma = 1.47$	$\sigma = 1.47$	$\sigma = 1.46$	$\sigma = 1.39$	$1/p = 1.13$	$\sigma = 1.38$	$\sigma = 1.38$	$\sigma = 1.37$
N (Times at risk)	106 (456)	184 (780)	106 (456)	106 (456)	106 (456)	99 (421)	106 (456)	106 (456)
Wald χ^2	17.74	37.22	20.68	34.71	93.91	29.50	36.69	38.29
Pr < χ^2	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Log Likelihood	-138.73	-240.02	-138.17	-133.98	-140.89	-125.67	-133.41	-132.70
AIC / SBC	287 / 301	494 / 517	288 / 304	283 / 305	297 / 319	269 / 292	284 / 308	285 / 312

Notes: Robust standard errors cluster on country and are listed in brackets below coefficients. * indicates $p \leq 0.1$; ** indicates $p \leq 0.05$; *** indicates $p \leq 0.01$.

Table 4: Duration of exchange rate peg with selection, accelerated failure-time metric

	(8) Probit	(9) Probit	(9) Log-normal with Selection	(10) Log-normal with Selection
Duration				
Regime Type _t				0.066*** (0.023)
Reserves _{t-1} / M1 _{t-1}			0.222** (0.099)	0.253** (0.100)
Growth _{t-1}			0.105 (0.237)	0.049 (0.259)
Inflation _{t-1}			-0.005** (0.002)	-0.005** (0.002)
OPEC _t				-0.185 (0.497)
Regime _t *OPEC _t				-0.216*** (0.065)
Constant			1.874 (1.281)	1.258 (1.344)
Selection				
Regime Type _t		0.004 (0.005)		0.004 (0.005)
Reserves _{t-1} / M1 _{t-1}	-0.038 (0.033)	-0.040 (0.033)	-0.038 (0.032)	-0.040 (0.033)
Growth _{t-1}	-0.435 (2.075)	-0.389 (2.169)	-0.442 (2.073)	-0.391 (2.165)
Inflation _{t-1}	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Overvaluation _{t-1}	-0.001* (0.0006)	-0.001* (0.0006)	-0.001* (0.0006)	-0.001* (0.0006)
Contagion _t	0.754*** (0.100)	0.753*** (0.099)	0.755*** (0.100)	0.753*** (0.100)
Constant	-2.160*** (0.053)	-2.172*** (0.056)	-2.161*** (0.053)	-2.172*** (0.056)
Shape parameter rho			$\sigma = 1.48$ -0.119 (0.373)	$\sigma = 1.39$ -0.053 (0.402)
N (Uncensored)	5856	5856	5856 (106)	5856 (106)
Wald χ^2	66.40	66.08	66.52	66.20
Pr < χ^2	0.000	0.000	0.000	0.000
Log Likelihood	-502.47	-502.30	-641.14	-636.28

Notes: Robust standard errors cluster on country and are listed in brackets below coefficients. * indicates $p \leq 0.1$; ** indicates $p \leq 0.05$; *** indicates $p \leq 0.01$.

(Box-Steffensmeier and Jones 2004, p.31-37).²² Analyzing the hazard rate of a Cox model with the same specification confirms that this is the case. The estimated coefficients of the log-normal and the Weibull models thus are similar because of similar estimated hazard rates. Since the log-normal model accounts for the short increase of the hazard at the beginning of the examination period, it performs better and is the more appropriate model. We therefore chose this model for our further analyses.

In addition, we examine whether the political regime type's estimated impact on crisis outcomes depends on other political considerations. For instance, the evidence that policymakers tend to postpone devaluations until after elections in tranquil periods (Stein and Streb 2004; Blomberg et al. 2005; Klein and Marion 1997) leads us to expect that electoral timing should influence the choice of exchange rate policies in times of crisis as well. We thus would expect democratic governments to defend more often against attacks that occur during election campaigns and to devalue more readily when the attack takes place right after an election. Similarly, political economy research suggests that left- and right-wing governments represent different constituencies and thus might react differently to speculative attacks (Leblang 2003b). Finally, governments might defend more often if they have publicly committed themselves to a (de jure) exchange rate peg. Models 6 – 8 test the impact of these alternative explanatory factors. Apart from the post-election period, which as expected has a negative and statistically significant influence on the probability of a defense, none of these variables has a statistically significant impact on the probability of devaluation and defense. The estimated influence of the political regime type is not sensitive to the inclusion of these factors.²³ The results are also robust to the inclusion of various additional variables (not reported in the table). The inclusion of several additional economic control variables such as the current account deficit, domestic credit growth, and the budget deficit do not change the positive and significant effect of democracy. Similarly, the finding that democracy increases the likelihood of a defense is robust to controlling for the importance of exports, capital account openness and the de facto exchange rate regime type. Operationalizing political regime type with the political freedom variable provided by Freedom House does not change the results either, nor does re-estimating the equation as a probit model

²² Note that $p = 1/\sigma$ for the log-normal model. When p is large, the hazard rate of a log-normal model first increases and then decreases. When p is small as for the models in table 3, the hazard rate reaches its peak quickly and then falls monotonically.

²³ The model fit statistics select the model in the sixth column over all others. These values do not have any substantive meaning, but result from missings in the data because de jure exchange rate classifications by Ghosh et al. are only available until 1999.

where the dependent variable is a dummy variable that only distinguishes between successful defenses and devaluations.

So far, the empirical evidence supports hypothesis 1, which posits a positive relationship between the political regime type and crisis outcomes: Democratic policymakers are more likely to defend than autocratic policymakers. The theoretical model has pointed to a third possible explanation, however, indicating that this result might be caused by a lack of transparency in autocratic regimes rather than policymakers' commitment to the peg. The model suggests that strongly committed, but intransparent governments could be attacked more frequently than those in more transparent regimes. If this hypothesis holds empirically, autocratic regimes should be selected more frequently into the sample of speculative attacks. Since autocratic policymakers in the sample would therefore on average be more strongly committed than their democratic counterparts (which, being more transparent, would be only attacked when their commitment in reality was low), this mechanism implies that we would observe a higher number of successful defenses by autocratic governments than by democratic governments. Studies that only analyze the outcome of crises, without taking this selection process into account, might consequently lead to incorrect conclusions. If the selection process is modeled explicitly, however, it allows for a direct test of hypothesis 3. Restated in empirical terms, this hypothesis predicts that there is no difference between democratic and autocratic governments if we correct for selection bias.

To test hypothesis 3, we use selection models to jointly analyze the emergence and the outcome of speculative attacks. The results are presented in table 4. Models 8 and 9 present the results for separate estimations of the selection equation, which predicts the probability with which a exchange rate peg is attacked. For both estimations, we use probit models, where the dependent variable is whether a crisis occurred or not. Among the theoretically plausible determinants of currency crises, only real exchange rate overvaluation and the contagion variable show a statistically significant impact. An attack thus is more likely, the more overvalued the exchange rate is.²⁴ Contagion measures whether other crises occur in the international financial system at the same point in time. The results indicate that speculative attacks are highly contagious, i.e. the risk of being attacked increases dramatically when there is a crisis somewhere else in the system.

We cannot confirm the finding of previous studies that autocracies are attacked more often than democracies. Instead, our models do not find any statistically significant influence of the political

²⁴ The variable is defined such that lower values indicate more overvaluation. A negative coefficient thus implies that more overvaluation increases the probability of a crisis.

regime type on the probability of a crisis. A possible explanation for this discrepancy is that we use a significantly larger sample of countries than those studies. Most other variables are not statistically significant either. We have to keep in mind, however, that the rare occurrence of crises poses a major difficulty for predicting when such events occur. In our dataset, there are 107 crises out of 5856 country-months, representing around 1.8% of all observations. Crises thus are extremely difficult to predict, and the explanatory power of empirical models is fairly low.²⁵

The duration-selection models 10 and 11 yield identical results to the models in table 3 that ignore the selection process. The estimated correlation among the errors of the selection and the outcome equations is not statistically significant. There are two possible interpretations of these results: First, it is possible that the effect of censoring on the results of the outcome equation is minor. This implies that exchange rates in democratic and autocratic countries are equally likely to come under speculative pressure. The extent of transparency of the political regime type does not influence the selection into the sample of crises. Consequently, the results in table 3 then are not subject to selection bias. Second, the low predictive power of the selection equation due to the rare events character of speculative attacks makes it difficult, if not impossible, to adequately correct for non-random selection into the sample of crises. Future research should reexamine the role of selection for the results reported here using other methods that address selection problems in large samples with rare events in different ways.

In sum, our results suggest that we should favor hypothesis one, which posits that democratic governments are more likely to successfully defend their exchange rate against speculative pressure than autocratic governments. This result is robust to a variety of specifications, including when we control for possible selection effect. Varying levels of regime transparency (hypothesis 3) do not affect the positive relationship between the political regime type and the likelihood of a successful defense.

²⁵ Re-estimating the models using a rare events logit estimator (King and Zeng 2001) increases the significance level of overvaluation considerably, but does not significantly affect the other variables. Other studies suffer from similar problems. Leblang (2003b, p.550) reports that his strategic probit model seriously overpredicts the probability of speculative attacks. It predicts that an attack should occur in 2335 out of 7240 cases, while the number of actual attacks is only 41 (p.550).

5 Conclusion

This study has shown that the insights from studies of the interwar period are only partially applicable to crises in the contemporary international financial system. While these studies find that the democratization of most European states was the main cause for the demise of the Gold Standard in the 1920s and the ensuing economic and political turmoil, our results show that the opposite holds for modern crises. Analyzing 106 speculative attacks in developing and emerging market economies, we find that democratic governments today are significantly more likely to defend their exchange rates against speculative attacks than autocratic policymakers. Moreover, and contrary to previous studies that examined fewer cases, we do not find a significant difference in the vulnerability of autocratic and democratic countries' currencies to speculative attacks. To the extent that devaluations can threaten international financial stability, our results suggest that the growing number of democratic countries increases, rather than decreases, the stability of the modern international financial system.

One explanation for our finding can be found in democratic countries' exchange rate regime choice. On average, democracies tend to choose more flexible exchange rate regimes, both *de jure* (Broz 2002) and *de facto* (Bearce and Hallerberg 2006). By following a more flexible regime democratic policymakers are able to cushion some part of the speculative pressure by letting the exchange rate depreciate within the allowed limits. Since voters punish policymakers less for such *de facto* depreciations than for devaluing from a *de jure* peg (Leblang 2005), this implies that democratic governments are able to defend their currencies without having to rely fully on domestic adjustment. More flexible exchange rate regimes thus allow policymakers to reduce the costs of currency defenses.

These findings suggest that democratic governments devalue more often when they are bound by a highly inflexible exchange rate regime, such as the Gold Standard during the interwar period, but are more likely to defend when they follow an intermediate exchange rate regime. It seems to be the combination of democratic rule and more flexible exchange rate arrangements that has a stabilizing effect on the international financial system.

CHAPTER IV

POLITICAL SURVIVAL IN TIMES OF CRISIS

The Effect of Electoral Timing on Currency Crisis Outcomes

Abstract

Do electorally motivated manipulations of economic policy persist in times of economic crisis? By looking at policymakers' responses to currency crises, this paper develops a political business cycle model in which incumbents face a tradeoff between their wish to signal competence and the high cost of exchange rate defenses in response to currency crises. The model predicts that manipulation occurs at intermediate levels of exchange market pressure. Several empirical implications of the model are tested for a sample of 48 emerging market and industrialized countries for the time period 1983-2003. The results support the predictions of the model and show that 1) defense is more likely before and devaluation is more likely after elections, 2) policymakers are more likely to devalue as the intensity of the crisis increases, and 3) incumbents who defend their exchange rate before elections have a higher probability of being re-elected at intermediate pressure levels.

Previous versions of this paper have been presented at the International Political Economy Society Meeting in Princeton NJ, November 17-18, 2006, the ISA Annual Conference in San Diego CA, March 22-25, 2006 and the MPSA Annual National Conference in Chicago IL, April 7-10, 2005. I would like to thank Thomas Bernauer, John Freeman, Patrick Kuhn, Katja Michaelowa, Thomas Sattler, Joshua Walton, Tom Willett and participants in the Claremont SPE Lunchtalk and the CIS Colloquium for valuable comments.

“A president who devalues, is a devalued president”

Lopez Portillo, former Mexican president¹

1. Introduction

The influence of elections on economic policymaking has been the subject of a considerable body of research. The literature on political business cycles has argued that incumbent policymakers sometimes deviate from welfare-optimizing policies if the implementation of such suboptimal policies enhances their re-election chances during the campaign period (for overviews see Willett 1988; Alesina et al. 1997; Drazen 2001). Incumbents manipulate economic policy either by exploiting time inconsistencies in policies’ short- and long-term effects or by implementing policies “unattainable” by less able policymakers in an attempt to send a signal of competence to voters. This manipulation leads to so-called political business cycles in which economic policy is systematically influenced by the electoral cycle.

One area in which the link between electoral timing and economic policymaking has been shown to be particularly strong is exchange rate policy. This is not surprising, because voters can easily observe changes in the exchange rate. In most countries, the value of the currency is a daily element of national news broadcasts, so that changes in the exchange rate can be observed more directly than changes in GDP growth or in the size of fiscal transfers. Several studies find that devaluations and depreciations of the exchange rate tend to be delayed until after elections (Frieden et al. 2001; Stein and Streb 2004), especially when they are associated with a transfer in executive power (Klein and Marion 1997). Blomberg, Frieden, and Stein (2005) show that the probability that a fixed exchange rate will be maintained increases as an election approaches. Schamis and Way (2003) demonstrate that the introduction of exchange-rate based stabilization programs is most likely when elections are pending. In sum, this evidence indicates that exchange rate politics exhibits political business cycle characteristics, manifest in a lower likelihood of devaluation before elections and a higher likelihood of devaluation once election day has passed.

This research has provided valuable insights, but has two shortcomings: First, all of the cited studies focus on Latin America broadly defined. This may lead to a bias in the results as Latin America has experienced particularly drastic changes in exchange rate policy. Second, exchange

¹ Cited in Santiso (2000).

rate manipulation in tranquil times is likely to differ greatly from manipulation in times of strong speculative pressure on the exchange rate. In crisis periods, the costs of maintaining exchange rate stability far exceed the equivalent costs in tranquil periods, suggesting that political business cycles should be less pronounced when foreign exchange market pressure is high. At the same time, exchange rate adjustments are usually much larger when they occur in response to speculative pressure. Since both the cost and visibility of devaluations is thus higher in times of crisis, this implies that the political business cycle effect should be stronger in times of crisis. Hence the question arises which effect prevails: are the costs of exchange rate manipulation high enough during times of crisis, so that policymakers implement the economically efficient policy response? Or do political considerations nevertheless override all economic concerns, leading to exchange rate manipulation even in times of currency crisis?

Since the literature on the phenomenon of political business cycles is extensive, it is surprising that research investigating whether politically motivated manipulations of the economy persist in periods of economic crisis has been extremely sparse. One notable exception is Leblang (2003). In an analysis of policy responses to speculative attacks in 90 developing countries, he finds that the probability of an exchange rate defense increases significantly both before and after elections. This is consistent with the political business cycle models predicting lower rates of devaluation in the run-up to an election, but inconsistent with the prediction that the rate of devaluation will rise in the aftermath of an election. The latter finding is also puzzling in light of research on the emergence of speculative attacks, which has shown that speculative attacks are more likely to occur during the election month (Block 2003) or immediately after elections have taken place (Leblang 2002), suggesting that markets perceive the likelihood of an exchange rate devaluation to be greater in post-electoral periods.

Whether political business cycles persist in periods of crisis therefore warrants more theoretical and empirical clarification. For this purpose, this paper develops a rational opportunistic political business cycle model, which illustrates how the timing of elections influences policymakers' choices in response to speculative attacks. In this model, voters observe exchange rate policy to gain information about the incumbent's quality as policymaker and punish policymakers deemed incompetent by voting them out of office. Since more "competent" policymakers are able to defend against stronger pressure than less "competent" policymakers, they signal their competence by defending the exchange rate against mild and intermediate levels of speculative pressure. The model predicts that defenses are more likely overall before elections, while the probability of

a devaluation strongly increases after an election. Moreover, it predicts that policymakers who defend the exchange rate against semi-severe speculative attacks are more likely to be re-elected and that the likelihood of a defense decreases with the severity of the crisis. The model's empirical implications are tested for a sample of 122 crises in 48 industrial and developing countries between 1983 and 2003. The results support the model's predictions and show that 1) defense is more likely before and devaluation is more likely after elections, 2) policymakers are more likely to devalue as the intensity of the crisis increases, and 3) incumbents who defend their exchange rate before elections and at intermediate levels of crisis severity have a higher probability of being re-elected.

2. Elections and Speculative Attacks: A Political Business Cycle

Model

To analyze the influence of electoral timing on policymaker's responses to speculative attacks on their exchange rates, this paper develops a rational opportunistic political business cycle (PBC) model in which policymakers choose their policy response in light of both political motivations and general welfare considerations. The model roughly follows the setup of a political business cycle model by Stein and Streb (2004) for electorally motivated exchange rate manipulation in tranquil times. While the traditional rational political business cycle models focus on manipulations of fiscal policy (Rogoff and Sibert 1988; Rogoff 1990), policymakers in this model manipulate exchange rate and/or monetary policy to improve their re-election chances.

The model emulates the traditional rational PBC models (Rogoff 1990; Rogoff and Sibert 1988) as well as Stein and Streb (2004) by assuming that policymakers differ with regard to the level of competence with which they conduct economic policy. Following the terminology used in this literature, I assume that policymakers can be either type "competent" c or type "incompetent" i . In this context, "competence" denotes a capable policymaker, who is generally more efficient in his (economic) policy decisions than an "incompetent", inept policymaker. For example, competent policymakers implement better banking regulations, which lead to a healthier financial sector and reduce the potential cost of currency crises. Compared with competent policymakers, incompetent policymakers always impose higher aggregate welfare costs on society, since the policies implemented by them lack the high quality of policies implemented by competent incumbents. Since voters benefit from better economic policies, they always prefer having a competent government. However, voters cannot directly observe a policymaker's type and therefore vote

retrospectively, using the incumbent's past policy choices to infer his level of competence.

Both types of policymakers can face currency crises, i.e. periods of heightened market pressure on their exchange rates. Such crises differ from tranquil times in two important ways: First, when a country's exchange rate comes under strong speculative pressure, policymakers no longer have the discretion to implement any policy measure of their liking or to "do nothing". They can, however, choose which one of two possible policy responses they prefer: a devaluation² dev of the exchange rate (and hence external adjustment), or a defense def of the exchange rate through reserve sales and tight monetary policy (and hence internal adjustment). Second, the costliness of the policy response required to stop the speculative attack increases with the severity of speculative pressure. Defenses against mild pressure, for example, can be achieved by selling only moderate amounts of foreign reserves, while strong defenses require much more drastic policy measures involving large sales of foreign reserves and a painful increase in interest rates. Similarly, devaluing in response to severe speculative pressure leads to larger devaluations than when pressure is mild.

To represent this crisis setting and the fact that experiencing a crisis is always worse than tranquility, the model assumes that both response options are associated with costs, C^{dev} and C^{def} . These costs represent the negative welfare effects of these policies for each citizen, including the incumbent. In the case of a devaluation, the costs C^{dev} include a reduction in purchasing power and an increasing debt burden for those holding unhedged foreign currency-denominated liabilities, as well as potential inflationary effects due to the price increase in imported goods and the authorities' loss of monetary credibility. Defenses impose costs C^{def} because the tight monetary policy required to defend against severe market pressure dampens investment and consumption and is likely to spark a recession.

The model assumes that the costs associated with the two policy options increase with mounting speculative pressure p , making all cost curves upward-sloping. The functional form of the two cost curves for devaluation and defense C^{dev} and C^{def} is assumed to differ from each other. The costs of a defense C^{def} initially rise slower than the costs of devaluation C^{dev} but eventually rises much faster than C^{dev} when pressure increases. This implies that a defense will be more costly than a devaluation when speculative pressure is strong. The functional form of the defense-cost curve reflects the consideration that mild and temporary bouts of speculative pressure can usually

² The same model applies to the depreciation considerations in countries with more flexible exchange rate regimes.

be successfully addressed by selling foreign reserves to support the exchange rate. More severe speculative pressure, however, can only be countered through a tightening of monetary policy. Since higher interest rates depress consumption and investment and can induce a recession and unemployment, the cost of this policy response increases markedly as soon as reserve sales no longer suffice to sustain the exchange rate. This functional form also reflects the assumption that governments are forced to devalue when the intensity of a speculative attack is too severe. Raising interest rates in order to defend the exchange rate eventually leads to prohibitively high welfare costs, so that devaluation, while also associated with undesirable consequences, becomes the only viable option for very severe speculative attacks. In comparison, the flatter cost curve for devaluation C^{dev} reflects the fact that the negative short-term effects of devaluations on voters' purchasing power is offset in the long-run by a boost in the economy's international competitiveness and hence aggregate output. Nevertheless the cost of devaluing in response to mild pressure is higher than that of defending because of the loss of monetary credibility associated with giving up a pegged exchange rate. The level of exchange market pressure at which the two cost curves intersect, marks the speculative pressure at which the optimal response changes from defense to devaluation.³

Figure 1 depicts how the costs of the two respective policy options change with increasing levels of exchange market pressure. Both cost curves have a minimum at market pressure p^0 where speculative pressure is low and neither a devaluation nor a defense of the exchange rate are necessary. The cost associated with p^0 can be thought of the cost associated with exchange rate stability in tranquil times. From a social welfare maximizing perspective, this is the optimal policy response. The costs to each citizen rise with increasing pressure p , such that responding to a speculative attack is always worse than any policy action in tranquility (p^0). Note that these costs represent each policy option's overall, long-term cost, which can deviate from short-term costs.

Since incompetent policymakers always cause higher costs than competent policymakers, however, no matter which policy response they choose, the costs of policy responses implemented by an incompetent policymaker, C_i^{dev} and C_i^{def} , are higher than the costs C_c^{dev} and C_c^{def} that arise when a

³ It should be noted that the precise functional form of the two cost curves for defending and devaluing crucially depends on a country's economic structure. For example, the cost of devaluation tends to be smaller in highly export-oriented countries, while it is higher when policy credibility has been closely tied to the exchange rate policy, for example when the exchange rate is used as a nominal anchor, or when the crisis results from fundamental disequilibria (1st generation crises). This implies that for a certain amount of speculative pressure the optimal policy response might be to devalue in one, and to defend in another country. Nevertheless, the functional form of the cost curves C^{dev} and C^{def} always differs from each other and leads them to intersect at some point.

competent policymaker responds to the same amount of speculative pressure⁴. Denoting this “competence premium” as x , this implies that incompetence shifts the cost curves upwards by amount x , i.e. $C_i^{dev} = x + C_c^{dev}$ and $C_i^{def} = x + C_c^{def}$.

The optimal policy response to a speculative attack is the one that imposes the lowest cost on citizens. In the model, this means that when faced with mild levels of speculative pressure, defending the currency is the optimal response, while it is more efficient to respond to severe market pressure by devaluing. Benevolent, welfare-maximizing policymakers will always implement the optimal policy response. Now assume that incumbents are opportunistic and care not only about maximizing social welfare but also about re-election. All incumbents derive the same benefit B from re-election, regardless of their type. This benefit originates from having policymaking power or from enjoying what Rogoff (1990: 23) calls the “ego rent” derived from the “great honor of being the chief administrator”. In some countries, re-election may also allow the continuation of more traditional types of rents. Since policymakers discount the future, B is highest immediately before an election and lowest immediately after an election.

When B is high and if a deviation from optimal policy increases the incumbent’s re-election chances, this benefit creates a temptation to deviate from the optimal policy response. The temptation to signal $T_{c,i}$ is the difference between the benefit of re-election B and the cost $C_{c,i}^{dev}$ or $C_{c,i}^{def}$ caused by the chosen policy response. T_c is higher for competent policymakers than for incompetent policymakers, since the costs caused by their policy choices are always lower than those caused by incompetent policymakers. Competent policymakers’ net benefit of re-election is thus always higher than that of incompetent policymakers, making policy manipulation less costly for competent policymakers. The incentive to deviate can lead to situations in which competent policymakers manipulate policy to signal their type to voters and therefore increase their re-election chances. However, as in the traditional rational political business cycle model (Rogoff 1990), there is a limit to how much policymakers are willing to opportunistically deviate from the optimal policy response because they also care about their policies’ welfare effects. Since incumbents are at the same time decisionmakers and regular citizens, they bear the same cost caused by a bad economic situation as any other citizen.

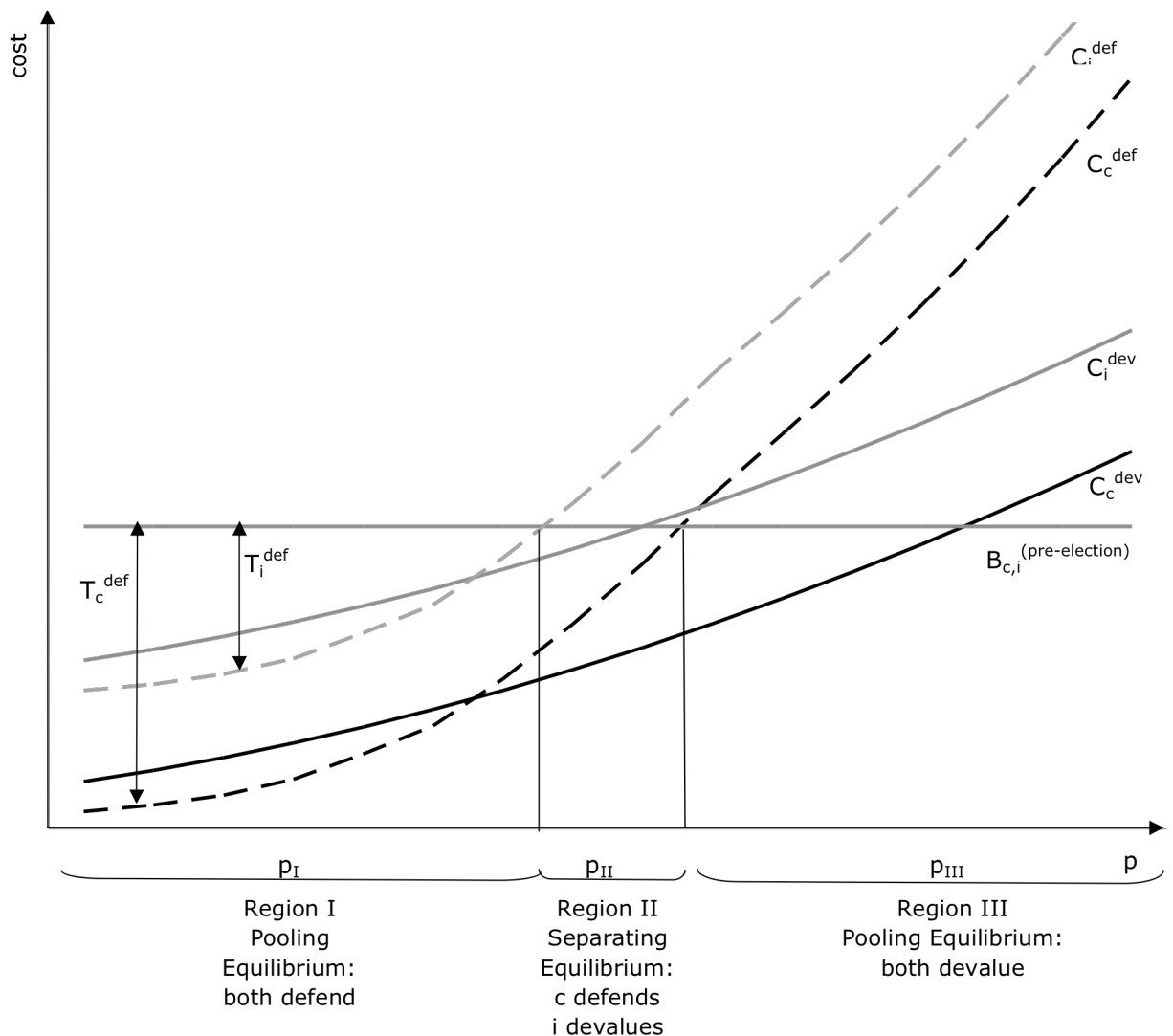
Figure 1 shows the competent and incompetent policymakers’ welfare cost curves as well as the benefit from re-election B relative to the cost of responding to a given level of speculative pres-

⁴ Note that only the intercept and not the functional form of the cost curves changes.

sure p . The dotted lines denote the costs of defending $C_{c,i}^{def}$, while the solid lines denote the welfare cost of a devaluation $C_{c,i}^{dev}$. The costs generated by competent policymakers (C_c^{def} and C_c^{dev}) are shown in black, those generated by incompetent authorities (C_i^{def} and C_i^{dev}) in grey.

Voters understand that competent policymakers will be able to defend the exchange rate against significantly stronger speculative pressure than incompetent incumbents. However, the incumbent's type is the policymaker's private information: voters do not know whether the incumbent is competent or incompetent. Voters also have some information about the amount of speculative pressure on the currency. While this information is less precise than the information available to the authorities, the oftentimes extensive news coverage of speculative attacks on the exchange rate gives voters some sense of whether speculative pressure is mild or strong.

Figure 1: The model



When a speculative attack occurs during the campaign period, the incumbent chooses a policy response by taking into account that voters have some sense of the severity of the crisis, know that competent policymakers enjoy a higher net benefit of defending and that they vote retrospectively. Voters observe the policy outcome and then cast their vote accordingly.

The intensity of speculative pressure can fall into one of three regions (see Figure 1). Region I represents the case of mild speculative pressure p_I . Here $C_{c,i}^{def}(p_I)$ is smaller than B for both types of policymakers. The net benefit of defending the exchange rate against mild pressure is thus positive for both types of incumbent ($T_{c,i}^{def}(p_I) > 0$). This is not surprising as defense is the optimal policy response for most pressure levels in region I. The incentive to signal $T_{c,i}$ is thus positive for both types of policymakers. Since both competent and incompetent policymakers defend the exchange rate in this situation, voters do not have the possibility to distinguish between incumbent types by observing the policy outcome.

In region II, the intensity of the speculative attack increases to medium-level pressure p_{II} . In this region, the cost of defending the exchange rate exceeds the benefit of re-election for the incompetent policymaker. He therefore no longer has an incentive to defend the currency and thus implements the policy that is less costly overall. He devalues, even though voters interpret this as a signal of incompetence and therefore will not re-elect him in the upcoming election. Even though the cost of defending against medium-level pressure is higher than the cost of a devaluation for the competent policymaker as well, the competent incumbent's net benefit of defending remains positive ($T_c^{def}(p_{II}) > 0$). Since he knows that a defense would be too costly to implement for an incompetent incumbent, the competent one defends the exchange rate and thus avoids sending a signal of incompetence to voters. This leads to a perfect separating equilibrium in which a competent policymaker responds to intermediate levels of exchange market pressure by defending the exchange rate, while incompetent policymakers devalue. Voters observe the policy response implemented and re-elect the incumbent only if the exchange rate has been successfully defended.

Note that in region II, competent policymakers defend the exchange rate even though it would be less costly to devalue. As in Rogoff (1990), voters honor this choice of a suboptimal policy because their short-term loss in aggregate welfare is compensated by the long-term gain in welfare they achieve by having a competent government. The competent policymaker's deviation from the optimal policy response thus represents "a socially efficient mechanism for diffusing

up-to-date information about the incumbent's administrative competence" (Rogoff 1990: 22).

Finally, in region III the country is facing very severe speculative pressure p_{III} . In order to fight off a speculative attack of this magnitude, very painful policy measures would be required. These measures – such as extremely high interest rates – are associated with very high welfare costs. The net benefit of defending the exchange rate against such strong exchange market pressure is thus negative for both types of incumbents ($T_{c,i}^{def}(p_{III}) < 0$). Knowing that manipulating the policy response will not be rewarded with any net benefit, both types of policymakers devalue their currency when faced with a speculative attack of this intensity. The welfare costs associated with devaluation are still very high, yet since they are lower than those of a defense they still constitute the optimal response to pressure of this intensity ($C_{c,i}^{dev}(p_{III}) < C_{c,i}^{def}(p_{III})$). In the resulting pooling equilibrium both types of policymakers respond to the attack with a devaluation, making it impossible for voters to separate between competent and incompetent incumbents. Voters therefore do not base their voting decision on the crisis outcome when speculative pressure is severe.

The model has four testable empirical implications. The model's first prediction is that the electoral incentive increases the overall probability that policymakers will choose to defend their country's exchange rate even if the cost of a defense is higher than that of a devaluation.

- H1: When elections are pending, incumbents are more likely to defend the exchange rate against speculative pressure than in non-electoral periods.

Since policymakers discount the benefit of a re-election, this benefit is lowest in the aftermath of an election because the next (regular) opportunity at re-election is still years away. The incentive to manipulate the exchange rate should therefore be lowest in post-election periods. Moreover, policymakers which are newly elected have the option to blame their predecessors' policy for the speculative attack and therefore do not have to worry about citizens' inference about their competence based on their policy response to an attack occurring shortly after an election. The likelihood that policymakers respond to speculative pressure by devaluing can hence be expected to be highest in the period following upon an election.

- H2: The likelihood of a devaluation increases in post-electoral periods.

Third, the more severe a speculative attack, the more costly is a defense of the exchange rate. The

model predicts that the net benefit of a defense decreases with increasing market pressure and finally turns negative. It follows that

- H3: The more severe the intensity of a speculative attack, the more likely is a devaluation of the exchange rate in response to such an attack.

Finally, the model makes some predictions about the effect crisis outcomes have on incumbent's re-election chances. These predictions differ for different crisis intensities:

- H4a: When speculative pressure is mild, defending the currency has no influence on incumbent's re-election chances. Incumbents who devalue are not re-elected.
- H4b: When speculative pressure is at a medium level, policymakers who defend their currency against a speculative attack are more likely to be re-elected while incumbents who devalue are more likely to lose their bid for re-election.
- H4c: When speculative pressure is intense, the crisis outcome has no effect on incumbent's re-election chances.

3. Empirical Analysis

3.1 Data and Operationalization

To evaluate the hypotheses about the effect of electoral timing on crisis outcomes and their effect on incumbents' re-election chances, I use monthly data for 122 speculative attacks in 48 countries. Since this study focuses on economic policymaking in an economically integrated world, I concentrate on the time period from 1983 to 2003, in which capital accounts were increasingly liberalized. Since elections matter only in democratic regimes, my analysis excludes autocratic countries. Most analyses reported in this paper use a democracy criterion which defines democracies as countries which exhibit at least a value of 5 on the POLITY IV index (Marshall et al. 2002), but results are robust to a variety of alternative polity thresholds, ranging from 1 to 9.

In addition, only those countries who have an option to intervene in the behavior of their ex-

change rate enter the sample as indicated by Reinhart and Rogoff's (2004) classification of "de facto exchange rate regimes." In fully floating regimes, governments have no choice between devaluations and defenses and therefore cannot manipulate the exchange rate. For this reason, countries with floating exchange rate regimes are excluded from the sample, as well as countries whose currency turmoil is caused by hyperinflation and similar domestic turbulence (Reinhart and Rogoff's (2004) "freely falling" category). Intermediate regimes such as crawling pegs are included into the analysis, because at least some intervention is possible in these regimes. The Reinhart and Rogoff measure classifies exchange rate regimes on a 15-point scale based on both the officially announced regime and the actual exchange rate behavior. The analysis includes all periods with de facto exchange rate regimes that are classified as noncrawling bands that are narrower than or equal to $\pm 2\%$ (category 11), and any stricter classification. The use of a more restrictive threshold to determine which exchange rates are pegged would imply that important crises, such as the 1997 crisis in the Czech Republic, are excluded. Although it may be useful to use lower cut-off points in other contexts, e.g. for analyses of exchange rate regime choice in non-crisis situations, this does not seem adequate for the study of speculative attacks.

Speculative attacks are operationalized as proposed by Eichengreen, Rose and Wyplosz (1996; 2003) and are defined as periods of extreme pressure in the foreign exchange market. Following the suggestion by Nitithanprapas and Willett (2000) an unweighted version of the index is used because a weighted index usually leads to an understatement of unsuccessful speculative attacks on fixed exchange rates. Exchange market pressure (EMP) is thus operationalized as the unweighted monthly average of standardized exchange rate changes, standardized reserve changes, and standardized changes in the interest rate differential relative to the interest rate in a stable reference country.⁵ The rationale behind this index is that governments can respond to speculative pressure either by devaluing or floating their currency, by tightening monetary policy, or by spending foreign reserves in order to prop up the domestic currency. Large values of the EMP index indicate that speculative pressure is high. The data needed for calculating the index is available on a monthly basis for a large number of countries from the IMF's *International Financial Statistics (IFS)*. Periods where the index exceeds the country-specific mean by at least two standard deviations are identified as crisis episodes.⁶ The resulting sample includes many well-known crisis

⁵ The US dollar is set as reference currency for all countries except for the European countries (including Eastern Europe), for whom the Deutsche Mark (until 1998) and the Euro (from 1999 onwards) are used as reference currencies. Interest rates are (short-term) money market rates (IFS line 60b) or discount rates (IFS line 60) if money market rates are not available.

⁶ Since currency crises can stretch over a longer period of time, attacks occurring within the six months after the initial speculative attack are not considered as separate speculative attacks.

events such as the Mexican Peso crisis in December 1994 or the speculative attacks on the Thai baht in 1997 (a list of all crises is available from the author).

The first three hypotheses make predictions about how elections influence policymakers' behavior during currency crises. The operationalization of the authorities' decision to defend or devalue their exchange rate against speculative pressure, is based on the country's actual exchange rate behavior within the six months following upon the initial attack. In the context of speculative attacks, monthly exchange rate changes are not a suitable measure of the policy response, because seemingly large exchange rate swings may still be well in the limits of a relatively flexible regime, such as a pre-announced crawling band, while relatively small exchange rate changes can be an indicator that a more rigid exchange rate regime has been given up. I therefore use a behavioral criterion, which evaluates exchange rate behavior based on the country's pre-attack *de facto* exchange rate regime (Reinhart and Rogoff 2004). This criterion grants intermediate exchange rate regimes more freedom to devalue or depreciate than countries that follow a more rigid exchange rate regime. It examines whether the authorities kept within the limits imposed by their exchange rate regime in the six months following the first attack on the currency. If the exchange rate was not devalued during this period, the episode is counted as a successful defense and the dependent variable takes a value of 1.⁷ To test for the robustness of this operationalization two additional dependent variables are coded: The first uses the same criteria described above, but only considers the three months after the attack. The second codes each case as a devaluation in which the amount of depreciation exceeded 5%.

The policy response variable is recoded for cases in which policymakers defended the exchange rate until the election day but devalued afterwards. Since the original variable examines the entire period of six months, these cases would otherwise be wrongly counted as a devaluation. In order to prevent an underreporting of the pre-election effect on exchange rate policy, the dependent variable is accordingly recoded for Brazil (1998m9), Colombia (1998m6), India (1991m5 and 1998m1), Ireland (1992m9), and Latvia (1998m9). Recoding these variables is crucial in order to examine the hypotheses in this paper. Not surprisingly, it has a substantial effect on the results, changing the effect of the election variable from a negative and statistically insignificant effect to a positive and highly significant one.⁸ According to this operationalization, governments success-

⁷ For a detailed description of this variable see Sattler and Walter (2006)

⁸ Recoding the variables in this manner lowers the threshold for "defense" when governments find themselves in a campaign period and may thus introduce a bias. However, the results are robust to shortening the time horizon to 3 months, which reduces the number of recoded cases to three.

fully defended their exchange rate in 57.3% of all the cases in the sample. 42.7% of speculative attacks resulted in a devaluation.⁹

Table 1a: List of crises beginning in pre-election periods

Crisis	Election in x months	Duration of de- fense*	Out- come**	Re- elected?	Severity of Pressure	Early Election	Polity
Brazil 1998m9	1	5	1	1	1	0	8
Bulgaria 1997m2	2	1	0	0	3	1	8
Chile 1999m6	6	7	1	1	1	0	8
Colombia 1998m6	0	5	1	0	2	0	7
Cyprus 1992m9	5	1	0	0	1	0	10
Ecuador 1995m11	6	7	1	0	1	0	9
Finland 1983m3	0	7	1	1	1	0	10
Finland 1993m9	4	7	1	1	2	0	10
France 1987m11	6	7	1	1	2	1	9
France 1992m9	6	7	1	0	3	0	9
France 1995m3	2	7	1	0	3	0	9
Greece 1993m6	4	3	0	0	2	1	10
Guatemala 1999m9	2	7	1	0	1	0	8
Honduras 1993m7	4	2	0	0	3	0	6
India 1991m5	0	3	1	1	1	1	8
India 1995m10	6	7	1	0	1	0	9
India 1998m1	1	6	1	0	2	1	9
Ireland 1986m8	6	1	0	1	3	1	10
Ireland 1992m9	2	6	1	1	3	1	10
Italy 1983m3	3	7	1	1	2	1	10
Latvia 1998m9	1	1	1	0	1	.	8
Pakistan 1993m9	1	7	1	.	2	1	8
Pakistan 1996m10	4	2	0	0	2	1	8
Venezuela 1998m7	5	1	0	0	2	0	8

* the value of 7 indicates that defense lasted 7 or more months

** until election day

Elections are defined as presidential elections in presidential political systems, and parliamentary elections in all other political systems. The type of political system is identified using the political system variable from the World Bank's *Dataset of Political Institutions DPI* (Beck et al. 2000). Election dates were collected from the DPI dataset and updated with information from various sources, most notably the Election Results Archive (CDP 2004). Dummy variables are used to identify pre- and post-electoral periods as well as a counter that counts the number of months until the next election. The dummy variable identifying pre-election periods takes the value of 1 if the speculative attack occurs within the three (alternatively six) months before an election, includ-

⁹ The proportion of successful defenses is slightly higher here than that reported by Leblang (2003). Much of this difference results from the recoding-approach described above and from including the developed countries in the sample.

ing the election month. The post-electoral period is defined as the three months following upon an election.

Using this operationalization and limiting the case selection to democratic countries with some degree of exchange rate intervention in the way described above ($\text{polity} > 5$), 11 (23) speculative attacks occurred in the pre-electoral period with a three (six) month window, while 8 (21) attacks occurred in the three (six) month post-electoral period. Table 1a lists the speculative attacks that occurred in pre-election periods, the number of months until the election, the duration of the defense, the outcome of the attack (recoded as discussed above), the outcome of the election, crisis severity, whether the election was called early and the respective POLITY IV score. The table shows that the majority of policymakers chose to defend their exchange rate at least until election day. Table 1b reports a similar list of crises that occurred in the post-election period.

Table 1b: List of crises beginning in post-election periods

Crisis	Months after elec- tion	Defense duration*	Outcome (Defense = 1)	Severity of Pressure	Early Election	Polity
Bolivia 1993m11	5	7	1	2	0	9
Botswana 1985m1	4	1	0	3	.	7
Denmark 1995m3	6	7	1	2	0	10
Finland 1983m9	6	7	1	1	0	10
Finland 1983m9	6	3	0	1	0	10
France 1993m7	4	2	0	2	0	9
Greece 1985m10	4	1	0	3	0	8
Honduras 1990m3	4	1	0	3	0	6
Ireland 1983m3	4	7	1	2	1	10
Mali 1992m8	4	3	0	2	0	7
Netherlands 1983m3	6	7	1	3	1	10
Spain 1983	5	7	1	3	0	10
UK 1992m9	5	1	0	3	0	10
Austria 1990m12	2	7	1	3	0	10
Bolivia 1989m8	3	1	0	2	0	9
Colombia 1998m6	0	5	1	2	0	7
Cyprus 1983m3	1	7	1	3	0	10
Hungary 1994m6	1	7	1	2	0	10
Italy 1992m6	2	4	0	1	0	10
Portugal 1983m7	3	1	0	3	1	10
Slovak Rep. 98m10	1	7	1	2	0	9
Thailand 1997m2	3	6	0	1	.	9

* the value of 7 indicates that defense lasted 7 or more months

Table 2: Descriptive Statistics

	Obs	Mean	Std. Dev.	Min	Max
Outcome (1=Defense)	124	0.573	0.498	0	1
Pre-Election (3m)	124	0.097	0.297	0	1
Pre-Election (6m)	124	0.073	0.260	0	1
Post-Election (3m)	124	0.193	0.397	0	1
Post-Election (6m)	124	0.177	0.397	0	1
Election in x months	110	21.945	15.971	0	59
Reserves/M1 _{t-1}	124	1.133	2.199	0.018	18.195
Real GDP Growth _{t-1}	124	0.029	0.052	-0.172	0.197
Inflation _{t-1}	124	13.639	32.806	-7.814	343.570
Exports/GDP _{t-1}	124	0.417	0.777	0.073	7.727
Log(GDP/Capita) _{t-1}	124	8.206	1.299	5.678	10.447
Severity	122	3.329	2.669	2.009	26.734
Overvaluation _{t-1}	124	2.257	8.864	-46.240	46.800
Deficit/GDP _{t-1}	84	0.047	0.071	-0.190	0.244
Current Account/GDP _{t-1}	103	-0.040	0.050	-0.218	0.075
Trade Openness	124	0.778	0.572	0.172	4.467
Left	124	0.315	0.466	0	1
De Jure XR Regime _{t-12}	116	8.957	3.988	2	15
Cap. Account Openness	109	0.400	1.421	-1.711	2.682
Contagion	124	0.435	0.498	0	1

Several additional variables are included into the analysis to control for economic, political, and institutional constraints on policymakers' behavior. First of all, the model suggests that more severe speculative pressure should decrease the probability of a defense. To test this proposition, the standard deviation by which the EMP index exceeds the country-specific mean is employed as a measure of crisis severity. This operationalization is slightly problematic, because components of this measure affect both whether an episode is counted as crisis and the crisis outcome. While the results for this measure should therefore be regarded with some caution, the measure does provide a good way to gauge the intensity of speculative pressure. On the economic side, the control variables further include the level of foreign reserves relative to M1, real GDP growth, the inflation rate, the degree of overvaluation, and the level of development, all lagged by one month.¹⁰ Institutional constraints and political considerations are accounted for by including the de jure openness of the capital account, the de jure exchange rate regime, the level of democracy, the importance of the export sector and partisanship, in addition to the variables on elec-

¹⁰ Foreign Reserves are total reserves held by the central bank in U.S. dollars minus gold (IFS line 11.d), divided by the monetary aggregate M1 (IFS line 34). Real GDP growth is the average annual growth rate in real GDP for the previous three months (using data from the World Bank's *World Development Indicators*). Inflation rates are average inflation rates for the three pre-attack months are used, computed as annual percentage change in the consumer price index (IFS line 64). Following Leblang (2003), real exchange rate overvaluation is measured as the difference between the real exchange rate and the long-run real exchange rate path, as calculated using a Hodrick-Prescott filter ($\lambda = 14400$). The real exchange rate is the nominal exchange rate (IFS line rf) adjusted for differences between foreign and domestic (consumer) price levels (IFS line 64).

toral timing.¹¹ Table 2 provides the descriptive statistics for the variables.

3.2 Electoral Timing and Policy Responses to Speculative Pressure

How does the timing of elections influence how the authorities respond to mounting exchange market pressure on their currencies? To investigate this question probit analyses are performed, which estimate the influence of electoral timing on the probability of an exchange rate defense. Table 4 shows that governments defend their exchange rate significantly more frequently in the three months preceding an election. In the pre-election period, the likelihood of a defense rises from an average of 58.7% in non-electoral periods to staggering 98.4%. In post-election periods, the authorities are more likely to devalue (on average the probability to defend sinks to 48.5%).¹² As expected, the three months pre-election coefficient is positive and statistically significant at the 1% level across all specifications. The post-election coefficient also points in the expected negative direction, even though it does not reach conventional levels of statistical significance. Further investigation into the pre-election effect reveals that the period, in which policymakers are willing to defend their exchange rate, is fairly short: while the likelihood of a defense significantly increases in the three months preceding an election, it decreases when election day is four, five or six months away. One possible explanation for this phenomenon could be that policymakers of all sorts shy away from imposing the high costs of a defense on their constituencies for a longer period of time when an election is waiting around the corner. As expected, the coefficient for the election counter (model 4), which counts the number of months until the next election, is negative and significant: the further away election day is, the more likely is a devaluation.

Including the election variables not only shows that electoral timing has a strong effect, it also increases the predictive power of the statistical model. While the baseline model (1) predicts 62.9% of all cases correctly, with a reduction in error of 13.2%, including the three month dummy variables on electoral timing (model 2) raises the proportion of correctly predicted cases to 64.5% and reduces the error by 17%. The full model (8) finally has a high predictive power, predicting 82.4% of all cases correctly and thus achieving a reduction in error of 57.1%.

¹¹ Capital openness is operationalized with an updated version of the Chinn-Ito index, where higher values denote more openness (Chinn and Ito 2005). Data on the de jure exchange rate regime are from Ghosh et al. (2002), with higher numbers denoting more flexible regimes. The level of democracy is measured with the POLITY score. The importance of the export sector is measured as exports/GDP. Partisanship is a dummy variable for left governments as defined in the DPI (Beck et al. 2001).

¹² These values are the average predicted probabilities from the models 1-8, when all other variables are held at their median.

Table 3: Probit Estimations. DV: Policy Response to Speculative Pressure (Defense=1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Pre-Elect. 3m		2.917*** (0.64)	2.975*** (0.73)		2.804*** (0.56)	2.691*** (0.44)	3.162*** (0.48)	2.886*** (0.47)	2.101*** (0.64)
Pre-Elec. 4-6m			-0.183 (0.41)						
Post-Elect. 3m		-0.153 (0.47)			-0.220 (0.48)	0.085 (0.78)	-0.421 (0.54)	-0.496 (0.52)	-0.932 (0.60)
Post-Elect. 6m			-0.319 (0.30)						
Elect. in x m.				-0.019** (0.01)					
Reserves/M1 _{t-1}	-0.044 (0.07)	-0.031 (0.07)	-0.037 (0.07)	-0.144 (0.09)	-0.041* (0.07)	0.188 (0.18)	0.047 (0.07)	0.049 (0.07)	0.074 (0.07)
GDP growth _{t-1}	-0.238 (2.84)	-0.820 (2.86)	0.680 (2.99)	-1.865 (3.27)	-0.533 (2.79)	-0.378 (4.66)	2.865 (2.86)	-1.021 (3.57)	2.692 (4.38)
Inflation (t-1)	-0.017 (0.01)	-0.015*** (0.00)	-0.016*** (0.01)	-0.009 (0.01)	-0.014*** (0.00)	-0.027*** (0.01)	-0.015*** (0.00)	-0.034*** (0.01)	0.050* (0.03)
Exports/gdp _{t-1}	-0.081* (0.05)	-0.036 (0.05)	-0.049 (0.05)	-0.224 (0.12)	-0.044* (0.05)	0.435 (0.36)	-0.029 (0.12)	0.411 (0.33)	-0.414 (0.10)
GDP/capita _{t-1}	0.032 (0.10)	0.079 (0.11)	0.080 (0.11)	0.058 (0.11)	0.091 (0.10)	-0.089 (0.19)	0.230 (0.17)	0.174 (0.23)	0.180 (0.12)
Severity					-0.170 (0.12)			-0.334*** (0.10)	-0.389*** (0.10)
Left gov.							0.953** (0.38)	0.829** (0.41)	0.071 (0.33)
De jure XR							0.068 (0.05)	0.072 (0.08)	0.019 (0.06)
Capital Openn.							-0.066 (0.16)	-0.165 (0.20)	0.477*** (0.18)
Overvaluation						-0.105*** (0.03)		-0.135*** (0.04)	-0.184*** (0.04)
Deficit/GDP _{t-1}						-4.660 (2.92)			
Curr Acc/GDP						-0.015 (4.78)			
Trade Open						-0.176 (0.80)		0.429 (0.26)	0.102 (0.12)
Constant	0.200 (0.93)	-0.365 (0.97)	-0.279 (1.00)	0.391 (0.97)	0.139 (0.99)	1.432 (1.70)	-2.65 (1.74)	-1.044 (2.58)	-0.445 (1.32)
N	124	124	124	110	122	80	103	102	116
Prob>Chi ²	0.046	0.000	0.000	0.009	0.000	0.0000	0.0000	0.000	0.000
McFadden R ²	0.036	0.108	0.1141	0.101	0.151	0.307	0.214	0.366	0.428
Count R ²	0.629	0.645	0.629	0.655	0.705	0.775	0.738	0.824	0.802
Adj. Count R ²	0.132	0.170	0.132	0.191	0.294	0.455	0.372	0.571	0.439

Notes: Values in parentheses are robust standard errors, clustered on country

* indicates $p \leq 0.1$; ** indicates $p \leq 0.05$; *** indicates $p \leq 0.01$

The baseline model (1) includes four economic variables (reserves, growth, inflation and export share) that feature dominantly in the literature on currency crises, as well as GDP per capita, which is included to control for the different levels of development present in the sample. Contrary to expectations, the coefficient for the level of foreign reserves is negative in several models and not significant. Real GDP growth is included because second-generation crises point to the unwillingness of governments to tighten monetary policy during recessions (Obstfeld 1994), making a devaluation more likely when growth is low. Again, this coefficient is not stable across specifications and does not reach statistical significance. High rates of inflation are often a sign of fiscal profligacy and constitute a central feature of first-generation currency crises (Krugman 1979). As expected, higher rates of inflation significantly lower the prospects of a successful defense in almost all specifications, which is not surprising since monetary expansion puts additional pressure on the exchange rate. The argument that export-oriented countries should be more likely to devalue in an effort to enhance their competitiveness can be confirmed in two of the models, where the coefficient is negative and significant at the 10% level. However, the coefficient is neither stable and nor significant across the remaining specifications. Finally, the results show that richer countries are more likely to defend, even though this variable never reaches statistical significance.

Models 5, 8, and 9 include the severity variable, whose coefficient enters the regression negatively, suggesting (as predicted) that more severe crises are more likely to lead to devaluation. Model 6 adds some economic control variables. Real exchange rate overvaluation increases the rate of devaluation at conventional levels of statistical significance, since it reduces a country's international competitiveness and therefore increases the benefits of a devaluation.

Model 6 includes some additional economic control variables. The coefficients for budget deficits, the current account, and trade openness do not have a statistically significant impact on the probability of a defense. Finally, some political and institutional variables are included in model 7. Consistent with Leblang's (2003) finding, left governments are significantly more likely to defend their exchange rate. Since the exit costs associated with devaluations increase with the rigidity of the proclaimed exchange rate regime (Leblang 2005), the presence of more rigid *de jure* exchange rate regimes increase the probability of a currency defense, albeit not significantly. The coefficient for capital account openness is unstable across various specifications and it is unclear what the effect is on crisis outcomes.

The strong and statistically positive effect of the pre-election period on the likelihood of a defense is robust across a variety of alternative specifications, such as the inclusion of region dummies, different cut-off points for the level of democracy, and different combinations of independent variables. For very democratic countries ($\text{polity} > 8$) and OECD countries, the fact that an election is approaching within the next three months predicts a defense perfectly. The results also uphold in when OECD and non-OECD countries are analyzed separately. Finally, the strong pre-election effect is robust to changes in the operationalization of the dependent variable. It remains strong and statistically significant when a devaluation is defined as a 5% devaluation for all exchange rate regimes (model 9) and when the response period considered is shortened to three months (results not reported here).

An important caveat for these findings is that the rationale for choosing one policy response over another may not be independent from the reasons for which financial markets decide to attack the currency. To control for such potential selection effects, table 4 shows the estimates for three maximum-likelihood probit estimations with selection (Heckman Selection models). Since the null hypothesis of independent equations can be rejected in models 10, 11 and 13, a selection effect exists (even though this seems to depend on the specification: in model 12, ρ is not significant). Controlling for the selection process does not change the main result: the effect of the three-month pre-election period on the likelihood of a defense remains positive and statistically significant at the 1% level. The probability of a devaluation is higher in post-election periods, even though this effect is again not statistically significant. The selection equation offers some interesting additional insights. The probability of a speculative attack is higher both in the pre- and the post-electoral period and particularly high in the six to four months before an election – a period, in which policymakers are more likely to devalue their exchange rate. The probability of an attack is also significantly higher in the six months following upon an election. The remaining results of the selection equation are mostly consistent with the currency crisis literature: Higher reserves decrease the probability of an attack, while overvaluation and contagion increase this probability.

The timing of elections can be endogenous as well. To test whether policymakers react differently in the pre-election period when they have called an early election, model 13 differentiates between pre-election periods for regular (exogenous) elections and pre-election periods for elections that have been called early using data from O'Mahony (2006). The results show that controlling for economic conditions the positive pre-election effect exists for both early and regular

Table 4: Selection Models.

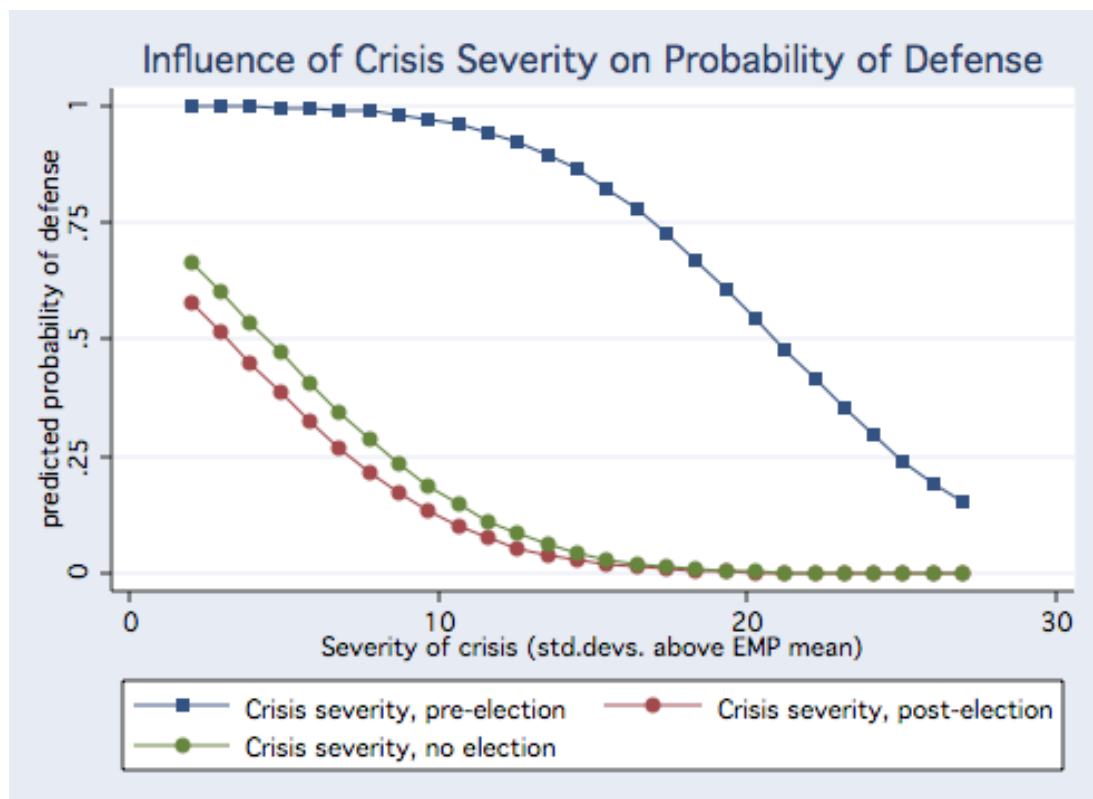
	Model 10	Model 11	Model 12		Model 13
Outcome (Dependent Variable: Exchange Rate Defense (Dummy))				Outcome	
Pre-Elect. 3m	2.766*** (0.64)	2.832*** (0.74)		Pre-Elec. 3m (early)	2.762*** (0.840)
Pre-Elec. 4-6m		-0.177 (0.37)		Pre-Elec. 3m (regular)	6.527*** (0.755)
Post-Elect. 3m	-0.143 (0.43)			Post-Elect. 3m	0.038 (0.47)
Post-Elect. 6m		-0.102 (0.29)			
Election in x months			-0.018** (0.01)		
Reserves/M1 _{t-1}	-0.045 (0.06)	-0.052 (0.06)	-0.153* (0.08)	Reserves/M1 _{t-1}	-0.040 (0.58)
GDP growth _{t-1}	-0.323 (2.30)	-0.798 (2.42)	1.122 (3.12)	GDP growth _{t-1}	-0.37 (2.34)
Inflation (t-1)	-0.017*** (0.00)	-0.018*** (0.01)	-0.010 (0.01)	Inflation (t-1)	-0.017*** (0.01)
exports/gdp _{t-1}	0.009 (0.05)	-0.003 (0.05)	-0.196 (0.13)	exports/gdp _{t-1}	0.023 (0.06)
GDP/capita _{t-1}	0.059 (0.09)	0.055 (0.09)	0.063 (0.11)	GDP/capita _{t-1}	0.058 (0.89)
Constant	-1.289 (0.89)	-1.211 (0.87)	0.038 (1.08)	Constant	-1.246 (0.92)
Selection (Dependent Variable: Speculative Attack (Dummy))				Selection	
Pre-Elect. 3m	0.119 (0.13)	0.171 (0.22)		Pre-Elec. 3m (early)	0.389* (0.20)
Pre-Elec. 4-6m		0.313** (0.02)		Pre-Elec. 3m (regular)	-0.081 (0.18)
Post-Elect. 3m	0.103 (0.15)			Post-Elect. 3m (early)	-0.315 (0.38)
Post-Elect. 6m		0.256*** (0.00)		Post-Elect. 3m (regular)	0.219 (0.18)
Election in x months			-0.000 (0.00)		
Reserves/M1 _{t-1}	-0.024** (0.01)	-0.023** (0.01)	-0.051 (0.03)	Reserves/M1 _{t-1}	-0.022* (0.01)
GDP growth _{t-1}	-0.872 (0.66)	-0.909 (0.65)	-1.364* (0.74)	GDP growth _{t-1}	-0.849 (0.65)
Inflation (t-1)	-0.001 (0.00)	-0.001* (0.00)	-0.001 (0.00)	Inflation (t-1)	-0.001 (0.00)
exports/gdp _{t-1}	-0.038* (0.02)	-0.031 (0.02)	-0.031 (0.04)	exports/gdp _{t-1}	-0.036 (0.02)
GDP/capita _{t-1}	-0.038 (0.02)	-0.042* (0.02)	-0.070*** (0.03)	GDP/capita _{t-1}	-0.036 (0.02)
Overvaluation	0.028** (0.01)	0.029** (0.01)	0.022 (0.02)	Overvaluation	0.027** (0.01)
Contagion	0.969*** (0.10)	0.972*** (0.10)	1.06 (0.10)	Contagion	0.97*** (0.10)
Constant	-1.888 (0.20)	-1.918*** (0.20)	-1.511*** (0.22)	Constant	-1.924*** (0.20)
N (Outcome)	122	122	108	N (Outcome)	120
N (Selection)	6153	6153	4948	N (Selection)	6096
rho	0.522	0.548	0.165	rho	0.505
Prob > chi2 (H0: rho=0)	0.067	0.047	0.608	Prob > chi2 (H0: rho=0)	0.083
Log Likelihood	-606.07	-601.17	-522.63	Log Pseudolikelihood	-596.23

elections. Even more interesting is the fact that speculators attack currencies more frequently when an irregular or early election is going to be held within the next three months. One possible explanation for this finding is that while early elections can be a tool for opportunistic governments trying to maximize their reelection chances (Kayser 2005), they can also be called when a government has lost its support base. In this case, an early election is a manifestation of political instability and thus increases the probability of a speculative attack.

3.3 Severity of Attack and Policy Response

The model also makes predictions about the relationship between the severity of a speculative attack and the likelihood of an exchange rate defense. Hypothesis H3 predicts that more severe speculative attacks are more likely to result in a devaluation of the exchange rate, independent of the policymakers' level of competence. In addition, when elections are pending the likelihood of a defense should be higher at intermediate levels of speculative pressure than after elections or when no elections are pending. In order to test this hypothesis, figure 2 plots the predicted probabilities predicted by estimation (5) of defense for pre-election periods (3 months), post-election periods (3 months), and periods in which no elections are pending.

Figure 2: The Influence of Crisis Severity on the Likelihood of a Defense



As expected, the likelihood of a successful defense decreases when speculative pressure becomes more severe, and does so regardless of the electoral calendar. In addition, the curve for pre-election periods differs markedly from the other two curves. For both mild and particularly intermediate levels of speculative pressure, the probability of a defense is much higher in pre-election periods. In addition, the pre-election curve is concave, implying that the effect of crisis severity at low and medium levels of pressure is much lower than in the other periods. While these results should be interpreted carefully due to the problematic operationalization of the severity variable discussed above, these findings are consistent with the predictions generated by the theoretical model.

3.4 Policy Response and Re-Election

In addition to the hypotheses concerning the policy response, the model also makes predictions about the re-election chances of competent and incompetent incumbents. While the policymaker's type is unknown not only to the voter but also to the political scientist, what can be observed empirically is whether a policymaker is re-elected or not. Hypothesis H4a-c make predictions about the extent to which policymakers' reactions to speculative pressure affect their re-election prospects. These predictions differ with respect to the severity of speculative pressure. H4a predicts that when pressure is mild, devaluing incumbents will be punished, while defenses have no influence on their re-election chances. For intermediate pressure, H4b predicts that incumbents who defend their exchange rate against a speculative attack have a higher probability of being re-elected than incumbents who devalue. Finally, when speculative pressure is intense, the policy response is predicted to have no effect on incumbent's re-election chances (H4c). To derive a typology of speculative pressure, the severity measure introduced above is divided into three categories. Cases whose severity measure falls below the 33rd percentile are coded as weak speculative pressure, those above the 66st percentile as severe pressure and those in between as intermediate pressure. Table 5 cross-tabulates policy responses and re-election for different levels of crisis intensity. It analyses the outcomes of all elections where a speculative attack occurred in the six months preceding election day.¹³

With all due caution because of the small number of cases, the results strongly conform to the theoretical model's predictions. In the intermediate zone of speculative pressure (region II in figure 1), voters use the information they obtain by observing policymakers' response to speculative pressure to separate among incumbents. Those who defend are re-elected, while those who

¹³ The six month window was chosen because for a detailed analysis the number of cases in the three month window was too low generated too little cases.

devalue are voted out of office. The only case in which a government defended and nevertheless lost the election is the case of Colombia, where other issues (such as the fight against the drug cartels and guerilla fighters) dominated the 1998 election campaign. When pressure is either mild or severe, the resulting pooling of policy responses does not allow voters to distinguish between competent and incompetent policymakers. Consequently, the tables show that defending the currency did not increase incumbents' re-election chances in these cases. Table 5 gives some indication, however, that devaluing in face of mild pressure might cost policymakers their job.¹⁴

Table 5: Policy Response and Re-Election

Mild Pressure

	Defeat	Re-Election
Devaluation	1	0
Defense	4	4

Pearson $Chi^2=0.900$ ($p=0.343$)

Intermediate Pressure

	Defeat	Re-Election
Devaluation	3	0
Defense	1	4

Pearson $Chi^2=4.800$ ($p=0.028$)

Severe Pressure

	Defeat	Re-Election
Devaluation	3	1
Defense	2	1

Pearson $Chi^2=0.058$ ($p=0.809$)

These results not only support the predictions of my model but also indicate that some signaling mechanism, rather than pure opportunistic behavior, is at play. Opportunistic political business cycle models suggest that politicians utilize the different time horizons between short term benefits and long term costs of certain policies (in this case a defense) to engineer political business cycles and thus secure their re-election. However, if this were the case here, one would expect the voters to re-elect policymakers who defend in mild pressure periods as well. This is clearly not the case here. These results also provide some underpinnings for Leblang's (2005) finding that politicians are punished for deviating from a promise that the exchange rate regime will remain

¹⁴ The fact that there is only one case in this category is consistent with the theory.

fixed and with the evidence that a devaluation increases the likelihood that a political leaders will lose office.

4. Conclusion

This paper has presented a rational business cycle model on how policymakers respond to currency crises. This model argues that prior to elections, policymakers engage in a signaling process with the electorate. When confronted with a speculative attack of intermediate severity, competent policymakers respond differently than incompetent policymakers. While all policymakers defend the exchange rate in response to mild exchange market pressure, they respond differently to intermediate levels of speculative pressure. Here competent policymakers defend the exchange rate against a speculative attack and are subsequently re-elected while incompetent policymakers devalue and lose their bid for re-election. All policymakers devalue in response to very severe attacks, which leads to a situation in which re-election becomes uncertain for both types of policymakers. Immediately after an election has taken place, the probability of a devaluation is highest.

The empirical evidence lends strong support to the theoretical model. Compared to non-electoral and post-electoral periods, the probability of a defense is significantly higher in the three months preceding an election. In the aftermath of elections, the probability of a devaluation increases. These results are robust to a variety of specifications, including controlling for selection and endogenous elections. More severe speculative attacks are more likely to result in a devaluation, but this effect is mitigated when elections are approaching. Voters punish policymakers for devaluations when speculative pressure is of an intermediate intensity. Consistent with the theoretical model, in periods of mild and very severe pressure the policy response does not significantly affect incumbents' re-election chances.

The main contribution of this paper has been to show that elections have a considerable influence on economic policy-making even when countries are affected by economic crises. While this finding is not novel for tranquil times and has been amply demonstrated in the literature on political business cycles, this study underscores that political institutions, such as the electoral cycle, remain critical even in times of severe economic stress. Crises do not mitigate policymakers' willingness to manipulate economic policy in order to increase their re-election chances. On

the contrary, the findings presented in this paper suggest that the electoral incentive to avoid a devaluation is exceptionally strong in the three months leading up to an election. At the same time, voters carefully observe incumbents' behavior and vote accordingly. Consequently, this paper demonstrates that politics and political institutions strongly influence economic policy not just in tranquil periods, but also in times of crisis.

APPENDIX

Table A1: List of all crises and their outcomes (1=defense, 0=devaluation)

Austria 1988m12		Finland 1991m9	0	Mauritius 1984m10	1
Austria 1990m12	1	Finland 1992m4	0	Mauritius 1994m8	1
Belgium 1984m3	1	Finland 1992m9	0	Mauritius 1997m1	0
Belgium 1993m8	0	Finland 1993m9	1	Mauritius 1998m10	1
Bolivia 1988m1	1	France 1983m3	1	Netherlands 1983m3	1
Bolivia 1989m8	0	France 1987m1	1	Netherlands 1985m2	1
Bolivia 1991m1	1	France 1987m11	1	Netherlands 1988m7	1
Bolivia 1993m11	1	France 1992m9	1	New Zealand 1985m3	1
Botswana 1985m1	0	France 1993m7	0	Nicaragua 1993m8	0
Botswana 1986m4	0	France 1995m3	1	Nicaragua 2001m6	1
Botswana 1991m1	0	Greece 1985m10	0	Norway 1987m11	1
Botswana 1992m7	0	Greece 1993m6	0	Norway 1992m9	1
Brazil 1998m9	1	Greece 1994m5	0	Pakistan 1993m9	1
Bulgaria 1997m2	0	Guatemala 1999m9	1	Pakistan 1995m11	0
Canada 1990m2	1	Honduras 1990m3	0	Pakistan 1996m10	0
Canada 1992m9	1	Honduras 1992m10	1	Pakistan 1998m10	1
Canada 1998m8	1	Honduras 1993m7	0	Philippines 1990m11	0
Chile 1989m4	1	Honduras 1994m6	0	Philippines 1995m3	1
Chile 1999m6	1	Honduras 1996m7	1	Philippines 1997m7	0
Colombia 1985m4	1	Hungary 1993m9	1	Portugal 1983m7	0
Colombia 1998m6	1	Hungary 1994m6	1	Portugal 1984m2	1
Costa Rica 1983m11	1	Hungary 1995m2	0	Portugal 1992m9	1
Costa Rica 1984m11	1	Hungary 1995m3	0	Portugal 1995m3	0
Costa Rica 1991m1	0	India 1991m5	1	Russia 2001m12	1
Costa Rica 1992m7	0	India 1993m3	0	Slovak Republic 98m10	1
Costa Rica 1998m11	1	India 1995m10	1	Slovenia 1995m10	1
Cyprus 1983m3	1	India 1998m1	1	Spain 1983m3	1
Cyprus 1986m9	1	Ireland 1983m3	1	Spain 1984m2	1
Cyprus 1992m9	0	Ireland 1986m8	0	Spain 1992m9	0
Cyprus 1995m3	0	Ireland 1992m9	1	Spain 1995m3	0
Czech Republic 97m5	1	Israel 1991m10	1	Thailand 1997m2	0
Denmark 1993m8	0	Israel 1998m10	1	Turkey 2001m2	0
Denmark 1995m3	1	Italy 1983m3	1	Ukraine 1998m9	1
Ecuador 1995m2	1	Italy 1992m6	0	United Kingdom 92m9	0
Ecuador 1995m11	1	Italy 1995m3	0	Uruguay 1991m1	0
El Salvador 1990m5	0	Latvia 1994m5	0	Uruguay 1998m9	1
El Salvador 2000m12	1	Latvia 1998m9	1	Uruguay 2001m7	1
Estonia 1996m11	0	Latvia 2001m1	0	Uruguay 2002m1	0
Estonia 1997m11	1	Lithuania 1998m9	0	Venezuela 1998m7	0
Finland 1983m3	1	Macedonia 1997m7	0	Venezuela 2002m1	0
Finland 1983m9	1	Mali 1992m8	0		
Finland 1986m5	1	Mali 1994m1	0		

CHAPTER V

CONCLUSION

This dissertation has addressed one of the most salient questions in the contemporary debate in political science: Does globalization curtail states' political capacity to act, and if yes, to which extent? To evaluate this question, it focused on policy responses to speculative attacks on national currencies. In this area globalization has had a particularly potent effect in the form of widespread international capital market liberalization. The common notion about currency crises is that once international speculators decide to attack a currency, it will sooner or later have to be devalued.¹ Coupled with the notion that modern financial systems are intrinsically unstable, this has led to the idea that policymakers have lost their policy autonomy vis-à-vis international financial markets.

My dissertation has challenged this view. It has presented theoretical and empirical evidence that policymakers do retain some room to maneuver. On average, policymakers successfully defend their exchange rate against every second speculative attack. More importantly, this volume has shown that policymakers use this latitude to implement those policies that are most conducive to their political survival. Political motivations in conjunction with economic circumstances determine whether policymakers defend the currency or not. Within the limits imposed by the country's macroeconomic situation, policy preferences and political institutions shape policymakers' decisions in response to exchange rate crises. While globalization may have limited states' policy autonomy in the area of exchange rate and monetary policy, it has not obliterated it.

Summary of Findings

The general research questions addressed by the papers in this dissertation center on explanations for the observed differences in policy responses to speculative attacks and on the role of political considerations in the respective decision-making processes. Why do some policymakers devalue in response to speculative pressure while other policymakers defend? How do interest groups, the political regime type, and the electoral clock affect the policy choices in response to such pressure? By applying different theoretical approaches, analyzing different types of political constraints and using a mix of quantitative and qualitative evidence, the dissertation has offered a political economy explanation for these questions. It has argued that within the policy options available given the country's economic situation, political considerations drive policymakers' responses to speculative attacks.

¹ Most economic models about the emergence of speculative attacks operate from this assumption (e.g. Krugman 1979; Obstfeld 1996).

The first paper in this dissertation examined the role of the private sector. It argued that private sector vulnerabilities to depreciation and monetary tightening influence whether policymakers choose to defend or to depreciate. Since these vulnerabilities differ between periods of mild and severe pressure, intensifying speculative pressure can lead to a re-assessment of interest groups' policy preferences. This, in turn, can result in a policy change away from a defense of the exchange rate towards a depreciation. In addition to showing that policymakers try to minimize the negative effects for the private sector, the paper thus offered an explanation for the puzzling cases of failed exchange rate defenses. Comparative case studies of speculative attacks on the currencies of Hong Kong, Korea, Thailand and Taiwan supported the argument's empirical implications.

The effect of political institutions was the focus of the second and third paper. The second paper investigated the effect of democracy per se, while the third paper analyzed the effect of the most important democratic institution, elections, in more detail. While the formal theoretical model in the second paper showed that the impact of democracy on the outcome of currency crises is theoretically ambiguous, the empirical results clearly adjudicated in favor of a positive effect of democracy on the likelihood of an exchange rate defense. In addition, the estimation results from duration-selection models for 106 speculative attacks in developing and emerging market economies from 1983 to 2003 suggested that there is no significant difference in the vulnerability of autocratic and democratic countries' currencies to speculative attacks.

The third paper developed a rational political business cycle model in which incumbents face a tradeoff between their wish to signal competence and the high cost of exchange rate defenses in response to currency crises. The model's predictions held for a sample of 48 emerging market and industrialized countries: Exchange rate defenses were more likely before and devaluations more likely after elections, and policymakers were more prone to devalue as the intensity of the crisis increased. Pointing to the high salience of exchange rate politics, the study also showed that incumbents who defended against intermediate pressure had a higher probability of re-election, while those who devalued were more likely to be defeated.

In sum, the dissertation has shown that policymakers have not lost their capacity to act. Even in highly constrained situations such as currency crises, politics still matters. Within the possible scope of action, political considerations guide policymakers' responses to speculative pressure.

Whether speculative attacks succeed or fail is not just a function of speculators' aspirations and expectations. Rather, it is a product of political deliberations and economic constraints.

Implications for political economy research

The findings have implications for some broader political economy research questions. First, by emphasizing how short-run concerns can outweigh the long-run benefits of exchange rate adjustments, the dissertation draws attention to the importance of combining time asymmetries and distributional concerns in the study of exchange rate politics. Exchange rate regime choice does not occur behind a veil of ignorance or in a setting of political actors who are solely concerned about achieving the socially optimal result. Instead, interest group pressure and institutional settings (such as elections) that encourage policymaking oriented towards short-run effects shape the implementation of exchange rate policy. Recent studies have begun to address this interplay between distributional issues and time-inconsistent behavior (e.g. Willett 2006; Walter and Willett 2006).

Second, the dissertation supports the notion that crises do not mitigate policymakers' incentive to manipulate economic policy for political reasons (e.g. Alesina and Drazen 1991). It is a plausible assumption that crises increase the economic costs of policy manipulations to prohibitively high levels and therefore reduce the scope for politically motivated policy measures. However, crises also involve a high level of public awareness. The implementation of economic policies in a crisis setting consequently occurs under a lot more public scrutiny than during tranquil times. My dissertation suggests that this latter effect outweighs the former: The costs of policy manipulation are not high enough during times of crisis to force policymakers to implement the economically efficient policy response. On the contrary, political considerations seem to override all economic concerns even in times of crisis.

Finally, as discussed above, the dissertation contributes to the literature about globalization's effect on states' capacity to act. This literature so far has to a large extent focused on fiscal, industrial and welfare state policies (Berger 2000; Bernauer 2000). My dissertation extends this literature to the area of exchange rate politics. It demonstrated that the increasing integration of international financial markets constrains policymakers' capabilities to implement any exchange rate and monetary policies of their liking. When faced with speculative pressure, policymakers are forced to act - doing nothing is no longer an option. However, within the limits of these

economic constraints, politicians retain considerable leeway to implement those policies most consistent with their political goals. Compared with the view held by globalization skeptics (e.g. Strange 1996; Cerny 1999), my dissertation thus paints a more optimistic picture about globalization's effect on state autonomy.

Policy Implications

The findings in this dissertation also have several policy implications. First, policymakers and policy advisors need to understand that politics provides powerful incentives to deviate from economically efficient outcomes. Ignoring these incentives makes the implementation of good economic policies difficult at best and impossible at worst. International policy advisors, such as IMF staff, have often been scolded for advocating one-size-fits-all policies in response to crises. The findings presented here suggest that a stronger consideration of the political constraints under which domestic policymakers operate is likely to improve the ease with which the recommended policies can be implemented politically. While the desirability of some of these constraints may be debatable, taking them into account will lead to more feasible policy advice.

Second, while it is important to recognize these political constraints, some of them can be alleviated if addressed in good time. For example, the dissertation finds that large unhedged foreign currency liabilities lead to a policy bias against timely devaluations. To avoid such a bias, policymakers should introduce measures to prevent the accumulation of such liabilities in the first place. This could be achieved by implementing more carefully designed and well-sequenced capital account liberalization measures or by designing regulatory systems that encourage hedging and discourage the accumulation of large currency or maturity mismatches. The findings presented here suggest that prevention is the key to preserving policy autonomy in face of speculative pressure. As an added benefit, such increased autonomy makes speculative attacks less likely in the first place.

Qualifications

There are reasons to be cautious about the results. For the purpose of clarity, each paper in this dissertation analyzes the effect of one political variable – special interest preferences, the political regime type, and the electoral clock – under *ceteris paribus* conditions. While this allows for a deep analysis of the causal mechanisms at play, it necessarily neglects the impact of potential alternative explanations. As discussed in the introduction, other political factors such as partisan

politics, the electoral system, the number of veto players, or the degree of central bank independence are all alternative candidates for explaining crisis outcomes. In addition, the dissertation only offers scant conclusions about the interplay between different political variables.

On the empirical side, the biggest caveat concerns the quality of the data. While I have used some of the best available data, the shortcomings of these datasets are well-known but not easily remedied. The reported level of non-gold foreign reserves, for example, often does not take into account funds committed in forward sales (nor is it clear how the value funds should be calculated). Another well-known obstacle to studies of speculative attacks is that the Exchange Market Pressure-Index used in this study is an indirect and far from perfect measure of speculative pressure. However, since no feasible and clearly superior alternative has been proposed so far, I have nevertheless chosen to rely on this standard measure of speculative pressure. A third problem is that the selection equation used in the selection models does not take the rare events and the panel character of speculative attacks into account. Unfortunately, at this point I am not aware of an econometric method that allows for a better specification of this problem. Finally, the case studies presented in the first paper only focuses on Asian countries, raising the question of generalizability. While it is true that the Asian crisis highlighted the importance of balance sheet considerations, anecdotal evidence concerning other crises (such as the 1992 crisis in Britain or the 1995 crisis in Argentina) suggests that the private sector vulnerability approach developed in this dissertation holds some potential across a larger sample of crises.

Despite these shortcomings, two aspects of this dissertation increase my confidence in the results. First of all, each paper provides a comprehensive theoretical argument about the impact of the respective political or institutional variable on crisis outcomes. From each of these arguments, detailed empirically testable implications are derived. Second, in order to test the arguments' various empirical predictions, I use both quantitative and qualitative evidence. This mixed-method approach allows me to investigate some cases in detail while at the same time generating more generalizable results.

Agenda for future research

This research has demonstrated that political considerations influence how policymakers respond to speculative pressure on their exchange rates. Future research on this topic seems to be

promising along four broad lines. First, prospective work should spell out more carefully the mechanism of exchange rate defenses. In this context, the use of higher frequency data would be useful. Second, our understanding of the political economy of speculative attacks would benefit from a stronger focus on the interplay between economic constraints, preferences and institutions. For example, the paper on the impact of the political regime type suggests that the effect of individual institutions might be contingent on the design of other institutions, such as the exchange rate regime type. Future research should spell out these relationships more clearly. For example, it should ask whether certain institutions can mitigate the electoral incentives to deviate from the optimal policy choice, or how institutions translate private sector preferences into policy outcomes. Third, this dissertation has concentrated on the effect of the domestic political arena on exchange rate policy decisions. Given the inherently international nature of currency crises, however, future research should also investigate more closely the systemic level. One option would be to investigate the influence of powerful international organizations such as the International Monetary Fund. Another option would be to look closer at the policy influence yielded by influential international actors, such as the United States. The present US efforts to induce China to revalue its exchange rate show that this question has lost none of its relevance. A final direction for future research is to investigate the welfare implications of the different policy responses. Is one policy response clearly superior to others? Or is the outcome, such as output loss or unemployment, contingent on other factors? Are these factors mostly economic, mostly political, or both?

While my dissertation makes an important contribution to understanding the political economy of speculative attacks, the wealth of questions opened by my findings indicates that this area is worth of future studies.

REFERENCES

- Aghion, Philippe, Philippe Bacchetta, and Abhijit Banerjee. 2004. A Corporate Balance-Sheet Approach to Currency Crises. *Journal of Economic Theory* 119:6-30.
- Agénor, Pierre-Richard, Jagdeep S. Bhandari, and Robert P. Flood. 1992. Speculative Attacks and Balance-of-Payments Crises. *IMF Staff Papers* 39 (2):357-94.
- Aizenman, Joshua, and Nancy P. Marion. 2004. International Reserve Holdings with Sovereign Risk and Costly Tax Collection. *The Economic Journal* 114 (497):569-91.
- Alesina, Alberto, and Allan Drazen. 1991. Why are Stabilizations Delayed? *American Economic Review* 81:1170-88.
- Alesina, Alberto, Nouriel Roubini, and Gerald D. Cohen. 1997. *Political Cycles and the Macroeconomy*. Cambridge MA: The MIT Press.
- Alesina, Alberto, and Alexander F. Wagner. 2006. Choosing (and reneging on) exchange rate regimes. *Journal of the European Economic Association* 4 (4):770-99.
- Andrews, David M., and Thomas D. Willett. 1997. Financial Interdependence and the State: International Monetary Relations at Century's End. *international Organization* 51 (3):479-511.
- Angkinand, Apanard Penny. 2005. *The Political Economy of Banking Crises in Emerging Economies. The Veto Player Framework*. Claremont Graduate University: Working Paper.
- Athukorala, Prema-chandra, and Peter G. Warr. 2002. Vulnerability to a Currency Crisis: Lessons from the Asian Experience. *The World Economy* 25 (1):33-57.
- Bachman, Daniel. 1992. The effect of political risk on the forward exchange bias: the case of elections. *Journal of International Money and Finance* 11 (2):208-219.
- Bearce, David H. 2003. Societal Preferences, Partisan Agents, and Monetary Policy Outcomes. *International Organization* 57:373-410.
- Bearce, David H., and Mark Hallerberg. 2006. Democracy and De Facto Exchange Rate Regimes. Paper read at International Studies Association Annual Meeting 2006, March 22-25, 2006, at San Diego CA.
- Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer, and Patrick Walsh. 2000. *New tools and new tests in comparative political economy: The Database of Political Institutions*. Washington DC: World Bank Working Paper Series, WPS 2283.
- Beck, Thorsten, George Clarke, Alberto Groff, Philipp Keefer, and Patrick Walsh. 2001. New Tools and New Tests in Comparative Political Economy: The Database of Political Institutions. *The World Bank Economic Review* 15:165-176.
- Bensaid, Bernard, and Olivier Jeanne. 1997. The Instability of Fixed Exchange Rate Systems When Raising the Nominal Interest Rate is Costly. *European Economic Review* 41 (8):1461-78.
- Berger, Suzanne. 2000. Globalization and Politics. *Annual Review of Political Science* 3:43-62.
- Bernauer, Thomas. 2000. *Staaten im Weltmarkt*. Opladen: Leske + Budrich.
- Bernhard, William, J. Lawrence Broz, and William Roberts Clark. 2002. The Political Economy of Monetary Institutions. *International Organization* 56 (4):693-723.
- Bernhard, William, and David Leblang. 1999. Democratic Institutions and Exchange-rate Commitments. *international Organization* 53 (1):71-97.
- Bernhard, William, and David Leblang. 2002. Democratic Processes, Political Risk, and Foreign Exchange Markets. *American Journal of Political Science* 46 (2):316-333.
- Blackburn, Keith, and Mario Sola. 1993. Speculative Currency Attacks and Balance of Payments Crises. *Journal of Economic Surveys* 7:119-44.
- Blaszkievicz, Monika, and Wojciech Paczynski. 2003. The Economic and Social Consequences of Currency Crises. In *Currency Crises in Emerging Markets*, edited by M. Dabrowski. Norwell MA: Kluwer Academic Publishers.

- Block, Steven A. 2003. Political conditions and currency crises in emerging markets. *Emerging Markets Review* 4:287-309.
- Blomberg, S. Brock, Jeffry A. Frieden, and Ernesto Stein. 2005. Sustaining Fixed Rates: The Political Economy of Currency Pegs in Latin America. *Journal of Applied Economics* VIII (2).
- Blomberg, S. Brock, and Gregory D. Hess. 1997. Politics and exchange rate forecasts. *Journal of International Economics* 43:189-205.
- Blustein, Paul. 2001. *The Chastening: Inside the Crisis That Rocked the Global Financial System and Humbled the IMF*. New York: Public Affairs.
- Boehmke, Frederick J. 2005. DURSEL: A Program for Duration Models with Sample Selection (Stata version). Version 1.9. Iowa City, IA: University of Iowa.
- Boehmke, Frederick J., Daniel S. Morey, and Megan Shannon. 2006. Selection Bias and Continuous-Time Duration Models: Consequences and a Proposed Solution. *American Journal of Political Science* 50:192-207.
- Box-Steffensmeier, Janet, and Bradford S. Jones. 2004. *Event History Modeling. A Guide for Social Scientists*. Cambridge: Cambridge University Press.
- Broz, J. Lawrence. 2002. Political System Transparency and Monetary Commitment Regimes. *International Organization* 56 (4):861-87.
- Broz, J. Lawrence, and Jeffry A. Frieden. 2001. The Political Economy of International Monetary Relations. *Annual Review of Political Science* 4:317-43.
- Broz, Lawrence J., and Jeffry A. Frieden. 2005. The Political Economy of Exchange Rates. In *The Oxford Handbook of Political Economy*, edited by B. R. Weingast and D. Wittman. Oxford: Oxford University Press.
- Carse, David. 1998. *The Impact of the Asian Crisis on the Hong Kong Banking Sector*. Speech held on 28 May 1998 at the Sixth Conference on Pacific Basin Business, Economics and Finance, Hong Kong.
- CDP, Center on Democratic Performance. 2004. *Election Results Archive* Center on Democratic Performance, 2004 [cited 2004]. Available from <http://cdp.binghamton.edu/era/>.
- Cerny, Philip G. 1999. Globalization and the erosion of democracy. *European Journal of Political Research* 36 (1):1-26.
- Chang, Roberto, and Andrés Velasco. 2001. A Model of Financial Crises in Emerging Markets. *The Quarterly Journal of Economics* May 2001:489-517.
- Chen, Chyong L. 2000. Why Has Taiwan Been Immune to the Asian Financial Crisis? *Asia-Pacific Financial Markets* 7:45-68.
- Chinn, Menzie, and Hiro Ito. 2005. *What Matters for Financial Development? Capital Controls, Institutions, and Interactions*. NBER Working Paper No 8967.
- Chiu, Eric M.P., and Thomas D. Willett. 2006. The Interactions of Strength of Governments and Alternative Exchange Rate Regimes in Avoiding Currency Crises. Paper read at International Political Economy Society First Annual Meeting, November 17-18, 2006, at Princeton NJ.
- Chu, Yun-han. 1999. Surviving the East Asian Financial Storm: The Political Foundation of Taiwan's Economic Resilience. In *The Politics of the Asian Economic Crisis*, edited by T. J. Pempel. Ithaca NY: Cornell University Press.
- Cleeland Knight, Sarah. 2005. When Exchange Rates Become Political: The Evolving Relationship Between Exchange Rates and Firm Competitiveness. Paper read at American Political Science Association Annual Meeting, September 1-4, 2005, at Washington DC.
- Cleeland Knight, Sarah. 2007. *When Exchange Rates become Political*. Doctoral dissertation in progress. Washington DC: Georgetown University.
- Cohen, Benjamin J. 2003. Monetary Union: The Political Dimension. In *The Dollarization Debate*, edited by D. Salvatore, J. W. Dean and T. D. Willett. Oxford: Oxford University Press.

- Cooper, Richard. 1971. Currency Devaluation in Developing Countries. *Essays in International Finance* 86.
- Corsetti, Giancarlo, Paolo Pesenti, and Nouriel Roubini. 1999. What caused the Asian currency and financial crisis? *Japan and the World Economy* 11 (3):305-73.
- Dekle, Robert, Cheng Hsiao, and Siyan Wang. 2001. Do high interest rates appreciate exchange rates during crises? The Korean evidence. *Oxford Bulletin of Economics and Statistics* 63 (3):359-80.
- Dekle, Robert, Cheng Hsiao, and Siyan Wang. 2002. High Interest Rates and Exchange Rate Stabilization in Korea, Malaysia, and Thailand: An Empirical Investigation of the Traditional and Revisionist Views. *Review of International Economics* 10 (1):64-78.
- Dollar, David, and Mary Hallward-Driemeier. 2000. Crisis, Adjustment, and Reforms in Thailand's Industrial Firms. *The World Bank Research Observer* 15 (1):1-22.
- Drazen, Allan. 1999. Interest Rate Defense Against Speculative Attack Under Asymmetric Information. In *Manuscript*. University of Tel Aviv.
- Drazen, Allan. 2000. Interest-Rate and Borrowing Defense Against Speculative Attack. *Carnegie-Rochester Conference Series on Public Policy* 53:303-348.
- Drazen, Allan. 2001. The Political Business Cycle After 25 Years. In *NBER Macroeconomics Annual 2000*, edited by B. Bernanke and K. Rogoff. Cambridge MA: The MIT Press.
- Drazen, Allan, and Paul R. Masson. 1994. Credibility of Policies vs. Credibility of Policymakers. *Quarterly Journal of Economics* 109:735-54.
- Duckenfield, Mark, and Mark Aspinwall. 2007. Private interests and exchange rate politics: the case of British business. Paper read at International Studies Association Annual Convention, February 28 - March 3, 2007, at Chicago IL.
- Echeverry, Juan Carlos, Leopoldo Fergusson, Roberto Steiner, and Camila Aguilar. 2003. 'Dollar' debt in Colombian firms: are sinners punished during devaluations? *Emerging Markets Review* 4:417-49.
- Edwards, Sebastian. 1996. *The Determinants of the Choice Between Fixed and Flexible Exchange-Rate Regimes*. NBER Working Paper No. 5756.
- Edwards, Sebastian, and Miguel Savastano. 1999. *Exchange rates in emerging economies*. NBER Working Paper No. 7228.
- Eichengreen, Barry. 1996. *Globalizing Capital. A History of the International Monetary System*. Princeton NJ: Princeton University Press.
- Eichengreen, Barry, and Ricardo Hausmann. 2005. *Other People's Money. Debt Denomination and Financial Instability in Emerging Market Economies*. Chicago: The University of Chicago Press.
- Eichengreen, Barry, and Andrew K. Rose. 2003. Does it Pay to Defend Against a Speculative Attack? In *Managing Currency Crises in Emerging Markets*, edited by M. P. Dooley and J. A. Frankel. Chicago IL: The University of Chicago Press.
- Eichengreen, Barry, Andrew Rose, and Charles Wyplosz. 1995. Exchange Market Mayhem: The Antecedents and Aftermath of Speculative Attacks. *Economic Policy* 10 (21):249-312.
- Eichengreen, Barry, Andrew Rose, and Charles Wyplosz. 1996. Contagious Currency Crises: First Tests. *Scandinavian Journal of Economics* 98 (4):463-84.
- Eichengreen, Barry, Andrew Rose, and Charles Wyplosz. 2003. Exchange Market Mayhem: The Antecedents and Aftermath of Speculative Attacks. In *Capital Flows and Crises*, edited by B. Eichengreen. Cambridge MA: Massachusetts Institute of Technology.
- Eichengreen, Barry, and Charles Wyplosz. 1993. The Unstable EMS. *Brookings Papers on Economic Activity* 1:51-144.
- Fiess, Norbert, and Rashmi Shankar. 2005. *Regime-Switching in Exchange Rate Policy and Balance Sheet Effects*. World Bank Policy Research Working Paper 3653. Washington DC: The World Bank.
- Flood, Robert, and Peter Garber. 1984. Collapsing Exchange Rate Regimes: Some Linear Examples. *Journal of International Economics* 17:1-13.

- Flood, Robert, and Nancy P. Marion. 1998. Perspectives on the Recent Currency Crisis Literature. *IMF Working Paper* WP/98/130.
- Forbes, Kristin J. 2002. Cheap labor meets costly capital: the impact of devaluations on commodity firms. *Journal of Development Economics* 69:335-65.
- Frankel, Jeffrey A. 2005. *Contractionary Currency Crashes in Developing Countries*. NBER Working Paper 11508. Cambridge MA: NBER.
- Frankel, Jeffrey A. 1999. No Single Currency Regime is Right for All Countries or at all Times. *Essays in International Finance No. 215*, Princeton University.
- Freeman, John R., Jude C. Hays, and Helmut Stix. 2000. Democracy and Markets: The Case of Exchange Rates. *American Journal of Political Science* 44 (3):449-68.
- Freitag, Markus. 1999a. Institutionelle Voraussetzungen der Glaubwürdigkeit als Vorboten einer starken Währung. *Aussenwirtschaft* 54 (2):179-208.
- Freitag, Markus. 1999b. Politisch-institutionelle Ursachen unterschiedlicher Währungsentwicklungen im internationalen Vergleich. *Politische Vierteljahresschrift* 40 (1):93-115.
- Frieden, Jeffrey A. 1991. Invested Interests: The Politics of National Economic policies in a World of Global Finance. *International Organization* 45 (4):425-51.
- Frieden, Jeffrey A. 1994. Exchange Rate Politics: Contemporary Lessons from American History. *Review of International Political Economy* 1 (1):81-103.
- Frieden, Jeffrey A. 1996. The Impact of Goods and Capital Market Integration on European Monetary Politics. *Comparative Political Studies* 29 (2):193-222.
- Frieden, Jeffrey A. 1997. The Politics of Exchange Rates. In *Mexico, 1994: Anatomy of an Emerging Market Crash*, edited by S. Edwards and M. Naim: Carnegie Endowment for International Peace.
- Frieden, Jeffrey A. 1998. The Euro: Who Wins? Who Loses? *Foreign Policy* 112:24-40.
- Frieden, Jeffrey A. 2002. Real Sources of European Currency Policy: Sectoral Interests and European Monetary Integration. *International Organization* 56 (4):831-60.
- Frieden, Jeffrey A., and Ernesto Stein. 2001a. *The Currency Game. Exchange Rate Politics in Latin America*. Washington DC: Johns Hopkins University Press.
- Frieden, Jeffrey, Piero Ghezzi, and Ernesto Stein. 2001. Politics and Exchange Rates: A Cross-Country Approach. In *The Currency Game: Exchange Rate Politics in Latin America*, edited by J. Frieden and E. Stein. Washington DC: Inter-American Development Bank.
- Frieden, Jeffrey, and Ernesto Stein. 2001b. The Political Economy of Exchange Rate Policy in Latin America: An Analytical Overview. In *The Currency Game. Exchange Rate Politics in Latin America*, edited by J. Frieden and E. Stein. Washington DC: Inter-American Development Bank.
- Furman, Jason, and Joseph Stiglitz. 1998. Economic Crises: Evidence and Insights from East Asia. *Brookings Papers on Economic Activity* 1998 (2):1-135.
- Ghosh, Atish R., Anne-Marie Gulde, and Holger C. Wolf. 2002. *Exchange Rate Regimes: Choices and Consequences*. Cambridge: MIT Press.
- Goldfajn, Ilan, and Taimur Baig. 1998. Monetary Policy in the Aftermath of Currency Crises: The Case of Asia. *IMF Working Paper* WP/98/170.
- Goldfajn, Ilan, and Rodrigo O. Valdés. 1998. Are Currency Crises Predictable? *European Economic Review* 42:873-885.
- Gowa, Joanne. 1988. Public Goods and Political Institutions: Trade and Monetary Policy Processes in the United States. *international Organization* 42 (1):15-32.
- Haggard, Stephan. 2000. *The Political Economy of the Asian Financial Crisis*. Washington DC: Institute for International Economics.
- Haggard, Stephan, and Andrew MacIntyre. 2000. Incumbent Governments and the Politics of Crisis Management. In *The Political Economy of the Asian Financial Crisis*, edited by S. Haggard. Washington DC: Institute for International Economics.

- Haggard, Stephan, and Jongryn Mo. 2000. The Political Economy of the Korean Financial Crisis. *Review of International Political Economy* 7 (2):197-218.
- Hall, Michael G. 2005. *Exchange Rate Crises in Developing Countries. The Political Role of the Banking Sector*. Burlington: Ashgate.
- Hallerberg, Mark. 2002. Veto Players and the Choice of Monetary Institutions. *International Organization* 56 (4):775-802.
- Hays, Jude C., John R. Freeman, and Hans Nesseseth. 2003. Exchange Rate Volatility and Democratization in Emerging Market Countries. *International Studies Quarterly* 47 (2):203.
- Hefeker, Carsten. 1997. *Interest Groups and Monetary Integration. The Political Economy of Exchange Regime Choice*. Boulder CO: Westview Press.
- Hefeker, Carsten. 2000. Sense and Nonsense of Fixed Exchange Rates: On Theories and Crises. *Cato Journal* 20 (2):159-78.
- Helleiner, Eric. 1994. *States and the Reemergence of Global Finance: From Bretton Woods to the 1990s*. Ithaca NY: Cornell University Press.
- Helleiner, Eric. 2005. A Fixation with Floating: The Politics of Canada's Exchange Rate Regime. *Canadian Journal of Political Science* 38 (1):23-44.
- Henning, Randall C. 1994. *Currencies and Politics in the United States, Germany, and Japan*. Washington DC: Institute for International Economics.
- Hibbs, Douglas. 1982. Economic Outcomes and Political Support for British Governments Among Occupational Classes: A Dynamic Analysis. *American Political Science Review*:259-279.
- Hong Kong Industry Department. 1999. *Hong Kong Industries*. Hong Kong: Government of the Hong Kong SAR.
- Hsu, Chen Min. 2001. *How Could Taiwan Have been Insulated from the 1997 Financial Crisis?* Taipei: NPF Research Report.
- Ikenberry, John. 1993. The Political Origins of Bretton Woods. In *A Retrospective on the Bretton Woods System*, edited by M. D. Bordo and B. Eichengreen. Chicago: University of Chicago Press.
- IMF. 1997. *People's Republic of China - Staff Report for the Article IV Consultation Discussions Held in 1997 in Respect of the Hong Kong Special Administrative Region*. Vol. SM/97/295. Washington DC: International Monetary Fund.
- IMF. 1998a. *People's Republic of China - Hong Kong Special Administrative Region - Recent Economic Developments*. Vol. SM/98/12. Washington DC: International Monetary Fund.
- IMF. 1998b. *Republic of Korea - Selected Issues*. Vol. SM/98/99. Washington DC: International Monetary Fund.
- IMF. 1998c. *Republic of Korea - Statistical Appendix*. Vol. SM/98/98. Washington DC: International Monetary Fund.
- IMF. 1998d. *Thailand - Statistical Appendix*. Vol. SM/98/116. Washington DC: International Monetary Fund.
- International Financial Statistics. International Monetary Fund, Washington DC.
- Kaminsky, Graciela L., Saul Lizondo, and Carmen M. Reinhart. 1998. Leading Indicators of Currency Crises. *IMF Staff Papers* 45 (1).
- Kaminsky, Graciela L., and Carmen M. Reinhart. 1999. The Twin Crises: The Causes of Banking and Balance-Of-Payments Problems. *The American Economic Review* 89:473-500.
- Kayser, Mark. 2005. Who Surfs, Who Manipulates? The Determinants of Opportunistic Election Timing and Electorally Motivated Economic Intervention. *American Political Science Review* 99 (1):17-28.
- Keefer, Philip, and David Stasavage. 2002. Checks and Balances, Private Information, and the Credibility of Monetary Commitments. *International Organization* 56 (4):751-74.

- Kinderman, Daniel. 2005. The Microfoundations of Sectoral Exchange Rate Preferences and Lobbying: an Empirical Adjudication, 1960-2004. Paper read at American Political Science Association Annual Conference, September 1-4, 2005, at Washington DC.
- King, Gary, Robert O. Keohane, and Sidney Verba. 1994. *Designing Social Inquiry*. Princeton: Princeton University Press.
- Klein, Michael W., and Nancy P. Marion. 1997. Explaining the duration of exchange-rate pegs. *Journal of Development Economics* 54:387-404.
- King, Gary, and Langche Zeng. 2001. Logistic Regression in Rare Events Data. *Political Analysis* 9:137-163.
- Kraay, Aart. 2003. Do high interest rates defend currencies during speculative attacks? *Journal of International Economics* 59:297-321.
- Krugman, Paul. 1979. A Model of Balance of Payments Crises. *Journal of Money, Credit and Banking* 11 (3):311-25.
- Krugman, Paul. 1999. Balance Sheets, The Transfer Problem, and Financial Crises. In *International finance and financial crises: essays in honor of Robert Flood*, edited by P. Isard, A. Razin and A. Rose. Boston: Kluwer Academic.
- Leblang, David. 1999. Domestic Political Institutions and Exchange Rate Commitments in the Developing World. *International Studies Quarterly* 43 (4):599-620.
- Leblang, David. 2002. The Political Economy of Speculative Attacks in the Developing World. *International Studies Quarterly* 46 (1):69-92.
- Leblang, David. 2003a. *Is Democracy Incompatible with International Economic Stability?* Paper prepared for the Reinventing Bretton Woods International Monetary Convention, Madrid, Spain May 13-14, 2003.
- Leblang, David. 2003b. To Devalue or to Defend? The Political Economy of Exchange Rate Policy. *International Studies Quarterly* 47 (4):533-559.
- Leblang, David. 2005. Pegs and Politics. Paper read at American Political Science Association Annual Meeting, September 1-4, 2005, at Washington DC.
- Leblang, David, and William Bernhard. 2000. The Politics of Speculative Attacks in Industrial Democracies. *International Organization* 54 (2):291-324.
- Leblang, David, and William Bernhard. 2006. Parliamentary Politics and Foreign Exchange Markets: The World According to GARCH. *International Studies Quarterly* 50:69-92.
- Leblang, David, and Shankar Satyanath. 2006. Institutions, Expectations, and Currency Crises. *International Organization* 60:245-62.
- LG Economic Research Institute. 1997. *Korean Economic Briefing September 1997: Market Interest Rates*. Seoul: LG Economic Research Institute.
- Lim, Linda Y. C. 1999. Free Market Fancies: Hong Kong, Singapore, and the Asian Financial Crisis. In *The Politics of the Asian Economic Crisis*, edited by T. J. Pempel. Ithaca: Cornell University Press.
- Marshall, Monty G., Keith Jagers, and Ted Gurr. 2002. *Polity IV Project. Political Regime Characteristics and Transitions, 1800-2000*: <http://www.cidcm.umd.edu/polity/>.
- Martínez, Juan, and Javier Santiso. 2003. Financial Markets and Politics: The Confidence Game in Latin American Emerging Economies. *International Political Science Review* 24 (3):363-95.
- Masson, Paul R., and Mark P. Taylor. 1993. *Policy Issues in the Operation of Currency Unions*. Cambridge: Cambridge University Press.
- McKinnon, Ronald I. 1963. Optimum Currency Areas. *The American Economic Review* 53 (4):717-725.
- McNamara, Kathleen. 1998. *The Currency of Ideas: Monetary Politics in the European Union*. Ithaca: Cornell University Press.
- McNamara, Kathleen. 1999. Consensus and Constraint: Ideas and Capital Mobility in European Monetary Integration. *Journal of Common Market Studies* 37 (3):455-76.

- Mishkin, Frederic S. 1996. Understanding Financial Crises: A Developing Country Perspective. In *Annual World Bank Conference on Development Economics*, edited by M. Bruno and B. Pleskovic. Washington DC: World Bank.
- Moore, Will H., and Bumba Mukherjee. 2006. Coalition Government Formation and Foreign Exchange Markets: Theory and Evidence from Europe. *International Studies Quarterly* 50 (1):93-118.
- Morris, Stephen, and Huyun Song Shin. 1998. Unique equilibrium in a model of self-fulfilling currency attacks. *The American Economic Review* 88 (3):587-97.
- Moutot, Philippe. 1994. Les caractéristiques et la gestion des tensions de change: Le cas du Franc en 1992-3. *Cahiers économiques et monétaires (Banque de France)* 43:215-240.
- Mundell, Robert A. 1961. A theory of optimum currency areas. *American Economic Review* 51 (4):657-64.
- Nitithanprapas, Ekniti, and Thomas D. Willett. 2000. A Currency Crisis Model that Works: A Payments Disequilibrium Approach. *Claremont Colleges Working Paper*.
- Nukul Commission. 1998. *Analysis and Evaluation on Facts Behind Thailand's Economic Crisis (Nukul Commission Report)*. English Language Edition. Bangkok: Nation Multimedia Group.
- O'Mahony, Angela. 2006. Engineering Good Times: Fiscal Manipulation in a Global Economy. Paper read at IPES Conference, 17-18 November 2006, at Princeton NJ.
- Oatley, Thomas H. 1997. *Monetary Politics: Exchange Rate Cooperation in the European Union*. Ann Arbor: University of Michigan Press.
- Obstfeld, Maurice. 1994. *The Logic of Currency Crises*. NBER Working Paper 4640. Cambridge, MA: National Bureau of Economic Research.
- Obstfeld, Maurice. 1996. Models of Currency Crises with Self-Fulfilling Features. *European Economic Review* 40:1037-47.
- Obstfeld, Maurice, and Kenneth Rogoff. 1995. The Mirage of Fixed Exchange Rates. *Journal of Economic Perspectives* 9 (4):73-96.
- Obstfeld, Maurice, and Alan Taylor. 1998. The Great Depression as a Watershed: International Capital Mobility over the Long Run. In *The Defining Moment: The Great Depression and the American Economy in the Twentieth Century*, edited by M. D. Bordo, C. D. Goldin and E. N. White. Chicago: University of Chicago Press.
- Odell, John S. 1982. *U.S. International Monetary Policy: Markets, Power, and Ideas as Sources of Change*. Princeton NJ: Princeton University Press.
- Olson, Mancur. 1965. *The Logic of Collective Action*. Cambridge MA: Harvard University Press.
- Overholt, William H. 1999. Thailand's Financial and Political Systems: Crisis and Rejuvenation. *Asian Survey* 39 (6):1009-35.
- Ozkan, Gulcin F., and Alan Sutherland. 1995. Policy Measures to Avoid a Currency Crisis. *The Economic Journal* 105 (429):510-9.
- Pisa, Michael. 2006. Political Representation, Trade Competition, and Exchange Rate Policy. Paper read at American Political Science Association 2006 Annual Meeting, August 31 - September 3, 2006, at Philadelphia PA.
- Pratap, Sangeeta, Ignacio Lobato, and Alejandro Somuano. 2003. Debt composition and balance sheet effects of exchange rate volatility in Mexico: a firm level analysis. *Emerging Markets Review* 4:450-71.
- Radelet, Steven, and Jeffrey Sachs. 1998. The East Asian Financial Crisis: Diagnosis, Remedies, Prospects. *Brookings Papers on Economic Activity* 1998 (1):1-90.
- Reinhart, Carmen M., and Kenneth Rogoff. 2004. The Modern History of Exchange Rate Arrangements: A Reinterpretation. *The Quarterly Journal of Economics* 119 (1):1-48.
- Risse, Thomas, Daniela Engelmann-Martin, Hans-Joachim Knope, and Klaus Roscher. 1999. To Euro or Not to Euro? *European Journal of International Relations* 5 (2):147-87.
- Rogoff, Kenneth. 1985. The Optimal Degree of Commitment to an Intermediate Monetary Target. *Quarterly Journal of Economics* 100 (4):1169-90.

- Rogoff, Kenneth. 1990. Equilibrium Political Budget Cycles. *American Economic Review* 80:21-36.
- Rogoff, Kenneth, and Anne Sibert. 1988. *Elections and Macroeconomic Policy Cycles*. NBER Working Paper 1838. Cambridge, MA: National Bureau of Economic Research.
- Rosendorff, B. Peter, and James R. Vreeland. 2006. Democracy and Data Dissemination: The Effect of Political Regime on Transparency. In *Unpublished Manuscript*. Yale University.
- Sadeh, Tal. 2006. Adjusting to the EMU. Electoral, Partisan and Fiscal Cycles. *European Union Politics* 7 ((3)):347-72.
- Sandholtz, Wayne. 1993. Choosing Union: Monetary Politics and Maastricht. *international Organization* 47 (1):1-39.
- Santiso, Javier. 2000. Political Sluggishness and Economic Speed: A Latin American Perspective. *Social Science Information* 39 (2):233-53.
- Sattler, Thomas. 2006a. The Costs and Benefits of Uncertainty During Currency Crises. Paper read at ECPR Graduate Student Conference, 7-9 September 2006, at Essex University.
- Sattler, Thomas. 2006b. When Do Exchange Rate Defenses Fail? The Role of Economic Signals and Political Considerations During Currency Crises. Paper read at MPSA Annual National Conference, 20-23 April 2006, at Chicago IL.
- Sattler, Thomas, and Stefanie Walter. 2006. *Political Regimes and Exchange Rate Defenses*. ETH Zurich: unpublished manuscript.
- Satyanath, Shankar. 2006. *Globalization, Politics, and Financial Turmoil: Asia's Banking Crisis*. Cambridge: Cambridge University Press.
- Saxena, Sweta Chaman. 2004. The Changing Nature of Currency Crises. *Journal of Economic Surveys* 18 (3):321-50.
- Schamis, Hector E., and Christopher R. Way. 2003. The Politics of Exchange Rate-Based Stabilization. *World Politics* 56:43-78.
- Shambaugh, George E. 2004. The Power of Money: Global Capital and Policy Choices in Developing Countries. *American Journal of Political Science* 48 (2):281-95.
- Shimpalee, Pattama L., and Janice Boucher Breuer. 2006. Currency Crises and Institutions. *Journal of International Money and Finance* 25:125-45.
- Signorino, Curtis. 1999. Strategic Interaction and the Statistical Analysis of International Conflict. *American Political Science Review* 93:279-298.
- Simmons, Beth A. 1994. *Who Adjusts?* Princeton, NJ: Princeton University Press.
- Simmons, Beth A., and Jens Hainmueller. 2004. Can Domestic Institutions Explain Exchange Rate Regime Choice? The Political Economy of Monetary Institutions Reconsidered. In *Manuscript*. Harvard University.
- Stein, Ernesto, and Jorge M. Streb. 2004. Elections and the timing of devaluations. *Journal of International Economics* 63 (1):119-45.
- Steinberg, David. 2006. Farmers versus Financiers: Sectoral Logrolling and the Political Economy of Overvaluation. Paper read at American Political Science Association Annual Meeting 2006, 30 August - 3 September 2006, at Philadelphia PA.
- Stierli, Markus. 2006. Institutions, Credibility, and Economic Policy, Institute of Political Science, University of Zurich, Zurich.
- Strange, Susan. 1996. *The Retreat of the State: The Diffusion of Power in the World Economy*. Cambridge: Cambridge University Press.
- Tsurimi, Hiroki. 2000. Asian Financial Crisis. Prologue and the Case of Thailand. *Asia-Pacific Financial Markets* 7:1-9.
- Walter, Stefanie. 2006. Political Survival in Times of Crisis: The Effect of Electoral Timing on Currency Crisis Outcomes. Paper read at First IPES Annual Conference, 17-18 November 2006, at Princeton NJ.
- Walter, Stefanie, and Thomas D. Willett. 2006. *A Political Economy Model of Currency Defenses and Capitulation*. Claremont Graduate University: unpublished manuscript.

- Walter, Stefanie, and Thomas D. Willett. 2007. Delaying the Inevitable? A Political Economy Model of Currency Defenses and Capitulation. Paper read at 65th Annual National Conference of the Midwest Political Science Association, April 12-15, 2007, at Chicago IL.
- Willett, Thomas D. 1988. *Political Business Cycles: The Political Economy of Money, Inflation, and Unemployment*. Durham NC: Duke University Press.
- Willett, Thomas D. 2005. *Why the Middle is Unstable: The Political Economy of Exchange Rate Regimes and Currency Crises*. Manuscript: Claremont Graduate University.
- Willett, Thomas D. 2006. *Why the Middle is Unstable: The Political Economy of Exchange Rate Regimes and Currency Crises*. Claremont Graduate University: unpublished manuscript.
- Willett, Thomas D., Ekniti Nitithanprapas, Isriya Nitithanprapas, and Sunil Rongala. 2005. The Asian Crises Reexamined. *Asian Economic Papers* 3 (3):32-87.
- Woodruff, David M. 2005. Boom, Gloom, Doom: Balance Sheets, Monetary Fragmentation, and the Politics of Financial Crisis in Argentina and Russia. *Politics & Society* 33 (1):3-45.

CURRICULUM VITAE

STEFANIE WALTER

Burgstr. 4
8037 Zurich
Switzerland

walter@ir.gess.ethz.ch
Born on June 9, 1977
Nationality: German

EDUCATION

- 2003-7 **ETH Zurich**, Switzerland
Ph.D. Student in Political Science
Dissertation: *“Explaining Policy Responses to Speculative Attacks on Exchange Rates: The Political Economy of Currency Crises”*
Dissertation Committee: Prof. Dr. Thomas Bernauer (ETH Zurich),
Prof. Dr. Thomas D. Willett (Claremont Graduate University)
Prof. Dr. Katharina Michaelowa (University of Zurich)
- 1997-03 **University of Konstanz**, Germany
M.A. Student in Public Policy and Management (Diplom-Verwaltungswissenschaft)
- 1999-02 Vordiplom in Economics
- 1987-96 Albert-Einstein-Gymnasium, Reutlingen, Germany
- 1983-87 Primary School in Johannisberg and Reutlingen, Germany

ADDITIONAL EDUCATION

- 2005 **Claremont Graduate University**
“Advanced Topics in International Money and Finance”
Study Center Gerzensee, Advanced Doctoral Summer Course
“Political Economy of Development”
Essex University, Essex Summer School on Social Science Data Analysis
“Logit and Probit Models”
University of Zurich
“Advanced Methods in Political Science”
- 2004 **University of Oslo**, Oslo Summer School in Comparative Social Science Studies
“Understanding Financial Crises”
Duke University
Summer Institute on the Empirical Implications of Theoretical Models (EITM)
- 1999 **Universitat Autònoma de Barcelona**, Spain
Exchange Student (ERASMUS-Program, 5 months)
- 1996-97 **McGill University**, Montréal, Canada
Exchange Student (majors in political science and economics, 9 months)

RESEARCH AND TEACHING INTERESTS

International and Comparative Political Economy, Politics of International Money and Finance, Exchange Rate Politics, Globalization, Interest Group Politics, Quantitative and Qualitative Methods

AWARDS, GRANTS, AND SCHOLARSHIPS

University of Zurich Travel Grant (2007)

ETH Zurich Award for Professional Excellence (2006)

Empirical Implications of Theoretical Models (EITM) Best Poster Award at the 2005 MPSA Annual Meeting (2005)

ETH Research Grant (CHF 155k) for my dissertation project (2004)

Swiss National Science Foundation travel grants (2004, 2005)

American National Science Foundation grant for participation in the EITM summer institute (2004)

University of Konstanz Alumni Organization's (VEUK) Award for best M.A. thesis at the Department of Public Policy and Management (2003)

University of Konstanz thesis improvement grant (2002)

Konrad-Adenauer-Foundation scholarship for my graduate studies (2000-2003)

German Academic Exchange Service travel grants (1999, 2004)

European Union grant (ERASMUS) for study at the Universitat Autònoma de Barcelona (1999)

McGill University Dean's Honours List 1996/97 (1997)

RESEARCH EXPERIENCE

2007 – **Research Assistant (80%)**, Chair of Political Methodology (Prof. S. Hug)
University of Zurich, Switzerland

2003 – **Research Associate (20-60%)**, Chair of International Relations (Prof. T. Bernauer)
ETH Zurich, Switzerland

2006 **Visiting Analyst**, Department of International Currency Affairs, IMF and Multilateral Development Banks
Deutsche Bundesbank, Frankfurt, Germany

2005-06 **Visiting Scholar**, Department of Economics, Research Group International Money and Finance
Claremont Graduate University, Claremont CA, USA

2002-03 **Research Assistant**, Chair of International Relations (Prof. G. Schneider)
University of Konstanz, Germany

2001 **Research Assistant**, Konrad-Adenauer-Foundation, Quito, Ecuador

TEACHING EXPERIENCE

Lecturer

- Spring 2007 “Selected Topics in International Political Economy” (University of Zurich, co-taught with M. Stierli)
- Spring 2007 “Special Topics in International Political Economy” (Claremont Graduate University, co-taught with H. Nelson and T. Willett)
- Fall 2006 “Causes and Consequences of Globalization” (University of Konstanz)

Teaching Assistant

- Spring 2007 “Political Science Methods I” (University of Zurich)
 “Quantitative Analysis” (University of Zurich)
- Fall 2003 “Introduction to Political Science” (ETH Zurich)
- Fall 2004 “Introduction to Political Science” (ETH Zurich)
- Fall 2000 “International Political Economy” (University of Konstanz)

SERVICE TO THE PROFESSION

- 2007 Panel Organizer for ECPR General Conference 2007
 Panel Organizer for ISA Annual Convention 2007
- 2006 Roundtable Organizer on Successful Publishing Strategies for Junior Academics
- 2005- Member of *politikplus*, a peer mentoring project for Ph.D. students and post-docs at the Center for Comparative and International Studies, ETH and University of Zurich
- 2004 Discussant. Swiss Political Science Association Meeting in Balsthal, November 2004
- 2003-05 Member of the Teaching Commission *Studiengang Berufssoffizier*, ETH Zurich
- 2000-01 President of the Student Council Politics & Management, University of Konstanz
 Elected student representative on the Departmental Council
- 1998-99 Member of the Departmental Teaching Commission, University of Konstanz

REFeree ACTIVITIES

International Studies Quarterly, European Union Politics

PROFESSIONAL AFFILIATIONS

American Political Science Association
 International Studies Association
 Midwest Political Science Association
 Swiss Political Science Association

LANGUAGES

German (mother tongue), English (excellent), French (advanced), Spanish (advanced)

OTHER WORK EXPERIENCE

- 2000-02 **Managing Editor for *European Union Politics***
University of Konstanz, Germany
- 2000 **Visiting Associate**
The Boston Consulting Group, Munich, Germany
- 1999-00 **Assistant to the Strategy Implementation Manager**
Lufthansa Cargo AG, Haymarket VA, USA

PUBLICATIONS

- „Currency Crises“ (forthcoming 2008). In: *Princeton Encyclopedia of the World Economy* edited by Ramishken S. Rajan and Kenneth A. Reinert. Princeton: Princeton University Press (with Eric Chiu, Joshua Walton and Thomas D. Willett).
- “Book review of Hall, Michael. 2005. *Exchange Rate Crises in Developing Countries: The Political Role of the Banking Sector*. Burlington VA: Ashgate” (2007). *Swiss Political Science Review* 13(1).
- “Die Schweiz im globalen Kontext” (2006). In: *Handbuch der Schweizer Politik* edited by Ulrich Klöti, Peter Knoepfel, Hanspeter Kriesi, Wolf Linder und Yannis Papadopoulos. Zurich: NZZ-Verlag: 59-75, (with Thomas Bernauer).
Also published in English as ‘Switzerland in a Global Context’ in Handbook of Swiss Politics edited by Ulrich Klöti et al.. (2007)
- “Speculative Currency Attacks Before and After Elections: Theory and Evidence” (2006). *CIS Working Paper* 19/2006. Available at www.cis.ethz.ch.

UNDER REVIEW

- “The Impact of Competitiveness and Balance Sheet Vulnerabilities on Exchange Rate Level Preferences.”
Revise & Resubmit
- “Policy Manipulation and Re-election in Times of Crisis: The Effect of Electoral Timing on Currency Crisis Outcomes.”
Under review
Winner of the EITM Award for the best EITM Poster at the MPSA Annual Conference 2005 and nominated for the 2006 ISA Carl Beck Graduate Student Paper Award.
- “Exchange Rate Regimes and Trade and Financial Openness Usually Aren’t Adequate Substitutes for Inflation Targeting and Central Bank Independence” (with Thomas D. Willett, Sirathorn B.J. Dechsakulthorn, and Eric M.P. Chiu).
Under review

WORK IN PROGRESS

“Political Regimes and Exchange Rate Defenses.” Conference paper (with Thomas Sattler).

“A Political Economy Model of Currency Defenses and Capitulation.” Conference paper (with Thomas D. Willett).

“Die Politische Ökonomie von Währungskrisen. Ein empirischer Test.” Conference paper (with Thomas Sattler)

“Trade Liberalization and Domestic Political Instability. The Case of Argentina.” Conference paper.

“Does the IMF Help or Hurt? The Effect of IMF programs on the likelihood, severity and outcome of currency crises” (with Axel Dreher).

“Ablauf empirisch-analytischer Forschung I: Die theoretische Ebene” [Analytic and Empirical Research I: The Theoretical Level].

“Ablauf empirisch-analytischer Forschung II: Die empirische Ebene” [Analytic and Empirical Research II: The Empirical Level].

“Grundformen Politischer Systeme” [Political Regime Types]

Chapters written for a German-language introductory Political Science textbook co-authored with Thomas Bernauer and Patrick Kuhn. Manuscript: ETH Zurich.

PRESENTATIONS

2007

‘Frontiers in Central Banking’ Workshop in Budapest, May 10-12 2007. *Central Bank Independence and Exchange Rate Regimes.*

Midwest Political Science Association Annual National Conference in Chicago IL, April 12-15, 2007. *Delaying the Inevitable? A Political Economy Model of Currency Defenses and Capitulation.*

School of Politics and Economics Lunchtalk, Claremont Graduate University in Claremont CA, March 6, 2007. *The Political Economy of Currency Crises. The Effect of Interest Group Vulnerabilities on Crisis Management.*

International Studies Association Annual Convention in Chicago IL, February 28 – March 3, 2007. *Exchange Rates and The Private Sector. How Interest Group Vulnerabilities Influence Exchange Rate Policy Choices.*

‘Political Events, Financial Markets, and Trade’ Workshop, Konstanz, Germany, 27 January 2007. *Exchange Rates and The Private Sector. How Interest Group Vulnerabilities Influence the Outcome of Speculative Attacks.*

2006

International Political Economy Society Meeting in Princeton NJ, November 17-18, 2006. *Political Survival in Times of Crisis. The Effect of Electoral Timing on Crisis Outcomes.*

1st Annual GARNET Conference in Amsterdam, September 27-29, 2006. *Private Sector Vulnerability to Speculative Exchange Market Pressure and Its Effect on Policymaking: Evidence from the Asian Crisis.*

American Political Science Association 2006 Annual Meeting in Philadelphia PA, August 31 - September 3, 2006. *Private Sector Vulnerability to Speculative Exchange Market Pressure and Its Effect on Policymaking: Evidence from the Asian Crisis.*

School of Politics and Economics Lunchtalk, Claremont Graduate University in Claremont CA, April 25, 2006. *Do Political Business Cycles persist in Times of Crisis?*

Taichung National Institute of Technology, Taichung, Taiwan, April 12, 2006. *Policy Responses to Speculative Attacks.*

International Studies Association Annual Convention in San Diego CA, March 23-26, 2006. *Speculative Currency Attacks Before and After Elections: Theory and Evidence.*

International Studies Association Annual Convention in San Diego CA, March 23-26, 2006. *The Political Economy of Currency Defenses and Capitulation.*

California State University at Dominguez Hills, Dominguez Hills CA, March 1, 2006. *The Asian Financial Crisis of 1997/8.*

2005

German Political Science Association Political Economy Conference in Hagen, Germany, December 16-17, 2005. *A Political Economy Model of Currency Defenses and Capitulation.*

Claremont Workshop on Political Economy Data and Analysis in Claremont, CA, October 7, 2005. *Interest Group Influence on Exchange Rate Policy During Speculative Attacks.*

American Political Science Association Conference in Washington DC, September 1-4, 2005. *Do Autocrats Respond Differently to Speculative Attacks than Democrats? The Role of the Political Regime Type During Currency Crises.*

Midwest Political Science Association Annual National Conference in Chicago, IL, April 7-10, 2005. *Regime Type and Exchange Rate Defenses.*

Midwest Political Science Association Annual National Conference in Chicago IL, April 7-10, 2005. *Speculative Currency Attacks, Politics, and the Private Sector.*

Midwest Political Science Association Annual National Conference in Chicago IL, April 7-10, 2005. *Speculative Currency Attacks Before and After Elections: Theory and Evidence.*

International Studies Association Annual Convention in Honolulu HI, March 1-5, 2005. *Regime Type and Exchange Rate Defenses.*

2004

CIS Üetliberg-Kolloquium in Zurich, December 3, 2004. *Die Politische Ökonomie des Wertverlusts des US-Dollar: Hintergründe und Konsequenzen.*

2003

European Consortium for Political Research General Conference in Marburg, Germany, September 18-21, 2003. *Trade Liberalization and Domestic Political Instability. The Case of Argentina.*