E C O N O M I C S B U L L E T I N

CURRENCY CRISIS AND BALANCE SHEET CHANNEL EFFECT. The Korean Experience

Francois HERMET
CERESUR, University of La Reunion

Abstract

Some theoretical crisis models of third generation incorporate the "balance sheet effect" emphasized by Bernanke and Gertler (1989) and many papers since. In a crisis context this mechanism, based on asymmetric information in the credit market, describes how a currency depreciation affects domestic firms' investment. This paper proposes an empirical validation of this theoretical prediction. To this end, we study the investment behaviour of 477 Korean manufacturing firms, particularly during the 1997 Asian crisis. However, contrary to many studies in which cash flow account variable is used as proxy for entrepreneurs' net worth, our analysis focuses on a more relevant variable, the cash stock, to measure these internal funds. The preliminary results stipulate that firms' balance sheets in the aftermath of the Asian crisis, are more robust in explaining investment than before the crisis. It is further shown that this relationship is more relevant for small firms.

Citation: HERMET, Francois, (2003) "CURRENCY CRISIS AND BALANCE SHEET CHANNEL EFFECT. The Korean Experience." *Economics Bulletin*, Vol. 6, No. 12 pp. 1−12
Submitted: October 7, 2003. **Accepted:** November 20, 2003.
URL: http://www.economicsbulletin.com/2003/volume6/EB−03F30005A.pdf

1. Introduction

Following 1997 Asian financial crisis, several theoretical models incorporate the "balance sheet effect" emphasized by Bernanke and Gertler (1989) and many papers since. In a crisis context, this mechanism based on asymmetric information in the credit market, describes how a currency depreciation affects domestic firms' investment. This paper proposes an empirical validation of this theoretical prediction.

Between 1992 and 1997, the exchange rate stability between the won and the dollar, associated with the low cost of credit from abroad, encouraged Korean entrepreneurs to contract significant external loans denominated in foreign currency. The contractors had a too high degree of confidence with the parity : before the Asian crisis, loans in dollar were perceived without exchange rate risk and firms did not protect their engagements (Agenor 2001). In this context, the sharp 1997 currency depreciation – in one month the Korean currency fell from 1000 won to close to 2000 won per dollar – caused a strong revaluation of the firms' external debt charge. Firms' balance sheet was massively worsened by this event and due to the presence of credit market imperfections, entrepreneurs had to pay an additional agency cost to finance new investments. Indeed, the will to control asymmetric information when providing loans, brought the lenders to impose rationing on credit supply according to firms' balance sheet quality : a strong financial position put up collateral for a loan. Imperfections in the financial market therefore conditioned the firm's investment level to its financial position and affects ultimately the production process.

Our econometric analysis is consistent with this logic. The specificity of the work is based on the description of the worsening of Korean firms credit constraints in the aftermath of the Asian crisis. In addition, credit channel studies reveal that firm size constitutes a relevant factor in this mechanism. Because small firms offer lower guarantees, banks lend in priority to large ones particularly in restriction periods. This *flight to quality* phenomenon (Bernanke, Gertler *and* Gilchrist 1996) have to be confirmed by checking that small firms' investment is more dependent to net worth when the balance sheet channel is opened by the crisis.

The rest of the paper is as follows. Section 2 presents the investment function to estimate and discusses the choice of a relevant variable to measure firm internal funds. Section 3 describes the data base structure. Section 4 provides the results based on the Arellano-Bond (1991) dynamic panels data procedure.

2. Characteristics of the investment function

According to balance sheet crisis effect, the currency depreciation makes firms' investment more dependent to net worth. To test this prediction, the investment specification must be able to establish a link between the financial side and the real side of the economy. As for that, firms' accounting ratios are incorporated in conventional investment models : these variables are likely to reveal asymmetric information on the credit market.

Based on individual data, econometric modelling of firm investment behaviour are articulated around four types of models : the neo-classical model, the accelerator approach, the q-theory analysis and the Euler equation model. In each one of these models, the financial constraint is often modeled by taking the *cash flow* as indicative variable of firm net worth.

Various arguments guide our choice in favour of the accelerator-profit equation : in addition to its simplicity, the literature recognises to this specification the best performances from an empirical viewpoint (Oliner, Rudebush *and* Sidel 1995).

2.1 An accelerator-profit specification

The accelerator-profit specification relates the firm investment rate to ***(i)*** its investment rate lagged one period because of time adjustment of capital, ***(ii)*** its profit perspective *via* the lagged ratio of sales to capital, ***(iii)*** its financial position by the lagged ratio of *cash flow* to capital.

Traditionally, the *cash flow* statistical significativity is supposed to reveal asymmetric information in the credit market. In fact, *cash flow* also exerts an influence on the future profitability of capital. Thus, as Kaplan and Zingales (1997) underline it, firms which are the least constraint are likely to have the strongest sensitivity to this account variable : entities with a high *cash flow* may have higher sales or low production costs. These type of firms are therefore strongly incited to increase their production, and thus to invest (Romer 1997). In this condition, it is impossible to establish a clear distinction between the informational contents of the *cash flow*, in terms of future profits, and its predictive character in terms of asymmetric information.

Because *Cash Flow* may be a poor indicator to detect financial constraint existence, we choose a new accounting variable to deem in a more relevant way the firm net worth. This study considers the stock availability of the firm (*cash stock*) as a predictive variable to reveal entrepreneurs difficulties to obtain loans.

2.2 Relevance of *cash stock*

To face *cash flow* insufficiencies, credit channel literature offers many alternative variables. It seems however judicious to retain an accounting variable which reveals financial market imperfections through an established theoretical framework. For this reason, the *cash stock* (CS) is selected. This indicator of internal funds is built by taking the sum of firm's treasury availability.

This variable is not often used in credit rationing studies. Only Kadapakkam *and al.* (1998) and Love (2003) use it. Intuitively, *cash stock* can be interpreted as a "**precautionary saving**" which permits to invest when external funds are expensive. Through this availability, entrepreneur has more latitude in his investment decision : by holding liquidity reserves, firms are likely to invest without systematic recourse to expensive loans.

The model of Myers *and* Majluf (1984) constitutes the main theoretical reference for this relationship. According to these authors, firms' available funds influence directly investment in the presence of asymmetric information. With a financial room for manoeuvre, the firm has the possibility to seize project regardless costly loans. Therefore, in the presence of financial constraint, firms systematically use their reserves and the sensitivity of investment to *cash flow* appears significant.

This point of view is also shared by Opler *and al.* (1999). For these autors the detention of liquid assets ensures the possibility of investing when external financing is expensive.

They establish in addition that firms which face the weakest costs of agency are those which have less liquidity. This result is explained by the opportunity cost of availability detention : because *cash stock* do not offer any return and mobilise some resources at non-productive ends, firms accumulate liquidity only in a perspective of credit constraint. In the contrary case, this "precaution cash" is not necessary. Intuitively, this concern of keeping funds to face a future obligation, accords with the keynesian psychological liquidity preference concept[1].

In comparison with *cash flow*, there is no ambiguity in the interpretation, as financial constraint, of a positive relation between *cash stock* and investment : an increase in *cash stock* reveals benefit anticipation only in the presence of asymmetric information. As external funds are costly, firms wishing to invest may find beneficial to hoard internal funds to seize future investment opportunities.

3. Data base structure

The sample consists of Korean manufacturing firms individual balance sheet data. Accounting components come from OSIRIS database (*Van Dijk* office). A panel of 477 firms over the period 1994-2001 is used, that is to say 3816 observations. In this way, we emphasize the heterogeneity of investment decision as well in individual as temporal dimension.

Historically, balance sheet crisis episodes are relatively rare. Only Scandinavian (1990) and Asian (1997) economies suggest a balance sheet phenomenon during a currency crisis. Contrary to Scandinavian countries, Asian balance sheets data are relatively available around the crisis period. Among Asian economies, the choice of Korea is primarily relevant for one reason : the credit rationing due to deterioration in the banking sector was relatively contained. Contrary to Malaysia or Thailand, the Korean authorities intervened quickly in favour of domestic banks to avoid any collapse in credit distribution following the Asian crisis (Artus 2000). In the same way, the " freezing " in the Indonesian credit system accentuated the recession after the crisis (Krugman 1999).

3.1 Descriptions of the variables

The ratios I/K, S/K and CS/K are built from four variables ***(i)*** **Total investment** (I) which is defined like the amount of acquisitions of tangible fixed assets (*net properly, plant and equipment*) net of fixed assets cession, ***(ii)*** **Capital** (K) which is measured by fixed assets, ***(iii)*** **Turnover** (S) which is measured by the net sales and ***(iv) Cash Stock*** (CS) which is defined as firm availabilities (*cash or equivalent*).

Beyond the definition of these accounting indicators, we have to define a threshold to classify the firms depending on their size (small or large). The distinction between these two categories is carried out, in an exogenous way[2], through the sales turnover (in logarithm). Assuming that firms do not change size over the period[3], two size threshold criteria are

[1] "*There is no necessity to hold idle cash to bridge over intervals if it can be obtained without difficulty at the moment when it is actually required*" J. M. KEYNES (1936), chap. 15.

[2] Endogenous determination of a threshold is not possible in dynamic panel specification (Hansen 1999).

[3] As temporal dimension being relatively weak, this simplifying assumption appears reasonable. We take therefore 1994 as year reference.

used : ***(i)*** **sale average** which defines 288 small firms against 189 large, and ***(ii)*** **sale median** which provides two subsamples of similar size (239 and 238 firms).

3.2 Summary statistics of the variables used

The main statistical characteristics relating to the various ratios used in the regression, appear in the table 1. One observes especially a relatively strong dispersion of the *cash stock* ratio within the Korean firms (its standard deviation equalises its average).

The figure 1 represents the I/K annual average evolution. Until the 1997 Asian crisis, the significant economic growth explains an expanding investment rate : the anticipation of an unceasingly stronger demand associated with relatively low coast of loan, especially from abroad, encourages Korean firms to invest more and more. After the crisis, the investment rate falls from 30 % in 1997 to 23 % after three years (2000). Intuitively one thus expects that firms may be subjected to financial constraints over this period *i.e.* their investment decisions were function of their degraded financial position.

4. Estimations results and interpretation

By nature, firm's investment behaviour is dynamic and should be modeled as such. The dynamic specification is due to the presence of the endogenous lagged variable among the regressors. Based on the Arellano-Bond (1991) estimator, the econometric model is a dynamic linear panel data regression.

First, the investment behaviour of Korean firms is estimated without any distinction between the firms or between the periods. Second, the existence of heterogeneity in financial constraints, as well as individual dimension than temporal dimension, is appraised.

4.1 Global estimation

From an accelerator-profit specification, the Arellano-Bond procedure is applied to the following investment equation :

$$\left(\frac{I}{K}\right)_{it} = \alpha_1 \left(\frac{I}{K}\right)_{it-1} + \alpha_2 \left(\frac{S}{K}\right)_{it-1} + \alpha_3 \left(\frac{CS}{K}\right)_{it-1} + \delta_t + \mu_i + \varepsilon_{it} \qquad (1)$$

Because of the difficulty to measure firm's investment behaviour only from accounting ratios, equation (1) incorporates time fixed effect (δ_t) and individual fixed effect (μ_i).

The results obtained in the two steps of the estimate are presented in table 2[4]. The lagged of the instrumental variables are from two to three years. Whatever the estimator selected, GLS (step 1) or GMM (step 2), the m_2 test reveals the absence of second order autocorrelation for the residuals in first difference. In addition, we check the presence of negative first order autocorrelation for residuals in first difference (m_1 test). The Sargan test also validates the choice of the instruments (*P-value*> 0.05).

All the coefficients are significant and their sign are consistent with economic logic. As expected, the estimators obtained by GMM are more efficient. To detect financial

[4]Estimates were performed by Gauss program *DPD98* written by Arellano *and* Bond.

constraints, we focus on the coefficient α_3 (CS/K in the table). This coefficient is positive and significant, which confirms the importance of financial structure in the Korean firm investment decision : before turning to external sources, the entrepreneurs finance their investments with their internal resources. This imperfect substituability between external and internal funds may be an expression of asymmetric information in the credit market. The extent of this rationing is function of the quality of the firm balance sheet. Therefore, any shock affecting the firm net worth is likely to modify its investment behaviour.

From a quantitative point of view, and based on GMM estimator, an increase of 1 point in the rate of *cash stock* involves an increase less than 0.1 point (0.094) in the investment rate. This value is comparable with those obtained by Love (2003).

4.2 Firm size and investment constraint extent

Estimates without any distinction in the sample tend to prove the importance of Korean firm self-financing as determinant of investment. The next step consists in analysing the influence of firm size on the financial constraint extent. One can expect the size as a good indicator of the financial constraint dimension. The idea generally retained in the literature is that small firms, which have less guarantees to offer, are subject to more credit constraint than the large ones.

This firm size influence is considered by the following investment equation :

$$\left(\frac{I}{K}\right)_{it} = \alpha_1\left(\frac{I}{K}\right)_{it-1} + \alpha_2\left(\frac{S}{K}\right)_{it-1} + \theta\alpha_3\left(\frac{CS}{K}\right)_{it-1} + (1-\theta)\alpha_4\left(\frac{CS}{K}\right)_{it-1} + \delta_t + \mu_i + \varepsilon_{it} \quad (2)$$

where the parameter θ equals 1 when the firm is small, and 0 otherwise.

A significant α_3 coefficient combined with a nonsignificant α_4 coefficient, is interpreted as the sign that small firms are more credit constrained than the large ones. Small firm's investment therefore depends more on internal funds.

Table 3 presents the results. Two series of measurement are reported, depending on the size criterion (defined compared to sale average or sale median). As previously, the exogeneity instruments are confirmed respectively by m_1, m_2 and Sargan tests.

The coefficients α_1 and α_2 are always significant and their sign is coherent. In the same way, the estimators of *cash stock* are close similar, in level and significativity, in the two series of estimates. Only a risk level of 7 %, instead of the 5 % generally recommended, is observed on small firms GMM *cash stock* estimator when the median is used. Nevertheless, the various results confirm the influence of firm size. By retaining GMM estimators (step 2), the coefficient α_3 (CS/K^{small}_{it-1} in the table) is always the only significant one : α_4, which translates the large firm investment sensitivity to their internal funds, is statistically equal to zero. Thus, there are two kind of firms :

– not constrained ones : their investment simply depends on traditional variables.

– constrained ones : in addition, investment depends on the level of internal funds.

In conclusion, the *flight to quality* mechanism seems to be present in Korea : credit rationing does not affect firms in a similar way. Only the small ones seem subjected to the agency problems, certainly because of the weakness of their collateral in loan process.

4.3 Economic recession and credit constraint extent

As previously, the objective is to go beyond the simple description of financial constraints. Balance sheet channel mecanism is now connected to the variations in the economic environment. We therefore study the temporal stability of investment-*cash stock* relation at the time of the 1997 Asian crisis. If the theoretical predictions of balance sheet crisis models hold, a monetary depreciation is likely to strengthen the asymmetric information between lenders and borrowers and the sensitivity of investment to firm's internal funds increases.

Figure 1 suggests two periods in the evolution of Korean firms investment rate. A **growth period** which corresponds to 1995, 1996, 1997 and 2001 years, and a **recession period** in the aftermath of Asian crisis (1998, 1999 and 2000).

This section aims to test the relevance of balance sheet channel over these two periods. Equation (3) is then estimated by considering $\phi = 1$ for years 1997, 1998 and 1999. This delay of one year compared to the period of recession previously defined (1998-2000) is indeed necessary to consider temporal lag between I/K and CS/K in the investment function.

$$\left(\frac{I}{K}\right)_{it} = \alpha_1\left(\frac{I}{K}\right)_{it-1} + \alpha_2\left(\frac{S}{K}\right)_{it-1} + \phi\alpha_3\left(\frac{CS}{K}\right)_{it-1} + (1-\phi)\alpha_4\left(\frac{CS}{K}\right)_{it-1} + \delta_t + \mu_i + \varepsilon_{it} \quad (3)$$

Table 4 presents the results. Once again, the specification of the model appears relevant since the validity of the instruments is confirmed by the various exogeneity tests. In addition, the variables I/K and S/K are always significant. As expected, the coefficients of *cash stock* variable reveals the presence of credit constraints only at the time of recession : in the two steps of estimate, *cash stock* are significant only over this period. In period of growth, the balance sheet channel is not activated : there is no dependence between firm's investment and its internal funds.

The fact that the firm's net worth has no influence on investment is traditionally related to the absence of asymmetric information on the credit market. Firm can borrow as much as necessary to finance profitable investment. Nevertheless, several authors suggest that the solvency of investment project is not necessary in South-Asian countries before the crisis. This characteristic is due to the presence of governmental guarantees on the investment profitability. Thus, for Corsetti, Pesenti *and* Roubini (1999), before 1997 the efficiency of the investment projects has no importance because the repayment of debt is perceived as being assured : if there are losses, the government pays the deficit. Therefore, banks are insured to be repaid and no firm's collateral is necessary. This scenario can thus explain the absence of causality between *cash stock* and investment during the economic growth[5].

Under this condition, the non significativity of *cash stock* in Asia does not support systematically the perfect information hypothesis before the crisis. On the contrary, depending on the mechanism set out by Corsetti and *al.* (1999), moral hazard is at a hight level since the risk of no repayment is perceived as being completely socialised by the government.

[5]Except 2001, this period only integrates years before crisis.

With the emergence of the crisis, the insurance against the risk of nonprofitability disappears and in the same time the firms balance sheet degrades. Therefore, credit rationing is not constant over time : the estimate reveals that Korean firms become credit constrained only in the aftermath of the Asian crisis. This result is in accordance with the theoretical predictions previously developed : the firm net worth decreasing, moral hazard between entrepreneurs and lenders increases. Therefore, banks limit their credit supply. This real crisis effect is captured in our function by the sensitivity of the *cash stock* to investment in recession period : the access to credit market being costly, firms keep investing thanks to their availabilities. For a rationed firm, self-financing then becomes a necessary condition to invest. Unfortunately, the amount of own capital is insufficient to maintain a flow of raised investment and a sudden reduction of I/K appears in 1998 (figure 1).

5. Conclusion

The crisis balance sheet channel, based on asymmetric information on the credit market, provides a mechanism by which an exchange rate depreciation affects firms' investment. This article advances some empirical justifications for this theoretical prediction. From this point of view, we analyse Korean firms investment behaviour to detect the presence of credit constraints, particularly in the aftermath of the 1997 Asian crisis.

To appraise balance sheet channel effect, firms' investment behaviour is studied. By replacing the traditional *cash flow* with *cash stock* to proxy entrepreneur net worth, the interpretation of our results is less ambiguous. The various estimates tend to consolidate the crisis balance sheet channel thesis : financial constraints are particularly significant after the Asian crisis, *i.e.* during the time when firms' financial position considerably worsened. Under these conditions, as the evolution of the I/K has attested since 1998 (figure 1), investment rate significantly decreased during the recession period. The influence of financial imperfections on the propagation of a currency crisis within the real side of the economy, can therefore be proposed.

In addition, the analysis reveals a heterogeneity in financing conditions between firms : smallest Korean entities are more credit constrained. This *flight to quality* phenomenon is particularly significant during the economic recession which followed the 1997 Asian crisis.

References

Agenor, P.R. (2001) *L'économie de l'ajustement et de la croissance*, Mimeo

Arellano, M. and Bond, S. "Some tests of specification for panel data : Monte Carlo evidence and an application to employment equations " *Review of Economic Studies* **58**, 277-297

Artus, P. (2000) *Crise des pays émergents : faits et modèles explicatifs*, Economica.

Bernanke, B. and Gertler, M.(1989) "Agency costs, net worth, and business fluctuations " *American Economic Review* **79**, 14-31

Bernanke, B. Gertler, M. and Gilchrist, S. (1996) "The financial accelerator and the flight to quality " *Review of Economics and Statistics* **78**, 1-15

Bernanke, B. Gertler, M. and Gilchrist, S. (1999) "The financial accelerator in a quantitative business cycle framework" NBER working paper 6455

Corsetti, G. Pessenti, P. and Roubini, N. (1999) "Paper tigers ? a model of the asian crisis" *European Economic Review* **43**, 1211-1236

Gertler, M. and Hubbard, G. (1988) "Financial market volatility : causes, consequences and policy recommendations" in *Financial factors in business fluctuation*, Federal Reserve Bank of Kansas City, 33-71

Hansen, B.E. (1999) "Threshold effects in non-dynamic panels : estimation, testing and inference" *Journal of Econometrics* **93**, 345-368

Hansen, L.P. (1982) "Large sample properties of generalized method of moments estimators" *Econometrica* **50**, 1029-1054

Hubbard, G. (1998) "Capital-market imperfections and investment" *Journal of Economic Literature* **XXXVI**, 193-225

Kadapakkam, P.R. Kumar, P.C. and Riddick, L.A. (1998) "The impact of cash-flow and firm size investment : the international evidence" *Journal of Banking and Finance* **22**, 293-320

Kaplan, S. and Zingales, L. (1997) "Do investment cash-flow sensitivities provide useful measures of financing constraints ?" *The Quaterly Journal of Economics* **112**, 169-215

Keynes, J.M. (1936) *The general theory of employment, interest and money*, London : Macmillan

Krugman, P. (1999) "Balance sheets, the transfert problem and financial crises" in Isard, Peter, A. Razzin and A. Rose, *International Finance and Financial Crises : Essays in Honor of Robert Flood*, Dordrecht, kluwer

Loves, I (2003) "Financial development and financing constraint : international evidence from structural investment model" *Review of Financial Studies* **16**, 765-791

Myers, S. and Majluf, N. (1984) "Corporate financing and investment decisions when firms have information that investors do not have" *Journal of Financial Economics* **13**, 187-221

Opler, T. Pickowitz, L. Stultz, R. and Williamson, R. (1999) "The determinants and implications of corporate cash holdings" *Journal of Financial Economics* **52**, 3-46

Romer, D. (1997) *Macroéconomie Approfondie*, Mc Graw-Hill/Ediscience

TAB. 1 – Summary statistics

Variables	Mean	Standard deviation	Median	Minimum	Maximum
I/K	0.263	0.168	0.231	-0.577	0.932
S/K	2.407	1.874	1.954	0.049	27.4
CS/K	0.079	0.078	0.055	0	0.696

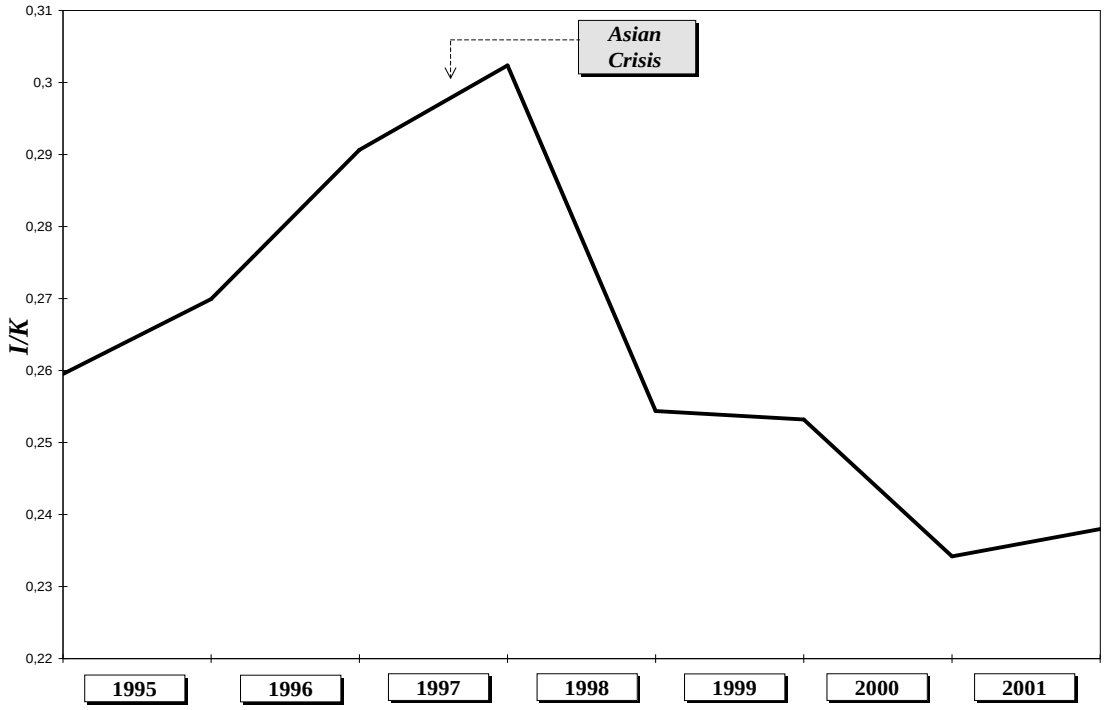

FIG. 1 – Evolution of the Korean manufacturing firms investment rate

TAB. 2 – **Investment sensibility to Cash Stock**

GMM estimates of first differenced equation *Dependant Variable : I/K_{it}*		
Variables	**STEP 1**	**STEP 2**
I/K_{it-1}	0.59***	0.59***
	(0.048)	(0.046)
S/K_{it-1}	0.01**	0.011***
	(0.004)	(0.0035)
CS/K_{it-1}	0.11***	0.094**
	(0.044)	(0.042)
Tests		
m1	-9.541	-9.145
P-value	0.00	0.00
m2	1.016	1.072
P-value	0.31	0.284
Sargan		13.78
P-value		0.183

**** : Significant at 1 % level, ** : Significant at 5 % level*

Standards errors are between brackets.

TAB. 3 – **Firm size and investment constraint**

GMM estimates of first differenced equation *Dependent Variable : I/K_{it}*				
	Size criterion : average sale		**Size criterion : median sale**	
Variables	**STEP 1**	**STEP 2**	**STEP 1**	**STEP 2**
I/K_{it-1}	0.59***	0.59***	0.59***	0.59***
	(0.048)	(0.046)	(0.048)	(0.046)
S/K_{it-1}	0.01**	0.011***	0.01**	0.011***
	(0.004)	(0.0035)	(0.004)	(0.0035)
CS/K_{it-1}^{small}	0.11**	0.098**	0.11**	0.096*
	(0.053)	(0.05)	(0.055)	(0.053)
CS/K_{it-1}^{large}	0.11	0.082	0.12*	0.09
	(0.072)	(0.07)	(0.069)	(0.066)
Tests				
m1	-9.543	-9.148	-9.54	-9.148
P-value	0.00	0.00	0.00	0.00
m2	1.015	1.075	1.018	1.069
P-value	0.31	0.283	0.309	0.285
Sargan		13.79		13.78
P-value		0.183		0.183

**** : Significant at 1 % level, ** : Significant at 5 % level, * : Significant at 10 % level*

TAB. 4 – **Economic recession and credit constraint**

GMM estimates of first differenced equation *Dependent Variable : I/K_{it}*		
Variables	**STEP 1**	**STEP 2**
I/K_{it-1}	0.59***	0.59***
	(0.048)	(0.046)
S/K_{it-1}	0.01**	0.011***
	(0.004)	(0.0035)
CS/K_{it-1}^{97-99}	0.15***	0.11**
	(0.056)	(0.053)
CS/K_{it-1}	0.056	0.062
	(0.052)	(0.051)
Tests		
m1	-9.547	-9.161
P-value	0.00	0.00
m2	0.96	1.043
P-value	0.337	0.297
Sargan		14.19
P-value		0.164
**** : Significant at 1 % level, ** : Significant at 5 % level*		