ECONOMIC AND INSTITUTIONAL FACTORS AFFECTING CAUSES OF CURRENCY CRISIS: EARLY WARNING SYSTEM AND SUGGESTIONS ON VIETNAM'S MACROECONOMIC STABILITY POLICY

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Abstract

The US financial crisis in 2008 led to an inevitable chance for scholars to review traditional theories of financial crisis in order to find out fundamental causes of the crisis, and issue early warnings to developing countries including Vietnam. Although adjustment to the exchange rate by the SBV in late 2009 is proactive and appropriate to WB and IMF estimates, it also create a need to find out factors that prevent the currency crisis in Vietnam. Moreover, the World Economic Forum 2010 supposed that the 2008 financial crisis entailed the 2009 economic crisis and predicted that some social crisis would take place in 2010 if the world economic recovery was unsustainable.

Theories of currency crisis suggest that economic and institutional variables could be employed in Early Warning Systems (EWS) to predict the currency crisis and work out policies to prevent it on the ground of these economic and institutional indicators. This research is to integrate six economic factors of a model introduced by Berg and Pattillo (1999b) from the IMF (BP) and six institutional factors from Worldwide Governance Indicators (Kaufmann, et al., 2008). In the past, researches on early warnings against the currency crisis usually concentrated on economic factors and ignored institutional ones in their quantitative model. Six economic variables comprise domestic currency overvalued against foreign ones, fall in foreign exchange reserve, fall in export, current account deficit, ratio of short-term foreign debt to foreign exchange reserve, and growth of domestic credit. Six institutional variables are voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption. The two groups of variables are integrated into the EWS by employing the simple logit model with data source produced by 15 emerging economies over the period 1996-2005. The new finding of the research is that improvement in voice and accountability has significant effect on diminution in danger of currency crisis. In addition, "regulatory quality" produces the same effect but at a lower level. The research also reaffirms prolonged growth of domestic credit, fall in export and current account deficits increases the danger of currency crisis. Finally, our team offers some suggestions on macroeconomic policies with a view to enhancing quality of economic and institutional variables and reducing the danger of currency crisis in Vietnam.

1. Four generations of models of currency crisis

- The first generation of models of currency crisis was introduced by Krugman (1979) and improved by Flood and Garber (1984). When the budget deficit is offset by increases in the money supply, investors are willing to hold more forex; and the government has to sell more foreign cur-

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rencies so as to protect the exchange rate until its forex reserve is used up, with the result that it has to give up the fixed exchange rate.

- The models of second generation were first developed by Obstfeld (1994, 1996). The currency crisis, instead of coming from basic economic factors, has self-fulfilling features and spreads according to speculators' expectation and governmental pursuit of macroeconomic targets. The government facing high unemployment rate or huge trade deficit may give up the crawling peg regime. Speculators anticipating a speculative attack may launch an early attack on the domestic currency in order to force the government to give up the fixed exchange rate regime.

- The models of third generation explain the Asian crisis in 1997-98 as a twin crisis combining the banking crisis with the currency one. Velasco (1987), and Kaminsky & Reinhart (1999) noted that problems, such as bad debts, of a banking system usually precedes the currency crises that, in their turn, worsens the banking crises. Compared with models of the first and second generation, the Asian currency crisis is very different. At that time, Asian economies had good basic macroeconomic factors with high growth rates, low unemployment rate, well-controlled inflation, low deficit in national budget and current account, abundant capital inflows and prolonged political stability. However, they had suffered problems with their banking systems, such as bad debts caused by short-term foreign loans used for bubble investments, and repayment risk linked with the poor management of risks and the herd behavior. Consequently, the currency crisis boomed.

- The models of the fourth generation that uses institutional factors to explain relationship between institutions and economic growth/ crisis has been studied by numerous authors. Acemoglu, et al. (2002) suggest that countries with poor or inconsistent macroeconomic policies usually have poor institutions, lack strict legal control over politicians' power, and suffer from poor protection for ownership and high degrees of corruption. Thus, inconsistent economic policies are symptoms of a poor institution. Mishkin (1996, 2001) employs the theory of asymmetric information to explore causes of the crisis, e.g. the moral hazard; and proposes preventive policies in form of strict rules and regulations on the finance market, especially the governmental accountability and transparency of market information.

2. EWS and integration of factors affecting the currency crisis

Many early warning systems have been designed to explain factors that might warn about a currency crisis. Several of models, by Kaminsky, et al. (1998), and Berg and Pattillo (1999b), have been employed by the IMF for the purpose of making policies; and others, such as GS-WATCH [Ades, et al. (1998)] and those by Peltonen (2006), Shimpalee & Breuer (2006), Leblang & Satyanath (2008), are also used by investors, such as Goldman Sachs, for the purpose of speculation.

The existing EWS have separated economic factors from institutional ones; and this research does the best to make them integral. In this approach, the research integrates six economic factors of the EWS introduced by Berg & Pattillo (1999b) with six institutional factors of Worldwide Governance Indicators (Kaufmann et al., 2008).

a. Identification of currency crises:

The exchange market pressure in the country i at the time t (EMPi,t) can be defined in the following way:

$$EMP_{i,t} = \alpha * \%\Delta e_{i,t} - \beta * \%\Delta r_{i,t}$$

Where $\%\Delta e_{i,t}$ denotes the fluctuation in the exchange rate to the dollar in the country i at the time t; $\%\Delta r_{i,t}$ is the fluctuation in the foreign exchange reserve in the country i at the time t; r is the foreign exchange reserve; α & β are weights calculated by the inversion of standard deviation of exchange rate and foreign exchange reserve.

The currency crisis is possible to occur within 18 months once the EMPi,t exceeds the weighted average and $EMP_{i,t} > \mu EMP_i + 2\delta EMP_i$

Where, μ and δ denotes respectively the mean and the standard deviation of EMP. Thus, the given formula allows us to define dependent variables in the logit function that the $Y_{i,t}$ will equal 1 if the currency crisis takes place within 18 months in the country i at the time t; and 0 otherwise.

b. Factors affecting the possibility of a currency crisis:

Selecting 12 independent variables, which measure economic and institutional factors in a country, is based on the above-mentioned models and collected data. In addition to the five vari-

ables from the models by Berg and Pattillo (1999b) and the IMF, the variable of domestic credit growth is also employed in the research. Six institutional variables of Worldwide Governance Indicators by Kaufmann, et al. (2008) are also included to examine signs and statistical significance of changes in the probability of the crisis thereby working out policy suggestions.

Table 1: Explanation of factors affecting possibility of the currency crisis

Independent variables	Value	Predicted effect on the possibility of the crisis	Indications in the logit function model
Economic variables			
Deviation from the real exchange rate	%	Increase	Overvaluation
Deficit in current accounts as percent of GDP	%	Increase	CA_deficit_GDP
Rate of loss of foreign exchange reserve	%	Increase	Reserves_loss
Rate of loss of export	%	Increase	Export_loss
Short-term foreign debt/Foreign exchange reserve	%	Increase	STdedt_Reserves
Rate of domestic credit growth	%	Increase	Credit_grow
Institutional variable	The higher, the better		
Voice and accountability	-2.5 - +2.5	Decrease	Voice
Political stability and absence of violence	-2.5 - +2.5	Decrease	Political_stable
Government effectiveness	-2.5 - +2.5	Decrease	Govt_effect
Regulatory quality	-2.5 - +2.5	Decrease	Regu_Quality
Rule of law	-2.5 - +2.5	Decrease	Law_confidence
Control of corruption	-2.5 - +2.5	Decrease	Corruption_control

c. Research data and results of experimental research:

Data needed for variables are gathered from 15 following emerging economies including Argentina, Brazil, Colombia, Czech, Ecuador, India, Indonesia, Korea, Malaysia, Philippines, Russia, Slovakia, South Africa, Thailand and Turkey. Period when data and monthly observations are gathered is from January 1996 to September 2005. Six variables in the final model explaining 26.1% of effects on the possibility of the currency crisis are deficit in current accounts, decrease in the foreign exchange reserve, decrease in export, growth of domestic credit, voice and accountability, and regulatory quality. This result may offer early warnings to developing countries, including Vietnam, when observing these factors in the aftermath of economic and financial crisis and recession in 2009.

3. Policy suggestions

- Overgrowth of domestic credit may increase the possibility of a currency crisis

Experimental results of this research reaffirm that overgrowth of the domestic credit always precedes the currency crisis. In order to avoid it, manipulation of the domestic credit growth, among other factors, is an important indicator to be kept a close watch on. In the context of recession, according to the ADB (2009), the growth of domestic

Table 2: Logit regression results predicting possible factors of the crisis

Variable	Final model (six variables)		Intermediate model (seven variables)		Sufficient model (12 variables)	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
CA_deficit_GDP	0.368026	0.0000	0.380597	0.0000	0.356763	0.0000
Reserves_loss	0.046099	0.0011	0.046059	0.0011	0.041066	0.0052
Export_loss	0.049199	0.0000	0.050887	0.0000	0.046244	0.0000
Overvaluation					**-0.044375**	0.0000
STdedt_Reserves					0.001055	**0.2039**
Credit_grow	**0.048303**	**0.0524**	**0.045753**	**0.0629**	**0.103192**	**0.0005**
Voice	**-0.946825**	**0.0000**	**-1.243.346**	**0.0000**	**-2.764.318**	**0.0000**
Regu_Quality	**-0.522257**	**0.0724**	-0.992629	0.0061	**-0.711400**	**0.1201**
Govt_effect			**0.648974**	0.0305	**-0.869245**	**0.0542**
Law_confidence					0.753241	0.0249
Political_stable					0.084087	0.6974
Corruption_control					1.336.938	0.0034
McFadden R-squared	0.261000		0.264561		0.296886	

Source: Author's estimates based on WGI, IFS, WEO, and WDI data.

credit in Vietnam over the period 2002-2007 was rather high: it was some 30% a year in this period and peaked at 50% in 2007. In addition, inflation started to rise and the SBV had to adopt a tight monetary policy. By the end of 2009, thanks to the cautious and flexible monetary policy for the period October 2008 to July 2009, the interest rate went down; and the domestic credit showed a sign of going up due to the anti-recession policies and warnings of the reflation (SBV, 2009). Thus, reducing the supply of credit and ensuring the liquidity are necessary measures so as to prevent the reflation and secure the economic growth. However, this is no easy task due to the fact that these two objectives appear to be in conflict with each other. In our humble opinion, the growth of domestic credit in its long run, after taking away the economic growth rate, should be set below 20%.

- Improving the balances of current account and foreign trade, as well as maintaining adequate foreign exchange reserves with a view to curbing the possibility of currency crises

Other three fundamental economic variables in the model also show their effect on the crisis probability. They are the ratio of deficit in current account to the GDP, fall in the foreign exchange reserve and decrease in export. Quality of the three factors should be improved to reduce the possibility of currency crisis in Vietnam. When the financial crisis broke out and led to the economic recession in 2008-2009, the capital inflow to Vietnam reduced and export decreased with the result that the Vietnam's foreign exchange market suffered pressure on the exchange rate. In addition, saving is always smaller than domestic investment compared with the GDP. This is meant that to finance the domestic market, Vietnam has to secure a volume of foreign debt equaling some 6.7% of the GDP (World Development Indicators, 2009). This debt shows itself in the trade balance and a permanent deficit in current accounts. This leads to two implications:

(1) In a medium term (at least five years), the trade gap will keep staying at 4% or 5% of the GDP if Vietnam can maintain its export. This means that Vietnam can only keep it at a one-digit level and hardly set it at 0%; or gain a trade surplus because Vietnam still imports expensive finished goods and export raw goods of low values.

(2) The trade gap is acceptable on the condition that it helps ensure a sustainable development and create added values in its long run. It can be interpreted that Vietnam should export more goods and services of higher added values and its

imports, in a long term, must serve to enhance the working productivity. In other words, more attention should be paid to efficiency and quality of investment. If ICOR can be reduced from 5.7 (calculation based on the 2010 CIEM's report) to 4.0, Vietnam can gain a growth rate of 8% on average. Because the demand for capital equals only 32% of the GDP, Vietnam can mobilize less capital; and reduce its foreign debts, deficit in current accounts and trade gap, thereby stabilizing the foreign exchange reserve and exchange rate in the long run, and reducing the possibility of a currency crisis.

- Enhancing the government accountability

Enhancing the government accountability, especially macroeconomic policies on realty, stock and finance markets, banking sector, non-banking financial institutions, can help prevent the currency crisis. Upheavals of the realty market in late 2007, reversal of the stock market in early 2008, and instability of the exchange rate in the second half of 2009 are examples of turning points where accountability and policies to stabilize the markets are much needed.

In principle, enhancing the government accountability must be based on efforts to handle asymmetric information and reduce uncertainty and inconsistency of policies on the finance market. And then, the government should ensure the best channel of feedback at G2G, G2B, and G2C levels.

G2G channel between local and central governments should ensure consistency and transparency in designing and implementing the policies on the ground of delegation of rights and duties to the local authority. In the G2B, between the government and businesses, regular discussions about approved and draft policies should be held in order to ensure effective implementation of these policies and keep them away from being distorted or manipulated by rent-seeking groups through lobbying. At the G2C level, between the government and citizens, there must be minimal channels aiming at ensuring mutual and legitimate benefits and interests. Citizens must be provided with information on major plans, and these plans must be stable and citizens should observe them as required. Interests of citizens must be ensured by a mechanism for criticism prior to implementation and all governmental bodies must achieve consensus when carrying out the policies.

- Enhancing the quality of institutions

Regulatory quality, as a variable in the model, reflects ability of the government to establish and implement its policies, especially the ones to develop the private sector. In emerging economies, state-owned or state-related companies are famous for their inefficiency and Vietnam is no exception where state-owned corporations and groups always gain very poor performance even though they control big sources of capital from the State. South Korea is a good example of reforms in chaebols after the crisis (Yeonho Lee, 2005). Vietnam in 2009 only witnessed hot discussions, especially at the central level, about business performance of state-owned groups.

Regulatory quality shows itself in laws and law-enforcing machinery. Under the current circumstance, laws should offer equal treatments to all companies, and particularly, create good business climate for foreign-invested and private companies. It is due to the fact that the share of capital of state-owned companies in the structure of gross capital shows a downward sign whereas those of the foreign and private sectors increase steadily (GSO, 2006).

In addition to stress on the need to enhance the regulatory quality, this research also points out related fields that policy makers should pay more attention to: (i) Improving the GCI (Vietnam's rank fell from 70th in 2008 to 75th in 2009) so as to attract more investment; (ii) developing infrastructures (Vietnam's rank in 2009 was 95th, much lower than its rank of 75th in terms of the GCI); (iii) enhancing macroeconomic stability (Vietnam ranked 112th in 2009); and (iv) boosting the general education and health care (76th), and higher education and vocational training (92nd)■

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