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Economic and Sociopolitical Risks in Public Choices in West Africa

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Abstract

From a combination of models, logit with random effects and VAR in panel, this paper assesses the probabilities of occurrence of risks (socio-political or economic) and their impact on the economic activity in the Economic Community of the States of the West Africa (ECOWAS). The results reveal, on the one hand, that the probability of occurrence of economic risks is positively related to sociopolitical risks and inflation and, on the other hand, fiscal austerity reduces the probability of economic risk but increases that of risk. socio-political, hence the need to identify the optimal threshold of fiscal austerity that can trigger socio-political risks.

Mots clés: Logit model with random effects, VAR model in panel, sociopolitical risks, economic risks, ECOWAS
Classification J.E.L :C38, C51, E22

Résumé

A partir d'une combinaison de modèles, logit à effets aléatoires et VAR en panel, ce papier évalue les probabilités de survenance des risques (sociopolitiques ou économiques) et leurs incidences sur l'activité économique au sein de la Communauté Economique des Etats de l'Afrique de l'Ouest (CEDEAO).Les résultats révèlent, d'une part, que la probabilité de survenance des risques économiques est positivement liée aux risques sociopolitiques et à l'inflation et, d'autre part, l'austérité budgétaire réduit la probabilité du risque économique mais augmente celle du risque sociopolitique, d'où la nécessité d'identifier le seuil optimal d'austérité budgétaire pouvant déclencher les risques sociopolitiques.

Introduction

The recurrence of unpredictable events (climate shocks, terrorism, epidemics, etc.) has led researchers to place the question of their anticipation at the heart of economic debates (Gollier et al, 2011). In recent years, we have witnessed the development of risk anticipation techniques in economic decisions or public choices (Beck, 2002).The analysis of economic decisions in the face of risks has marked different authors, notably Knight (1921), who links the Keynesian and classical view of uncertainty. Neoclassical authors (Barro 1991, Aradau and van Munster 2007, Dillon and Lobo-Guerrero 2008) equate uncertainty with the notion of risk, which consists in taking into account an exposure to a hazard, harm or damaging event, inherent in a situation or activity through probabilities (Cohen, 1999). The risk can be socio-political (rebellion, war, corruption), economic (high debt, recession, inflation,) or environmental (climatic shocks).

In relation to public choices, risk management is based on the establishment of a surveillance system and systematic data collection to trigger alerts. The State and local authorities, responsible for ensuring the safety of the population, aim to manage crises and as much as possible to prevent them through monitoring structures, expertise and risk assessment. However, faced with the multiplication of risks and the strong demand of the citizens, the public power is regularly powerless to fight against them (Manyena, 2006).

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Uncertainty leads economic agents to make decisions whose consequences are not known with certainty. Therefore, the formalization of public decisions in an uncertain environment becomes necessary for the effectiveness of economic policies. In relation to public choices, risk management is based on two principles: prevention, which consists in anticipating and taking measures to avoid or reduce a risk, and precaution, which is an attitude or action against a potential but uncertain risk. The complexity of these two principles remains a topical issue because poor risk prevention can have drastic consequences for public decisions or choices (Aradau and van Munster, 2007).

Empirically, several studies (Guillaumont and Brun, 1999, Beck et al, 2001) have focused on the assessment of risks that plague society and their impact on the performance of public decisions. Some authors rely on an approach that makes it possible to quantify risk through principal component analyzes (Venerie and Gupta, 1992, Kaufmann et al., 2002, Kane and Diop, 2012). Most of this work is based on observing the facts to assign weight to the variables that determine the risks. This approach remains limited because it relies on an often hazardous quantification of discontinuous events. In addition, other authors prefer a probabilistic approach to capture the notion of Keynesian uncertainty, in order to estimate the risks before highlighting their impact on the effectiveness of the economic indicators (Alisena et al, 1992, Azam et al, 1996).

Thus, in the light of these debates on taking into account risks in the public choices, it is necessary to direct the reflection in the Economic Community of the West Africa States for at least two reasons:

- The African continent is unstable, it was the victim of 35 wars between 1970 and 2002 (Hugon, 2003) and most of the ECOWAS countries are shaken by risks (food insecurity, terrorism, climatic hazards) which hinder the good behavior of economic policies[2].
- This area is home to two Islamic groups (Aqmi and BokoHaram) considered among the most active in the world.

From a methodological point of view, we first assess the probabilities of risks occurring (socio-political and economic) using a logit model with random effects, before estimating their influence on certain key indicators of economic activity from a panel VAR model. The GMM method has been used with the robust option to address multicollinearity, endogeneity and heteroscedasticity issues.

The overall objective of this paper is, therefore, to highlight the impact of risk in public choices, by first identifying the determinants of economic and socio-political risks before assessing their impacts on certain public decisions. It will first presentthe review on the link between risk and economic activity (I), then explain the methodology (II) and finally conduct an analysis of the results (III).

I -REVIEW OF THE LITERATURE

1.1- Influence of risk in economic performance

Most studies on risks in public choices have shown the existence of a negative relationship between socio-political risks and the effectiveness of macroeconomic variables. Indeed, political instability undermines the economic policy of the state and restrains investment and economic growth. Accordingly, Carbonnier (2002) points out that coups d'état, repetitive strikes and social unrest are positively correlated with restrictive economic measures and inflation. In the same logic, Barro (1991) reveals that the government influences the probability of eruption of political violence and therefore affects economic growth.

According to Alesina et al. (1994), the nature of the political regime can also influence economic performance irrespective of its instability. In the same vein, Arcand, Guillaumont and Guillaumont (2000) realize that political instability creates pressure on public finances because of increased security spending, spending to reward support or appease opposition. In extreme cases of socio-political instability, such as revolutions and coups d'état, there is a decline in production and, in turn, a low level of macroeconomic magnitudes (Fosu, 1992).

In agriculture, risks are often unpredictable. Indeed, the fluctuation of production, faced with an inelastic demand for food leads to price volatility, which favors systemic risks and risks characterized by low frequencies but likely to cause significant damage.

[2]According to data from the United Nations International Strategy for Disaster Risk Reduction (UNISDR), climate hazards such as drought and flood affected more than 34 million Africans in 2012 and resulted in economic losses greater than 1,3 billion $ between 2011 and 2012.

On the other hand, macroeconomic instability can affect food security because it has a significant cost for the economy. Indeed, in a prosperous society with a stable economy, conflicts over redistribution are neutralized. They are common in societies with precarious development (Lipset, 1959). Thus, a high level of economic risk may slow down investment and encourage brain drain (Dixit and Pindick, 1994), confirming the existence of a negative relationship between economic growth and the risk of political instability (Abessolo , 2004)

1.2-Economic or Socio-Political Risks: Empirical Evidence

Political violence has often been the only way for people to express their demands and influence economic policy choices in African countries (Azam, 1995, Morisson et al. al., 1995). Adjustment policy decisions generate risks of political instability (Morrisson, Lafay and Dessus, 1993), which justifies the importance of socio-political reactions in the definition of economic stabilization programs in Africa (Azam, Berthelemy and Calipel, 1996).). Using a panel of African countries, Kaufmann et al. (2002) have shown that countries with high investment returns with faster growth rates are less exposed to the risk of political instability.

Thus, from a principal component analysis (PCA) that is based on political, economic and social information, Kane and Diop (2012) developed a risk function to study the link between socio-political risk and Foreign Direct Investment (FDI) flows in West Africa. Their work reveals that an improvement in the indices linked to "political stability and absence of violence" and "the rule of law" has a positive effect on FDI dynamics. On the other hand, the improvement of the index of "freedom of expression and responsibility" has a negative effect on the dynamics of FDI. In the same logic but with an approach based on a probit model in panel, Fosu (1992) highlights the influence of political instability on economic performance in 31 African countries. He finds that the probability of political risk has a negative and significant effect on investment and economic growth due to a gradual deterioration of the quality of the factors of production and especially of the flight of human capital.

Arcand, Guillaumont and Guillaumont (2000) estimated a dynamic panel with the GMM method for 53 countries in sub-Saharan Africa. They find that political instability creates pressure on public finances because of increased spending on security, spending to reward support or appease opposition. It slows down structural reforms for fear of the behavior of those who lose their pension. It creates an unfavorable perception among potential investors about the country's ability to conduct economic policy in a stable environment that guarantees property rights. As for Alesina and Perrotti (1996), they analyzed the relationship between political instability and economic growth in 113 countries over the period 1950 to 1982. Their results reveal that the growth rate of the economy tends to be rather weak on the periods when the government goes through periods of trouble.

Several studies show that civil war leads to a decrease in national production, destroys physical infrastructure but also divertsresources to non-productive sectors such as military spending. It also causes households to lose their wealth and even destroy and transform social capital (Colletta and Cullen 2000, Collier et al., 2003).The inclusion of risk in macroeconomic analysis has also made it possible to discover a link between the stability of political power and oil revenue. Indeed, according to Ombga (2007), political instability, measured by the duration of a regime in power, has a negative effect on the flow of portfolio investment to certain African countries. In addition, the misallocation of wealth is a factor generating economic risk. Indeed, according to Alesina and Rodrik (1994), inequality of wealth slows down growth, provoking income redistribution measures that distort the economy.

All this empirical work shows that economic and socio-political risks prevent economic growth and the accumulation of physical capital and modify also its efficiency by reducing the impact of investments on growth.

II- Methodology of risk assessment on public choices

2.1 Presentation of the theoretical model

Starting from Mankiw (2002), we consider that the Solow residue is the channel through which risk influences the economic activity of the ECOWAS countries. Thus, the theoretical model is as follows:

$$Y_t = A_t K_t^{\alpha} L_t^{\beta} G_t^{\gamma}$$

α, β and $\gamma$are parameters on which we do not impose any restriction.

Thus, in linear form, relative to the population (N_t), the model becomes:

$$\text{Log}\left(\frac{Y_t}{N_t}\right) = \log(A_t) + \alpha \log K_t + \log\left(\frac{L_t^{\beta}}{N_t}\right) + \gamma \log G_t \text{ en posant } N_t = \delta L_t$$

$$y_t = a_t + \alpha k_t + (\beta - 1) n_t + \gamma g_t - \log \delta \quad (1)$$

Avec $y_t = \log(\frac{Y_t}{N_t})$, $k_t = \log K_t$, $n_t = \log L_t$, $a_t = \log A_t$, $g_t = \log G_t$

2.2 Presentation of the empirical model

Based on the work of Alisena and Perotti (1996) and Kaufmann et al. (2002), we integrate in the model, economic risks and sociopolitical risks, which allows us to write:

$\alpha_t = f(X_{it}) = \sum_{i=1}^{k} \rho_i X_{it}$,

Where,X_{it}represents the matrix of factors other than the level of employment, investment and public expenditure. From there, we can rewrite the equation (1) with k the number of variables contained in the matrix while integrating the individual dimensions (i) and temporal (t) since we work as a panel:

$Y_{it} = \sum_{i=1}^{k} \rho_i X_{it} + \alpha k_{it} \phi n_{it} + \gamma g_{it}$ (2)

We highlight, through two models, the consideration of economic risk and that of socio-political risk.

Model 1: Taking into account the economic risk

$lrev_{it} = \alpha linv_{it} + \phi lemploi_{it} + \rho ldep_{it} + \lambda_1 ide_{it} + \lambda_2 ecolrev_{it-1} + \lambda_3 ecoldep_{it-1} + \lambda_4 ecolinv_{it-1} + \lambda_5 ecoide_{it-1} + \lambda_6 risqeco_{it} + \lambda_7 ecomacro_{it} + \lambda_8 probrisqeco_{it} + \lambda_9 sante_{it} + \lambda_{10} ecohuemoa_{it} + \varepsilon_{it}$ (3)Whereε_{it}represent the term of errors.

Model 2: Taking into account the sociopolitical risk

$$lrev_{it} = \alpha' linv_{it} + \phi' lemploi_{it} + \rho' ldep_{it} + \lambda_1' ide_{it} + \lambda_2' soclrev_{it-1} + \lambda_3' socldep_{it-1} + \lambda_4' soclinv_{it-1} + \lambda_5' risqsocio_{it} + \lambda_6' socmacro_{it} + \lambda_7' probrisqsocio_{it} + \lambda_8' sante_{it} + \lambda_9' sochuemoa_{it} + \varepsilon_{it}'$$ (4)

Whereε_{it}'represents the term of errors

To determine the probability of socio-political risk (probrisqsocio), we used some variables mentioned in the economic literature as likely to cause instability policy (Aliséna et al. 1992; Kane and Diop, 2012). Thus, a variable dummyrisqsocio is created taking 1 when the country has experienced one of these events and 0 otherwise. The variables selected are the unemployment rate (unemployment), military expenditure (depmili), budget management (gesbudget), the employment rate, the dummyhuemoa which takes 1 when the country does not belong to UEMOA and 0 if he belongs.

With respect to economic risk, we assign the value 1 to the country when it verifies at least two of the following situations: debt greater than the third quartile of debt as a percentage of nominal GDP and inflation higher than the third quartile. The variables used to determine the probability of economic risk are inflation, fiscal management, the exchange rate, the degree of openness of the economy, and the secondary school enrollment ratio (scosec).

The estimated model is then as follows:

$$Risq = \begin{cases} 1 & siy_{it}^{*} = X_{it}\beta + \alpha_i + \epsilon_{it} > c \\ 0 & \text{Sinon} \end{cases}$$

In the above equation, X_{it}presents the matrix of explanatory variables that can influence the probability of socio-political risks and economic (risqsocio or risqeco), β the vector of the coefficients of the explanatory variables,α_i individual fixed effects and, ε_{it} , the vector of the residuals, y_{it}^{*} corresponds to the latent variable for determining probabilities.

a) Choice of variables and source of data

The data covers 15 ECOWAS countries over the period 2000-2014, from World DatabankIndicator and WorldOutlook of Economics.

$lrev_{it}$: is the national income per capita. International institutions favor this variable when deciding on the state of the population's well-being, even though consumer spending seems more relevant because of its stability (the "ratchet effect").

$linv_{it}$:is the investment in percentage of nominal GDP in logarithm, its growth should lead to an increase in output and, in turn, to per capita national income;

$lemploi_{it}$: is the level of employment taken in logarithm, it allows to simulate the growth, therefore the income (Boserup, 2011),

ide_{it}: represents the inflow of net inflows of foreign direct investments in% of the GDP. It is an indicator of attractiveness and an explanatory factor of growth.

ldep$_{it}$: Public expenditure in percentage of nominal GDP is an important instrument of the State to guide the economy on the path of growth.

sante$_{it}$: State health expenditure is an important variable in the assessment of public choices and positively influences economic growth (Nubukpo, 2007).

inflation$_{it}$: Inflation negatively affects a country's competitiveness and is likely to precipitate economic crisis, it is therefore a candidate factor in the probability of economic risk.

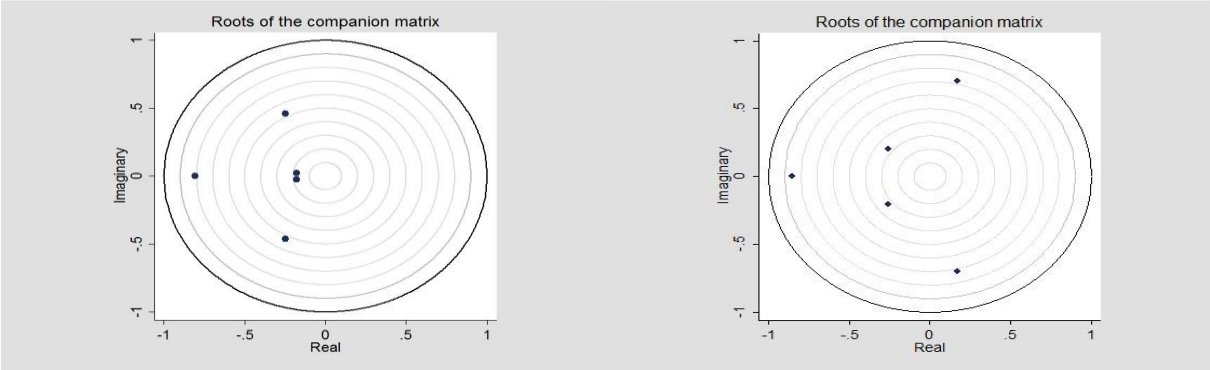
ecobudg$_{it}$: is a created dummy variable, it crosses the indicator of budget management with the high probabilities of economic and socio-political risk. Fiscal consolidation at risk is expected to have a negative impact (-) on per capita income.

The same is true for the variables ecomacro$_{it}$;socmacro$_{it}$; ecohuemoa$_{it}$and sochuemoa$_{it}$that one crosses with the variables of macroeconomic management and the indicator of not belonging to WAEMU, on the one hand, and the high probabilities of the economic and socio-political risk, on the other hand.

a) Model validation test

The stationarity tests of Hadri, LLC and Breitung show that with the exception of inflation and the exchange rate which are stationary (Table 3, Annexes), all the variables are integrated into 1. Thus, we did the Johansen co-integration test which does not reject the null hypothesis of no co-integration (Table 5: appendices). This result leads us to estimate a panel VAR for the 15 ECOWAS countries (Table 7: Appendices). The Granger stability test does not reject the null hypothesis of stability of VAR.

FIGURE 1 - Stability of VAR:



source:*construction of the author,NB: on the left, the economic risk mode*

III - Results and Interpretation

The Hausmann specification test identified the random effects model for estimating socio-political risk and economic risk probabilities.

3.1 Probabilityof EconomicRisk and Socio-Political Risk

The sum of the results (Table 6) is as follows:

- Estimated likelihood of economic risk (1)

$$\text{risqeco}_{it} = 0{,}096\ \text{inflation}_{it} + 3{,}641\ \text{risqsocio}_{it} - 3{,}195\ \Delta\text{gesbudget}_{it} + 1{,}68\ \text{huemoa}_{it} + \varepsilon_{it}$$

- Estimate of the probability of socio-political risk (2)

$$\text{risqsocio}_{it} = 2{,}753\ \Delta\text{gesbudget}_{it} + 3{,}580\ \text{risqeco}_{it} + \varepsilon'_{it}$$

In the first model, the results reveal that inflation, the indicator of socio-political risk and non-membership of the WAEMU zone are the variables that increase the probability of the occurrence of economic risk in ECOWAS. On the other hand, fiscal management reduces the likelihood of economic risk. In the second model, economic risks and fiscal management increase the likelihood of socio-political risk occurring. Indeed, when economic risk increases, States tend to apply restrictive measures that usually lead to socio-political crises.

3.2 Impact of risk probabilities on public choices

Econometric results show the existence of an interaction between risks and macroeconomic aggregates. In relation to the economic risk, the study reveals the existence of a positive relationship between its probability of occurrence and public expenditure, whereas this relation is negative with respect to the entry of FDI and the level of employment.

The lesson learned at this level is that when the probability of the occurrence of the economic risk increases, it creates a situation of uncertainty in the behavior of investors who would prefer to invest in countries less exposed to risk. But paradoxically, when countries are hit by economic risk, it increases their net inflows of FDI. Indeed, following an economic crisis, the ECOWAS countries are putting in place legal frameworks and fiscal consolidation policies in order to create an environment of trust towards international investors. In such a context, it is clear that the occurrence of economic risk is likely to attract (FDI).

But the increase in public spending whena country meets a high probability of economic risk significantly increases not only FDI inflows but also per capita income and therefore positively affects the well-being of the population in the very short term because we are witnessing a slowdown in the level of FDI and per capita income in the following year. This explains the negative relationship between spending in the high probability period of year t-1 and FDI as well as per capita income in year t.

In addition, policies to increase investment during periods of high probability of risk favor FDI inflows to the next year. Thus, registered investment efforts encourage suppliers to support States in their policy of supporting aggregate demand. As mentioned above, an improvement in macroeconomic management in an environment where the occurrence of risk is highly likely negatively impacts the growth rate of public spending and the investment rate, in other words, results in restrictive measures.By focusing on socio-political risk, we find that it has no significant effects on the well-being of the population. However, its probability of occurrence negatively influences the growth rate of investment, employment, and increases public spending.

Conclusion

The unpredictable events (economic crises, natural disasters, terrorism, etc.) that influence economic activity have led us to highlight the anticipation of risks in public choices. In this paper, we were asked to estimate the probabilities of socio-political or economic risks and to measure their impact on certain economic decisions within ECOWAS. The results show that the likelihood of the occurrence of economic risks is positively related to socio-political risks and inflation. On the other hand, improved fiscal management reduces the likelihood of economic risk occurring which is very low for WAEMU member countries. With regard to socio-political risks, their probability of occurrence increases with economic risks and fiscal austerity.

The integration of risk in public decision models reveals that an increase in the probabilities of economic or socio-political risks negatively impacts foreign direct investments, inflation, the level of employment and therefore economic growth. This results in two economic policy implications:

- First, ECOWAS member countries should pay particular attention to restrictive fiscal policies that can increase socio-political risk even though they reduce the likelihood of economic risk. It then becomes necessary to determine the optimal threshold of fiscal austerity policy that can trigger the socio-political risk in a country.
- Secondly, importance must be given to controlling inflation because it indirectly increases the probability of socio-political risk occurring, especially since there is a positive relationship between the probabilities of economic risk and socio-political risk.

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Annex: Presentation of the results

TABLE 1 - Summary of descriptive statistics of ECOWAS countries

	rev_tet	Spending (% PIB)	invest (% PIB)	ide(% PIB)	Employment
Min	310	8,772	1,096	-0,264	46,7
Max	6200	38,672	49,789	89,476	81,5
Mean	1764,07	22,057	20,193	5,427	65,61

TABLE 2 - Correlation matrix between variables

	rev_tet	Spending	Invest	Ide	Employment	gesmacro	Depsante
rev_tet	1						
Depense	0,3470***	1					
invest	0,4150***	0,5956***	1				
ide	-0,0996	0,0468	0,1251*	1			
emploi	-0,3152***	0,004	-0,0118	-0,1860***	1		
gesmacro	0,2419***	0,2751***	0,4577***	-0,0253	-0,1597**	1	
Depsante	0,1086	0,5681***	0,5843***	0,2144***	0,1595**	0,4479***	1

TABLE 3 - Stationarity tests of the variables

	Stationarity test on level series				Stationarity test on series in differences			
Variables	Llc	hadri	Breitung	Decision	llc	Hadri	breitung	Décision
Revenu	0,6961	0	1	NS	0,0002	0,5319	0	I(1)
Dépenses	0,0005	0	0,3753	NS	0	0,9901	0	I(1)
Investissement	0	0	0,1284	NS	0,1711	0,9168	0	I(1)
IDE	0,0022	0,0024	0,0022	NS	0	0,9991	0	I(1)
Emplois	0,0004	0	1	NS	0	0,5906	0,0046	I(1)
Gestionbudgtaire	0,5856	0	0,1286	NS	0,1613	0,7233	0	I(1)
Ressourcespubliques	0,9968	0	0,5829	NS	0,0094	0,2056	0	I(1)
Scolarisationprimaire	0,0036	0	0,9988	NS	0,0591	0,3681	0	I(1)
Chomage	0,0668	0	0,0842	NS	0	0,9928	0	I(1)
Inflation	0	0,6099	0	I(0)				I(0)
Gestion macro	0,999	0	0,7786	NS	0,0013	0,1193	0	I(1)
Ouverture	0,0534	0	0,1254	NS	0	0,1238	0	I(1)

TABLE 4 - Choice of the optimal delay on the first difference series

Lag	MBIC	MAIC	MQIC
1	-371,7675	-93,01835	-206,2197
2	-284,9869	-75,92498	-160,826
3	-183,8299	-44,45532	-101,056
4	-103,9014	-34,21412	-62,51445

TABLE 5 - Johansen cointegration test

Johansen Fisher CointegrationTest		
Series LREV LINV LEMPLOI LDEPENSE IDE		
Included observations 225		
Trend assumption Quadratic deterministic trend		
Lags interval (in first differences) 1 1		
Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)		
Hypothesized No. of CE(s)	Fisher Stat,(from max-eigen test)	Prob
None	19,41	0,8851
Atmost 1	87,55	0,0000
Atmost 2	172,7	0,0000
Atmost 3	257,9	0,0000
Atmost 4	191,3	0,0000

***Source** : Authors' Estimate*

TABLE 6 – Results in the estimate of thelogitmodel

	Nombre ofgroups groupes= 15			
	Nombre of observations=209			
	P>F=0,000			P>F=0,000
	Model 1 :Risqeco		Model 2 :Risqsocio	
Variables	Coefficient	t-statistic	Coef	t-stat
Inflation	0,096***	3,27		
Risqsocio	3,641***	6,79		
Δgesbudget	3,195**	-2,11	2,753**	2,05
Δouver	0,031	0,95		
txchange	-4,90E-05	-0,3		
Δscosec	-0,067	-1,19		
Δgesmacro	1,678	1,37		
huemoa	1,68**	2,05	-0,741	-0,57
Risqeco			3,58	6,79
Δchomage			0,191	0,63
Δrespub			-1,156	-0,74
Δdepmil	-1,021			
	Significance 1% (***); 5% (**) et 10%(*)			

***Source** : Authors' Estimate*

TABLE 7 - Results of VAR Model Estimate

			Panel VAR Autoregression							
			Nombreof group of individuals= 15			Nombre of observations=179				
				Matrice des poids du GMM : Robust						
	Model1: Taking into account the economic risk					Model 2: taking into account Sociopolitical risk				
	Δlrevit	Δldepit	Δlinvit	Δideit	Δlemploiit	Δlrevit	Δldepit	ΔlinvitΔideit		Δlemploiit
Δlrevit−1	-0,773***	4,173***	-0,668***	38,893***	-0,147***	-0,476***	6,994***	-0,455*	-3,779	0,268***
	(-6,44)	-6,43	(-3,09)	-2,94	(-7,27)	(-4,48)	-6,11	(-1,89)	(-0,35)	(-6,48)
Δldepit−1	-0,016	-0,146	-0,525***	11,604***	-0,012*	0,014 (0,66)	0,01	-0,465***	7,522**	-0,019**
	(-0,56)	(-0,94)	(-6,37)	-3,17	(-1,93)		-0,04	(-6,49)	-2,51	(-2,02)
Δlinvit−1	0,006 (0,38)	0,249***	-0,128**	1,763 (1,12)	-0,006*	0,006 (0,56)	0,270*	-0,172***	0,302 (0,27)	-0,003
		-2,63	(-2,18)		(-1,94)		-1,84	(-3,06)		(-0,57)
Δideit−1		0,001 (-0,86)		-0,127*		-0,001***	-0,004***	0,001**	-0,109***	0,0003***
				(-1,85)		(-4,74)	(-3,56)	-0,022	(-4,02)	-7,14
Δlemploiit−1	-1,175***	11,186***	4,689***	-830,354***	-0,484***	-0,309*	2,475*	4,049***	-783,893*	-0,280***
	(-7,17)	-9,74	-6,74	(-11,75)	(-7,10)	(-1,94)	-1,77	-7,56	(-13,37)	-3,62)
Δsanteit	-0,008	0,210***	0,077***	6,756***	-0,004***	-0,001	0,176***	0,066***	6,680***	-0,002*
	(-1,63)	-8,79	-7,01	-8,19	(-3,57)	(-0,20)	-5,92	-5,7	-9,96	(-1,68)
Risqecoit	-0,008	-0,043	-0,038	3,126***	0,003*					
	(-0,87)	(-0,95)	(-1,17)	-2,86	-1,75					
Probrisqecoit	0,03	0,485***	0,079 (1,09)	-8,923**	-0,016***					
	-1,29	-3,96		(-2,48)	(-3,62)					
ecoΔlrevit−1	0,744***	-5,246***	1,249***	103,81***	0,190***					
	-5,95	(-7,33)	-5,15	-6,14	-8,2					
ecoΔldepit−1	-0,968**	0,242 (1,28)	0,667***	-22,288***	0,027***					
	(-2,50)		-6,46	(-4,41)	-3,88					
ecoΔlinvit−1	0,019 (1,02)	-0,247*	0,029 (0,23)	7,700**	0,003 (0,85)					
		(-1,86)		(-2,97)						
ecoΔideit−1	-0,001***	-0,006*	0,002 (1,52)	0,028 (0,30)	0,0003***					
	(-2,92)	(-1,86)			-4,06					
ecoΔmacroit	0,031 (1,11)	-0,712***	-0,166**	9,077 (1,17)	0,004 (0,24)					
		(-3,28)	(-2,47)							
Ecohuemoait	-0,047***	0,149**	0,115**	-2,019	-0,003					

	(-3,32)	(-2,17)	(-2,2)	(-0,68)	(-1,06)					
Risqsocioit						0,01	0,042	0,015	-0,567	-0,003
						-1,25	(0,52)	(0,54)	(-0,64)	(-0,78)
Probrisqsocit						-0,01	0,336***	-0,203***	-3,302	-0,009*
						-1,21	-3,24	(-3,62)	(-1,37)	(-2)
socΔlrevit−1						0,266*	-8,457***	1,083***	163,293***	0,330***
						-1,96	(-6,97)	-4	-9,91	-7,38
socΔldepit−1						-0,116***	-0,377	0,503***	-11,11**	0,0450***
						(-3,28)	(-1,38)	-5,08	(-2,54)	-4,43
socΔlinvit−1						0,001 (0,36)	-0226 (-1,23)	0,019 (0,22)	-4,825	-0,0006
									(-1,52)	(-0,08)
socΔmacroit						-0,090*	-0,426***	0,267**	2,247 (0,53)	0,020***
						(-1,80)	(-3,50)	-2,16		-2,91
Sochuemoait						-0,023*	0,106 (1,56)	0,130**	-2,263	-0,009***
						(-1,70)		-2,54	(-1,11)	(-3,17)
			T.Hansen :	Chi2 (100)=102,652	P-value=0,408	Chi2(100)=102,734	P-value=0,406			
					Significativité : 1%(***); 5%(**) et 10%(*)		()=t-statistics			

Source : *Authors' Estimate*