MEMORANDUM

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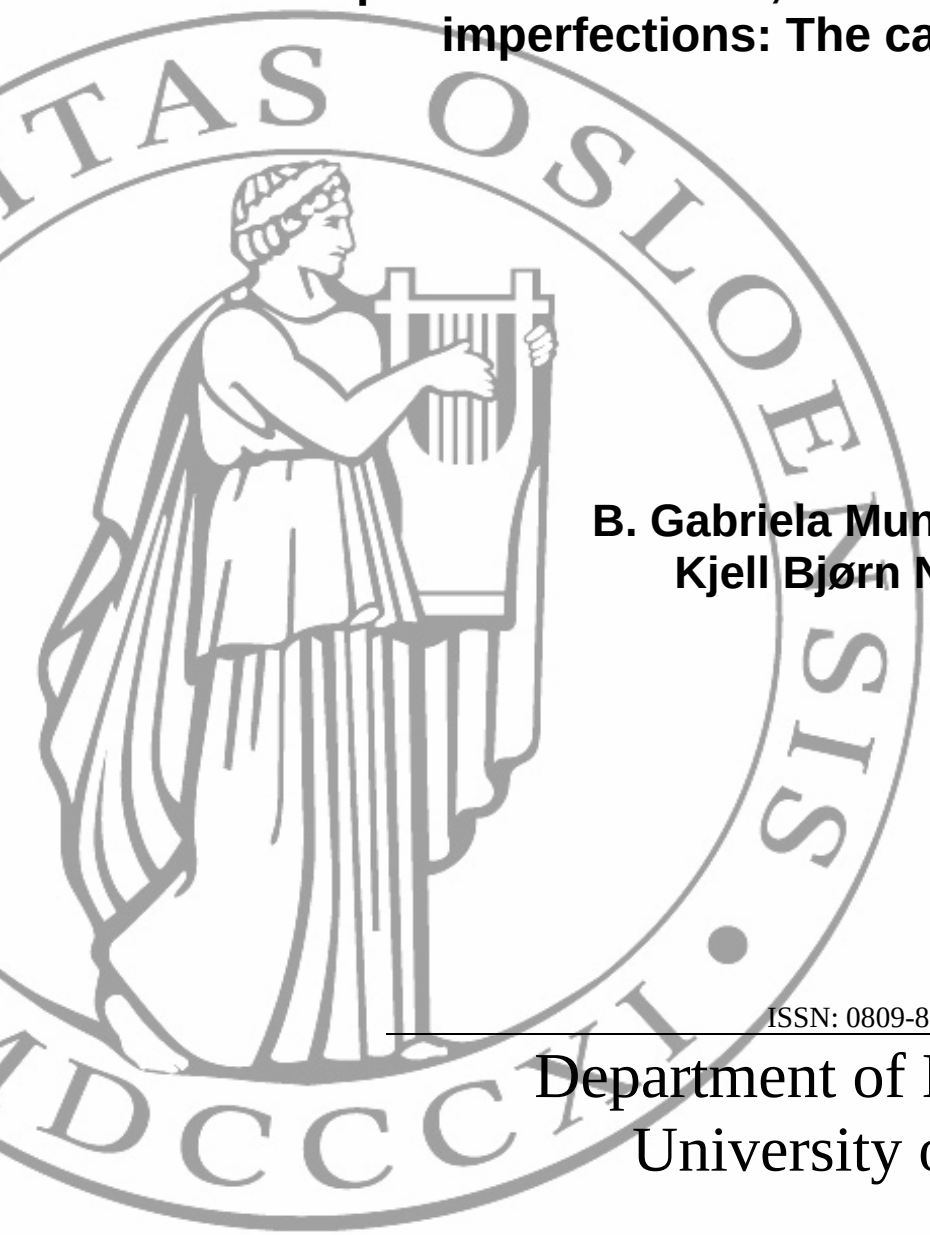
Corporate investment, cash flow level and market imperfections: The case of Norway



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Corporate investment, cash flow level and market imperfections: The case of Norway

by

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March1st, 2007

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Abstract
We analyze how investment is related to financial conditions using Norwegian data covering the years 1988-2003, comprising around 1.7 millions observations and 117,000 enterprises. Our criteria used to classify firms within industries are their cash-flow levels and size. Firms with persistent positive cash flows show significant investment-cash flow sensitivity, and much stronger than for firms with persistent negative cash flows. Such sensitivity is, among firms with positive cash flows, significantly stronger for smaller firms than for larger firms. The relationship between their investments and cash flows is negative only for small firms with negative cash flows, while for large firms with negative cash flows this relationship is positive. Firms that operate at a loss rely a great deal on bank loans and cash holdings to finance investment. Our analysis reconciles the results of Fazzari-Hubbard-Petersen with those of Kaplan-Zingales-Cleary.

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1. Introduction

This paper deals with investment behavior in relation to financial conditions using comprehensive firm-panel data from Norway. This data set contains the annual financial statements[1] of the limited liability enterprises in Norway. The data have information on the annual financial statements of the enterprises registered at the Norwegian register for business enterprises over the years 1988-2003. This data set contains more than 1.7 million observations for around 117,000 enterprises and is unbalanced. In addition to manufacturing, we have data on enterprises in the industries covering construction, transportation, computer and data technology, hotels and restaurants, and fish farming.

We here reevaluate the results obtained by Fazzari et al., Kaplan and Zingales (1997) and Cleary (1999), by analyzing empirically the relationship between investment and cash flow levels and how such relationship depends on firm size. This analysis is based on the unbalanced panel data set for Norwegian firms mentioned above. Firms are first classified by *industry*; thus we do not aggregate the firms across industries as is customary in the related literature. Within each industry, we then classify firms according to their *level of cash flow*, and address how availability of internal funds affects the sensitivity of investment to cash flow. More precisely, we classify firms into two groups: firms that have had negative cash flow for two or more consecutive years; and firms that have never had consecutive negative cash flows. Such classifications are essential for comparing our results with those of Kaplan and Zingales (1997) and Cleary (1999), who suggest that financial strength influences the

[1] We have used unconsolidated accounts for each unique joint stock company.

investment-cash flow sensitivity. We also describe how financial variables are distinctively different between the groups. For example in the first group, firms have on average negative profits/net income and lower dividends payouts. Firms in this group are good candidates for being characterized as financially weak.

For each of the groups just indicated, we *first* analyze how investment decisions may depend on cash flow level. *Secondly,* we test how much of the changes in borrowing (debt financing[2]), both short- and long- run, and the stock of cash holdings contribute to finance investment. Our goal is to learn whether or not external capital is a perfect substitute for internal funds in each of the two groups per industry. We were aware of the fact that firms with good investment opportunities may run down their internal funds to provide funds for investments, and for this reason, the interpretation of our estimates on the investment-cash flow sensitive could be misleading. To deal with this potential problem we include as an additional explanatory variable, the ratio of net income (before taxes and extraordinary items) to total assets to control for investment opportunities. At the outset let us indicate that we found no difference in our estimates when we add the net income as another explanatory variable.

We finally consider an additional classification of firms within the industry and cash flow level grouping. Within each of the groups we classify firms as "small" and "large" depending on their level of sales. Size is a proxy for market imperfection or credit constraint, as Fazzari et al. (1988) and others have considered. We believe that classifying firms

[2] Debt finance is the most significant source of external finance in all countries; new equity finance accounts for only a small proportion of total corporate sector financing; see Mayer (1988).

according to their degree of access to credit in the capital markets while controlling for whether firms are financially weak or strong, is a fruitful approach for reconciling[3] Fazzari et al. (1998) with Kaplan-Zingales (1997) and Cleary (1999). Fazzari et al. (1998) argue that there is a strong relationship between investment and cash flow in financially constrained firms. Kaplan-Zingales (1997) and Cleary (1999), on the other hand, find that the relationship between investment and cash flow is strongest for financially strong firms. These firms would, however, not qualify for being classified as financially constrained. Our findings indicate that there is a tendency for financially strong (i.e. they do not have had negative cash flow for two or more years consecutively) companies to have a stronger relationship between investment and cash flow than those firms that are financially weaker (i.e. they do have had negative cash flow for two or more years consecutively). However when we consider size, small companies that are financially strong, have the tendency of having a stronger relationship between investment and cash flow than the large firms that are also financially strong. Small companies that are financially weaker however, show a tendency to have a negative relationship between investment and cash flow. There are of course a couple of exceptions to these findings dependent on the specific industry.

Our consideration of companies with negative cash flow is in spirit related to the work of Allayannis and Mozumdar (2004), Bhagat, Moyen and Suh (2005), and Cleary, Povel and Raith (2004). Cleary et al. (2004) and Allayannis and Mozumdar (2004) have found that the results of Cleary (1999) are largely driven by the impact of negative cash flow observations.

[3] The findings of Fazzari et al. (1988), and Kaplan-Zingales (1997) and Cleary (1999) can be reproduced using our data set and our methodology for classifying firms. We found no conflict between them.

The reason why Cleary (1999) finds low investment-cash flow sensitivity, they argue, is because when a firm is in sufficiently bad shape, investment cannot respond to cash flow. Their intuition behind this argument is that when cash shortfall is severe, the firm is pushed into financial distress and is able to carry out only the very most essential investments. Any further cutback in investment in response to further declines in cash flow is impossible, so that investment-cash flow sensitivity is very low. We show, however, that firms that are small and have negative cash flows in fact increased their investments in certain industries, while firms that are relatively larger and have negative cash flow have small or none investment sensitivity to cash flow. Cleary et al. (2004) and Allayanis and Mozumdar (2004) follow the same methodology as Cleary (1999) except that their data set excludes the negative cash flow observations, and find that the sensitivity of investment to cash flow increases when observations of negative cash flow are not included. They conclude that the level of internal wealth, proxied by cash flow, is a major determinant of investment and has a major influence on the investment-cash flow relationship. Cleary et al. (2004) for example finds that firms with lower payout ratios (i.e. are likely credit constraint) tend to have higher investment-cash flow sensitivity, as Fazzari et al. (1988) found, provided that one eliminates financially less healthy firms from the data. They in addition find that, after excluding negative cash flow observations from the sample, and considering the creditworthiness of the firms as well as their degree of credit constraint, the more constrained firms and less creditworthy are the lower their investment-cash flow sensitivity is. Cleary et al. (2004) also find a negative relation between investment and cash flow, as we also find here, for a substantial share of observations with very low internal funds. Bhagat et al. (2005) also find such negative correlation. Bhagat et al. (2005) consider both firms that are and are not in

financial distress. They take into account different measures of financial distress and investigate whether or not the investment policy of distressed firms differs from that of healthy firms. Bhagat et al. (2005) classify firms in financial distress when i) they find firm-year observations with negative net income only in two years; ii) with coverage ratio less than or equal to the one in the previous year; iii) with pseudo-bankruptcy (similar to Ohlson's bankruptcy probability) greater than or equal to 50%; or with Altman's Z-scores less than one. Bhagat et al. (2005) find that first, the relation between investment and internal funds for financially distress firms but with operating profits, exhibit a positive investment sensitivity to cash flow; second, little or negative investment sensitivity to cash flow if firms operate at a loss or face too few profitable investment opportunities. The latter result is similar to Cleary et al. (2004), and ours. Not many studies in the related literature, however, find such negative relation. Note also tha most studies eliminate observations for financially weaker firms, thus eliminating many observations of firms with negative internal funds. One important issue that makes our study distinct from previous studies is that we do not split the data into negative and positive observations, we split the firms. We are keen in differentiating a group of firms that consistently have negative cash flow from a group of firms that consistently have positive cash flow. Recall also that we do not aggregate firms across industries; we are here also interested in finding differences across industries. In short, we think that the role of internal funds is different from the role that capital market imperfections play in firms' investment decisions.

In the same way as Allayannis and Mozumdar (2004), Bhagat et al. (2005), and Cleary et al. (2006), we consider it important to take into account the role that negative cash flow will have on investment decisions. However, instead of excluding observations of two-

consecutive year with negative cash flow from the whole sample, or splitting the sample with observations of negative cash flow and positive cash flow, we chose to classify firm-years according to their levels of cash flow, i.e. firms with persistent negative and positive cash flow over the years, because we want to capture investment decisions *by firm over time.* Such a classification methodology will avoid firms with persistent negative cash flows (financially weak firms), or firms with few years with negative cash flow (financially strong firms) from being overrepresented or underrepresented in the category financially in distress/weak or not-in-distress/strong, respectively. By only eliminating observations of negative cash flow or separating negative from positive observations of cash flow, one may increase or decrease the financial strength of the average firm in the full sample which could lead to misleading conclusions. Our paper therefore addresses the following question: What is the sensitivity of investment to cash flow for firms that are prone to have negative cash flow for consecutive years and that are likely to be weak financially, in comparison to the sensitivity for firms that tend to have positive cash flow for consecutive years.

The paper is organized as follows. Section 2 presents a concise review of the literature. Section 3 contains the details of the data, the methodology used for handling the data and hypotheses testing and the estimation method. Section 4 includes the description of the statistics of the firms by industry and according to their level of cash flow. Section 5 presents the econometric model while Section 6 contains the estimation results. Section 7 concludes.

2. Short review of the literature

Early investment research, especially Kuh and Meyer (1957), emphasized the importance of financial constraints for business investment. Financial effects on real

economic activity received broad attention already during the early post-war period or even earlier. Since the middle of the 1960s until quite recently however, most research has isolated real firm decisions from purely financial factors. Modigliani and Miller (1958) provided the theoretical basis for this approach by demonstrating the irrelevance of financial structure and financial policy for real investment under certain conditions. Real firm decisions, motivated by the maximization of shareholders' claims, are here independent of financial factors such as internal liquidity, collateral, debt leverage, or dividend payments.

In contrast to Modigliani and Miller (1958), we believe that a firm's financial structure may be relevant for its investment decisions. We here focus on the sensitivity of investment decisions to the availability of internal funds when external funds are also available but perhaps at higher cost. The related literature argues that financial market imperfections can have significant real effects on an economy, see for example Bernanke (1983), Bernanke and Gertler (1989, 1990) and Whited (1992). For an early survey of this literature, see Gertler (1988), and for a more recent one, Bernanke, Gertler and Gilchrist (1999). The theoretical research has also focused on the relationship between financial factors and firms' investment behavior emphasizing on *the role of agency costs*. Examples are Bernanke and Gertler (1989), Bernanke, Gertler and Gilchrist (1996), and Calstrom and Fuerst (2000). Other theoretical work emphasizes the role of *asymmetric information* to explain the limited access of firms to external finance, as for example Greenwald, Stiglitz and Weiss (1984) and Myers and Mejluf (1984) among others.

Another strand of the literature identifies the so called *broad credit channel,* which basically operates through the net worth of business firms. For example, lower net worth may create *moral hazard problems,* as firms facing low net worth tend to engage in high-risk

projects expecting either to compensate for the initial low net worth, or because of the low equity stake of firms. The most likely consequence in such a case is a lower access to external funding which could create a "credit crunch" (see Stiglitz and Weiss (1981)). The consideration of such market imperfections when designing financial contracts implies a significant departure from the Modigliani-Miller axioms.

Taking into consideration that real world insurance markets are incomplete so that private agents cannot buy insurance against a "credit crunch", firms are likely to face market imperfections of types we just mentioned above. Firms' investment decisions can then become very sensitive to the availability of internal funds, because the costs of the latter are likely to be lower than for external funds. In this case we say that firms face a financing hierarchy. Fazzari, Hubbard and Petersen (1988) and many other studies have provided strong support for the existence of such a financing hierarchy among firms that they have usually identified as facing a high level of financial constraints. Hubbard (1998) provides an excellent review of this literature. The degree of financial constraint is not observable; these studies however categorize firms facing a high level of financial constraint according to for example dividend payout, size, age, or credit ratings. Their conclusions are that investment decisions are more sensitive to firm liquidity in firms that are more financially constrained than in those less constrained. A challenge for this empirical work, as Kaplan and Zingales (1997) have pointed out, is then to identify financially constrained firms. A currently controversial issue is whether a strong relation between investment and cash flows is necessarily a sign of being financially constrained. Kaplan and Zingales (1997), following Froot et al.'s (1993) findings, have argued that it is in theory not necessary for this sensitivity to be strongest for the most constrained firms. They use quantitative and qualitative

information obtained from company annual reports, to classify financially constrained firms, and find that investment decisions of the least financially constrained firms are the most sensitive to the availability of cash flow. A major limitation of the Kaplan-Zingales' work is the size of their sample. Cleary (1999) uses instead a much larger data set, and to classify the firms according to their financial strength according to Altman's Z factor (Altman (1968) and Altman, Haldeman and Narayanan (1977)). Cleary (1999) confirms the results of Kaplan and Zingales (1997), that investment decisions are significantly more sensitive to the availability of internal funds in firms with high creditworthiness than firms that are less creditworthy. One main conclusion from these two studies is that solid firms relied on internal funds to make their investments, and therefore policymakers should take into consideration that implementing policies to increase credit availablility during recessions may not necessarily benefit firms that in fact are credit constrained.

Other related papers using Norwegian firm-level data, are Johansen (1994) and Nilsen (2004). Johansen uses an unbalanced panel of Norwegian manufacturing firms for the 1977-1990 period (8691 observations for 1282 firms) to estimate a standard adjustment-cost model of investment, where the firm's marginal cost of capital is modeled as increasing in firm's debt/asset ratio. He finds a positive relationship between a firm's debt/asset ratio and its marginal return to capital, but this effect was not in general so strong for the period between 1988 and 1990, except for small firms. His conclusion, as in Fazzari et al. (1988), is that the smallest firms in its sample seem to be the most financially constrained. Nilsen (2004) follows Hansen (1999) by using a threshold regression technique to analyze whether the impact of financial constraints on investment differs across classes of firms. This method categorizes a split variable which sorts firm-year observations into financially constrained

and financially unconstrained. Nilsen (2004) considers the debt-assets rate and size as the split variable.[4] They use these variables and the threshold technique to classify financially constrained and unconstrained firms. Nilsen (2004) uses an unbalanced panel of importer firms in the Norwegian manufacturing sector for the period 1978-1990, which has a total of 5027 observations and 767 firms. He finds the cash-flow coefficient to be statistically significant and almost twice as big for the indebted firms as for the solvent banks, and concludes that the former firms are likely to have much less access to outside capital. When using size as the split variable, he found no sensitivity of investment to cash flow for either type of firm. In his work then, the investment-cash flow sensitivity depends on the firm's degree of indebtedness and less on firm size. These results are similar to Kaplan and Zingales (1998) and Cleary (1999). Note that in this paper we study not only Norwegian manufacturing firms but several other Norwegian industries.

3. Data and sampling procedures

An observation is defined as a record with financial and other relevant information for an enterprise (identified by a unique firm number) available in the data base for a particular year. Only enterprises that provide accounting information for at least five years consecutively[5] are included. The unit of account is constant Norwegian kroner of 1998. We

[4] Nilsen (2004) considers the debt-asset ratio as a proxy of the financial strength and borrowing ability of a firm and therefore as influencing the firm's spending since a high debt-asset ratio can covey information about the firms' lack of collateral. The size of the firms is measured by the size of the number of employees, and thought as proxy for capital market access.

[5] This was also done because we needed to take differences and used some lags of the variables.

only consider firms that have positive real cash stock holdings, and those which have real capital stocks and total assets above 50,000 Norwegian kroner of 1998. The data covers the years 1988-2003,

We classify firms according to three types of characteristics; industry, persistence of negative cash flow, and size. *First*, the industries we study are manufacturing, construction, transportation, computer and data technology, hotels and restaurants, and fish farming. One could of course argue that any differences across industries should be due to industry-specific productivity shocks. We nevertheless find it essential and useful to document differences in financial conditions across industries other than manufacturing. According to our knowledge, few empirical studies on the investment behavior of firms for Norway and other countries have analyed of investment-cash flow sensitivity for firms per industry, as we do here, but rather for firms across industries. We leave for future research the analysis of firms across industries classified according to the criteria we use here or any other relevant one, while keeping industry effects constant. Our preliminary econometric results show that financial factors affect firm's investment but such effects are different across industries whether they have positive or negative cash flow.

Second, within each group of industry, we classify firms in two groups according to the persistence of negative cash flow. In this way, our results can be more easily compared with those of Kaplan and Zingales (1997) and Cleary (1999) because a negative level of cash flow is an indication of insufficient internal financing. We identify one group with firms that experienced negative cash flow for <u>two or more years consecutively</u>. Firms not having these characteristics, i.e. firms did <u>not</u> have negative cash flow consecutively for two or more years consecutively, were classified in another group. We then test if persistent negative cash flows

can influence the effect of the responsiveness of investment to cash flows, and if such effect is different for firms that have rather persistent positive cash flow.

Third, to test directly the effect of market imperfections and/or credit constraints and be able to compare our results with those of Farazzi et al. (1988), we classify firms as small and large, within each of the industries and within each of the two groups of firms described above (with and without persistent negative cash flow). Size is measured by the magnitude of sales. A firm is classified as large if it has sales that are larger than the median of all firms in its corresponding group (i.e. type of industry and level of cash flow); while a firm is classified as small if they have sales that are smaller than the median of all firms in its group. Of course, this could be viewed as an imperfect measure of credit constraint/market imperfection but we follow this criterion in light of the empirical investment models that are based on the link between the demand for capital goods and the level or change in a firm's output or sales. See Gertler and Gilchrist (1994), Schaller (1993), Fazari, Hubbard and Peterson (1988), Hu and Schiantarelli (1998), Vermueulen (2000), Mizen and Vermeulen (2005), among others.

Let us now describe some statistical facts of the firms across all the industries considered in this paper. The statistics themselves are presented in table 1.

4. Some general stylized facts. Statistics Summary

I now present some basic statistics of the relevant variables for the industries we here considered. These are shown in table 1 in the Appendix. Taking into account that Y is the total book value of assets, and the K is the capital stock, the other variables are defined as follows:

Investment(t)/Capital Stock(t-1): I_t/K_{t-1}

$(I_t/K_{t-1} - I_{t-1}/K_{t-2})/ I_{t-1}/K_{t-2}$: $\Delta(I_t/K_{t-1})$

Net Income(t)/Total book value of assets(t-1): $Profits_t/Y_{t-1}$

Sales in millions of Norwegian kroner of 1998(t): $Sales_t$

Cash flow(t)/Capital stock(t-1): CF_t/K_{t-1}

Changes in short-run debt(t)/ Total book value of assets(t-1): $\Delta srcredit_t/Y_{t-1}$

Changes in long-run debt(t)/Total book value of assets(t-1): $\Delta lrcredit_t/Y_{t-1}$

Changes in cash holdings(t)/Total book value of assets(t-1): $\Delta cash_t/Y_{t-1}$

Retain Earnings(t)/ Total book value of assets(t-1): $REarn_t/Y_{t-1}$

Dividends(t)/ Total book value of assets(t-1): $DivPay_t/Y_{t-1}$

Cash flow equals income after interest rates and taxes, plus all noncash deductions from income (principally depreciation allowances and amortization), where dividends were subtracted from cash flow. Nominal *investment* of year t (I_t) is constructed as the difference between book value of fixed capital of (end of) year t and end of year t+1 adding depreciation of year t+1. We consider net income before taxes and extraordinary items. *Changes in short-run debt* and *changes in long-run* debt are the ratios of the changes in short-run debt and long-run debt issuances to total book value of assets. *Changes in cash holdings* are changes in the holdings of cash and other liquid securities normalized by total assets.

Table 1 shows the sample statistics of the relevant variables per industry considered in this paper. The following compares industries whose firms have positive cash flow with those whose firms have negative cash flow. We document the following stylized facts.

(a) If we were to use size, measured by sales volume, as a proxy for the degree of asymmetric information between firms and investors as Fazzari et al. (1988) considered, we could not necessarily characterize firms with negative cash flow as being credit constrained. This is because first, enterprises in industries that have negative cash flows are not on average significantly smaller than firms in industries that have positive cash flows; the exceptions are Manufacturing, and Computer and Data Technology. Second, if we compare firm size across industries, we find that firms with negative-cash flows in one industry are of the same size as firms with positive-cash flows in another industry. We should then be very careful when we classify firms across industries according to size without taking into account the availability internal funds to firms, especially when we want to study the sensitivity of investment to levels of cash flow (i.e. financial strength). Moreover, we believe that whenever possible, it is better to do the sensitivity analysis between cash flow and investment *by industry*. This should be important for learning the differences in the specialties across firm-industry, when considering high and low levels of internal funds.

(b) If we consider the dividend payout ratio (DivPay) as a proxy for the degree of asymmetric information between firms and investors, we find that firms that have had negative cash flow in each industry, have smaller dividend payout than firms with positive cash flow in the corresponding industry, and the difference is very significant.[6] We could then, as Fazzari et al. (1988) did, characterize the firms for every industry that

[6] We come to the same conclusion if we instead measure the dividend payout as the ratio of total dividends paid to net income.

have negative cash flow, as being credit constrained. Nevertheless, given the information given in (a) above, when classifying firms according to whether they are financially constraint or unconstraint, one should not consider dividend payout and size as substitutes, at least not in our data.

(c) We find that enterprises across industries with negative cash flows have had on average a higher ratio of investment/capital, I_t/K_{t-1}, except for the industry Computer and Data Technology, than enterprises in industries with positive cash flow.

(d) All industries, independent of their firms experiencing positive or negative cash flows, have on average decreased their net investment. The only exception is Manufacturing. The decrease has been however larger in industries whose firms have had negative cash flow with exception of Computer and Data Technology.

(e) The ratios of new debt or change in debt, both short- and long-run, to total assets is much higher than otherwise in industries whose enterprises have negative cash flow for 2 or more years consecutively.

(f) Industries whose firms have had negative cash flow have not had in general larger changes of cash stocks relative to total assets in comparison with those with positive cash flows. The exceptions are Manufacturing, Computer and Data Technology and Fish Farming.

(g) The ratio of net income to total book value of assets, and retained earnings to total book value of assets have been both of them negative only for industries with negative cash flow.

Our main conclusion here is that there are first, differences in financial structure between firms with negative cash flow with those with positive cash flow within industry; second, there are also differences between firms with negative and positive cash flow across industries; third, classifying firms only according to size does help to distinguish between firms that are financially weak and strong, and therefore difficult to interpret investment-cash flow sensitivity; and finally, after taking into consideration the level of cash flow, classifying firms according to dividends payout as the proxy for credit constraint/asymmetric information may not be sufficient unless one takes into account the level of cash flow at the same time.

5. Investment equation

The general form of the reduced-form investment equations that we here considered is:[7]

$$\frac{I_{it}}{K_{it-1}} = \alpha \frac{I_{it-1}}{K_{it-2}} + f(X_{it-m} / Y_{it-m-1}) + \beta \frac{cash\ flows_{it-m}}{K_{it-m-1}} + d_t + \eta_i + u_{it}; \qquad (1)$$

where m=0,1; I_{it} represents investment in plant and equipment for firm i during period t. The adjustment cost reflect the sluggish adjustment of capital stock and rest on a proportional adjustment augmented forwarded by Caballero, Engel and Haltiwanger (1995), which states that the desired capital stock in the presence of adjustment costs is proportional to the desired capital stock in the absence of adjustment costs. X represents variables, including lagged values that have been emphasized as determinants of investment from a variety of theoretical perspectives. These variables are *net income*, Δ*short-run loans, Δlong-run loans and Δcash*

[7] This empirical specification is the most common in the relevant literature; see Mairesse et al. (1999), Bond et al. (2003), and Mizen and Vermeulen (2005). When estimating an Euler specification for data from a range of European countries, Bond et al. (2003) indicate that the model is "seriously mispecified" and offer a distinctly discussion of its performance. That is why we focus in a specification as (1).

holdings, which are deflated by the beginning-of-period total book value of assets Y. Thus, f represents the vector of parameters indicating the potential sensitivity of investment to such variables. The variation in the user cost of capital is controlled for by firm specific effects and time dummies. For example, η_i is the unobserved individual-specific time-invariant effect which allows heterogeneity across individual firms but not across time, d_t is the time-fixed effect, and u_{it} is the disturbance term. These disturbances u_{it} are assumed to be independent across individuals. The parameter β indicates the potential sensitivity of investment to fluctuations in available internal finance after investment opportunities are controlled for through the variables in X. This internal finance is here measured by cash flow scaled by capital stock. These variables in X are included alternatively which means that we have analyzed five specifications of investment behavior, depending on the explanatory variables. These variables are:

- *Specification 1*: $I_t/K_{t-1,}$ CF_t/K_{t-1} and CF_{t-1}/K_{t-2}, and the results are shown in column 2 in all the tables from 8 to 25.

- *Specification 2:* $I_t/K_{t-1,}$ CF_t/K_{t-1}, CF_{t-1}/K_{t-2}, $Profit_t/Y_{t-1}$, and $NetInc_{t-1}/Y_{t-2}$, and the results are shown in column 3 in all the tables from 8 to 25.

- *Specification 3:* $I_t/K_{t-1,}$ CF_t/K_{t-1}, CF_{t-1}/K_{t-2}, $NetInc_t/Y_{t-1}$, $NetInc_{t-1}/Y_{t-2}$, $\Delta srcredit_t/Y_{t-1}$, and $\Delta srcredit_{t-1}/Y_{t-2}$, and the results are shown in column 4 in all the tables from 8 to 25.

- *Specification 4:* $I_t/K_{t-1,}$ CF_t/K_{t-1}, CF_{t-1}/K_{t-2}, $NetInc_t/Y_{t-1}$, $NetInc_{t-1}/Y_{t-2}$, $\Delta lrcredit_t/Y_{t-1}$, and $\Delta lrcredit_{t-1}/Y_{t-2}$, and the results are shown in column 5 in all the tables from 8 to 25.

- *Specification 5:* $I_t/K_{t-1,}$ CF_t/K_{t-1}, CF_{t-1}/K_{t-2}, $NetInc_t/Y_{t-1}$, $NetInc_{t-1}/Y_{t-2}$, $\Delta cash_t/Y_{t-1}$, and $\Delta cash_{t-1}/Y_{t-2}$, and the results are shown in column 6 in all the tables from 8 to 25.

Our conjecture here about firms that have negative cash flow in consecutive years is that these firms are more likely to be weakly financially, and more prone to be credit constrained than otherwise, even though they may have *some years* with positive cash flow. If so, a reasonable question to ask is how these firms finance their investments; do they use cash holdings, debt? One should keep in mind that there could be at least two possible reasons why firms may have negative cash flows. First, firms with good investment opportunities run down their internal funds and continue to invest, and this may show up in our sample as firms with low levels of internal funds. Second, firms may want to build saving borrowing capacity in order to secure investment by using their internal funds. This issue have been considered by Almeida, Campello and Weisbach (2004) and Acharya, Almeida and Campello (2006) who postulate that firms may allocate cash flow into cash holdings if their hedging needs are high, and in addition, these firms may also use free cash flow to reduce current debt when their hedging needs are low. These firms may consider that higher cash stocks and lower debt levels today may increase future funding capacity and its ability to undertake new investment opportunities. When taking into account such type of financial management, their empirical results show a low correlation between operating cash flow and investment opportunities. We here address the first issue by considering the level of net income (before taxes and extraordinary items) with respect to total assets as to control for investment opportunities. The second issue is taken up by considering cash stock holdings as an important component of the firm's optimal investment decisions. Note that cash provides a low-cost source of investment finance for firms that must pay a premium for external funds. It might also provide the necessary collateral to obtain new debt as suggested in the related literature. See Bates et al. (2006) for similar arguments. We here test how changes in the stock of cash

affect investment spending, and how might also affect the investment-cash flow sensitivity in small and large firms with positive and negative cash per industry. We in addition analyze which type of industry have their investment levels dependent on the short-run debt on one side, and long-run debt on the other side, and how each type of financing affect the investment-cash flow sensitivity.

Here, as in related studies that use panel data, cash flow is used as a proxy for change in net worth, it is difficult to identify independent changes in net worth. Therefore, empirically, the error term of the investment equation can be correlated with cash flow. To solve this problem, we use an instrumental variable method where lagged variables and/or future endogenous variables are used as instruments. In this case the most appropriate method to use is Arellano-Bond First-Difference Generalized Method of Moments (Arellano and Bond (1991)) where the right-hand side variables are instrumented with predetermined variables.[8] All regressors in the empirical are considered to be endogenous. We use the Sargan–test of overidentified restrictions as a joint test of model specification and instrumental selection. We also report the m1 and m2 test of serial correlation of the first difference residuals. Both the m1 and m2 test are asymptotically standard normal under the null of no serial correlation in the error term.

6. Empirical Results on the investment-cash flow sensitivity

In view of the possibility that cash flow is an imperfect measure of internal financing possibilities because it may measure future profitability, we introduced the explanatory variable net income/total assets in each of the specifications, as indicated above, and compare

[8] Our model is estimated in first-differences to remove the fixed firm effects.

the estimates with those when net income/total assets was not included.[9] We can report that we did not observe any change in the correlation between investment and cash flow when the ratio of net income to total assets was included. This was the case for firms both with positive and negative cash flow. We could safely conclude that our data on cash flow is not likely to be a proxy for information on profitability in our investment equation.

The empirical estimates of equation (1) are presented in different tables in the Appendix. Tables from 8 to 13 show the estimates for each industry with firms with positive and negative cash flow. Tables 14 to 25 show the estimates for each industry for large and small firms with positive and negative cash flow. These results are resumed in Tables 2 to 7. The purpose of these latter tables is to present a general overview of the parameters that are numerically and statistically significant under each specification. In those tables a "+x" or "-x" indicates that the parameter of the corresponding explanatory variable in the investment equation was (numerically and statistically) positive or negative for at least one of the Specification. For cash flow, profit, short-run debt, long run debt or cash, they are either the current value (i.e. t) or the lagged value (i.e. t-1). We do this due to space limits.

6.1 Comparing firms with positive and negative cash flow

The results are presented in tables 2 and 3 and 8 to 13. Considering cash flow levels are an indication of financial strength without taking into account size, we find that investment

[9] The results of estimating the investment equations without net income/total assets are not reported due to space limitations but are available upon request. See however the estimates of *Specification 1* and *Specification 2* for all industries with firms with negative and positive cash flow, in tables from 8 to 25, as demonstration that the introduction of net income/total assets as explanatory variable does not affect the investment-cash flow sensitivity.

of firms that are financially weaker (because they have negative cash flow) is not sensitive at all to cash flow. The exceptions are the industry of Hotels and Restaurants, where the effect was statistically significant and positive, and Computer and Data Technology, where the effect was also statistically significant but negative. Allayannis and Mozumdar (2004), Cleary et al. (2004) and Bhagat et al. (2005) have also found this negative relation between investment and cash flow using COMPUSTAT. One can then argue that firms that work at loss or have negative cash flow may have low levels of investment as it is the case here for all firms with negative cash flow, but they however have increased investment. We also find that firms in some on the industries in question use some of their new borrowing to finance such investment. Recall that our statistics indicate that these firms have had larger long-run and short-run debt than firms with positive cash flow. In this case, firms with negative cash flow may face a higher risk of default and liquidation. Firms with positive cash flow have their investment more sensitive to cash flow with exception of those in industries of Hotel and Restaurants, and Fish Farming, where no sensitivity was found.

6.2 Comparing large and small firms with positive and negative cash flows

We can summarize the empirical results from tables 4 to 7, and 14 to 25, as follows:

- When we consider the *size of the firm* (sales size) as a proxy for the degree of asymmetric information, as *Fazzari et al. (1988)* did, and only those firms (by industry) with *positive cash flow,* which we here interpret as being *financially strong, as Kaplan and Zingales (1997)* define and consider, we find that the sensitivity of investment to cash flow is still positive, but much weaker than for firms that are small, in Manufacturing, Computer

and Data Technology, Hotel and Restaurants. The exception is Construction. We find no investment-cash flow sensitivity in Transport and Fish Farming.

- *Large and small firms with positive cash flow* use much of their new short- and long-run debt to finance new investment. Note however that in Transport, large firms finance investment with new long-run debt, but small firms do not use new debt to finance investment. On the other hand, only small firms in Construction use new short- and long-run debt to finance investment, while large firms do not use debt at all to finance new investment.

- For *large firms* in industries *with negative cash flow*, we find a *positive* relation between investment and cash flow. Exceptions are Fish Farming where such relation is rather negative; and Manufacturing, and Computer and Data Technology where there is no effect of the level of cash flow on investment. We also notice that such positive relation is stronger for these firms than for those that are also large but have positive cash flow, with exception of Construction.
- For *small firms with negative cash flow*, we find a negative relation between cash flow and investment. An exception is also here Fish Farming where we found no sensitivity of investment to cash flow. The other exceptions are Transport and Construction where we found a positively response of investment to cash flow.
- We also find that *firms, large and small* with *negative cash flow*, used much of the increase in stock in cash, or short- or/and long-run debt to finance their investment. The exceptions are Construction and Transport.

7. Conclusions

Our study confirms the results of Kaplan and Zingales (1997) and Cleary (1999) where firms by industry that are financially weak, which in our case are identified as those with *persistent negative cash flows*, show no investment-cash flow sensitivity. The exceptions were Hotels and Restaurants where the effect of cash flow on investment is significantly positive, and Computer and Data Technology, where the effect is negative. This latter result is similar to the ones found by Allayannis and Mozumdar (2004), Cleary et al. (2004) and Bhagat et al. (2005). Thus, firms by industry that have had positive cash flows have more positive and stronger investment-cash flow sensitivity than their counterparts with negative cash flows.

We also find that firms that work at loss or have negative cash flow are rather dependent on additional short- or long-run loans, and sometimes on stocks of cash holdings, and for certain industries, firms finance investment with loans more than their counterparts with positive cash flow.

On the other hand, when we classify firms according to their levels of cash flows and size, we find that investment in *smaller firms with positive cash flow is more sensitive to cash flow than investment in larger firms (with also positive cash flow)*, with the exception of Construction. If we consider firm size as a proxy for the degree of asymmetric information between lenders and borrowers (as most of the related literature considers), and conditioning that these firms are very strong financially, we can then confirm the results of Fazzari et al. (1988). As we indicated above (section 4), large firms with persistent positive cash flows also have higher dividends payouts. With our data set we then reproduce the main findings of both Fazzari et al. (1988) and Kaplan and Zingales (1997) and Cleary (1999).

Nevertheless, the above results contrast significantly with the results when we consider *firms size and negative cash flow*. We find a negative relation between investment and cash flow only for small firms, while for large firms with negative cash flows, we found a positive relation between investment and cash flow. Thus, *only small firms* in the considered Norwegian industries that work at loss or have negative cash flow have increased their levels of investment in spite of their negative cash flow. Our estimates also indicate that small and large firms have both used their additional borrowing, short- and long-run, to finance additional investment, perhaps in order to avoid facing forgone revenue. Thus, even when internal funds were small, we predict that a decrease in internal funds led to an increase in both short- and long-run debt.

A central conclusion is that we are able to reconcile the results of Fazzari-Hubbard-Petersen with those of Kaplan-Zingales-Cleary. For large firms with consistently positive cash flows, we get the conclusions as Fazzari-Hubbard-Petersen, that their investments are less sensitive to cash flows than for small firms. However, if without taking into account size, we compare firms by industry that are financially weak or have negative cash flows for consecutive years, with those firms that have positive cash flow or are financially strong, in most of the cases (industries), the investment-cash flow sensitivity is stronger for financially strong firms, which confirms Kaplan-Zingales-Cleary. On the other hand, small firms with negative cash flows are not only more sensitive to cash flows than large firms, but also invest more when they work at loss. This is contrary to larger firms that always reduce their investment when their cash flow decreases. This is more in line with Cleary et al. (2004), who derive a U-shaped relation between investment and internal funds, where the intuition is that firms invest less when facing a reduction in internal funds. For significant low levels of

internal funds, however, the firm must invest more to generate enough revenues to meet its contractual obligations.

Other more general results are first, that there are differences in financial structure between firms with negative cash flows from those with positive cash flows within an industry; second, there are also important differences between firms with negative and positive cash flows across industries; third, firms of same size can have both negative and positive cash flows. It is then important to consider the cash flow levels, before we consider dividends payout and size as the proxy for credit constraint/asymmetric information, in order to understand more clear the implications of the different degrees of sensitivity between investment and cash flow. Whenever possible, it may be relevant to avoid aggregating firms across industries under any criteria, size, age, dividend payout, etc., because their financial structures can be very different among different subgroups. We have demonstrated above that the investment-cash flow sensitivity depends on the industry, on the cash flow level and on the size of the firm.

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APPENDIX

Table 1. STATISCAL SUMMARY OF THE RELEVANT VARIABLES. I_{t-1} and $Sales_t$ are in millions of Norwegian kroner of 1998.

Manufacturing

Positive cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	68941	.6245467
I_{t-1}	68941	2003.011
ΔI_t	68941	.096556
$Sales_t$	76414	52099.7
$\Delta lrdebt_t/Y_{t-1}$	68941	.0245018
$\Delta srdebt_t/Y_{t-1}$	68941	.0574675
$\Delta cash_t/Y_{t-1}$	68941	.0234977
CF_t/K_{t-1}	68941	.948218
$Profits_t/Y_{t-1}$	68941	.064441
$REarn_t/Y_{t-1}$	68941	.16304
$DivPay_t/Y_{t-1}$	68941	.030454

Negative cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	13390	.7252958
I_{t-1}	13390	1752.99
ΔI_t	11574	-.6.29994
$Sales_t$	15355	38544.3
$\Delta lrdebt_t/Y_{t-1}$	13390	.0549863
$\Delta srdebt_t/Y_{t-1}$	13390	.0932611
$\Delta cash_t/Y_{t-1}$	13390	.0310359
CF_t/K_{t-1}	13390	-.2743781
$profits_t/Y_{t-1}$	13390	-.0759577
$REarn/Y_{t-1}$	13390	-.2055548
$DivPay_t/Y_{t-1}$	13390	.011858

Transport

Positive cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	30341	.9642201
I_{t-1}	30341	3238.266
ΔI_t	26447	-3.90219
$Sales_t$	36198	31102.96
$\Delta lrdebt_t/Y_{t-1}$	30341	.0647395
$\Delta srdebt_t/Y_{t-1}$	30341	.0605096
$\Delta cash_t/Y_{t-1}$	30341	.0259874
CF_t/K_{t-1}	30341	.8006169
$Profits_t/Y_{t-1}$	30341	.0576433
$REarn_t/Y_{t-1}$	30341	.1270886
$DivPay_t/Y_{t-1}$	32034	.0251272

Negative cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	5322	2.070977
I_{t-1}	5322	3169.216
ΔI_t	4411	-19.601
$Sales_t$	6938	43935.4
$\Delta lrdebt/Y_{t-1}$	5322	.3994469
$\Delta srdebt_t/Y_{t-1}$	5322	.1078075
$\Delta cash_t/Y_{t-1}$	5322	.0415508
CF_t/K_{t-1}	5322	.2517173
$Profits_t/Y_{t-1}$	5322	-.0571734
$REarn_t/Y_{t-1}$	5322	-.2870139
$DivPay_t/Y_{t-1}$	5877	.033684

Construction

Positive cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	63600	.5999746
I_{t-1}	63600	364.1233
ΔI_t	56121	-6.36128
$Sales_t$	71272	12752.23
$\Delta lrdebt_t/Y_{t-1}$	63600	.0285881
$\Delta srdebt_t/Y_{t-1}$	63600	.0802456
$\Delta cash_t/Y_{t-1}$	63600	.0361455
CF_t/K_{t-1}	63600	.9963405
$Profits_t/Y_{t-1}$	63600	.0851621
$REarn_t/Y_{t-1}$	63600	.1505213
$DivPay_t/Y_{t-1}$	63600	.0495761

Negative cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	8011	.8701233
I_{t-1}	8011	177.4702
ΔI_t	6826	-11.7273
$Sales_t$	9302	17630.2
$\Delta lrdebt_t/Y_{t-1}$	8011	.1057604
$\Delta srdebt_t/Y_{t-1}$	8011	.1366404
$\Delta cash_t/Y_{t-1}$	8011	.0238754
CF_t/K_{t-1}	8011	.0475466
$Profits_t/Y_{t-1}$	8011	-.0259722
$REarn_t/Y_{t-1}$	8011	-.1527595
$DivPay_t/Y_{t-1}$	8011	.0165633

Computer and Data Technology

Positive cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	6714	2.086142
I_{t-1}	6714	1343.258
ΔI_t	5549	-5.548221
$Sales_t$	7983	26448.38
$\Delta lrdebt_t/Y_{t-1}$	6714	.0264401
$\Delta srdebt_t/Y_{t-1}$	6714	.1803254
$\Delta cash_t/Y_{t-1}$	6714	.0838353
CF_t/K_{t-1}	6714	2.3697
$Profits_t/Y_{t-1}$	6714	.1027121
$REarn_t/Y_{t-1}$	6714	.1519836
$DivPay/Y_{t-1}$	6714	.0668185

Negative cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	2044	1.440465
I_{t-1}	2044	1057.586
ΔI_t	1626	-2.73337
$Sales_t$	2533	13499.62
$\Delta lrdebt_t/Y_{t-1}$	2044	.1044126
$\Delta srdebt_t/Y_{t-1}$	2044	.2312884
$\Delta cash_t/Y_{t-1}$	2044	.1308766
CF_t/K_{t-1}	2044	-3.609293
$Profits_t/Y_{t-1}$	2044	-.2950432
$REarn_t/Y_{t-1}$	2044	-.2471297
$DivPay/Y_{t-1}$	2044	.0203774

Hotels and Restaurants

Positive cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	19770	.7734045
I_{t-1}	19770	465.6561
ΔI_t	17202	-8.23821
$Sales_t$	22395	9574.69
$\Delta lrdebt_t/Y_{t-1}$	19770	.0788036
$\Delta srdebt_t/Y_{t-1}$	19770	.0494508
$\Delta cash_t/Y_{t-1}$	19770	.0304153
CF_t/K_{t-1}	19770	.6865061
$Profits_t/Y_{t-1}$	19770	.0498919
$REarn_t/Y_{t-1}$	19770	-.039755
$DivPay/Y_{t-1}$	19770	.029655

Negative cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	6138	1.069711
I_{t-1}	6138	422.3322
ΔI_t	5227	-17.8558
$Sales_t$	7108	8678.244
$\Delta lrdebt_t/Y_{t-1}$	6138	.1292129
$\Delta srdebt_t/Y_{t-1}$	6138	.1179265
$\Delta cash_t/Y_{t-1}$	6138	.0273214
CF_t/K_{t-1}	6138	-.081295
$Profits_t/Y_{t-1}$	6138	-.099349
$REarn_t/Y_{t-1}$	6138	-.4637892
$DivPay/Y_{t-1}$	6138	.0069774

Fish Farming

Positive cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	4997	.5702785
I_{t-1}	4997	1276.247
ΔI_t	4446	-6.67832
$Sales_t$	5555	16258.68
$\Delta lrdebt_t/Y_{t-1}$	4997	.0325664
$\Delta srdebt_t/Y_{t-1}$	4997	.2040134
$\Delta cash_t/Y_{t-1}$	4997	.0128787
CF_t/K_{t-1}	4997	.811403
$Profits_t/Y_{t-1}$	4997	.0630034
$REarn_t/Y_{t-1}$	4997	.1704162
$DivPay/Y_{t-1}$	4997	.0197939

Negative cash flow

Variable	*Obs*	*Mean*
I_{t-1}/K_{t-1}	2402	.7257577
I_{t-1}	2402	1245.014
ΔI_t	2101	-7.276031
$Sales_t$	2716	16029.27
$\Delta lrdebt_t/Y_{t-1}$	2402	.0477794
$\Delta srdebt_t/Y_{t-1}$	2402	.2178122
$\Delta cash_t/Y_{t-1}$	2402	.0362575
CF_t/K_{t-1}	2402	-.0180886
$Profits_t/Y_{t-1}$	2402	-.0520124
$REarn_t/Y_{t-1}$	2402	-.2720487
$DivPay/Y_{t-1}$	2402	.0077019

Table 2. Significant parameters in investment equations for firms by industry with positive cash flow.

	Manufacturing	*Transport*	*Construction*	*Computer/ Data*	*Hotels/ Restaur.*	*Fish Farm*
Lagged Investment		-x				-x
Profit			-x			-x
Cash flow	+x	+x	+x	+x		
Short-run debt			+x		+x	+x
Long-run debt		+x	+x	+x	+x	+x
Cash				+x		
Observations	60440	27274	54322	5276	16768	4409
Firms	7054	3793	7198	1022	2465	536

Table 3. Significant parameters in investment equations for firms by industry with negative cash flow.

	Manufacturing	*Transport*	*Construction*	*Computer/ Data*	*Hotels/ Restaur.*	*Fish Farm*
Lagged Investment		-x				
Profit			-x		-x	
Cash flow				-x	+x	-x
Short-run debt					+x	
Long-run debt		+x	+x		+x	
Cash					+x	+x
Observations	11172	4661	6457	1543	16768	4409
Firms	1655	837	1064	343	2465	536

Table 4. Significant parameters in investment equations for large firms by industry with positive cash flow.

	Manufacturing	*Transport*	*Construction*	*Computer/ Data*	*Hotels/ Restaur.*	*Fish Farm*
Lagged Investment		-x		-x		
Profit			+x			
Cash flow	+x		+x	+x		
Short-run debt	+x			+x	+x	
Long-run debt		+x		+x	+x	+x
Cash						
Observations	28715	11976	22655	5276	7119	4409
Firms	3584	1822	3434	1022	1130	536

Table 5. Significant parameters in investment equations for small firms by industry with positive cash flow.

	Manufacturing	*Transport*	*Construction*	*Computer/ Data*	*Hotels/ Restaur.*	*Fish Farm*
Lagged Investment			-x	-x	-x	
Profit	-x		+x	-x		
Cash flow	+x		+x	+x	+x	
Short-run debt	+x		+x	+x		
Long-run debt			+x	+x	+x	+x
Cash			+x		+x	
Observations	27308	13020	25411	2531	8146	1710
Firms	4322	2338	4802	648	1588	342

Table 6. Significant parameters in investment equations for large firms by industry with negative cash flow.

	Manufacturing	*Transport*	*Construction*	*Computer/ Data*	*Hotels/ Restaur.*	*Fish Farm*
Lagged Investment		-x	-x			-x
Profit						+x
Cash flow		+x	+x		+x	-x
Short-run debt				+x		
Long-run debt	+x				+x	
Cash				+x		
Observations	5976	1926	1926	658	2256	965
Firms	911	385	385	151	404	158

Table 7 Significant parameters in investment equations for small firms by industry with negative cash flow.

	Manufacturing	*Transport*	*Construction*	*Computer/ Data*	*Hotels/ Restaur.*	*Fish Farm*
Lagged Investment						
Profit						-x
Cash flow	-x	+x	+x	-x	-x	
Short-run debt	+x					
Long-run debt				+x		+x
Cash	-x			+x	+x	
Observations	4025	2175	2175	638	2167	776
Firms	924	508	508	215	499	176

Table 8. Investment and cash flow sensitivity for Manufacturing (z-values in parentheses).

No negative cash flow for more than one year

Dependent variable I_t/Y_t

I_{t-1}/K_{t-1}	-0.739	-0.08	-0.089	-0.094	-0.806[4]
	(-1.27)	(-1.32)	(-1.33)	(1.37)	(1.32)
$Profit_t/Y_{t-1}$		-3.958	-2.889	-1.288	-4.517
		(-1.08)	(1.46)	(-0.98)	(-1.12)
$Profit_{t-1}/Y_{t-2}$		0.443	-0.237	-0.19	-0.063
		(1.28)	(-0.73)	(-1.16)	(0.24)
CF_t/K_{t-1}	0.288**	0.278**	0.274**	0.264 **	0.265**
	(1.89)	(2.01)	(2.03)	(2.00)	(2.13)
CF_{t-1}/K_{t-2}	0.143	0.148	0.16	0.165	0.15
	(1.18)	(1.22)	(1.21)	(1.24)	(1.19)
$\Delta srcredit_t/Y_{t-1}$			1.782		
			(1.27)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.120		
			(1.21)		
$\Delta lrcredit_t/Y_{t-1}$				1.94	
				(1.37)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				0.467	
				(1.55)	
$\Delta cash_t/Y_{t-1}$					8.493
					(1.29)
$\Delta cash_{t-1}/Y_{t-2}$					1.441
					(1.39)
N observations	60440	60440	60440	60440	60440
N firms	7054	7054	7054	7054	7054
m_1	-1.47	-1.49	-1.47	-1.42	-1.51
m_2	0.42	0.36	0.10	0.14	0.33
S	347.45	489.83	684.6	658.9	549.43
p	0.0	0.0	0.0	0.0	0.0

S is the Sargan test, with corresponding p. ** Significant at 5% level

Negative cash flow for 2 or more years consecutively

Dependent variable I_t/Y_t

$-2.2e^{-3}$	$-3.5e^{-3}$	$-5.1e^{-3}$	-0.011	$-5.4e^{-3}$
(-0.68)	(-0.92)	(1.09)	(-1.22)	(-0.94)
	0.515	0.626	0.908*	0.462
	(0.85)	(1.20)	(1.78)	(1.23)
	-0.03	-0.068	-0.039	-0.045
	(-0.19)	(-0.61)	(-0.47)	(-0.33)
0.03	0.03	0.030	0.018	0.032
(0.71)	(0.73)	(0.75)	(0.45)	(0.82)
$-2.1e^{-3}$	$1.4e^{-3}$	$-9.6e^{-4}$	$-1.0e^{-3}$	$1.5e^{-3}$
(-0.18)	(-0.11)	(-0.08)	(0.08)	(0.82)
		0.308		
		(1.31)		
		0.026		
		(1.23)		
			0.268	
			(0.50)	
			0.043	
			(0.85)	
				-0.859
				(-0.7)
				0.011
				(0.41)
11172	11172	11172	11172	11172
1655	1655	1655	1655	1655
-3.22	-3.23	-3.22	-3.21	-3.18
-0.65	-0.66	-0.75	-0.83	-0.85
217.5	347.2	501.4	492.6	477.28
0.26	0.06	0.001	0.003	0.01

S is the Sargan test, with corresponding p. * Significant at 10% level

Table 9. Investment and cash flow sensitivity for Transport (z-values in parentheses).

No negative cash flow for more than 1 year

Dependent variable I_t/K_t

I_{t-1}/K_{t-1}	-0.104	-0.108	-0.109*	-0.143**	-0.111
	(-1.57)	(-1.61)	(-1.63)	(2.20)	(-1.64)
$Profit_t/Y_{t-1}$		-5.97	-5.995	-6.786	-4.708
		(-1.13)	(-1.28)	(-1.22)	(-1.07)
$Profit_{t-1}/Y_{t-2}$		-0.416	-0.315	-0.236	-0.459
		(-0.72)	(-0.59)	(1.22)	(-0.84)
CF_t/K_{t-1}	0.124	0.124	0.125	0.134	0.125
	(1.20)	(1.20)	(1.20)	(1.22)	(1.20)
CF_{t-1}/K_{t-2}	0.094	0.093*	0.093*	0.096*	0.094*
	(1.20)	(1.63)	(1.63)	(1.62)	(1.62)
$\Delta srcredit_t/Y_{t-1}$			-0.521		
			(-0.89)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.102		
			(1.03)		
$\Delta lrcredit_t/Y_{t-1}$				-2.42	
				(-0.71)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				0.46**	
				(2.21)	
$\Delta cash_t/Y_{t-1}$					-1.356
					(-0.53)
$\Delta cash_{t-1}/Y_{t-2}$					0.094
					(0.26)
N observations	27274	27274	27274	27274	27274
N firms	3793	3793	3793	3793	3793
m_1	-2.30	-2.42	-2.48	-1.74	-2.42
m_2	-1.52	-1.55	-1.55	-1.68	-1.56
S	1424.4	912.03	1055.29	1023.9	1155.71
p	0.0	0.0	0.0	0.0	0.0

S is the Sargan test, with corresponding p. * Significant at 10% level, **at 5% level

Negative cash flow for 2 or more years consecutively

Dependent variable I_t/K_t

-0.068	-0.073*	-0.089*	-0.114*	-0.096*	
(-1.61)	(-1.62)	(-1.82)	(-1.68)	(-1.84)	
	-0.044	-0.228	-0.049	-0.781	
	(-0.52)	(1.28)	(-0.65)	(-0.85)	
	-0.234	-0.211	0.134	-0.781	
	(-1.59)	(-1.03)	(0.74)	(-0.85)	
0.095	0.078	0.047	0.082	-0.551	
(0.73)	(0.71)	(0.46)	(0.88)	(-1.59)	
-0.048	-0.037	-0.024	-0.041	-0.076	
(-0.31)	(-0.25)	(-0.17)	(-0.29)	(0.80)	
		0.615			
		(1.24)			
		0.502			
		(1.40)			
			-0.426		
			(-0.21)		
			0.215*		
			(1.62)		
				0.658	
				(0.84)	
				1.051	
				(1.44)	
4661	4661	4661	4661	4661	
837	837	837	837	837	
-1.73	-1.72	-1.72	-1.70	-1.72	
-0.21	-0.25	-0.42	-0.61	-0.50	
532.12	593.08	637.6	649.22	629.24	
0.0	0.0	0.0	0.0	0.0	

S is the Sargan test, with corresponding p. * Significant at 10% level

Table 10. Investment and cash flow sensitivity for Construction (z-values in parentheses)

No negative cash flow for more than 1 year

Dependent variable I_t/K_t

I_{t-1}/K_{t-1}	-0.023	-0.024	-0.031	-0.018	-0.027
	(-0.95)	(-0.63)	(-0.98)	(-0.48)	(-0.75)
$Profit_t/Y_{t-1}$		-4.265*	-5.01*	-3.865**	-4.421
		(-1.74)	(-1.72)	(-2.24)	(-1.47)
$Profit_{t-1}/Y_{t-2}$		0.811*	0.800**	0.72	0.907
		(1.75)	(2.02)	(1.52)	(1.55)
CF_t/K_{t-1}	1.326**	1.572	1.341*	1.716*	1.508
	(1.99)	(1.53)	(1.63)	(1.67)	(1.52)
CF_{t-1}/K_{t-2}	-0.197	-0.279	-0.242	-0.325	-0.274
	(-1.35)	(-1.12)	(-1.17)	(-1.25)	(-1.12)
$\Delta srcredit_t/Y_{t-1}$			1.696*		
			(1.70)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.057		
			(0.52)		
$\Delta lrcredit_t/Y_{t-1}$				5.599**	
				(1.99)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				0.082	
				(1.07)	
$\Delta cash_t/Y_{t-1}$					1.776
					(0.65)
$\Delta cash_{t-1}/Y_{t-2}$					0.109
					(0.43)
N observations	54322	54322	54322	54322	54322
N firms	7198	7198	7198	7198	7198
m_1	-1.77	-1.42	-1.45	-1.60	-1.38
m_2	0.43	0.53	0.45	0.69	0.53
S	239.42	387.7	422.9	529.5	508.8
p	0.05	0.0	0.31	0.0	0.0

S is the Sargan test, with corresponding p. * Significant at 10% level, **at 5% level

Negative cash flow for 2 or more years consecutively

Dependent variable I_t/K_t

-0.012	-0.015	-0.012	-0.03*	-0.018
(-1.36)	(-1.41)	(1.58)	(-1.71)	(-1.53)
	-1.67*	-1.557**	-1.773*	-1.687
	(-1.84)	(-2.14)	(-1.66)	(-1.96)
	-0.017	-0.035	-0.021	-0.03
	(-0.45)	(-1.04)	(-0.76)	(-0.91)
-0.018	-0.011	$3.8e^3$	-0.029	-0.014
(-0.22)	(-0.14)	(0.06)	(-0.32)	(-0.20)
0.027	0.038	0.045	0.043	0.036
(1.36)	(1.38)	(1.56)	(1.49)	(1.40)
		0.955		
		(1.16)		
		0.030		
		(1.58)		
			0.718***	
			(3.51)	
			0.06**	
			(1.83)	
				0.187
				(0.25)
				0.109
				(0.51)
6457	6457	6457	6457	6457
1064	1064	1064	1064	1064
-1.32	-1.32	-1.32	-1.30	-1.32
-0.40	-0.39	-0.39	-0.55	-0.47
288.1	399.8	510.2	522.4	542.8
0.0	0.0	0.0	0.0	0.0

S is the Sargan test, with corresponding p. * Significant at 10% level, **at 5% level, ***at 1% level

Table 11. Investment and cash flow sensitivity for Computer and Data Technology (z-values in parentheses)

No negative cash flow for more than 1 year

Dependent variable I_t/K_t

I_{t-1}/K_{t-1}	$-8.5e^{-3}$**	$-6.6e^{-3}$*	$-8.4e^{-3}$**	$-8.2e^{-3}$**	$-7.4e^{-3}$*
	(-2.06)	(-1.78)	(-2.36)	(-2.25)	(-1.93)
$Profit_t/Y_{t-1}$		-0.604	-1.186	-1.027	-1.037*
		(-1.01)	(1.58)	(-1.91)*	(-1.93)
$Profit_{t-1}/Y_{t-2}$		0.27	0.24	0.29	0.051
		(1.58)	(1.43)	(1.60)	(0.34)
CF_t/K_{t-1}	0.203***	0.212***	0.201***	0.211***	0.248***
	(3.32)	(3.61)	(3.01)	(3.61)	(4.37)
CF_{t-1}/K_{t-2}	0.025*	0.02*	0.025**	0.024	0.022*
	(2.02)	(1.78)	(2.33)	(2.22)	(1.93)
$\Delta srcredit_t/Y_{t-1}$			0.546		
			(1.29)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.139		
			(1.46)		
$\Delta lrcredit_t/Y_{t-1}$				0.223	
				(0.48)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				0.484*	
				(1.73)	
$\Delta cash_t/Y_{t-1}$					0.134
					(0.32)
$\Delta cash_{t-1}/Y_{t-2}$					0.376**
					(2.33)
N observations	5276	5276	5276	5276	5276
N firms	1022	1022	1022	1022	1022
m_1	-2.89	-2.89	-1.45	-2.91	-2.87
m_2	1.03	0.96	1.10	1.23	0.83
S	244.29	340.01	460.8	450.3	440.9
p	0.03	0.09	0.04	0.08	0.13

S is the Sargan test with corresponding p. * Significant at 10% level, **at 5% level, *** at 1% level

Negative cash flow for 2 or more years consecutively

Dependent variable I_t/K_t

	-0.02	-0.024	-0.017	0.018	-0.02
	(-0.73)	(-0.80)	(0.59)	(0.63)	(0.68)
		-0.799	-0.732	-0.397	-0.735
		(-1.00)	(-1.02)	(-0.49)	(1.03)
		-0.019	-0.016	-0.039	$-1.7e^{-4}$
		(-0.33)	(-0.305)	(-0.66)	(-1.03)
	-0.048**	-0.041***	-0.043***	-0.045***	-0.04***
	(-2.13)	(-2.89)	(-2.93)	(-2.65)	(-2.76)
	$-1.5e^{-3}$	$3.1e^{-4}$	$-8.7e^{-4}$	$-1.5e^{-3}$	$-7.2e^{-4}$
	(-0.34)	(0.06)	(-0.17)	(-0.31)	(-0.15)
			-0.025		
			(-0.07)		
			0.03		
			(0.23)		
				0.412	
				(1.43)	
				-0.018	
				(-0.30)	
					0.179
					(0.26)
					0.046
					(0.50)
	1543	1543	1543	1543	1543
	343	343	343	343	343
	-2.38	-2.46	-2.47	-2.41	-2.47
	0.67	0.43	0.35	0.42	0.38
	80.9	136.8	171.3	166.5	171.4
	0.25	0.04	0.07	0.10	0.07

S is the Sargan test with corresponding p. *** Significant at 1% level

Table 12. Investment and cash flow sensitivity for Hotels and Restaurants (z-values in parentheses)

No negative cash flow for more than 1 year

Dependent variable I_t/K_t

I_{t-1}/K_{t-1}	$1.1e^{-4}$	$-1.7e^{-3}$	$-1.6e^{-3}$	$-2.4e^{-3}$	$-1.2e^{-3}$
	(0.07)	(-0.69)	(-0.15)	(-0.29)	(-0.52)
$Profit_t/Y_{t-1}$		-0.688	-0.079	-0.798	-0.392
		(-0.90)	(-0.11)	(-1.09)	(0.48)
$Profit_{t-1}/Y_{t-2}$		0.155	0.143	0.233	0.075
		(1.11)	(1.11)	(1.56)	(0.50)
CF_t/K_{t-1}	$5.4e^{-3}$	$6.2e^{-3}$	$3.6e^{-3}$	$6.8e^{-3}$	$7.4e^{-3}$
	(1.26)	(1.18)	(0.72)	(1.15)	(1.10)
CF_{t-1}/K_{t-2}	$6.8e^{-3}$	$6.8e^{-3}$	$8.0e^{-3}$	$7.3e^{-3}$	$7.5e^{-3}$
	(0.77)	(0.74)	(0.72)	(0.75)	(0.72)
$\Delta srcredit_t/Y_{t-1}$			1.821***		
			(3.22)		
$\Delta srcredit_{t-1}/Y_{t-2}$			-0.014		
			(-0.11)		
$\Delta lrcredit_t/Y_{t-1}$				2.756***	
				(7.13)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				$-9.4e^{-3}$	
				(-0.18)	
$\Delta cash_t/Y_{t-1}$					0.31
					(0.49)
$\Delta cash_{t-1}/Y_{t-2}$					0.089
					(0.61)
N observations	16768	16768	16768	16768	16768
N firms	2465	2465	2465	2465	2465
m_1	-2.54	-2.54	-2.52	-2.13	-2.53
m_2	-1.77	-1.75	-0.54	0.75	-1.53
S	328.99	466.4	561.5	492.9	579.1
p	0.0	0.0	0.0	0.0	0.0

S is the Sargan test, with corresponding p. *** Significant at 1% level level, at 5% level

Negative cash flow for 2 or more years consecutively

Dependent variable I_t/K_t

$-8.4e^{-3}$	-0.012	-0.026	-0.017	-0.021
(-0.96)	(-1.09)	(-1.37)	(-1.11)	(-1.39)
	-2.043*	-0.72	-2.367**	-2.065**
	(-1.68)	(-0.80)	(-2.05)	(-2.36)
	0.284	0.188	0.434	-0.149
	(0.77)	(0.76)	(1.36)	(-0.55)
0.251***	0.266***	0.231***	0.263***	0.253***
(4.24)	(5.71)	(4.88)	(5.62)	(5.97)
-0.095	-0.07	-0.073	-0.059	-0.064
(-1.10)	(-0.09)	(-0.89)	(-0.77)	(-0.83)
		1.726**		
		(2.45)		
		0.106		
		(1.59)		
			1.971***	
			(5.62)	
			0.025	
			(0.66)	
				3.386**
				(1.91)
				1.682***
				(2.65)
5003	5003	5003	5003	5003
826	826	826	826	826
-2.62	-2.64	-2.60	-2.73	-2.73
1.08	1.05	1.14	0.85	0.87
301.4	441.6	565.7	510.4	554.9
0.0	0.0	0.0	0.0	0.0

S is the Sargan test, with corresponding p. *** Significant at 1%

Table 13. Investment and cash flow sensitivity for Fish Farming (z-values in parentheses)

No negative cash flow for more than 1 year

Dependent variable I_t/K_t

I_{t-1}/K_{t-1}	-0.059	-0.09**	-0.13***	-0.107***	-0.106***
	(-1.59)	(-2.48)	(-4.53)	(-3.23)	(-2.92)
$Profit_t/Y_{t-1}$		1.556	1.196	1.422	1.455
		(1.33)	(0.28)	(1.44)	(1.30)
$Profit_{t-1}/Y_{t-2}$		0.112	-0.75***	0.138	0.159
		(1.13)	(-3.71)	(1.48)	(0.98)
CF_t/K_{t-1}	$-4.5e^{5}$	$-1.3e^{-3}$	0.033	$-5.2e^{-3}$	0.014
	(0.0)	(-0.06)	(0.77)	(-0.22)	(0.44)
CF_{t-1}/K_{t-2}	$-6.3e^{-4}$	$6.5e^{-3}$	0.021	$3.2e^{-3}$	$3.3e^{3}$
	(-0.05)	(0.47)	(0.97)	(0.23)	(0.24)
$\Delta srcredit_t/Y_{t-1}$			0.795**		
			(1.90)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.231***		
			(5.50)		
$\Delta lrcredit_t/Y_{t-1}$				2.528***	
				(2.71)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				0.098	
				(1.31)	
$\Delta cash_t/Y_{t-1}$					-0.918
					(-1.08)
$\Delta cash_{t-1}/Y_{t-2}$					-0.102
					(-0.44)
N observations	4409	4409	4409	4409	4409
N firms	536	536	536	536	536
m_1	-2.34	-2.36	-1.01	-2.32	-2.39
m_2	-0.60	-1.10	-1.11	-0.97	-1.37
S	273.85	377.98	461.0	442.1	442.8
p	0.0	0.0	0.04	0.12	0.12

S is the Sargan test, with corresponding p. *** Significant at 1% level, ** at 5% level 10% level.

Negative cash flow for 2 or more years consecutively

Dependent variable I_t/K_t

0.056	0.051	0.037	0.047	0.073
(1.09)	(1.02)	(0.81)	(0.93)	(1.39)
	-0.578	-0.848	-0.896	-0.247
	(-0.97)	(-1.20)	(-1.29)	(-0.46)
	0.327	0.536	0.349	0.509
	(0.87)	(1.17)	(0.91)	(1.22)
0.228	0.202	0.220	0.198	0.199
(1.14)	(1.06)	(1.32)	(1.03)	(1.17)
-0.137	-0.138	-0.134	-0.137	-0.179*
(-1.47)	(-1.52)	(-1.32)	(-1.48)	(-1.84)
		1.199*		
		(1.74)		
		0.041		
		(0.64)		
			-0.446	
			(-0.82)	
			0.048	
			(0.75)	
				-1.51*
				(-1.75)
				0.389*
				(1.82)
2069	2069	2069	2069	2069
290	290	290	290	290
-1.51	-1.46	-1.64	-1.48	-1.58
-0.40	-0.41	-0.48	-0.40	-0.43
136.06	168.97	191.4	203.7	203.7
0.0	0.0	0.0	0.0	0.0

S is the Sargan test, with corresponding p. * Significant at

Investment and cash flow sensitivity for <u>small and large firms</u> within industries (z-values in parentheses).

Table 14. Firms in Manufacturing <u>without negative cash flow for more than 1 year</u>

<u>Dependent variable I_t/K_t</u> **LARGE FIRMS**					
I_{t-1}/K_{t-1}	-0.162	-0.169	-0.17	-0.182	-0.17
	(-1.41)	(-1.43)	(-1.43)	(-1.58)	(-1.43)
$Profit_t/Y_{t-1}$		2.741	0.808	4.485	-0.74
		(0.79)	(0.27)	(1.32)	(-0.19)
$Profit_{t-1}/Y_{t-2}$		-3.234	-3.18	-4.093	-2.705
		(-1.28)	(-1.30)	(-1.45)	(-1.26)
CF_t/K_{t-1}	0.232	0.228	0.226*	0.234*	0.218
	(1.46)	(1.57)	(1.75)	(1.70)	(1.58)
CF_{t-1}/K_{t-2}	0.309	0.323	0.324	0.341	0.322
	(1.42)	(1.42)	(1.42)	(1.51)	(1.40)
$\Delta srcredit_t/Y_{t-1}$			1.83		
			(1.30)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.352*		
			(1.78)		
$\Delta lrcredit_t/Y_{t-1}$				2.964	
				(1.11)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				2.076	
				(1.42)	
$\Delta cash_t/Y_{t-1}$					5.318
					(1.13)
$\Delta cash_{t-1}/Y_{t-2}$					0.630
					(0.95)
N observations	28715	28715	28715	28715	28715
N firms	3584	3584	3584	3584	3584
m_1	-1.17	-1.16	-1.16	-1.16	-1.17
m_2	0.43	0.40	0.37	0.40	0.40
S	417.52	534.5	742.6	783.4	673.0
p	0.0	0.0	0.0	0.0	0.0

S is the Sargan test, with corresponding p. * Significant at 10% level ** at 5% level

<u>Dependent variable I_t/K_t</u> **SMALL FIRMS**				
$-2.9e^{-4}$	$2.6\text{-}e^{-3}$	$-3.3e^{-3}$	$1.6e^{-3}$	$3.1e^{-3}$
(-0.05)	(-0.46)	(-0.51)	(-0.22)	(-0.52)
	-2.157***	-2.3***	-2.139***	-2.749***
	(-2.69)	(-2.76)	(-3.09)	(-2.75)
	0.54***	0.569***	0.506***	0.514***
	(4.84)	(5.10)	(5.16)	(5.11)
0.478**	0.506**	0.497**	0.50**	0.526**
(2.29)	(2.33)	(2.27)	(2.27)	(2.52)
-0.028**	-0.036***	-0.036***	-0.037***	-0.031**
(-2.23)	(-2.79)	(-2.76)	(-2.71)	(-2.42)
		0.683***		
		(2.66)		
		0.063		
		(1.30)		
			0.728**	
			(2.19)	
			-0.013	
			(-0.28)	
				2.038
				(1.53)
				0.365
				(1.14)
27308	27308	27308	27308	27308
4322	4322	4322	4322	4322
-3.06	-3.33	-3.24	-3.08	-4.09
-0.77	-0.64	-0.59	-0.61	-0.73
239.99	348.9	493.7	452.4	402.9
0.05	0.05	0.0	0.0	0.58

S is the Sargan test, with corresponding p. *** Significant at 1% level,

Table 15. Firms in Manufacturing 1 with negative cash flow for 2 or more years consecutively

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	-0.282*	-0.036**	-0.042**	-0.063***	0.045
	(-1.81)	(-2.01)	(-2.37)	($3.8e^{-3}$)	(-2.36)
$Profit_t/Y_{t-1}$		1.635	2.82**	1.926	1.925
		(0.99)	(2.08)	(1.59)	(1.30)
$Profit_{t-1}/Y_{t-2}$		-0.463	-0.386	-0.156	-0.526
		(-0.79)	(-0.9)	(-0.33)	(-1.15)
CF_t/K_{t-1}	0.04	0.036	0.029	0.039	0.041
	(0.88)	(0.86)	(0.76)	(1.01)	(1.01)
CF_{t-1}/K_{t-2}	$2.5e^{-3}$	$5.3e^{-3}$	$4.9e^{-3}$	$4.7e^{-3}$	$5.1e^{-3}$
	(0.18)	(0.37)	(0.34)	(0.35)	(0.35)
$\Delta srcredit_t/Y_{t-1}$			1.921**		
			(1.95)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.248*		
			(1.86)		
$\Delta lrcredit_t/Y_{t-1}$				1.762	
				(0.95)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				1.498	
				(1.56)	
$\Delta cash_t/Y_{t-1}$					-0.842
					(-1.41)
$\Delta cash_{t-1}/Y_{t-2}$					0.156
					(0.72)
N observations	5976	5976	5976	5976	5976
N firms	911	911	911	911	911
m_1	-2.34	-2.30	-2.41	-2.29	-2.35
m_2	0.25	-1.52	-1.25	-1.58	-1.72
S	112.61	262.9	474.9	516.7	485.7
p	0.24	0.0	0.01	0.0	0.0

S is the Sargan test, with corresponding p. * Significant at 10% level ** at 5% level , *** at 1% level.

Dependent variable I_t/K_t

SMALL FIRMS

-0.019	-0.028	-0.043	-0.038**	-0.038**
(-1.35)	(-1.67)	(-2.49)	(-1.96)	(-2.00)
	0.582*	0.692**	0.587**	0.469*
	(1.74)	(2.17)	(2.12)	(1.90)
	0.093	0.118	0.111	0.09
	(1.19)	(1.52)	(1.53)	(1.22)
-0.095**	-0.12***	-0.099**	-0.121***	-0.125*
(-2.33)	(-2.60)	(-2.37)	(-2.67)	(-2.80)
$-5.8e^{-3}$	-0.014	-0.011	-0.014**	$-9.8e^{-3}$
(-0.60)	(-2.02)	(-1.59)	(2.29)	(1.41)
		0.328		
		(1.42)		
		0.103**		
		(2.16)		
			0.35	
			(0.97)	
			0.032	
			(0.57)	
				-0.238
				(-1.87)*
				$-7.8e^{-3}$*
				(-1.79)
4025	4025	4025	4025	4025
924	924	924	924	924
-2.54	-2.54	-2.55	-2.47	-2.64
-0.89	-1.03	-1.32	-1.06	-1.09
240.34	366.0	470.1	470.8	491.2
0.05	0.01	0.02	0.02	0.03

S is the Sargan test, with corresponding p. * Significant at 10% level, ** at 5% level, *** at 1% level.

Table 16. Firms in Transport <u>without negative cash flow for more than 1 year</u>

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	-0.164**	-0.168**	-0.17**	-0.181**	-0.171**
	(-2.19)	(-2.23)	(-2.24)	(-2.34)	(-2.25)
$Profit_t/Y_{t-1}$		-1.518	-0.897	-0.65	-1.909
		(-0.64)	(-0.37)	(-0.28)	(-0.93)
$Profit_{t-1}/Y_{t-2}$		0.884	0.568	-0.091	0.963
		(0.81)	(0.51)	(-0.09)	(1.00)
CF_t/K_{t-1}	0.259	0.257	0.258	0.263	0.257
	(1.12)	(1.13)	(1.13)	(1.14)	(1.13)
CF_{t-1}/K_{t-2}	0.071	0.073	0.074	0.085	0.076
	(1.31)	(1.31)	(1.30)	(1.31)	(1.32)
$\Delta srcredit_t/Y_{t-1}$			-0.165		
			(-0.50)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.19		
			(0.90)		
$\Delta lrcredit_t/Y_{t-1}$				-4.00	
				(-0.78)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				1.458**	
				(2.46)	
$\Delta cash_t/Y_{t-1}$					6.727
					(0.90)
$\Delta cash_{t-1}/Y_{t-2}$					0.112
					(0.13)
N observations	11976	11976	11976	11976	11976
N firms	1822	1822	1822	1822	1822
m_1	-2.13	-2.09	-2.09	-2.25	-2.10
m_2	-1.36	-1.36	-1.36	-1.32	-1.37
S	1182.2	1119.9	1193.94	1052.7	1056.1
p	0.0	0.0	0.0	0.0	0.0

S is the Sargan test, with corresponding p. * Significant at 10% level ** at 5% level .

Dependent variable I_t/K_t

SMALL FIRMS

	0.061	0.055	0.054	0.05	0.046
	(1.09)	(0.98)	(0.96)	(0.86)	(0.73)
		-3.138	-2.44	-2.572	-2.73
		(-0.98)	(-0.84)	(-0.76)	(-0.89)
		0.100	0.09	0.245	0.091
		(0.42)	(0.41)	(1.62)	(0.42)
	$6.7e^{-3}$	$7.0e^{-3}$	$6.7e^{-3}$	$7.0e^{-3}$	$6.0e^{-3}$*
	(1.59)	(1.49)	(1.43)	(1.42)	(1.68)
	$-2.5e^{-3}$	$-3.4e^{-3}$	$-2.6e^{-3}$	$-3.0e^{-3}$	$-3.2e^{-3}$
	(-0.70)	(-0.83)	(-0.66)	(-0.83)	(-0.85)
			0.279		
			(0.20)		
			$-8.3e^{-3}$		
			(-0.19)		
				2.432	
				(1.23)	
				-0.091	
				(-0.53)	
					0.328
					(0.15)
					0.256
					(0.73)
	13020	13020	13020	13020	13020
	2338	2338	2338	2338	2338
	-1.87	-1.88	-1.86	-1.73	-1.81
	1.18	0.93	0.99	0.69	0.91
	363.3	365.2	525.8	435.1	516.2
	0.0	0.01	0.0	0.18	0.0

S is the Sargan test, with corresponding p. * Significant at 10% level.

Table 17. Firms in Transport <u>with negative cash flow for 2 or more years consecutively</u>

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	-0.145*	-0.145*	-0.146*	-0.144	-0.146
	(-1.67)	(-1.64)	(-1.64)	(-1.61)	(-1.63)
$Profit_t/Y_{t-1}$		0.167	1.073	0.05	0.461
		(0.01)	(0.13)	(0.01)	(0.05)
$Profit_{t-1}/Y_{t-2}$		-1.883	-1.682	-1.388	-1.587
		(-0.57)	(-0.56)	(-0.43)	(-0.56)
CF_t/K_{t-1}	0.401*	0.346*	0.307	0.314*	0.35*
	(1.74)	(1.75)	(1.61)	(1.80)	(1.71)
CF_{t-1}/K_{t-2}	-0.431	-0.404	-0.384	-0.377	-0.407
	(-1.51)	(-1.47)	(-1.41)	(-1.43)	(-1.46)
$\Delta srcredit_t/Y_{t-1}$			-0.412		
			(-0.15)		
$\Delta srcredit_{t-1}/Y_{t-2}$			-0.338		
			(-0.76)		
$\Delta lrcredit_t/Y_{t-1}$				1.521	
				(0.33)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				-0.480	
				(-0.90)	
$\Delta cash_t/Y_{t-1}$					-9.99
					(-0.92)
$\Delta cash_{t-1}/Y_{t-2}$					1.568
					(0.67)
N observations	1926	1926	1926	1926	1926
N firms	385	385	385	385	385
m_1	-1.61	-1.60	-1.59	-1.59	-1.61
m_2	-0.80	-0.79	-0.77	-0.78	-0.79
S	195.4	228.6	241.4	260.8	231.7
p	0.0	0.24	0.0	0.0	0.0

S is the Sargan test, with corresponding p. * Significant at 10% level

Dependent variable I_t/K_t

SMALL FIRMS

-0.04	-0.039	-0.05	-0.078	-0.055
(-1.22)	(-1.22)	(-1.43)	(-1.50)	(-1.54)
	0.849	0.026	1.016	-0.782
	(0.88)	(0.05)	(1.02)	(-1.14)
	-0.783	-0.778	-0.893	-0.782
	(-1.20)	(-1.20)	(-1.35)	(-1.14)
-0.166	-0.169	-0.166	-0.187	-0.171
(-1.41)	(-1.41)	(-1.38)	(-1.36)	(-1.39)
0.548**	0.551**	0.551**	0.566**	0.544**
(1.91)	(1.91)	(1.92)	(1.93)	(1.93)
		0.659		
		(1.24)		
		0.121		
		(0.84)		
			-0.364	
			(-0.96)	
			0.19	
			(1.48)	
				1.508
				(0.76)
				1.833
				(1.62)
2175	2175	2175	2175	2175
508	508	508	508	508
-1.05	-0.97	-0.91	-0.84	-0.98
0.99	0.86	0.84	0.77	0.92
333.9	391.4	405.8	405.5	405.6
0.0	0.0	0.0	0.0	0.03

S is the Sargan test, with corresponding p. ** Significant at 5% level.

Table 18. Firms in Construction without negative cash flow for more than 1 year

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	-0.051	-0.050	-0.057	-0.059	-0.055
	(-1.16)	(-0.94)	(-1.13)	(-1.10)	(-1.06)
$Profit_t/Y_{t-1}$		-13.76	-13.59	-7.706	-14.26
		(-1.62)	(-1.56)	(-1.37)	(-1.59)
$Profit_{t-1}/Y_{t-2}$		2.186*	1.862*	0.899	2.382*
		(1.66)	(1.67)	(0.99)	(1.65)
CF_t/K_{t-1}	1.601	1.822*	1.658*	1.698	1.741*
	(1.63)	(1.66)	(1.67)	(1.61)	(1.68)
CF_{t-1}/K_{t-2}	-0.313	-0.404	-0.370	-0.363	-0.392
	(-1.22)	(-1.22)	(-1.20)	(-1.14)	(-1.20)
$\Delta srcredit_t/Y_{t-1}$			4.355		
			(1.31)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.368		
			(0.81)		
$\Delta lrcredit_t/Y_{t-1}$				5.113	
				(0.87)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				0.732	
				(1.56)	
$\Delta cash_t/Y_{t-1}$					1.569
					(0.42)
$\Delta cash_{t-1}/Y_{t-2}$					-0.198
					(-0.28)
N observations	22655	22655	22655	22655	22655
N firms	3434	3434	3434	3434	3434
m_1	-0.97	-1.02	-0.92	-0.90	-0.96
m_2	0.55	0.73	0.52	0.61	0.73
S	291.4	448.6	499.7	521.2	554.7
p	0.0	0.0	0.0	0.0	0.0

S is the Sargan test, with corresponding p. * Significant at 10% level.

Dependent variable I_t/K_t

SMALL FIRMS

	-0.035***	-0.033***	-0.043***	-0.046***	-0.036***
	(-4.76)	(-5.01)	(-7.12)	(-6.34)	(5.09)
		0.089	-0.074	0.125**	0.210
		(0.37)	(-0.31)	(2.44)	(0.80)
		0.262***	0.234***	0.245***	0.214***
		(4.43)	(4.01)	(4.56)	(3.75)
	0.10**	0.10**	0.10**	0.125**	0.114**
	(2.12)	(2.04)	(1.97)	(2.44)	(2.07)
	0.097***	0.057***	0.234***	0.067***	0.049***
	(4.92)	(3.43)	(4.01)	(3.79)	(3.22)
			0.436***		
			(3.05)		
			0.156***		
			(4.65)		
				1.526***	
				(8.47)	
				0.042**	
				(2.31)	
					$8.9e^{-3}$
					(-0.04)
					0.163***
					(3.16)
	25411	25411	25411	25411	25411
	4802	4802	4802	4802	4802
	-8.14	-8.11	-8.05	-7.44	-8.03
	1.41	1.37	0.66	0.69	1.06
	274.2	360.3	467.2	469.6	488.9
	0.0	0.02	0.0	0.04	0.0

S is the Sargan test, with corresponding p. *** Significant at 1% level.
**Significant at 5% level

Table 19. Firms in Construction <u>with negative cash flow for 2 or more years consecutively</u>

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	-0.145*	-0.145*	-0.146*	-0.144	-0.146
	(-1.67)	(-1.64)	(-1.64)	(-1.61)	(-1.63)
$Profit_t/Y_{t-1}$		0.167	1.073	0.05	0.461
		(0.01)	(0.13)	(0.01)	(0.05)
$Profit_{t-1}/Y_{t-2}$		-1.883	-1.682	-1.388	-1.587
		(-0.57)	(-0.56)	(-0.43)	(-0.56)
CF_t/K_{t-1}	0.401*	0.346*	0.307	0.314*	0.35*
	(1.74)	(1.75)	(1.61)	(1.80)	(1.71)
CF_{t-1}/K_{t-2}	-0.431	-0.404	-0.384	-0.377	-0.407
	(-1.51)	(-1.47)	(-1.41)	(-1.43)	(-1.46)
$\Delta srcredit_t/Y_{t-1}$			-0.412		
			(-0.15)		
$\Delta srcredit_{t-1}/Y_{t-2}$			-0.338		
			(-0.76)		
$\Delta lrcredit_t/Y_{t-1}$				1.521	
				(0.33)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				-0.480	
				(-0.90)	
$\Delta cash_t/Y_{t-1}$					-9.99
					(-0.92)
$\Delta cash_{t-1}/Y_{t-2}$					1.568
					(0.67)
N observations	1926	1926	1926	1926	1926
N firms	385	385	385	385	385
m_1	-1.61	-1.60	-1.59	-1.59	-1.61
m_2	-0.80	-0.79	-0.77	-0.78	-0.79
S	195.4	228.6	241.4	260.8	231.7
p	0.0	0.24	0.0	0.0	0.0

S is the Sargan test, with corresponding p. * Significant at 10% level

Dependent variable I_t/K_t

SMALL FIRMS

-0.04	-0.039	-0.05	-0.078	-0.055
(-1.22)	(-1.22)	(-1.43)	(-1.50)	(-1.54)
0.849	0.026	1.016	-0.782	
(0.88)	(0.05)	(1.02)	(-1.14)	
-0.783	-0.778	-0.893	-0.782	
(-1.20)	(-1.20)	(-1.35)	(-1.14)	
-0.166	-0.169	-0.166	-0.187	-0.171
(-1.41)	(-1.41)	(-1.38)	(-1.36)	(-1.39)
0.548**	0.551**	0.551**	0.566**	0.544**
(1.91)	(1.91)	(1.92)	(1.93)	(1.93)
		0.659		
		(1.24)		
		0.121		
		(0.84)		
			-0.364	
			(-0.96)	
			0.19	
			(1.48)	
				1.508
				(0.76)
				1.833
				(1.62)
2175	2175	2175	2175	2175
508	508	508	508	508
-1.05	-0.97	-0.91	-0.84	-0.98
0.99	0.86	0.84	0.77	0.92
333.9	391.4	405.8	405.5	405.6
0.0	0.0	0.0	0.0	0.03

S is the Sargan test, with corresponding p. ** Significant at 5% level.

Table 20. Firms in Computer and Data Technology <u>without negative cash flow for more than 1 year</u>

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	-0.052	-0.062*	-0.075**	-0.091***	-0.079**
	(-1.46)	(-1.79)	(-2.09)	(-2.84)	(-1.96)
$Profit_t/Y_{t-1}$		-1.926*	-1.924	-1.279	-1.743*
		(-1.84)	(-1.62)	(-1.56)	(-1.67)
$Profit_{t-1}/Y_{t-2}$		0.075	-0.142	0.306	-0.182
		(0.16)	(-0.29)	(0.69)	(-0.38)
CF_t/K_{t-1}	0.098**	0.106**	0.098**	0.105**	0.094**
	(2.19)	(2.15)	(1.81)	(2.18)	(2.10)
CF_{t-1}/K_{t-2}	0.023	0.024	0.024	0.027	0.03
	(1.34)	(1.41)	(1.40)	(1.54)	(1.44)
$\Delta srcredit_t/Y_{t-1}$			0.937**		
			(2.01)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.243*		
			(1.82)		
$\Delta lrcredit_t/Y_{t-1}$				1.586***	
				(3.03)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				0.883**	
				(2.54)	
$\Delta cash_t/Y_{t-1}$					0.330
					(0.51)
$\Delta cash_{t-1}/Y_{t-2}$					0.497
					(1.42)
N observations	2238				
N firms	426				
m_1	-1.87	-1.86	-1.81	-1.85	-1.83
m_2	0.23	-0.18	-0.37	-0.32	-0.44
S	244.1	274.3	309.3	319.0	306.9
p	0.32	0.22	0.13	0.06	0.14

S is the Sargan test, with corresponding p. *** Significant at 1% level.
** Significant at 5% level, *Significant at 10% level.

Dependent variable I_t/K_t

SMALL FIRMS

-0.026	-0.049***	-0.101***	-0.105***	-0.06***	
(-1.49)	(-2.80)	(-2.87)	(-3.71)	(3.40)	
	-0.957**	-0.872**	-0.619**	-0.920**	
	(-2.16)	(-2.42)	(1.97)	(-2.32)	
	0.069	-0.125	$2.2e^{-3}$	-0.024	
	(0.42)	(-0.57)	(-0.01)	(0.14)	
0.106**	0.179**	0.177***	0.174**	0.180***	
(2.37)	(2.53)	(2.59)	(2.49)	(2.88)	
0.013	0.024	0.043	0.056*	0.028	
(0.45)	(0.75)	(1.28)	(1.76)	(0.94)	
		0.496**			
		(1.87)			
		0.459*			
		(1.65)			
			0.940		
			(1.61)		
			0.271***		
			(3.12)		
				-0.142	
				(-0.42)	
				-0.124	
				(-0.42)	
2531					
648					
-1.91	-1.91	-1.86	-1.83	-1.89	
0.75	0.09	-0.84	-0.28	-0.25	
205.5	306.4	379.7	397.0	384.1	
0.47	0.50	0.38	0.17	0.32	

S is the Sargan test, with corresponding p. *** Significant at 1% level.
**Significant at 5% level, *Significant at 10% level.

Table 21. Firms in Computer and Data Technology <u>with negative cash flow for 2 or more years consecutively</u>

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	0.089	0.092	0.078	0.079	0.079
	(1.16)	(1.09)	(0.92)	(0.98)	(0.91)
$Profit_t/Y_{t-1}$		0.049	-1.318	0.376	-1.151
		(0.04)	(-1.16)	(0.31)	(-0.52)
$Profit_{t-1}/Y_{t-2}$		0.234	0.467	0.350	0.300
		(0.46)	(0.95)	(0.56)	(0.61)
CF_t/K_{t-1}	-0.060	-0.032	-0.044	-0.055	-0.028
	(-1.21)	(1.0)	(-1.30)	(-1.28)	(-0.88)
CF_{t-1}/K_{t-2}	$5.5e^{-4}$	$-5.9e^{-3}$	$4.9e^{-3}$	$-2.3e^{-3}$	$-1.7e^{-3}$
	(0.05)	(-0.67)	(0.67)	(-0.28)	(-0.19)
$\Delta srcredit_t/Y_{t-1}$			1.153*		
			(1.79)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.467**		
			(2.16)		
$\Delta lrcredit_t/Y_{t-1}$				-0.831	
				(-0.94)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				-0.021	
				(-0.22)	
$\Delta cash_t/Y_{t-1}$					-1.479*
					(-1.69)
$\Delta cash_{t-1}/Y_{t-2}$					0.478*
					(1.90)
N observations	658				
N firms	151				
m_1	-1.81	-1.83	-1.89	-1.81	-1.87
m_2	1.03	1.09	0.80	0.91	0.50
S	72.1	99.3	113.0	112.9	116.6
p	0.50	0.50	0.38	0.37	0.29

S is the Sargan test, with corresponding p. ** Significant at 5% level. *Significant at 10% level.

Dependent variable I_t/K_t

SMALL FIRMS

-0.101	-0.123	-0.185	-0.144	-0.161	
(-1.23)	(-1.35)	(-1.63)	(-1.41)	(-1.51)	
	0.128	0.129	0.179	0.276	
	(0.61)	(0.66)	(0.94)	(1.00)	
	-0.025	-0.026	0.013	-0.131	
	(-0.64)	(-0.31)	(0.18)	(-0.89)	
-0.085***	-0.091***	-0.138***	-0.086**	-0.128**	
(-2.72)	(-3.36)	(-2.55)	(-2.06)	(-1.95)	
-0.024***	-0.024	-0.026	-0.026	-0.024	
(-2.33)	(-1.33)	(-1.43)	(-1.52)	(-1.25)	
		0.511			
		(1.26)			
		-0.248			
		(-0.76)			
			0.509**		
			(1.98)		
			0.124		
			(0.81)		
				0.542*	
				(1.85)	
				-0.317	
				(-0.89)	
636					
215					
-1.23	-1.29	-1.43	-1.20	-1.64	
0.94	0.89	0.29	0.93	-0.56	
74.8	100.1	122.5	128.1	129.4	
0.42	0.69	0.52	0.38	0.35	

S is the Sargan test, with corresponding p. *** Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 22. Firms in Hotel and Restaurants <u>without negative cash flow for more than 1 year</u>

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	$3.8e^{-3}$	$-1.2e^{-3}$	$-6.9e^{-3}$	$-6.9e^{-3}$	-0.012
	(0.18)	(-0.06)	(-0.31)	(-0.28)	(-0.53)
$Profit_t/Y_{t-1}$		0.227	1.807	0.196	1.988
		(0.12)	(1.06)	(0.13)	(1.16)
$Profit_{t-1}/Y_{t-2}$		0.357	0.108	0.607	0.488
		(0.77)	(0.19)	(1.64)	(0.70)
CF_t/K_{t-1}	$7.0e^{-3}$	$8.9e^{-3}$	$5.1e^{-3}$	$8.7e^{-3}$	0.010
	(0.93)	(0.99)	(0.56)	(1.08)	(1.00)
CF_{t-1}/K_{t-2}	0.013	0.014	0.071	0.013	0.015
	(0.79)	(0.82)	(1.06)	(0.81)	(0.85)
$\Delta srcredit_t/Y_{t-1}$			3.107**		
			(1.96)		
$\Delta srcredit_{t-1}/Y_{t-2}$			-0.128		
			(-0.57)		
$\Delta lrcredit_t/Y_{t-1}$				7.037***	
				(4.59)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				-0.014	
				(-0.19)	
$\Delta cash_t/Y_{t-1}$					-0.065
					(-0.05)
$\Delta cash_{t-1}/Y_{t-2}$					-0.881
					(-1.51)
N observations	7119				
N firms	1130				
m_1	-2.26	-2.25	-2.24	-1.93	-2.25
m_2	-0.22	-0.38	-0.58	0.16	-0.82
S	381.2	499.8	562.6	449.7	587.4
p	0.0	0.0	0.0	0.08	0.0

S is the Sargan test, with corresponding p. *** Significant at 1% level.
** Significant at 5% level .

Dependent variable I_t/K_t

SMALL FIRMS

-0.053	-0.096*	-0.095**	-0.164***	-0.105**	
(-1.58)	(-1.86)	(-2.06)	(-3.92)	(-2.01)	
	-1.318**	0.151	-0.731	-1.318**	
	(-2.14)	(0.16)	(-0.967)	(-2.22)	
	-0.926	-0.898	-0.967	-1.022	
	(-0.95)	(-1.06)	(-1.20)	(1.07)	
0.592	0.554**	0.446*	0.401**	0.593**	
(1.48)	(1.94)	(1.79)	(1.94)	(2.02)	
0.274	0.467	0.43	0.449	0.461	
(0.97)	(1.13)	(1.16)	(1.37)	(1.13)	
		2.459			
		(1.62)			
		0.252			
		(1.45)			
			1.251*		
			(1.75)		
			0.40***		
			(3.14)		
				0.026	
				(0.07)	
				0.297**	
				(2.11)	
8146					
1588					
-5.58	-5.66	-4.78	-4.78	-5.51	
-1.62	-2.03	-1.75	-2.80	-2.12	
272.1	394.7	436.9	541.7	503.7	
0.0	0.0	0.16	0.0	0.0	

S is the Sargan test, with corresponding p. *** Significant at 1% level.
**Significant at 5% level, *Significant at 10% level.

Table 23. Firms in Hotels and Restaurants <u>with negative cash flow for 2 or more years consecutively</u>

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	-0.019	-0.024	-0.027	-0.024	-0.029
	(-0.83)	(-1.08)	(-1.14)	(-1.15)	(-1.22)
$Profit_t/Y_{t-1}$		-4.03	-3.474	-2.555	-4.242
		(-1.33)	(-1.16)	(-2.15)	(0.05)
$Profit_{t-1}/Y_{t-2}$		-0.284	-0.598	0.048	0.113
		(-0.42)	(-0.81)	(0.08)	(0.26)
CF_t/K_{t-1}	0.185**	0.240***	0.233***	0.231***	0.228***
	(2.32)	(6.63)	(5.74)	(5.45)	(6.61)
CF_{t-1}/K_{t-2}	-0.024	0.027	0.029	0.034	0.021
	(-0.41)	(0.52)	(0.54)	(0.63)	(0.43)
$\Delta srcredit_t/Y_{t-1}$			0.911		
			(0.84)		
$\Delta srcredit_{t-1}/Y_{t-2}$			-0.449		
			(-1.55)		
$\Delta lrcredit_t/Y_{t-1}$				3.911***	
				(3.47)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				0.080	
				(1.21)	
$\Delta cash_t/Y_{t-1}$					3.269
					(1.27)
$\Delta cash_{t-1}/Y_{t-2}$					0.022
					(0.02)
N observations	2256				
N firms	404				
m_1	-1.96	-2.19	-2.15	-2.38	-2.27
m_2	1.04	0.97	0.94	0.80	0.90
S	282.6	336.8	341.3	328.8	332.3
p	0.0	0.07	0.18	0.31	0.28

S is the Sargan test, with corresponding p. *** Significant at 1% level. **Significant at 5% level.

Dependent variable I_t/K_t

SMALL FIRMS

-0.025	-0.036	-0.084	-0.040	-0.052	
(-0.97)	(-1.11)	(-1.31)	(-1.13)	(-1.31)	
	7.400*	7.141*	6.312*	6.936*	
	(1.74)	(1.82)	(1.66)	(1.68)	
	0.360	0.573	0.414	0.474	
	(-1.20)	(0.84)	(0.66)	(0.80)	
-4.602*	-4.212*	-3.775*	-4.019*	-4.016*	
(-1.78)	(-1.71)	(-1.69)	(-1.67)	(-1.67)	
0.060	-0.211	-0.326	-0.179	-0.308	
(0.39)	(1.09)	(1.12)	(-0.99)	(-1.53)	
		0.964			
		(1.49)			
		0.309			
		(1.61)			
			0.702		
			(1.59)		
			$2.1e^{-3}$		
			(0.04)		
				2.914**	
				(1.97)	
				2.228***	
				(8.50)	
2167					
499					
-1.60	-1.25	-1.84	-0.88	-1.71	
0.73	0.06	-0.10	0.07	-0.05	
231.8	343.1	372.2	365.5	368.9	
0.10	0.04	0.12	0.17	0.14	

S is the Sargan test, with corresponding p. *** Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 24. Firms in Fish and Farming <u>without negative cash flow for more than 1 year</u>

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	$-9.6e^{-3}$	-0.012	-0.023	-0.016	-0.011
	(-0.95)	(-1.32)	(-1.53)	(-1.51)	(-1.53)
$Profit_t/Y_{t-1}$		0.981	0.457	0.284	0.499
		(1.41)	(0.88)	(0.51)	(0.80)
$Profit_{t-1}/Y_{t-2}$		0.323	0.128	0.385*	0.336
		(1.51)	(0.54)	(1.87)	(1.40)
CF_t/K_{t-1}	$-2.6e^{-3}$	$-1.2e^{-3}$	$1.7e^{-4}$	$-3.5e^{-3}$	$-9.4e^{-4}$
	(-0.10)	(0.04)	(0.01)	(-0.12)	(-0.03)
CF_{t-1}/K_{t-2}	$-6.9e^{-3}$	$-7.5e^{-3}$	0.128	-0.010	$-7.5e^{-3}$
	(-0.47)	(-0.51)	(0.54)	(-0.71)	(-0.53)
$\Delta srcredit_t/Y_{t-1}$			0.937*		
			(1.87)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.318		
			(2.35)		
$\Delta lrcredit_t/Y_{t-1}$				1.657***	
				(2.40)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				0.080	
				(0.48)	
$\Delta cash_t/Y_{t-1}$					0.621
					(0.47)
$\Delta cash_{t-1}/Y_{t-2}$					0.096
					(0.31)
N observations	1819				
N firms	311				
m_1	-2.72	-2.81	-3.13	-3.0	-2.89
m_2	0.70	0.60	0.44	0.96	0.53
S	94.2	131.9	162.5	164.8	174.8
p	0.05	0.07	0.15	0.12	0.05

S is the Sargan test, with corresponding p. *** Significant at 1% level.
* Significant at 10% level .

Dependent variable I_t/K_t

SMALL FIRMS

$-9.6e^{-3}$	-0.019	$-6.8e^{-3}$	-0.042	-0.024**
(-1.06)	(-1.56)	(-0.38)	(-1.37)	(-2.09)
	-0.024	0.326	-0.208	0.024
	(-0.03)	(0.40)	(-0.32)	(0.04)
	-0.129	0.209	0.125	0.186
	(-0.79)	(1.03)	(0.71)	(0.90)
-0.068	-0.053	-0.048	-0.051	-0.032
(-0.68)	(-0.36)	(-0.40)	(-0.43)	(-0.31)
-0.010	-0.028	-0.038	-0.023	-0.039
(0.45)	(-0.82)	(-1.0)	(-0.84)	(0.31)
		0.341		
		(0.96)		
		-0.108		
		(-1.54)		
			1.907*	
			(1.67)	
			0.049	
			(0.63)	
				-0.170
				(-0.36)
				0.066
				(0.64)
1710				
342				
-2.71	-2.57	-2.54	-2.57	-2.58
1.40	1.36	1.19	0.49	1.27
66.79	134.4	185.2	137.8	161.6
0.68	0.05	0.01	0.65	0.16

S is the Sargan test, with corresponding p. ** Significant at 5% level.
*Significant at 10% level.

Table 25. Firms in Fish and Farming with negative cash flow for 2 or more years consecutively

Dependent variable I_t/K_t

LARGE FIRMS

I_{t-1}/K_{t-1}	0.012**	0.076*	-0.011	0.059	0.067
	(2.15)	(1.74)	(-0.22)	(1.18)	(-1.22)
$Profit_t/Y_{t-1}$		4.654	2.994	3.617	3.511
		(1.46)	(1.33)	(1.35)	(1.24)
$Profit_{t-1}/Y_{t-2}$		2.693*	3.359***	2.602*	2.026
		(1.71)	(2.88)	(1.73)	(1.41)
CF_t/K_{t-1}	0.166	-0.022	0.137	0.149	0.321
	(0.48)	(-0.07)	(0.62)	(0.49)	(0.87)
CF_{t-1}/K_{t-2}	-0.214	-0.229**	-0.231**	-0.218**	-0.220**
	(-2.15)	(-2.37)	(-2.31)	(-2.16)	(-1.96)
$\Delta srcredit_t/Y_{t-1}$			4.300***		
			(3.37)		
$\Delta srcredit_{t-1}/Y_{t-2}$			0.857		
			(2.67)		
$\Delta lrcredit_t/Y_{t-1}$				1.800	
				(0.82)	
$\Delta lrcredit_{t-1}/Y_{t-2}$				0.714	
				(0.95)	
$\Delta cash_t/Y_{t-1}$					-4.062
					(-1.56)
$\Delta cash_{t-1}/Y_{t-2}$					-0.333
					(-0.26)
N observations	965				
N firms	158				
m_1	-1.14	-1.15	-1.60	-1.11	-1.13
m_2	-.72	-0.88	-1.29	-0.90	-0.95
S	107.2	124.1	129.5	124.8	136.3
p	0.0	0.15	0.40	0.51	0.25

S is the Sargan test, with corresponding p. *** Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Dependent variable I_t/K_t

SMALL FIRMS

-0.023	-0.034	-0.022	-0.042	-0.077**
(-1.07)	(-1.35)	(-0.66)	(-1.55)	(-1.96)
	0.011	$8.5e^{-3}$	-0.119	0.114
	(0.04)	(0.03)	(0.41)	(0.38)
	-0.239**	-0.159	-0.213**	-0.202**
	(-2.53)	(-1.42)	(-2.23)	(-1.94)
0.048*	0.025	0.013	0.028	0.018
(1.70)	(1.16)	(0.63)	(1.35)	(0.91)
$-9.0e^{-3}$	$-5.9e^{-3}$	$-4.8e^{-3}$	$-5.6e^{-3}$	-0.045
(-0.93)	(-0.92)	(-0.77)	(-0.93)	(-0.93)
		0.384		
		(1.06)		
		-0.114		
		(-1.20)		
			0.133	
			(0.85)	
			0.027	
			(0.93)	
				0.178
				(0.63)
				0.109
				(0.93)
776				
176				
-2.74	-2.71	-2.74	-2.71	-2.64
0.52	0.07	-0.62	0.05	-0.18
83.6	130.6	132.2	132.25	130.9
0.18	0.08	0.29	0.28	0.32

S is the Sargan test, with corresponding p. ** Significant at 5% level. *Significant at 10% level.