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Abstract

After disinflation has been achieved, agents who form more sophisticated forecasts have lower confidence in the sustainability of a peg compared to less sophisticated agents. Furthermore, sustained financial stability leads to a declining proportion of sophisticated agents. Thus, the credibility of a fixed exchange rate regime grows over time partly because fewer people pay attention to the workings of the monetary regime. These results are derived in a rules-versus-discretion model of a fixed exchange rate regime with heterogeneous agents. We provide unique supporting evidence using data on expectations and information about the monetary regime from Bulgaria's currency board.

JEL Classification: E5; F3
Keywords: Endogenous inattention; Fixed-exchange-rate credibility; Heterogeneous expectations; Currency boards

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I. Introduction

In a typical rules-versus-discretion framework, a low inflation policy such as a fixed exchange rate regime is abandoned if the benefit of expanding money supply to stabilize output is greater than the costs of devaluation, which may include political unrest and lost reputation for the central bank. Hence, fixed exchange rate regimes are usually less than fully credible. The possibility of a policy shift in case of a large negative shock is anticipated by economic agents and leads to a currency risk premium on financial assets.

Note that the peso problem generated in this framework requires forward looking rational expectations. Economic agents must be aware of the tradeoffs involved in keeping the peg and must anticipate the circumstances under which the central bank will make a policy shift. However, as Feige and Pearce (1976), Mankiw and Reis (2002), Sims (2003), and others have pointed out, making informed forecasts is costly. In fact, Branch et. al. (2004) argue that financial stability as the one produced by fixing the exchange rate will likely result in a declining proportion of economic agents who form sophisticated forecasts. Instead, agents will use simpler forecasting techniques such as adaptive expectations. The literature refers to this shift in expectations formation as "endogenous inattention" or "rational inattention".

This leads us to ask what would be the outcome for the credibility of fixed exchange rate regimes if only a portion of the population forms sophisticated forecasts and, further, if this proportion declines over time as financial stability is sustained. To

address this question we incorporate heterogeneous expectations in a model of a fixed exchange rate regime with an escape clause as in Obstfeld (1997). Following Evans and Ramey (1992), Akerlof and Yellen (1985), Haltiwanger and Waldman (1989), and Bomfim (2001), we assume that a proportion of agents form rational expectations while the rest form adaptive expectations.

We find that the more informed agents have less confidence in the peg. Hence, a decline in the public's interest in monetary affairs results in growing credibility of the fixed exchange rate regime. Furthermore, the central bank is less likely to abandon the regime as the proportion of informed agents decreases over time. These results are supported with unique evidence from the currency board in Bulgaria. Using a series of national surveys, we show that the proportion of people who are knowledgeable about the currency board decreased steadily over time. The growing inattention contributed to improved confidence in the currency board.

This is important empirical evidence in the literature on expectations formation and endogenous inattention. Lack of data has made it difficult to study expectations empirically in the context of fixed exchange rate regimes and in general. Yet expectations are of central importance in economic models and especially in models of fixed exchange rate regimes where sudden shifts in expectations or the persistence of expected devaluation can result in crises (see Dornbusch, 1991, and Obstfeld, 1986). The data we use in this paper afford us the opportunity to document that expectations are heterogeneous across the population and are dynamic over time, and to investigate how expectations relate to information and to other factors.

The rest of the paper is structured as follows. The following section presents a model of a fixed exchange rate regime with heterogeneous agents. Section III presents the survey data and section IV the econometric results. Section V concludes with final remarks.

II. Model

Output y (all variables in logarithm) is given by:

(1) $y = \bar{y} + (\pi - E\pi) - u$

where $\bar{y}$ is the natural level of output, π is inflation, $E\pi$ is expected inflation, and u is a supply shock with mean zero and variance σ^2. The central bank is interested in keeping output close to a target level $\tilde{y}$ and inflation close to a target $\bar{\pi}$:

(2) $\min_{\pi} L = (y - \tilde{y})^2 + \alpha(\pi - \bar{\pi})^2$

where $\alpha > 0$ reflects the central bank's aversion to high inflation. The central bank is operating under a rule-based regime which specifies that inflation should be $\bar{\pi}$. This could be a fixed exchange rate regime where inflation equals the inflation of the reserve currency. With a single homogeneous good and no trade restrictions a deviation of inflation from $\bar{\pi}$ implies that the peg is abandoned.

There are two types of economic agents. A proportion θ of all agents have adaptive expectations and expect that current policies will continue:

(3) $E^A\pi = \bar{\pi}$

and a proportion (1-θ) agents form rational expectations. Rational agents expect that the peg will be maintained with probability q and that it will be abandoned with probability

(1-q). Thus, rational expectations of inflation are given by:

(4) $$E^R\pi = q\bar{\pi} + (1-q)\pi^e$$

where π^e is expected inflation if the peg is abandoned. These expectations are formed before the realization of the shock u.

From (3) and (4), expected inflation across the population is given by:

(5) $$E\pi = \theta E^A\pi + (1-\theta)E^R\pi = \theta\bar{\pi} + (1-\theta)\left[q\bar{\pi} + (1-q)\pi^e\right]$$

The central bank decides whether to keep or to abandon the peg after observing the shock u. To find expected inflation if the central bank decides to abandon the peg, we substitute (5) into (1) and then (1) into (2) to arrive at the following optimization problem:

(6) $$\min_\pi L = \left\{\pi - (1-\theta)\left[q\bar{\pi} + (1-q)\pi^e\right] - \theta\bar{\pi} - k - u\right\}^2 + \alpha(\pi - \bar{\pi})^2$$

where $k = \tilde{y} - \bar{y} > 0$ is the difference between the target and the natural level of output, i.e. *k* reflects the objective of the central bank to stimulate output. To find the optimal inflation rate, first, set the derivative of (6) with respect to inflation π equal to zero:

(7) $$(1+\alpha)\pi - (1-\theta)\left[q\bar{\pi} + (1-q)\pi^e\right] - (\theta+\alpha)\bar{\pi} - k - u = 0$$

Next, take expectations of equation (7) noting that the expected value of the shock is conditional on a switch to a discretionary regime, i.e. the expected value of the shock u in (7) is not zero. The switch to discretion is induced by a shock that exceeds some value u* and, therefore, the expected shock is equal to E(u | u > u*). The value u* will be discussed later in the section. Taking expectations of (7) and solving for π^e yields:

(8) $$\pi^e = \bar{\pi} + \frac{k + E(u \mid u > u^*)}{1 + \alpha - (1-q)(1-\theta)}$$

Substitute (8) into (4) to obtain expected inflation for the rational agents:

$$(9) \qquad E^R\pi = \bar{\pi} + \frac{(1-q)\left[k + E\left(u \mid u > u^*\right)\right]}{1+\alpha-(1-q)(1-\theta)}$$

If the peg is not fully credible ($q < 1$) expected inflation for the rational agents is greater than expected inflation for the naïve agents ($\bar{\pi}$). The difference in expectations between the two groups increases in the size of the output objective k and in the size of the expected shock E(u|u*), and decreases in the central bank's aversion to high inflation α.

To obtain expected inflation across the population, substitute (9) into (5):

$$(10) \qquad E\pi = \bar{\pi} + \frac{(1-\theta)(1-q)\left[k + E(u \mid u > u^*)\right]}{1+\alpha-(1-\theta)(1-q)}$$

From (10) expected inflation is $\bar{\pi}$ if either all agents form adaptive expectations ($\theta = 1$) or if the probability of devaluation is zero ($q = 1$). If all agents are rational ($\theta = 0$) and devaluation is certain so that $q=0$ and $E(u|u^*)=0$, expected inflation becomes:

$$(11) \qquad E\pi = \bar{\pi} + \frac{k}{\alpha}$$

which is the solution to the one-period Barro and Gordon (1983) model. Note also from (10) that $dE\pi/d(1-\theta)>0$ and $dE\pi/d(1-q)>0$, i.e. expected inflation increases in the proportion of rational agents and in the probability of devaluation.

Endogenous inattention

Sethi and Franke (1995) endogenize the proportion of naïve agents by assuming that forming sophisticated forecasts is costly. In their framework, based on the evolutionary theories with "replicator dynamics", the group that has a payoff advantage at any given point in time grows relative to the other. The payoff advantage is determined by how accurate individuals' price forecasts are. Sethi and Franke find that if forming rational expectations is costless, ultimately all agents will choose to stay informed and to use sophisticated forecasts. With costly rational expectations, the proportion of naïve and sophisticated agents changes over time. Periods of price stability lead to an increase in the proportion of agents who form naïve forecasts whereas periods of instability lead to an increase in the proportion of agents who form sophisticated forecasts. Similar to Sethi and Franke, Brock and Hommes (1997) endogenize the proportion of informed and uninformed forecasters based on the relative costs and benefits of different forecasting techniques. The techniques that produce lower mean squared error of forecasts will be used increasingly by more people.

Branch (2004) tests that proposition using price forecasts from the University of Michigan household survey data. He confirms that the choice of forecasting method is driven by the relative precision of more and less sophisticated forecasting techniques. However, Branch (2004) also reports evidence for inertia in the use of forecasting techniques, i.e. the switch toward better performing techniques and the switch away from worse performing techniques is slowed down by habits and innate preferences.

In our framework, adaptive expectations based on past inflation do a reasonably good job predicting future inflation when financial stability is sustained for some time, whereas rational expectations are repeatedly off the mark. Therefore, as long as inflation

remains at $\bar{\pi}$ naïve forecasts will be superior to costly sophisticated forecasts and we should expect an increase in the proportion of naïve agents θ over time. We now turn to the question whether the likelihood of devaluation decreases or increases when fewer people are paying attention to monetary policy.

The likelihood of devaluation

After the shock u is realized, the loss for the central bank associated with keeping the peg is given by:

(12) $$L_P = \left(\bar{\pi} - E\pi - k - u\right)^2$$

whereas the loss associated with a policy shift toward discretion is given by:

(13) $$L_D = \left(\pi^* - E\pi - k - u\right)^2 + \alpha\left(\pi^* - \bar{\pi}\right)^2$$

where π^* is optimal inflation under the discretionary regime after the shock u has been observed. As in Obstfeld (1997), The switch to discretion occurs when $L_P - L_D > C$ where C is the cost associated with abandoning the peg. Denote by u* the value of the shock u that satisfies this condition with equality. To find u*, first, note that the value of π^* that minimizes L_D given expected inflation $E\pi$ is:

(14) $$\pi^* = \frac{\left(E\pi + k + u + \alpha\bar{\pi}\right)}{1+\alpha}$$

Then substitute for π^* in (13) and solve for u* from $L_P - L_D = C$:

(15) $$u^* = \left[\left(1+\alpha\right)C\right]^{1/2} + \bar{\pi} - k - E\pi$$

The probability that the peg will be maintained is:

(16) $$q = F\left(u^*\right)$$

where F is the cumulative distribution function for the shock u. It follows that dq/du* = F′ (u*) = f(u*) > 0. A higher critical value of u raises the probability that the peg will be maintained. If (16) is substituted into (10):[1]

$$(17) \qquad E\pi = \bar{\pi} + \frac{(1-\theta)\left\{\left[1-F(u^*)\right]k + \int_{u^*}^{\infty} uf(u)\,du\right\}}{1+\alpha-(1-\theta)\left[1-F(u^*)\right]}$$

The two endogenous variables u* and Eπ are jointly determined by equations (15) and (17). Straightforward analysis shows that a greater concern about inflation (higher α) and a greater cost C of abandoning the peg each raises the probability of maintaining the peg and a greater desire to stimulate output (higher k) lowers the probability of maintaining the peg. The size of the target inflation rate ($\bar{\pi}$) under the peg has no impact since its direct effect on u* is precisely offset by its effect on Eπ.

Our primary analytic concern is what happens as the proportion θ of naïve agents increases. To see this, differentiate (15) with respect to θ: $\frac{du^*}{d\theta} = -\frac{\partial E\pi}{\partial u^*}\frac{du^*}{d\theta} - \frac{\partial E\pi}{\partial \theta}$ or $(1+\frac{\partial E\pi}{\partial u^*})\frac{du^*}{d\theta} = -\frac{\partial E\pi}{\partial \theta} > 0$ since $\frac{\partial E\pi}{\partial \theta} < 0$. It is also the case that $\frac{\partial E\pi}{\partial u^*} < 0$. However, stability assures that $\frac{\partial E\pi}{\partial u^*} > -1$. Therefore, the critical value u* increases and the likelihood of devaluation falls as the proportion of naïve agents grows over time. Intuitively, rational agents have a higher expectation of inflation because they take into account the possibility of devaluation (which naive agents do not). With fewer rational agents, therefore, inflation expectations in the population are lower and output is closer to

[1] Note that $E(u|u>u^*) = \int_{u^*}^{\infty} uf(u)du / [1 - F(u^*)]$. Therefore $[1-F(u^*0]E(u|u>u^*) = \int_{u^*}^{\infty} uf(u)du$.

the target. This, in turn, decreases the incentive for the central bank to devalue.

Time will tell if the Bulgarian currency board discussed in the following sections will be abandoned after a large shock. However, the data presented next allow us to investigate some of the predictions of the theory, namely the dynamics of the proportion of informed people over time and the heterogeneity of expectations between more-informed and less-informed people.

III. Survey data on the Bulgarian currency board.

Bulgaria introduced a currency board in 1997 after a severe financial crisis.[2] A currency board is a fixed exchange rate regime similar to a gold standard regime. The authorities forego discretionary control over the money supply and replace it with an automatic mechanism that links money supply changes to the balance of payments. The amount of foreign exchange reserves that the currency board stands ready to exchange for domestic money is sufficient to cover the monetary base. The currency board has no responsibilities to react to unemployment or to finance the budget. Inflation declined markedly and has remained low at around 5 percent since 1998.

An important difference between currency boards and standard pegs is that they have a legal framework. In Bulgaria the operating rules of the currency board are written into the Law of the Bulgarian National Bank. The legal framework makes it more difficult to change the monetary regime, i.e. one could argue that currency boards have greater C compared to standard pegs. Furthermore, the legal framework serves as an

[2] Dobrinsky (2000) argues that inefficient enterprises were supported by state-guaranteed credits during the early years of transition from socialism. In 1996 and 1997, many of the loans became non-performing and the effort to keep banks afloat opened up a large budget deficit that was eventually monetized.

important "information device" (Ho, 2002) since the objectives and tools of monetary operations are spelled out in black and white. Hence, we may have a greater proportion of informed agents with a currency board compared to a standard peg.

Judging from available data the currency board is not fully credible. The average spread between interest rates on one-year local-currency bank deposits and euro deposits has been 284 basis points since 2000. Furthermore, many Bulgarians prefer to save in foreign currencies: about 60 percent of deposits in the banking system are in foreign currencies (Bulgarian National Bank, various years).

The paper uses five national consumer surveys conducted by a national polling organization in Bulgaria in August 2000, October 2001, June 2002, August 2003, and August 2004. The sample of about 1000 respondents and its demographic structure are standard for national surveys taken in Bulgaria and are considered representative of the population of 8 million.

Information about the currency board

The surveys allow us to establish evidence for growing endogenous inattention about the currency board (an increase of θ in the model). The surveys probed respondents' level of information about the currency board by asking whether they strongly agreed, agreed, disagreed or strongly disagreed with each of the following three statements:

> *Statement 1*: Under the currency board, the authorities cannot issue currency at their discretion.
>
> *Statement 2*: Under the currency board, the executive branch of the government cannot borrow funds from the central bank.

Statement 3: Under the currency board, the leva (domestic money) in circulation have full coverage by the foreign exchange reserves of the central bank.

The three statements describe the main features of the currency board. Table 1 shows that a fairly large proportion of the population recognizes that the currency board eliminates monetary discretion. For example, in 2001 54.7 percent of agents either agreed or strongly agreed that discretionary money creation is not possible. The percent of informed answers was somewhat smaller on Statements 2 and 3, which is not surprising given that these statements refer to more technical features of the currency board. Overall, judging from the answers to the three statements, approximately 35 to 55 percent of the population has knowledge of the operations of the currency board, i.e. $(1-\theta)$ is in this range.[3]

Observe that the percent of "I don't know" answers increased substantially over time. For example, regarding the statement on monetary discretion, 29.7 percent answered "I don't know" in 2000. By 2004 this number nearly doubled to reach 55.4 percent. Similar increases in "I don't know" answers are observed for statements 2 and 3 as well. This tendency is clear evidence for the endogenous inattention hypothesis.

Expected devaluation

The theory predicts that more-informed agents have lower confidence in the sustainability of the currency board. This, combined with a decreasing proportion of informed agents, contributes to growing confidence in the currency board. To examine

[3] For comparison, Branch (2004) finds that on average about half of the respondents for the University of Michigan surveys use sophisticated forecasts. Chavas (2000) finds that 47 percent of market participants in the beef market use naïve forecasts. Using similar data, Baak (1999) estimates the proportion of naïve

this hypothesis we use the answers from the following survey question that gauged expectations: *In your opinion, what is the likelihood that the currency board will collapse with a sharp devaluation of the local currency in the next 6 months/12 months/5 years?* Respondents could choose an answer ranging from "very big" to "none", i.e., zero probability of devaluation, or choose to say that they don't know.

Table 2 shows that confidence in the currency board has increased over time. The percent of respondents who reported zero probability of devaluation in the next five years increased from 12.9 percent in 2000, to 17.7 percent in 2002, and then further to 26.3 percent in 2004. Similarly, the percent of respondents who believed that the probability of devaluation is big or very big declined from 39.0 percent in 2000 to 26.2 percent in 2002 and 25.2 percent in 2004.

To illustrate the relationship between information and expectations, Table 3 cross-tabulates expected devaluation for two groups of respondents. The group we refer to as the Informed consists of respondents who agreed or strongly agreed with at least one of the three statements regarding currency board operations.[4] The remaining respondents comprise the group of Uninformed. The results show that informed agents have lower confidence in the currency board. For example, 28.80 percent of the uninformed respondents believed that the probability of devaluation was zero over the following five years. For comparison, only 15.56 percent of the informed respondents had the same expectations. The following section establishes this relationship more formally.

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agents at about 33 percent.

[4] Similar results are obtained using other definitions of Informed, e.g. the respondents who agreed or strongly agreed with each of the statements or a variable that combines the answers to the three statements in a first principal component.

IV. Information and expected devaluation.

Table 4 reports the estimation results of an ordered probit model where expected devaluation is explained by respondents' information about the currency board and demographic characteristics. The dependent variable *Expected Devaluation* ranges from 1 to 5 where 1 stands for high probability of devaluation and 5 stands for a zero probability of devaluation. In addition to the variable *Informed*, the models include a variable for *Education* (1 if high school or higher education, and 0 otherwise), *Age* in years, *Female*, and the variable *Vote* which equals 1 if a respondent votes for the Union of Democratic Forces (UDF), the party that introduced the currency board in 1997. Political affiliation with UDF might be associated with greater currency-board credibility. We also include dummy variables for surveys 2001 through 2004 leaving the 2000 survey as the reference survey.[5] The estimations disregard the "I don't know" answers. We incorporate these answers in the robustness checks discussed in the Appendix.

The estimation results in Table 4 confirm that greater information is associated with greater expected devaluation. Furthermore, the effect of information on expectations is stronger over longer forecast horizons. The coefficient estimate on *Informed* is four times larger when we use expected devaluation over the 5 years horizon compared to the 6 months horizon.

[5] Using personal income, the number of observations decreased significantly as many respondents declined to give income data. Since income did not come out statistically significant using the smaller sample, we opted to report equations that do not include income. All results are available on request.

The predicted values from the model imply that, controlling for demographic characteristics, the probability that an Informed respondent expects zero devaluation over the next five years is 17.16 percent. The same probability for an Uninformed respondent is 26.41 percent. Therefore, the decrease in the percent of Informed respondents from 56.7 percent in 2000 to 36.6 percent in 2004 is associated with a 1.86 percentage points increase in the proportion of people who expected zero devaluation.[6] Hence, this shift to less information explains about 14 percent of the 13.4 percentage points increase in the percent of people who reported zero probability of devaluation between 2000 and 2004.

Looking at the other estimates, political affiliation with UDF contributes to greater confidence in the currency board. There is some evidence that older respondents have greater short-term confidence in the currency board. These respondents have experienced sustained financial stability under socialism and may be more likely to believe that stability can be sustained now as well.[7] The dummy variables for the various surveys suggest that confidence increased after the 2000 survey and that it generally continues to increase over time. This tendency may be attributed to the robust economic growth following structural reforms and to the approaching European Union entry scheduled for 2007 or 2008 and the EMU entry planned for 2009. A growing economy and a predictable exit from the currency board help alleviate concerns about its sustainability in the later surveys.

[6] The exact calculation is: (17.16*0.366+26.41*0.634) - (17.16*0.567+26.41*0.433) = 1.86.
[7] Estimations with Informed as dependent variable show that informed respondents are generally those with more education. When Informed is not included in the models reported here, the Education variable is negative and statistically significant, i.e. education proxies for information about the monetary regime.

V. Final remarks.

The theory and evidence presented in this paper show that sustained financial stability leads to a reduction of interest among the population in the mechanics of monetary affairs. Furthermore, after disinflation has been achieved under a fixed exchange rate regime, it is the less-informed agents who have greater confidence in the sustainability of the peg. Thus, the decline in information about monetary policy among the population contributes to greater fixed-exchange-rate credibility.

Our theory shows that with growing inattention the central bank is less likely to abandon the peg, which might explain why, in addition to concerns related to foreign currency debt, countries are reluctant to move away from sustained pegs unless a severe shock hits the economy. Another implication of the theory is that the central bank has an incentive to become less transparent about its operations. Directing the public's attention to the financial stability sustained for some time is more helpful to engender confidence than explaining how the stability was achieved in the first place.

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Appendix. Estimation robustness checks.

To incorporate the "I don't know" responses, we employ Heckman's (1979) procedure which allows us to correct for a possible selection bias. The procedure involves the maximum likelihood estimation of a participation equation which explains the decision to provide a forecast and a probit equation relating expected devaluation to information and the demographic characteristics. The procedure produces consistent and asymptotically efficient estimates by taking into account the correlation of the error terms in the two equations. The dependent variable in the first model in Table A is a dummy variable that equals 1 if a respondent believed that the likelihood of devaluation during the next five years is big or very big, and 0 otherwise. In the second model, the dependent variable equals 1 if a respondent believed that the likelihood of devaluation is zero, and 0 otherwise. The participation equation relates the decision to give a forecast to demographics: education, gender, and age. Similar results are obtained when the participation equation also includes *Informed* and *Vote*. The results support our earlier results, i.e. expected devaluation increases in information about the currency board. Furthermore, the statistically insignificant value of λ indicates that selection bias is not an issue. Similar results were obtained by estimating the probit equation explaining the probability of zero devaluation without including a participation equation.

We also estimated the models using residence in the capital as an instrument for Informed to correct for possible endogeneity, i.e. if respondents' decision to become informed about the currency board is influenced by their confidence in it. Residence in the capital Sofia increases the access to information because most government institutions and media sources are there but is not by itself related to the currency board credibility. This makes it a useful instrumental variable. These estimations confirm our earlier results that more information is associated with less confidence. We can make the results available on request.

Table A
Perceived risk of devaluation in the next 5 years.
Probit model with Heckman correction for selection bias.

Probit equation	Dependent variable: 1 if the probability of devaluation is big or very big, 0 otherwise	Dependent variable: 1 if the probability of devaluation is zero, 0 otherwise
Informed	0.183*** (0.036)	-0.372*** (0.053)
Education	-0.222*** (0.049)	-0.064 (0.149)
Age	0.001 (0.001)	0.001 (0.001)
Female	0.039 (0.037)	-0.021 (0.049)
Voting for UDF	-0.144** (0.053)	0.153** (0.067)
Dummy for 2001 survey	-0.249*** (0.053)	0.181** (0.071)
Dummy for 2002 survey	-0.234*** (0.056)	0.245*** (0.074)
Dummy for 2003 survey	-0.184*** (0.054)	0.254*** (0.073)
Dummy for 2004 survey	-0.271*** (0.052)	0.487*** (0.079)
Constant	-0.023 (0.082)	-0.956*** (0.160)
Participation equation	Dependent variable: 1 if a respondent reported expected devaluation, 0 otherwise	
Education	0.735*** (0.052)	0.734*** (0.053)
Age	-0.002 (0.001)	-0.002 (0.001)
Female	-0.171*** (0.050)	-0.174*** (0.052)
Constant	-1.018*** (0.090)	1.016*** (0.090)
λ	-1.774 (1.181)	0.549 (1.176)
Wald chi2(9) Number of observation	83.35 4820	106.22 4820

Notes: Standard errors in parentheses. ***(**,*) significant at the 1(5, 10) percent level.
A significant value for $\lambda=\rho\sigma$, where σ is the estimated standard error of the residuals of the probit equation and ρ is the estimated correlation of the residuals from the participation and the regression equations, indicates evidence of self-selection bias.

Table 1
Knowledge about the operations of the Bulgarian currency board.
National surveys, Bulgaria, 2000 - 2004.
Summary statistics.

	Statement 1 (monetary discretion)					Statement 2 (government debt)					Statement 3 (forex reserves)				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
Strongly agree	38.5	35.7	38.4	36.6	26.7	20.6	19.9	-	16.8	17.6	19.3	21.2	-	16.2	16.8
Agree	18.2	19.0	13.3	13.0	9.9	13.5	16.5	-	13.9	10.1	17.2	24.3	-	13.3	9.9
Disagree	8.8	6.5	8.1	3.2	4.1	10.5	8.1	-	5.2	5.5	12.2	6.4	-	3.8	4.9
Strongly disagree	4.8	4.9	1.9	4.0	3.9	4.6	5.7	-	6.8	1.7	7.2	5.1	-	6.1	2.7
I don't know	29.7	33.9	38.3	43.2	55.4	50.8	49.8	-	57.3	65.1	43.9	43.0	-	60.6	65.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: The numbers of the table are percent of the total by type of response.
Statement 1: Under the currency board, the authorities cannot issue currency at their discretion.
Statement 2: Under the currency board, the government cannot borrow funds from the central bank.
Statement 3: Under the currency board, the leva (domestic money) in circulation have full coverage by the foreign exchange reserves of the central bank.

Table 2
What is the likelihood that the currency board will collapse in the next 6 months,
12 months, or 5 years with a sharp devaluation of the local currency?
National surveys, Bulgaria, 2000 - 2004.
Percent of respondents by type of response.

	6 months horizon					12 months horizon					5 years horizon				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
Very big	12.3	5.5	4.6	3.5	3.9	12.4	4.7	6.7	3.8	3.8	13.3	7.4	9.9	8.9	12.7
Big	19.0	9.7	10.9	9.3	7.9	24.0	14.4	11.9	12.9	11.0	25.7	22.3	16.3	18.9	12.5
Small	29.7	28.3	28.5	31.1	28.1	28.7	31.6	29.9	31.5	25.1	30.4	29.3	27.6	25.7	23.3
Very small	13.5	23.2	14.2	17.1	14.0	15.2	24.6	15.5	17.0	19.2	12.0	20.4	11.6	13.9	12.9
None	20.6	30.7	26.7	26.6	34.7	15.3	21.7	20.5	21.8	29.5	12.9	16.8	17.7	18.2	26.3
I don't know	4.8	2.6	15.1	12.4	11.4	4.5	3.0	15.5	13.0	11.4	5.7	3.8	16.9	14.4	12.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 3
Expectations of devaluation for the more and less informed respondents.
National surveys, Bulgaria, 2000 - 2004.

	What is the likelihood of devaluation in the next:					
	6 months		1 year		5 years	
	Un-informed	Informed	Un-informed	Informed	Un-informed	Informed
Big or very big	17.65	20.09	20.73	25.03*	27.97	36.36*
Small or very small	48.70	50.99	50.56	53.72*	43.23	48.08*
Zero	33.65	28.93*	28.71	21.25*	28.80	15.56*

Notes: Informed are the survey respondents who agree or strongly agree with at least one of the statements on currency board operations.
* indicates that the difference between the answers of informed and uninformed respondents is statistically significant at the 5 percent level.

Table 4
Perceived risk of devaluation. Ordered probit model.
National surveys, Bulgaria, 2000 - 2004.

	Dependent variable: Expected Devaluation ranges from 1 (high probability of devaluation) to 5 (zero probability of devaluation)		
	6 months forecast horizon	1 year forecast horizon	5 years forecast horizon
Informed	-0.077** (0.035)	-0.133*** (0.035)	-0.284*** (0.035)
Education	0.016 (0.040)	-0.014 (0.039)	-0.074* (0.040)
Age	0.002* (0.001)	0.002* (0.001)	0.001 (0.001)
Female	-0.015 (0.032)	-0.016 (0.032)	0.030 (0.032)
Voting for UDF	0.091* (0.050)	0.124** (0.049)	0.170*** (0.050)
Dummy for 2001 survey	0.462*** (0.048)	0.433*** (0.048)	0.289*** (0.048)
Dummy for 2002 survey	0.379*** (0.053)	0.341*** (0.053)	0.204*** (0.053)
Dummy for 2003 survey	0.416*** (0.051)	0.423*** (0.050)	0.229*** (0.050)
Dummy for 2004 survey	0.547*** (0.051)	0.596*** (0.050)	0.329*** (0.050)
LR chi2(7) Number of observation	160.61*** 4376	196.74*** 4367	157.99*** 4314

Notes: Standard errors in parentheses. ***(**,*) significant at the 1(5, 10) percent level.