THE IMPACT OF FINANCIAL SYSTEM IN ABANDONING THE MONETARY PLANNING STRATEGY

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Abstract

Based on previous studies related to the strategy of monetary planning, where very few studies have paid attention to the financial system reform. In this paper we will try to examine the role of the characteristics of this system in the removal or abandonment of monetary planning strategy, as it is noted several times in the literature that the instability of money demand's function is also a major concern for the abandonment of monetary planning strategy. In this paper we have analysed macroeconomic characteristics of different countries. There are been included 28 countries that have practiced monetary planning strategy during the period of 1975-2014. These countries are divided into two groups: The first group includes 22 countries those who adopt and then abandon this strategy during the period of our analysis and the second 6 countries group, that continue to practice the strategy of monetary policy. In this study is included a research question and hypothesis associated with it, in which are included two types of variables: macroeconomic and financial variable. We have used a Log Model for panel data in order to estimate the probability of dropping out the monetary planning strategies from a Central Bank. Also, there is applied a statistical test of comparing the difference between the averages of the

variables to see if the strategy of monetary policy continues or is abandoned from a country. Based on the results of the study, the countries where monetary planning strategy is abandoned has liberalization on average, developing financial systems and exchange rate regimes more flexible than in the countries where this strategy is still applied.

INTRODUCTION

After the collapse of the Bretton Woods system in the middle of 1970 it was necessary to found an alternative to the strategy of monetary policy to be followed under the regime of flexible exchange rate, this led to the creation of the structure of monetary planning. Central Banking experts believe that increased attention on monetary plan would link the expected inflation to stabilize prices.

According to some authors, getting a successful strategy of monetary planning, it should be based on several solid assumptions, such as the stabilization of demand function for money and the existence of a strong and reliable relationship between monetary planned aggregates and inflation (Mishkin and Estrella, 1997, Mishkin, 2006). Another reason why this strategy was seen reasonable to follow, was because it was considered as a suitable alternative to fixed exchange rates. This strategy is very simple to observe, communicate, and very easy to be understand. But, since the function of the demand for money was unstable in many countries - as central banks in these countries were unsuccessful in connection with stock control flows, this led to a decrease in confidence in these institutions, which led many of these countries departure from the strategy of monetary policy. Therefore, we consider the impact of the financial system characteristics related to the probability of withdrawal from this sort of monetary policy strategy.

This study is focused in the developing countries, which continues to use the strategy of monetary planning, because developed countries have almost abandoned it. Since different reforms in the financial system bring more liberalization and development of financial products, in these circumstances Central Banks lose occasionally planning about raising money market, which leads to removal of monetary planning strategy. It is also added empirical literature to examine some features of financial systems that can manage Central Banks to abandon the strategy of monetary planning.

According to Goldfeld and Sichel (1990) *"a function of the steady demand for money has been permanently regarded as a prerequisite for the use of monetary aggregates in the direction of policy"*, they give the traditional function of monetary demand:

$$\log \frac{M_t}{P_t} = \alpha_0 + \alpha_1 \log Y_t + \alpha_2 \log R_t + \varepsilon_t$$

Where, Mt, Pt, Yt and Rt are the stock of money, the aggregate price level, real output, and nominal interest rates; ε_t represents the monetary demand shocks. According to (Judd and Scadding, 1982), the monetary demand is stabilized when three conditions are met. The first condition is: a statistically significant link between monetary demand and its determinants and these determinants can determine the exact monetary demand. The second condition is: the monetary demand cannot depend on many variables, such as those that reduce its predictability. The third condition: the determinants of monetary demand must relate to the real economy. According to (Judd and Scadding, 1982), we conclude that "a consistent feature of monetary demand means the amount of money that is predictable about a small group of key variables that link money to the real sector of the economy". Since it is difficult to include the stability of money demand in the model due to lack of measurement are suitable, we do not directly analyze its effects on the probability of abandonment of monetary planning strategy. Instead, we examine how changes bring instability of money demand in the financial system and thus indirectly contribute to the removal of this kind of strategy of monetary policy. Based on previous studies, we derive three hypotheses linking financial factors with the probability of abandonment of monetary planning strategy.

Hypothesis 1: Financial liberalization increases the chances that the Central Banks abandon the strategy of monetary planning.

Hypothesis 2: Countries with fixed exchange regime rate are less likely to force the central banks to abandon their monetary planning strategy if those sites have limited capital mobility.

Hypothesis 3: The development of the financial system increases the chances that the Central Banks abandon a strategy of monetary planning.

RESEARCH METOTHOLOGY

In time period, a Central Bank can apply the strategy of monetary planning (situation 0), or may have applied a different strategy from monetary planning strategy (situation 1). We consider the countries which are in the situation 1.

Let y_{it} be a dependent variable that takes the value zero (0) if the Central Bank applies the strategy of planning cash in year "t" (the event will not happen) and one (1) if it abandons this kind of strategy in year "t" (event occurs). Relevant observation rule is:

$$y_{it} = \begin{cases} 1.........if....y_{it}^* > 0 \\ \\ 0........if....y_{it}^* \leq 0 \end{cases}$$

Where, y_{it}^* is a latent and unobserved variable.

The basic model for the latent variable is:

$$y_{it}^* = \alpha + \beta' MAK_{i,t-1} + \gamma' FIN_{i,t-1} + \mu_i + \varepsilon_{it},...i = 1,...,N;.t = 1,...,T_i$$

Where, T_i is the year when a central bank abandon planning cash strategy for those countries that have abandoned this strategy, and the last year in our sample which is 2014 for countries that have not abandoned even this kind of strategy of monetary policy during the period of our analysis. α is (a) constant term; β and γ are vectors of parametric estimates; μ_i country-specific effects; ε_{it} is the error term that follows a logarithmic distribution; $MAK_{i,t-1}$ is a matrix of macroeconomic variables and $FIN_{i,t-1}$ is a matrix of financial variables that we examine.

All variables included in this model are the remains of a year, as the current Central Bank decision to leave the monetary planning strategy, based on the availability of indicators of macroeconomic and financial past.

The probability of dropping out of the monetary policy strategy in year "t" is formulated as follows: $\Pr(y_{it} = 1 | FIN_{i,t-1}, MAK_{i,t-1}, \mu_i) = \Lambda(\alpha + \beta' FIN_{i,t-1} + \gamma' MAK_{i,t-1}, +\mu_i),$

The most important step in our analyse is the modeling of data which includes addressing country-specific effects μ_i which control the heterogeneity between countries without observation. Depending on assumptions about these effects, we can distinguish three specific models:

1. The assessment coefficient and variance μ_i are significant. In this case we estimate a logarithmic pooled data model.

2. μ_i are random effects, uncorrelated with regressors: $\mu_i | FIN_{i,t-1}, MAK_{i,t1} \sim N(0, \sigma^2_\mu)$. Model fitting is logarithmic model with random effects.

3. μ_i are fixed effects, correlated with regressors. Logarithmic value of the fixed effects model conditional (Cameron and Trivedi, 2005; Baltagi, 2008).

To examine which specific models best fit the data, we estimate three types of log models and compare them using Hausman's test. The models are estimated by maximum likelihood.

ANALYSIS AND FINDINGS

One of the most statistical analyse used for the pooled data is Logit Model, but we also have used as well a comparison between the average test for independent variables. The tests that will perform to compare averages are different variables variance in two groups of selected countries in our sample.

Through these tests we want to see which of the variables in the study has effect on the Central Bank decision to give up the strategy of monetary planning. Before using these models we see if there is or isn't autocorrelation between independent variables, because if it is yes then we place the various tests for autocorrelated variables, in order to prevent overlapping information.

Table 1. The correlation matrix between the independent variables

		1	2	3	4	5	6
2	Financial development	**0.55**	1.00				
3	GDP per capita	**0.70**	**0.85**	1.00			
4	Inflation	-0.22	-0.30	-0.29	1.00		
5	Exchange rate regime	0.27	0.32	0.27	0.29	1.00	
6	Trade openness	-0.14	-0.24	-0.28	-0.31	-0.19	1.00

Table 2. List of countries with dates of MP adoption and abandonment

Countries that implemented and abandoned MP (MP-'abandons')			Countries that didn't abandon MP	
Advanced (13)			**Advanced (0)**	
Country	**Dates**	**Post-MP monetary policy strategy**	**Country**	**Dates**
Australia	1976-1985	Expected inflation (from 1993)		
Canada	1976-1983	Expected inflation (from 1991)		
France	1977-1999	ECB strategy (from 1999)		
Germany	1975-1999	ECB strategy (from 1999)		
Greece	1975-1998	ECB strategy (from 2001)		
Italy	1985-1999	ECB strategy (from 1999)		
Japan	1978-1999	Implicit price stability anchor (from 2001)		
Korea	1979-1998	Expected inflation (from 1998)		
Slovenia	1997-2001	Exchange rate targeting (2001-2006), ECB strategy (from 2007)		
Spain	1978-1995	Expected inflation (1995-1998), ECB strategy (from 1999)		
Switzerland	1975-2000	Expected inflation (from 2000)		
UK	1976-1992	Expected inflation (from 1993)		
US	1975-1996	Implicit price stability anchor (from 1996)		

Table 2...

		Emerging and developing (11)		Emerging and developing (11)	
Albania	1993-2006	Transition to Expected inflation (from 2006)		Bangladesh	2003-on
Egypt	1996-2005	Transition to Expected inflation (from 2005)		China	1994-on
Ghana	1992-2007	Expected inflation (from 2007)		Madagascar	1994-on
Guatemala	1993-1996	Multiple targets (1996-2004), Expected inflation (from 2005)		Mongolia	1995-on
India	1985-1998	Multiple indicators (from 1998)		Mozambique	1992-on
Indonesia	1997-2005	Expected inflation (from 2005)		Nigeria	1986-on
Moldova	1994-2009	Transition to Expected inflation (from 2009)		Pakistan	1995-on
Philiphines	1985-1995	Transition to Expected inflation (1995-2001), Expected inflation (from 2002)		Sri Lanka	1981-on
Russia	1993-2004	Multiple targets (from 2004)		Tanzania	1987-on
South Africa	1986-2000	Expected inflation (from 2000)		Tunisia	1993-on
Thailand	1997-2000	Expected inflation (from 2000)			

Above, we have listed those countries which have applied monetary strategy planning and then have abandoned this kind of strategy, as well as countries that continue to have it.

Results have shown the correlation between the independent variables. As we may see from the table, statistically significant correlation exists only between three variables: GDP per capita, financial development and financial liberalization. That means that we will carry out the above tests several times by removing variables that have autocorrelation, to note the reaction of their real probability assessment regarding to the dependent variable.

Table 3. Factors that affect the removal of monetary planning strategy
under - logarithmic model with pooled data

	(1)	(2)	(3)
Financial liberalization		0.040 ** (0.010)	0.047 ** (0.029)
Exchange rate regime	0.002 (0.003)	0.002 (0.003)	0.001 (0.003)
Financial development	−0.015 (0.031)		0.015 (0.015)
GDP	0.016 * (0.009)	0.015 * (0.009)	
Inflation	−0.213 (0.150)	−0.301 (0.079)	−0.315 (0.220)
Trade openness	−0.0006 (0.005)	−0.0006 (0.005)	−0.0006 (0.0001)
The number of observations	300	300	300
Log-likelihood	−46.43	−46.48	−43.44
Wald χ^2	21.12 **	22.15 **	24.34 **

Table 3 presents the evaluation of Logit results for the pooled-data records. Column (1) shows the results evaluated by the technique above when it is not included in the model financial deregulation and column (2) shows estimation when financial development variable is not included in the model and finally column (3) shows estimation of economic growth when the variable is not included in the model. According in conclusions suggested; that most of the financial features have an important role in the connection with the abandonment of monetary policy planning by Central Banks. Also, in the earlier literature it is showed strong evidence that countries with the liberalization of capital have wrested control of the financial system during the time when they were under the influence of the strategy of monetary policy had greater probability to abandon this kind of a strategy. The exchange rate regimes are less likely to abandon the strategy of monetary planning. Our conclusions from the Logarithmic Model with data pooled data show that the hypothesis H1 and H2 accept and reject hypothesis H3.

In the next table we examine the comparison between the average test for independent variables.

Table 4. Descriptive statistics about the comparison of averages values

Variables	MP-'abandon'	MP-'stayers'	P-value
Financial Liberalization	0.53	-0.72	0.00
Financial Development	0.70	0.42	0.00
GDP per capita	7.92	5.53	0.00
Inflation	0.07	0.09	0.34
Change of exchange rate	8.25	7.01	0.00
Open markets	40.12	60.29	0.00
The number of observations	300	170	

Table 4 shows the comparison of the average tests for all independent variables. We have separated averages of the variables in two groups of countries: countries where monetary planning strategy is abandoned MP-'abandon', and countries where this strategy of monetary policy is still applied MP-'stayers. We apply a two-way t-test comparison of averages, where hypotheses raise in this case are:

H_0: average (MP-'abandon') – average (MP-'stayers') = 0.

H_a: average (MP-'abandon') – average (MP-' stayers') ≠ 0

Based on the results of the table, it is clear that countries where monetary planning strategy is abandoned has liberalization on average, developing financial systems and exchange rate regimes more flexible than in the countries where this strategy is still applied. All financial

variables come statistically significant with the exception on macroeconomic variables such as inflation, which appears insignificant. Since the financial variables explain somehow the stability of money demand, this should also be the reason that these variables serve as intermediate factors in the removal of central bank monetary planning strategy.

CONCLUSION AND RECOMMENDATIONS

In conclusion we may say that, results of our analysis using Log model with pooled data show that countries with high financial liberalization are more likely to abandon the strategy of monetary planning. However, the choice of exchange rate regime influences the probability of dropping out of this kind of policy strategy. Countries with limited capital mobility and fixed exchange rate at the same time are less likely to get away from this kind of monetary policy strategy. In addition, many countries in economic development tend to abandon monetary planning strategy.

Results obtained through analysis using a logarithmic fixed effects models suggest that the probability of abandonment of monetary planning is affected by development and their financial deregulation. Also, most developed countries with monetary planning and a low-pass inflation and high fiscal deficit are more likely to abandon monetary planning. The results are significant excluding some countries. Furthermore, for developed countries, financial liberalization has a significant impact on the probability of leaving monetary planning. Meanwhile, liberalization and financial development contribute to the probability of abandoning monetary planning in developing countries.

It is recommended that countries which are under development and with a little financial deregulation develop or lower tax deficit to not abandon monetary planning strategy. The same thing should make these countries even if they have a minimum financial liberalization and market economy. While developed countries with financial liberalization and financial development is recommended to abandon the monetary strategy planning and to apply the expected inflation strategy.

SCOPE FOR FURTHER RESEARCH

In the future our scope, related to this topic, is the examination of which monetary policy strategies is applied more often by the countries that have abandoned the monetary strategy planning. Also, there will be studied the factors that most effect in the adaption of this monetary strategy, that is applied when a country has decided to abandon the monetary strategy planning as well as a comparison between the monetary strategy planning and the strategy that replaces it when a country has decided to not use the cash strategy planning.

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