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MICROECONOMIC EFFECTS OF CAPITAL CONTROLS: THE CHILEAN EXPERIENCE DURING THE 1990s

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Resumen

Este trabajo analiza la experiencia chilena de los años noventa con el uso de controles de capital. En particular, usando datos contables para un grupo de 73 empresas durante 1986-2001, el trabajo mide los efectos del encaje a los flujos de capital sobre la estructura y el costo de financiamiento de las empresas. Este trabajo es el primer intento por medir directamente algunos de los costos microeconómicos del encaje que rigió en Chile entre 1991 y 1998. Para efectos del análisis las empresas se agrupan por sector económico, tamaño y grado de acceso a los mercados de capitales externos. Los resultados muestran que los efectos del encaje son específicos a cada firma y, por ejemplo, hay marcadas diferencias en cómo las empresas de distinto tamaño y con o sin acceso a los mercados externos de crédito respondieron a la imposición del encaje.

Abstract

This paper studies the experience with the use of capital controls in Chile during the 1990s. Rather than revisiting previous studies, it complements previous research by providing, for the first time, empirical evidence on some of the microeconomic effects of capital controls, in particular, the unremunerated reserve requirement (URR). By looking at financial statements for a group of 73 Chilean firms during 1986-2001, the paper attempts to identify the effects of the URR on the firms' costs and ways of financing. Chilean firms are grouped by economic sector, size and access to international capital markets. Results show that the effects of the URR are firm specific; for instance, there are striking differences in the response to the URR among firms of different size and those with or without access to international capital markets.

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1. Introduction

Facing a surge in private capital inflows in the early 1990s, which made the trade-off between different macroeconomic objectives increasingly difficult and costly, the Chilean authorities established in 1991 capital controls in the form of a reserve requirement on some types of inflows.[1] The reserve requirement obliged capital importers to put a fraction of the inflow in the Central Bank in a deposit bearing no interest –i.e., it constituted a *tax* on selective capital inflows. By introducing a wedge between domestic and foreign interest rates, this policy was seeking to enhance the effectiveness of monetary policy in the control of both domestic inflation and the size of the current account deficit, without necessarily forcing the central bank to give up exchange rate policy.

Chile's most recent experience with capital controls[2] –of both the administrative and quantitative sort[3]– has caught the interest of policymakers and academic economists in a world of highly volatile capital flows, especially since Mexico's crisis in 1994-95. Indeed, several world class economists –most notoriously Nobel Laureate Joseph Stiglitz– praised the controls after the Mexican and Asian crises. Concurrently, an increasing number of recent studies –summarized in section 2– have provided an empirical evaluation of the consequences of Chile's quantitative restrictions on capital inflows. But all of these studies have looked into the effects of the unremunerated reserve requirement (URR) on macroeconomic variables such as the real exchange rate, the differential between domestic and foreign interest rates, and the composition of capital inflows. Although some studies have mentioned the possible microeconomic effects of this policy-introduced distortion, so far no one has attempted to directly measure such effects[4].

This paper attempts to fill in this gap by directly measuring the effects of the capital controls in effect in Chile between 1991 and 1998, on the way firms finance their operations and on their cost of capital. The analysis is carried out by looking at balance sheet data for a group of 73 Chilean firms during the 1986-2001 period. This sixteen year period is long enough to comprise the post-debt crisis years (when Chile had restricted access to private capital flows), the years when emerging market economies had relatively unhindered access to foreign capital, and the years after the Asian crisis when private capital became scarcer. Before proceeding we should note that this is the first attempt to directly measure some of the microeconomic effects of the capital controls in Chile during the 1990s. As such, instead of challenging previous results, we use them –and the data

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1 The policy objectives were the control of both domestic inflation and the size of the current account deficit, while maintaining the real value of the currency. Although sterilized intervention was an alternative that was extensively used by Chile as well as other capital inflow recipient countries, it was an increasingly costly policy.

2 Chile has a long history of controls on capital account transactions, starting in the 1930s and continuing through the mid-1970s. Then, controls were gradually liberalized in the late 1970s and early 1980s, but were tightened again in the aftermath of the debt crisis of the 1980s.

3 As discussed in section 3 below, during this period the Central Bank also modified several other administrative controls affecting both capital inflows and outflows.

4 Edwards (1999) and Gallego et al. (2002) mention some potential microeconomic costs and, only recently, Forbes (2002) assesses some of its effects indirectly by comparing the extent of financial constraints faced by firms before, during and after the URR.

constructed in previous research– when formulating and testing the hypotheses that we are interested in.

The rest of the paper is organized as follows. Section 2 provides a summary of the recent empirical literature on capital controls in Chile. Section 3 provides a brief description of the main features of the capital controls in effect in Chile during the 1990s. This description is needed because of our extensive use in subsequent sections of indices measuring the extent and severity of the different controls on both inflows and outflows[5]. Section 4 provides details on data sources, sample composition, the equations to be estimated and on the econometric procedures used. Finally, section 5 presents the results of our analysis, while section 6 summarizes and concludes.

2. Literature review [6]

The URR was established in Chile in 1991, as a response to the surge in capital inflows toward emerging market economies that exerted upward pressure on the real exchange rate and created symptoms of overheating. By imposing a reserve requirement on selective capital inflows, the Central Bank aimed to enhance the effectiveness of monetary policy –i.e., to be able to raise interest rate to abate domestic demand and contain inflationary pressures– while, at the same time, supporting the nominal exchange rate (avoid an appreciation) and reducing the vulnerability resulting from the build up of speculative short-term flows.[7]

Chile's controls on capital inflows have been studied extensively, but most of the literature focuses on their macroeconomic consequences[8]. This has been partly because of the rationale advanced by the Chilean authorities when imposing the controls and partly because of the difficulties that exist in analyzing empirically their microeconomic effects. Thus, most of the existing literature has focused on answering the following four related questions which, as mentioned, are directly related to the policy objectives pursued by the Central Bank of Chile when imposing the URR in June 1991 (and maintaining it through September 1998):

1. Has the URR raised the effectiveness of monetary policy, under conditions of limited exchange rate flexibility? [9]
2. Has the URR contributed to a more depreciated real exchange rate?
3. Has the URR reduced total capital inflows or changed their composition from short-term (or financial) to long-term inflows (or non-financial)?
4. And, in the context of the 1997-1999 international turmoil, has the URR diminished contagion from international shocks to the Chilean economy?

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[5] Some readers, especially those unfamiliar with the Chilean URR, may find it useful to take a quick look at section 3 before reading section 2.

[6] This section draws extensively on Gallego et al. (2002).

[7] Without the reserve requirement an increase in domestic interest rates would lead to additional inflows which, in turn, would tend to appreciate the nominal (and real) exchange rate.

[8] As previously mentioned, the exception to the rule is Forbes (2002).

[9] An exchange rate band was in place until September 1999, when a free float was adopted.

The existing empirical research on the subject has addressed these questions adopting a variety of econometric approaches that range from single-equation models (including OLS, instrumental variable techniques and threshold models) to multi-equation models (including vector auto-regressive –VAR– models and generalized auto-regressive conditional heteroskedasticity –GARCH– models). The main findings from this literature are the following:

2. A Single equation models (SEM)

The seminal paper by Soto and Valdés-Prieto (1996) concludes that the imposition of the URR did not change the trend appreciation of the real exchange rate during the 1990s. In this and two subsequent papers (Valdés-Prieto and Soto, 1998 and 2000), these authors conclude that the URR did lead to a change on the composition of capital flows, reducing the share of taxed short-term flows and raising the share of exempt flows.[10] Nevertheless, total short-term flows were not affected by the URR.

Eyzaguirre and Schmidt-Hebbel (1997) reach a different conclusion regarding the composition of capital inflows. They find that the URR did lead to a reduction of total short-term flows, but did not have any statistically significant effect on total (short plus long-term) flows. They also find that the URR increased the effectiveness of monetary policy (by raising the wedge between domestic and foreign interest rates) and led to a temporary real exchange rate depreciation, though these two effects are rather weak and not robust to different specifications for the estimated equations.

Regarding the impact of capital controls on the effectiveness of monetary policy, Edwards (1998) finds that during the post 1992-93 period, when the URR increased in importance, the URR affected the degree of inertia of the interest rate differential but not its level. Consequently, the author concludes that the URR did allow the Central Bank a higher degree of policy autonomy although on a temporary basis.

Using a threshold model technique, Larraín et al. (2000) find that the URR had a negative permanent effect on taxed short-term flows (operating through an increase in the relevant interest rate differential), a positive transitory effect on exempt short-term flows, and no effect on long-term flows. Summing up, their results indicate that the URR has a non-linear, negative and significant effect both on short-term and total capital flows.

The main shortcomings of the preceding studies are that they do not control for changes in other capital account regulations (namely, liberalization of capital outflows and inflows) and for changes in the URR other than the tax rate (i.e., changes in coverage and the presence of loopholes).[11]

[10] Valdés-Prieto and Soto (2000) state that taxed flows could be associated with those that use legal channels and have secure access to the inter-bank foreign exchange rate for the repatriation of principal and interest or dividends.

[11] For a critical review of the literature –without rigorous empirical analysis– see Nadal-De Simone and Sorsa (1999).

The paper by De Gregorio, Edwards, and Valdés (2000) overcomes some of these limitations by including a new variable aimed at measuring the presence and extent of loopholes (an index measuring the power of the URR). Using a SEM the authors conclude that the URR provided the Central Bank with additional room to maneuver (i.e., it allowed for a higher domestic interest rate) and changed the composition of inflows toward long-term flows. However, like previous studies, they are still unable to find any significant effect of the URR on the real exchange rate (RER).

More recently, Gallego et al. (2002) extends previous research by including not only a measure of the presence and extent of loopholes in the URR (that is, its ineffectiveness), but also indexes that control for the lifting of other capital account restrictions, such as minimum periods of stay and mandatory remittances, among others. The authors conclude that the URR loses effectiveness (or its power decreases) as time passes and investors develop new ways to elude it. Like prior studies they find that by introducing a wedge between domestic and foreign interest rates, the URR allowed the central bank to run a more independent monetary policy, but this effect occurred mainly through changes in the URR effectiveness or power (i.e., by closing loopholes) rather than by raising its tax rate. Also acting through its power the URR affected negatively the amount of inflows received by the country. Thus, the URR can be used neither to sustain an interest rate differential with abroad nor to reduce the flow of capital to the country –all objectives seek by the authorities– on a permanent basis (unless the authorities manage to *permanently* close all loopholes). However, the URR did tilt the composition of flows toward long-term ones permanently.

2. B System Models

The lack of response of the real exchange rate to changes in the URR presents a puzzle, since the higher level for the domestic interest rate –supported by the URR– could be expected to lead to a more depreciated real exchange rate through the expenditure channel. The fact that this effect has not been found in the empirical papers based on SEMs is likely due to misspecification problems. This is suggested by the results reported in two studies that apply VARs, namely, Soto (1997), and De Gregorio, Edwards, and Valdés (2000). These papers report that a temporary shock in the URR depreciates the real exchange rate on a temporary basis.[12] Furthermore, Soto (1997) finds that increases in the URR lead to a reduction in the volatility of the RER. The three papers using a VAR approach (Soto 1997, Edwards 1999, and De Gregorio et al. 2000) also confirm previous findings regarding the level of domestic interest rates, the composition of inflows, and the absence of any significant and permanent effect on total flows.

Regarding the impact of the URR on the volatility of other macroeconomic prices, Edwards (1999) estimates a GARCH model for the volatility of short-term central bank nominal *repo* rates and the stock market (price) index. His results indicate that the URR has a negative and significant effect only on the volatility of the stock market index. Finally, Edwards (1999, 2000) analyzes if capital controls isolated Chilean interest rates from

[12] However, using a similar approach Edwards (1999) finds no effect of the URR on the real exchange rate.

external shocks and concludes that the URR was not able to reduce contagion effects from foreign interest rate shocks to domestic interest rates.

In sum, there is ample evidence showing that the URR led to higher domestic interest rates –or a larger differential with international interest rates– and a change in the composition of inflows, without affecting the real exchange rate. Yet the effect of the URR on total flows remains controversial, with all studies but Larraín et al. (2000) finding no significant permanent effect.[13]

But a broad open question on the effects of Chile's capital controls warrants additional research, namely, what are their microeconomic consequences. No study so far has reported direct evidence of the microeconomic effects of these controls, although a few have identified some of their potential costs. Gallego et al. (1999) takes an indirect approach and assesses some of the costs of the policy mix pursued by the Central Bank of Chile during most of the 1990s –the authors claim that the policy mix was supported and to a great extent possible because of introducing the URR. They argue that the country paid a cost in terms of lower growth (because of the central bank keeping a higher interest rate than it would have prevailed otherwise) and in terms of a transfer abroad (because of financing the large stock of reserves that resulted from the sterilization of capital inflows). In addition, the authors argue that there are microeconomic costs because of the inefficient allocation of resources that results from investors trying to elude the tax –and the authorities constantly uncovering and closing loopholes– and from some projects and firms being discriminated against. Their claim was that the URR discriminated against short-term projects that were more heavily taxed because of the way the URR was designed, and against firms that could not substitute among different sources of finance (most likely small firms highly dependent on bank financing). Similarly, Forbes (2002) compares the periods before, during and after the URR and notices that small firms were more financially constrained when the URR was in place. But she does not attempt to separate the direct effect of the URR on firms' financial decisions from other developments taking place at the same time, namely, a restrictive monetary policy (i.e., sterilization of capital inflows) and an increase in the demand for funds associated with a period of high economic growth and good economic prospects.

The rest of the paper investigates the issue of the microeconomic effects of the URR, controlling for other microeconomic and macroeconomic factors.

3. Capital controls in Chile during the 1990s [14]

The resumption of voluntary capital flows to emerging market economies led to a new wave of inflows to Chile starting in 1988. After a growing tide of inflows during 1988-90, the central bank imposed quantitative restrictions in the form of an unremunerated reserve requirement (URR) on selective inflows (this restriction was imposed in 1991 and

[13] A more detailed summary of the research on this subject is presented in Gallego et al. (2002), Appendix A.

[14] See footnote 6.

lasted through September 1998). At the same time, the Central Bank started to liberalize existing administrative controls on capital outflows, and to lessen other quantitative and administrative controls on inflows (see Gallego et al. (1999) for a detailed description of these controls during this period).

In this section we summarize the specific restrictions on capital flows existing during the 1990s and present measures of their extent. These measures are taken from Gallego et al. (2002) and are presented here because of our extensively using them in the empirical analysis.

3. A Unremunerated Reserve Requirement

The URR is a requirement to hold an unremunerated fixed-term (mostly one-year) reserve at the central bank, equivalent to a fraction of capital inflows in certain categories. Hence, the URR is equivalent to a tax per unit of time that declines with the permanence or maturity of the affected capital inflow. The quantitative nature of this restriction (that is, its tax equivalence) is made more explicit by its alternative form: instead of actually depositing the unremunerated reserve fraction with the central bank, foreign investors are allowed to pay the central bank an up-front fee. The fee is determined by the product of the relevant foreign interest rate and the fraction of capital subject to the restriction.

Various features of the URR were altered during its existence. The central bank modified the required rate or fraction of deposit, the coverage of capital inflow categories subject to it, the foreign currency denomination of the reserve deposit or fee payment, the holding period, the restrictions on the rollover of maturing investments, and other administrative requirements related to the URR.

A simple equation that reflects the financial cost –in percent– of the URR (*urr*) is the following:

$$urr = \frac{\tau}{(1-\tau)} \frac{h}{k} i^* \quad (1)$$

where τ is the fraction of the capital inflow required to be held as a deposit or reserve with the central bank, h is the required holding period, k is the average maturity of the foreign investment for which the URR is calculated (equal to six months in the empirical estimations reported below), and i^* is the equivalent foreign interest cost for a k-month operation.[15]

Measures of *urr* similar to that defined in equation (1) have been used in previous empirical studies,[16] and these measures reflect both changes introduced by the central bank

[15] For details on the applicable i* see Gallego, Hernández, and Schmidt-Hebbel (1999).

[16] These measures can be termed "naive" in the sense that they do not reflect the option value of reinvesting or rolling over the capital after maturity (this option existed until 1996) as calculated by Herrera and Valdés (2001).

(affecting τ, h/k, and the applicable i^*) and changing market conditions (affecting i^*). For instance, τ started at a rate of 20 percent in June 1991, was raised to 30 percent in May 1992, reduced to 10 percent in June 1998, and reduced to zero in September of that year (figure 1). Other administrative changes introduced by the central bank altered the maturity (h/k) and the relevant i^*,[17] although the latter was also affected by changing market conditions. The *urr* series that takes into account all these factors is depicted in figure 2 and shows a trend increase until late 1997, largely explained by the rising share of up-front fee payments.[18] From June 1991 through September 1998, *urr* averaged 4.24 percent a year, with a standard deviation of 2.14 percent. Its maximum was 7.7 percent in November 1997.

As with any other tax, the URR provided an incentive for tax avoidance and tax evasion.[19] Using different sources, Gallego et al. (2002) calculate the effectiveness or *power* of the URR (this is estimated by the ratio between the flows actually taxed by the URR and the total amount of flows that were potentially subject to it). Figure 2 reports the monthly time series for the power index (*pow*). The latter suggests that the URR gained effectiveness over time, although this happened because of the central bank's continuing effort to close loopholes in URR regulations. For instance, in January 1992, six months after its introduction, the URR power index stood at 50 percent, mainly because of extensive re-labeling of several forms of capital inflows as dollar-denominated deposits, which were exempted from the URR. When these deposits became subject to the URR in February 1992, the power index increased to 78 percent (although other loopholes were discovered and used by arbitrageurs).

Combining the simple measure of the cost of the URR, *urr*, with its effectiveness or power (*pow*) and the URR coverage (*cov*), allows one to obtain a measure of the effective cost of the reserve requirement (*err*):

$$err = urr * cov * pow \tag{2}$$

Figure 2 depicts the time pattern of *urr* and *err* (as well as that of *pow*). Both show a rising trend until late 1997. The effective cost of the reserve requirement attained a sample average of 3.84 percent and a standard deviation of 2.30 percent during 1991-98.

3. B Other Restrictions to capital flows

The central bank largely liberalized administrative restrictions on both capital inflows and outflows during the 1990s and abolished all remaining restrictions in April 2001. This can be seen both as part of the country's overall economic liberalization and financial integration process and a (temporary) substitution of quantitative restrictions on inflows (the URR) for administrative controls.

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[17] The central bank changed from yen or dollar rates to dollar rates only in November 1994.

[18] The fee option appears to be more expensive than depositing funds with the central bank, because of the spread of 2.5 percent (or 4 percent) applied to it on top of the foreign interest rate i^* (see Annex 2 in Gallego et al. 1999).

[19] Le Fort and Sanhueza (1997) provide a detailed description of the avoidance of the URR that was observed in the 1990s.

Regarding capital inflows, the two main quantitative restrictions –other than the URR– are minimum solvency requirements on domestic issuers of foreign liabilities (bonds and American depository receipts, or ADRs) and minimum size requirements on issues of foreign liabilities by corporations and banks. Both restrictions were partly liberalized during the last decade, as reflected in their liberalization index (*acci*) depicted in figure 1.

Minimum permanence requirements before repatriation of capital and profits may be interpreted as restrictions on both capital inflows and outflows. Technically they affect outflows of capital because they are imposed on capital that has entered at some point in time; that is, they restrict the repatriation of principal and cumulative profits accrued on past investments. However, in an *ex ante* sense they deter additional foreign investment, and hence negatively affect (future) capital inflows (Labán and Larraín, 1997).

Permanence requirements on foreign investment –both portfolio and direct– were reduced from an average of eight to three years in 1991, and further to two-and-a-half and one years in 1992-93, before being completely eliminated in May 2000 (*accr* in figure 1). This liberalization was implemented in an ex post way: existing foreign capital was allowed to leave the country after complying with the new, shorter permanence requirement. For this reason one may expect to observe larger capital outflows at the times when permanence requirements were relaxed –as the central bank intended– and this is why we classify the requirement as a capital outflow restriction.

Other regulations on capital outflows that were liberalized during the last decade include ceilings on foreign asset holdings by domestic financial institutions and surrender requirements imposed on export proceeds (both were abolished in July 1995). An aggregate index for these and a host of other secondary administrative controls on outflows is depicted as *acco* in figure 1.

The various indexes in figure 1 show significant and simultaneous progress in the liberalization of both capital inflows and outflows largely concentrated during 1991-95. This downward trend in the tightness of controls is summarized by the (simple) average of the three indexes, *accf* (not shown in the figure).

4. Data and methodology

4. A Equations to be estimated

In this paper we investigate the effects of capital controls, in particular, the unremunerated reserve requirement in effect in Chile between 1991 and 1998, on the way firms finance their operations and on their cost of funds. We claim that the URR affects firms differently depending on the possibilities they have to substitute among alternative sources of funds. These possibilities depend on firms' characteristics such as size, degree of access to international capital markets, whether firms belong or not to a conglomerate, and the economic sector in which they operate. To investigate these issues we estimate several equations of the following general form:

(3) $\text{Financial Structure}_{it} = \alpha_0 + \alpha_1 \text{ Asset Tangibility}_{it} + \alpha_2 \text{ Asset Profitability}_{it}$
$+ \alpha_3 \text{ Asset Size}_{it} + \alpha_4 \text{ Banking Sector Development}_t + \alpha_5 \text{ Debt Market Development}_t$
$+ \alpha_6 \text{ Stock Market Development}_t + \alpha_7 \text{ Effective Reserve Requirement}_t + \alpha_8 \text{ Other}$
$\text{Capital Account Restrictions}_t + \alpha_9 \text{ Effective Reserve Requirement}_t D_j + \alpha_j D_j + \eta_i + \varepsilon_{it}$

where i is a firm index, t is a time index, j is a group index, D_j is a dummy that takes value 1 if firm i belongs to group j and zero otherwise, η_i is a firm-specific effect, and ε_{it} is a random term. Regression (3) is estimated for five different dependent variables, namely, (i) total debt over total assets; (ii) retained earnings over total assets; (iii) paid capital (equity exclusive of retained earnings) over total assets; (iv) short-term debt over total debt; and (v) short-term financial debt over total short-term debt.

The first six regressors in equation (3) are control variables whose inclusion is founded, both conceptually and empirically, in previous research (see Gallego and Loayza (2001), Lee, Lee and Lee (1999), Schmuker and Vesperoni (2001)). The first three regressors (asset tangibility, profitability, and size) are firm specific, while the latter three are common to all firms –an increase in all three financial development indices means more developed banks, debt or stock markets. As explained in the previous section, the effective reserve requirement (err) measures the extent to which the URR effectively taxes capital inflows after taking into account changes in its power and coverage (for more details about its construction see Gallego et al., 1999). Other capital account restrictions is an index summarizing the extent of administrative restrictions on inflows and outflows other than the URR (introduced as *accf* in the previous section; an increase signals a more restrictive environment). Finally, D_j is a dummy used to test for different effects of the URR across firm groups.

In some of the estimated regressions –in particular, when the dependent variable is (i), (ii) or (iii) above– we included a variable to control for changes in marginal tax rates. This tax variable was defined as the difference between the maximum personal income tax rate and the corporate tax rate (see Bennett et al. (2001) for details). It is expected that an increase in this difference should induce firms to use more retained earnings. The results, reported in Annex 2, show that the estimated coefficient has the correct sign but is not highly significant. Furthermore, the results with the tax variable are almost identical to those without it (i.e., its exclusion does not bias any of the other coefficients). For this reason in the final results reported here we do not include the tax variable.

In addition, we investigate the effects of the URR on the firms' cost of funds. For this we estimate the following equation:

(4) $\text{Financial Expenditures}_{it} = \alpha_0 + \alpha_1 \text{ Asset Size}_{it} + \alpha_2 \text{ Leverage}_{it} + \alpha_3 \text{ Cost of borrowing}$
$\text{domestically}_t + \alpha_4 \text{ Restrictions on Capital Outflows}_t + \alpha_5 \text{ Cost of borrowing abroad}_t$
$+ \alpha_6 \text{ Index of financial liberalization}_t + \alpha_7 \text{ Cost of borrowing domestically}_t D_j$
$+ \alpha_8 \text{ Cost of borrowing abroad}_t D_j + \alpha_j D_j + \eta_i + \varepsilon_{it}$

where financial expenditures are in percent of total outstanding debt and the cost of borrowing domestically is the average bank (real[20]) lending rate in the domestic market. Restrictions on capital outflows (calculated as the simple average of *accr* and *acco*) is an index measuring the extent of administrative restrictions on outflows –again, an increase means a more restrictive environment. Its inclusion is motivated by the findings reported in Gallego et al. (2002) that show that lifting restrictions on outflows led to an increase in the level of domestic interest rates. The cost of borrowing abroad is constructed as the sum of LIBOR plus country risk plus the financial cost of the effective reserve requirement, *err*, and the index of financial liberalization measures the extent of financial repression (an increase means a lower degree of financial repression). The inclusion of all variables is supported by previous research.

Except for asset size (measured as the natural log of total assets), all firm specific variables, the costs of borrowing, *err*, and the financial development indices are measured as ratios. The index of financial liberalization and the capital account restrictions are indices. Data sources and a detailed definition of each variable are provided in Annex 1.

4. B Data and sample description

In this paper we use balance sheet data for 73 Chilean companies for the period 1986-2001 (N = 1168). Thus, we span the period when Chile had relatively unhindered access to voluntary foreign capital markets, 1989-97, and the periods when voluntary flows to emerging market economies were more scarce, 1986-88 (the post debt-crisis years) and 1998-2001 (the post Asian crisis years).

The sample comprises companies whose debt or equity are publicly traded and, therefore, are required to make their financial statements publicly available on a quarterly basis.[21] Since the latter tend to be medium and large corporations, our sample is not representative of the universe of Chilean companies; that is, our conclusions are subject to an unavoidable sample selection bias.[22] Nevertheless, our sample includes about 73% of all the firms that submitted their financial statements throughout the sample period.[23]

Despite this being the first attempt to directly measure the microeconomic effects of the URR, because of this unavoidable sample selection bias the effect of this policy measure on the Chilean smallest firms remains unexplored. However, it could be argued that this sample-induced bias is not very important because the effects uncovered here are of most relevance to larger and financially more sophisticated firms. In other words, to the extent that very small (micro) firms follow rudimentary financial strategies and have limited access to funding other than self generated funds (retained earnings), they will have

[20] CPI indexed.

[21] According to Chilean law, the so-called *closed* corporations that do not issue debt or equity instruments are not required to publish their financial statements.

[22] According to the IRS, in 2000 approximately 83% of Chilean firms were micro firms, 14% were small, 2% were medium and less than 1% were large (for size definitions see footnote 25). However, in terms of sales micro firms represented less than 4%, small and medium represented about 10% each group and large firms represented slightly more than 76% of the total.

[23] We explicitly excluded financial institutions (banks) and other non-productive firms (social clubs, etc.)

limited possibilities of substituting among sources of funds and most likely will not be affected by the URR.

We use a balanced panel or closed sample, as opposed to an unbalanced or open sample –that is, firms in the sample are those for which data was available the entire period.[24] To study the differentiated effects of the URR across firms we break the sample using the following criteria:

(a) *Size*: we differentiate between small, medium and large firms depending on their annual sales.[25]
(b) *Access to international capital markets*: we distinguish between firms that issue ADRs or bonds in the international capital markets and those that do not.
(c) *Belong to a conglomerate*: we distinguish between those firms that are part of a conglomerate or "economic group" and those that are not.
(d) *Economic sector*: we separate firms according to the economic sector in which they participate. We distinguish between the following: (1) primary –agriculture, fishing, livestock, and mining; (2) manufacture; (3) utilities –electricity, gas, water, and telephone; (4) services –real estate agencies, schools, and clinics; (5) transportation– airlines, railroads, and shipping; (6) financial –stock exchange, mutual funds, and brokers. In addition we analyze the following: (7) tradable –primary, manufacture, airlines, and shipping.

Table 7 describes the sample composition and the intersection among different firm groups. It can be seen that except for firms that issue securities –ADRs and bonds– abroad, which are all large, and those in the transportation and financial sectors, which are under represented, there is a relatively even distribution of firms across groups in the sample. Based on this, it will not be possible to reach strong conclusions regarding the behavior of firms in the transportation and financial sectors. Table 8 provides summary statistics for some of the dependent and independent variables for the whole sample as well as for individual years.

4. C Econometric Methodology

All the reduced form relationships studied in this paper are characterized by the dependent and (some) independent variables being jointly determined, that is, some right-hand side variables are either simultaneously determined or have a two-way causality relationship with the dependent variable in the six equations estimated here. For instance, leverage, asset profitability and asset size are all jointly determined. Because of this and the panel structure of our dataset, we use a GMM estimator that uses lag observations of the independent variables as instruments to obtain consistent estimates for the coefficients of

[24] The use of an unbalanced panel or open sample would allow a greater number of observations, but would invalidate the conclusions to the extent that firms leaving the sample are different from those entering it.

[25] We use the standard set by the Chilean IRS, according to which large firms sell more than UF 100,000 annually, medium firms sell between UF 25,000 and UF 100,000 annually, and small firms sell between UF 2,400 and UF 25,000 annually (at the time of writing UF1 ≅ US$23). Most firms remain in the same size group every year. Those firms that change size during the sample period were classified according to the size group in which they fell most of the years.

interest. This procedure is valid to the extent that the error term in equations 3 and 4 above is serially uncorrelated (or at least follows a moving average process of finite order), and that future innovations of the dependent variables do not affect current values of the right-hand side variables (though the latter can be affected by past and current realizations of the dependent variable).

The validity of these assumptions can be verified statistically using both the Sargan test –which tests for the validity of the instruments[26]– and tests of serial correlation of the residual in each regression (the latter is used to decide on the adequate lag structure of the instruments[27]).

In addition, because our regressions are most likely subject to unobserved firm specific effects –which if ignored would lead to biased estimates because such effects tend to be correlated with the explanatory variables–, we follow the procedure developed by Arellano and Bover (1995) and Blundell and Bond (1997). This consists of estimating a system that combines the regression estimated in levels with the one estimated in first differences, each of them properly instrumented. This procedure, called the *GMM System Estimator*, is used in all our regressions. Specification tests in this case are the same described above except that first-order serial correlation is expected by construction because of taking first differences –i.e., only second and third order serial correlation of the residual are indication of misspecification (these specification tests are provided for all our regressions in tables 1-6 below). For a detailed description of the econometric technique used in this paper see Levine, Loayza and Beck (2000), and Gallego and Loayza (2001).

The GMM system technique is validated because when using GMM in levels we strongly reject the null hypothesis that there are no firm specific effects in all regressions.[28] In addition, simpler econometric techniques –plain OLS and GMM in levels– provide poor and biased results. In fact, preliminary estimations –reported in Annex 3– show that coefficients change significantly when going from simpler to more sophisticated econometric techniques.

5. Empirical results [29]

5. A General conclusions

Before discussing the effects of capital controls it is worth to highlight some general results concerning the way firms finance their operations. All results reported below are consistent with previous results on corporate finance provided elsewhere, for Chile as well

[26] The null hypothesis in the Sargan test is that there is no correlation between the instruments and the error term in the regression. Rejecting the null means that the instruments are not valid and the estimates are biased.

[27] Serial correlation of a given order in the residual means that only observations of the right-hand side variables that are lagged more than this order are valid instruments.

[28] The presence of unobserved firm specific effects is detected by persistent serial correlation of the residual in the regression model in levels.

[29] The results are presented in tables 1-6. It should be noted that the discussion in this section is organized by regressor, whereas in the tables the results are presented by dependent variable.

as other countries (see Medina and Valdes (1998); Gallego and Loayza (2001); Schmukler and Vesperoni (2001); Lee, Lee and Lee (1999); Hoshi et al. (1991)). In particular:

- Firms with a larger share of fixed assets (i.e., greater asset tangibility) tend to be more indebted and depend less on retained earnings as a source of funding. Also, firms with greater asset tangibility –for which it is easier to guarantee their loans using assets as collateral– can borrow longer and, therefore, tend to have a smaller share of short-term debt in the total.

- Firms with more profitable assets (higher earnings/assets) tend to have less debt and a smaller capital base (excluding in the latter retained earnings) and rely more on retained earnings as a source of funding. However, although an increase in asset profitability significantly increases the share of assets that is financed with retained earnings, the bulk of the reduction in the other sources of funding occurs not in debt but in paid-in capital. Also, firms with more profitable assets can borrow more in the short-term, although the relative importance of short-term *financial* debt falls. The latter effect may reflect the fact that highly profitable firms tend to be relatively young (compared with others in the sample) and fast growing (with a large cash flow), and it may be relatively easier for them to obtain direct trade credit from suppliers than from banks.

- Larger firms tend to use more debt and retained earnings, carry proportionately less short-term debt (i.e., have easier access to long-term debt markets), and have a smaller capital base[30]. Although results vary across firm groups, evidence indicates that firms tend to finance their growth proportionally more with retained earnings. Thus, while an increase in total assets of one-percent (1%) leads to an increase in leverage (debt over total assets) of about 2 percentage points,[31] it leads to an increase in retained earnings (again as a share of total assets) of about 4-7 percentage points. This result is consistent with empirical evidence for Chile, as well as other countries, that shows a high sensitivity of investment to firms' internal funds (Medina and Valdes (1998); Gallego and Loayza (2001) and references therein; Fazzari et al. (1988)).

- As expected, the more developed the banking sector the greater the indebtedness of firms and the less the use of retained earnings to fund their operations. Also, although not statistically significant in all regressions that group firms by type, a more developed debt market (measured by the size of banks and bond market) leads to a reduction in short-term debt as a share of the total. Further, more developed banks and debt markets lead to a fall in the relative importance of short-term *financial* debt, meaning that greater financial development is relatively more important for the provision of long-term finance. In other words, for short-term financing firms can turn to direct credit from suppliers or delay the payment of dividends and taxes, among other sources, all of which can occur without a well developed banking sector or debt market. However, the latter

[30] This result contrasts with the pattern observed in OECD countries where capitalization is higher for larger firms. In this regard it should be noted that other studies also report differences across countries, especially between developed and developing ones, in the way firms finance their operations (see Booth et al. (2001) and Caprio and Demirguc-Kunt (1998)). This difference can also be explained in part because our measure of capital excludes retained earnings and therefore is a poor proxy for equity.

[31] Since short-term debt falls with asset size, the increase in long-term debt must be proportionally larger.

are more important for the provision of long term finance that can substitute for short-term finance.

- Similarly, a more developed stock market leads to lower debt, a larger capital base and greater use of retained earnings. The latter effect may be due because a more developed stock market prices retained earnings higher, giving firms a greater incentive to use this channel to fund their growth. An increase in market capitalization of ten percent of GDP reduces leverage (as a proportion of total assets) in about 0.6 percentage points. The reduction in leverage is compensated with an increase in paid-in capital and retained earnings of about 0.2 and 0.4 percentage points of total assets, respectively.

- Regarding the cost of funding, results show that a more developed and liberal financial system reduces the cost of borrowing (Table 6). Also, larger firms can borrow at a lower cost than smaller ones, and, as expected, more indebted firms pay a positive premium (i.e., face a higher cost of borrowing). In addition, both the domestic and external relevant interest rates (the latter being adjusted by country risk and the effective financial cost of the URR) are important to explain firms' cost of funding. In this regards our results validate previous research indicating that the cost of funding in developing countries should be seen as a weighted average of the conditions in the domestic and external financial markets (Edwards and Khan, 1985). Although the relative importance of the domestic and external rate for each firm depends on its own characteristics, for the average firm the cost of domestic credit seems to matter proportionately more.

5. B Capital account restrictions other than the reserve requirement

The lifting of capital restrictions affecting both inflows and outflows during the 1990s (other than the unremunerated reserve requirement, err), led to a raise in the relative importance of paid-in-capital and a fall in the use of retained earnings as sources of finance. Across the board, it shortened the maturity of debt while raising the relative importance of short-term *financial* debt in the total. Thus, capital account restrictions (other than the err) at the margin affected firms' financing decisions, so that when restrictions were lifted firms began to issue more equity and use more short-term financial debt. However, despite changing the maturity composition of debt these restrictions did not have a systematic effect on leverage.

Consistent with previous results (Gallego et al., 2002), the lifting of restrictions on capital **outflows** increased the cost of funding for all firm groups. It is plausible that allowing Chilean investors (especially institutional investors such as pension funds) to invest abroad, may have –at the margin– increased the cost of borrowing for Chilean firms. In other words, keeping national savings 'captive' in the local market may have resulted in an artificially lower cost of borrowing for firms in our sample.

5. C Reserve Requirement (err)

We purposely separate the results that concern the unremunerated reserve requirement from those regarding other capital controls because the former is the policy

instrument that most of the literature emphasizes and is the main motivation for undertaking this research.

At the aggregate level the unremunerated reserve requirement significantly affected the ways in which firms finance their operations as well as their cost of funding. In particular, the *err* led to a reduction in leverage and in paid capital and an increase in the relative importance of retained earnings, effects that are fully consistent with the err raising the relative cost of borrowing and issuing equity [32] (base regression in Tables 1-3). On average the magnitude of these effects is not very large, however. For instance, an increase in the err of 0.036[33] would have, on average, reduced leverage and capitalization by about one percentage point each, while increasing retained earnings (over total assets) by about 2 percentage points[34]. Thus, it can be argued, at the margin firms substituted non-err taxable for err-taxable sources of funds.

Similarly, at the aggregate level the err raised firms' external cost of funding, while monetary policy remained effective in affecting aggregate demand by being able to raise/reduce firms' cost of funding –in other words, in the aggregate firms were unable to fully avoid the effects of a raise in domestic interest rates by shifting to foreign sources of funds. This result is consistent with previous evidence showing that the URR introduced a wedge between domestic and foreign arbitraged interest rates, thus making domestic interest rates more independent from external conditions (*push* factors).[35] Although statistically significant, the average effect of the *err* on the external cost of funding is rather small –an increase in the err of 0.036 would have raised the average external cost of funding only in 12 basis points per year. However, this effect would have been larger for some firm groups (about 60 basis points in the case of small firms and those that can issue securities abroad).

Surprisingly, firms shortened the maturity of debt while, at the same time, reducing the relative importance of short-term *financial* debt. The first result may appear strange at first sight because the *err* was designed to tax more heavily short-term flows and, therefore, it was expected to lengthen the maturity of debt. Our view is that in their attempt to substitute non-err taxable for err-taxable funding firms resorted to credit from suppliers and other non-financial short-term funding, such as delaying the payment of taxes and dividends, among other sources. Also, since the banking sector in Chile is tightly monitored by the central bank, it must have been extremely difficult (costly) to by-pass or elude the

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[32] Starting in July 1995, the URR taxed the so-called *secondary* ADRs, i.e., the purchase by foreigners of shares in the domestic stock exchange (see Annex 2 in Gallego et al., 1999).

[33] This is equivalent to raising the err in 3.6% per year and corresponds to moving from the 25th to the 75th percentile of the err distribution.

[34] Based on the results for the base regression, that is, without distinguishing groups of firms. In terms of the whole sample averages the effects are larger: leverage falls by about 4 percent and capitalization by about 2 percent, while retained earnings increase by about 10 percent

[35] This interpretation does not follow strictly from the results reported here but from those in Table 6 and in Gallego et al. (2002). Note also that increases in the domestic lending rate can occur because of a tightening in monetary policy or an increase in the err –although results in Gallego et al. show that the rate set by the central bank is by far the most important determinant of the lending rate. Thus, we could not claim that firms are able to fully avoid the effects of the err by shifting to domestic sources of funds even if the coefficient for the latter variable in Table 6 had turned out equal to zero.

err when borrowing from the financial sector. In other words, short-term financial debt was fully err-taxable[36] and that explains the reduction in its participation in the total.

But the average results above can be misleading if one is interested in knowing how the *err* affected one particular firm or group of firms, or, put differently, if one wants to know whether the err has distinct effects across different economic sectors. As firms differ in their degree of access to international capital markets, economic sector in which they operate, needs of external financing, size and other characteristics defining how successfully or easily they can replace one source of funding with another, it is expected that the effects of the err will differ across them. Thus, for example, large firms, those belonging to a conglomerate, and those able to issue securities (bonds or equity) abroad responded to the err by substituting paid-equity for debt, i.e., they reduced their leverage by increasing their capital base but without resorting to retained earnings. On the contrary, small and medium size firms and those in the services sector were unable to reduce their leverage, but reduced their capital base and resorted to retained earnings. Somewhere in between, firms in the tradable sector –comprising primary, manufacture and transportation– reduced their capital base and leverage by resorting to retained earnings.

Similarly, the response in the term-structure of debt differs significantly among firm groups. For instance, firms belonging to economic conglomerates and those able to issue securities abroad were able to significantly reduce their reliance on short-term *financial* debt without changing their overall term structure of debt. On the contrary, small firms and those in the services sector increased their reliance on both short term and short-term *financial* debt. One possibility that explains this result is that small firms and those in the services sector are subject to credit rationing in normal times, and only had access to additional bank credit when other firms (prime borrowers) reduced their demand for funds from the banking sector.[37]

In addition, large firms and those in the primary and manufacture sector shortened the maturity of debt without increasing the share of short-term *financial* debt in the total, while medium-size firms and those in the utilities and transportation sector did not shorten the maturity of debt and did not change the share of short-term *financial* debt in the total.

And a similar conclusion can be drawn with regards to the cost of funding. As Table 6 shows (and indicated earlier), the *err* increased the cost of funding from abroad, but its impact was different across firm groups. In particular, increases in the URR (*ceteris paribus*) raised the cost of funding only for small firms, those belonging to economic conglomerates, those that had access to international capital markets (that issued equity and bonds) and those in the manufacture sector.[38] Other firm groups were able to avoid its

[36] A similar point is suggested by Soto and Valdés-Prieto (1996).

[37] We cannot provide empirical evidence to support this claim, but several interest groups –small entrepreneurs among them– are of the view that banks do not provide enough funding to small and medium size firms in Chile.

[38] It should be noted that the specific channel through which a raise in the URR increases the cost of funding is undetermined. It could be direct if firms borrow abroad (like most likely is in the case of those firms belonging to economic conglomerates or those with access to international capital markets) or indirect if acting through the domestic financial system (like most likely is the case of small firms).

effects (from a statistical point of view) either because of having low debt initially or because they were able to substitute non-err taxable for err-taxable funds. Since trade credit was exempt from the URR, one possibility is that some firms were able to obtain external funding from trade partners. In the case of large firms it is also plausible that they were able to reduce the effects of the URR by passing on the additional cost to suppliers (for instance, by delaying the payment of bills). This would be consistent with the behavior observed in Chile in 1998 in the height of the financial markets turmoil, when interest rates in Chile (and in other emerging market economies) reached extremely high levels. During this period a group of large firms arbitrarily extended the payment period to suppliers from 90 to 180 days, forcing smaller firms to assume the increase in the cost of funds.

In sum, the err changed –at the margin– the way firms funded their operations, although such changes differed across firms most likely because of the possibilities that each firm had to minimize its effects.[39] It can be claimed, therefore, that the URR (err) introduced a distortion that at the margin changed the funding patterns and costs of firms, but the effects were not uniform across firm groups.

6. Summary and conclusions

This paper extends previous research on the Chilean capital controls during the 1990s, by analyzing some of their microeconomic consequences. Relying on previous results and data, this paper looks into the financial statements of a group of 73 Chilean firms and studies the effects of the capital controls in effect in Chile during the 1990s –in particular, the unremunerated reserve requirement–, on firms' forms of financing and cost of capital. The main result of the paper is that, at the margin, capital controls altered firms' financing decisions but, most important, the URR affected firms differently.

Because firms differ in their characteristics, some were more successful than others in their attempt to minimize the effects of the URR on their costs of funding. Therefore, one may be tempted to conclude that the URR was 'unfair' because the burden of the measure was not equally spread among firms. Furthermore, one may argue that capital controls caused a deadweight loss –in terms of resource misallocation– precisely because firms attempted to minimize their effects by changing their financial structure (and some successfully did so)[40]. Our empirical results certainly support this line of argument as we find that Chilean firms reacted to the URR by reducing their leverage and increasing their reliance on self generated funds (retained earnings). Also, we find that firms reduced their dependence on short-term financial debt. In sum, the evidence provided here supports the view that capital controls, by distorting relative prices in the economy, were costly.

But the argument above is misleading –or at least incomplete– and, therefore, may lead to the wrong conclusion. Even if there is an apparent deadweight loss due to resource

[39] The err-induced response does nor necessarily mean that firms were able to completely avoid the tax, but to reduce its effects by choosing a channel of funding subject to a lower effective tax.

[40] In other words, to the extent that the demand and supply for equity and debt have elasticity different from zero and firms successfully change their financial structures, the introduction of the URR will cause a deadweight loss for the society as a whole.

misallocation at the micro level (partial equilibrium analysis), that doesn't mean that in the whole the URR and the other administrative controls in effect during 1991-98 were not desirable. Indeed, as argued elsewhere (see Gallego et al. (2002)), capital controls have no place in a frictionless world, but they may be granted once one acknowledges the possibility of market imperfections such as moral hazard resulting from "excessive" insurance of different kind (for instance, on bank deposits or foreign exchange risk). In addition, it has been shown that the URR changed the term composition of the capital flows received by Chile toward long term and more stable flows such as foreign direct investment. By reducing the vulnerability resulting from the build up of speculative short term flows the URR most likely helped the country during the Asian, Russian and Brazilian crises of 1997-98.

In other words, it is wrong to conclude that to the extent that firms try to avoid the tax on capital inflows by changing their financial structure, the controls inflict a burden on the society as a whole. To assess the social cost of capital controls we need a general equilibrium model that explicitly identifies the existing distortions that the controls are trying to correct. It is plausible that some firms (or a group of firms) tend to overborrow more because there is a greater chance that they will be bailed out by the government in case of trouble. The latter may occur if, for instance, these firms are more labor intensive and the government doesn't want to see a rise in unemployment. If this is the case and these firms are less able to avoid or elude the tax, then the capital controls as implemented in Chile are the correct policy. Even if the controls appear unfair they can be justified from a social point of view.

In sum, this paper complements previous research concerning the macroeconomic effects of the capital controls in place in Chile during the 1990s. But we cannot yet reach a final conclusion regarding the desirability of the Chilean capital controls. To do the latter all the effects reported elsewhere –that the URR effectively introduced a wedge between domestic and foreign arbitraged interest rates and changed the composition of capital inflows– must be analyzed jointly with the evidence reported here – that the URR affected the financing patterns and the cost of funds unevenly across firm groups. Despite this, we believe that most likely there are better ways to design the policy instrument to achieve only some of the results but not all. Some of the results –for instance, firms shortening the maturity of debt and relying more on non-financial debt– appear to exacerbate vulnerability as opposed to enhance macroeconomic stability.

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Table 1. Dependent Variable: Leverage

Dependent Variable: Leverage	**1. Base regression**		**2. Economic Groups**		**3. Can issue securities abroad**		**4. Small firms**		**5. Medium size**		**6. Large firms**	
Variable	Coefficient	Mg sig lev	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	-0,1801	b	-0,1246		-0,1644	b	0,2088	b	-0,2481	a	-0,2805	a
Fixed assets/Total assets	0,1775	a	0,1928	a	0,2044	a	0,1986	a	0,2062	a	0,1964	a
Current earnings/Total assets	-0,1698	a	-0,1353	a	-0,1804	a	-0,2296	a	-0,2006	a	-0,1978	a
Nat Log total assets	0,0232	a	0,0206	a	0,0212	a	0,0018		0,0269	a	0,0298	a
Banks Development	0,1406	a	0,1406	a	0,1452	a	0,1391	a	0,1064	a	0,1160	a
Stock Mkt. Capitalization	-0,0665	a	-0,0665	a	-0,0642	a	-0,0622	a	-0,0673	a	-0,0670	a
err (A)	**-0,3029**	**a**	**-0,3306**	**a**	**-0,1789**	**a**	**-0,3081**	**a**	**-0,4081**	**a**	**-0,2422**	**a**
Capital account restrictions	0,0082		0,0000		0,0019		-0,0213	b	0,0079		0,0166	c
err specific group effect (B)			0,0363		-0,9886	b	0,1234		0,2711	c	-0,0930	
Constant for the group			-0,0296	c	0,0434	b	-0,1118	a	0,0366	a	-0,0205	
err net group effect (A+B)			**-0,294**	**a**	**-1,167**	**a**	**-0,1847**		**-0,13701**		**-0,3352**	**b**
Wald test of joint significance:	661,97	0,0000	173,78	0,0000	825,94	0,0000	893,39	0,0000	436,67	0,000	590,17	0,000
Sargan test:	70,26	0,8190	64,96	0,9280	65,94	0,9150	64,49	0,9340	67,04	0,899	68,72	0,870
Test for first-order serial correlation:	-2,02	0,0430	-2,04	0,0410	-2,16	0,0310	-2,15	0,0310	-2,10	0,036	-2,08	0,038
Test for second-order serial correlation:	-0,39	0,6960	-0,39	0,6980	-0,63	0,5270	-0,60	0,5460	-0,48	0,628	-0,44	0,657
Test for third-order serial correlation:	1,10	0,2710	1,03	0,3020	1,10	0,2700	1,27	0,2030	1,14	0,256	1,14	0,253

Dependent Variable: Leverage	**7. Tradable sector**		**8. Primary sector**		**9. Manufacture**		**10. Utilities**		**11. Services**		**12. Transportation**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	-0,3116	a	-0,1735	b	-0,2010	a	-0,1930	b	-0,2544	a	-0,1343	b
Fixed assets/Total assets	0,2318	a	0,1991	a	0,1696	a	0,1819	a	0,2045	a	0,1642	a
Current earnings/Total assets	-0,1238	a	-0,1559	a	-0,1698	a	-0,1398	a	-0,1663	a	-0,1165	a
Nat Log total assets	0,0270	a	0,0234	a	0,0236	a	0,0234	a	0,0284	a	0,0209	a
Banks Development	0,1471	a	0,1144	a	0,1437	a	0,1330	a	0,0782	a	0,1470	a
Stock Mkt. Capitalization	-0,0656	a	-0,0662	a	-0,0606	a	-0,0592	a	-0,0674	a	-0,0673	a
err (A)	**-0,1027**		**-0,2341**	**a**	**-0,1346**		**-0,3693**	**a**	**-0,3467**	**a**	**-0,2805**	**a**
Capital account restrictions	0,0078		0,0043		0,0083		0,0077		0,0059		0,0027	
err specific group effect (B)	-0,4069	b	-0,2065		-0,5346	a	0,2530		0,1044		-0,1753	
Constant for the group	0,0572	a	-0,0259		0,0258	c	0,0061		0,0304		-0,1605	a
err net group effect (A+B)	**-0,5095**	**a**	**-0,4406**	**c**	**-0,6691**	**a**	**-0,1163**		**-0,2423**		**-0,4558**	**c**
Wald test of joint significance:	710,58	0,0000	693,77	0,0000	266,79	0,0000	460,62	0,0000	632,34	0,0000	1012,09	0,0000
Sargan test:	69,88	0,8470	69,63	0,8520	67,02	0,8990	67,22	0,8960	66,43	0,9080	63,11	0,9490
Test for first-order serial correlation:	-2,11	0,0350	-2,04	0,0410	-2,04	0,0420	-2,01	0,0450	-2,08	0,0380	-2,01	0,0440
Test for second-order serial correlation:	-0,48	0,6330	-0,40	0,6870	-0,50	0,6210	-0,38	0,7030	-0,43	0,6650	-0,33	0,7430
Test for third-order serial correlation:	0,99	0,3230	1,06	0,2870	1,08	0,2790	1,03	0,3050	1,08	0,2790	1,04	0,3000

Notes
a = sign. at 1%
b = sig. at 5%
c = sig. at 10%

Table 2. Dependent Variable: Retained Earnings

Dependent Variable: Retained Earnings	**1. Base regression**		**2. Economic Groups**		**3. Can issue securities abroad**		**4. Small firms**		**5. Medium size**		**6. Large firms**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	-0,6009	a	-0,4989	a	-0,7585	a	-0,9991	a	-0,7822	a	-0,8624	a
Fixed assets/Total assets	-0,2319	a	-0,2027	a	-0,1968	a	-0,1650	a	-0,1837	a	-0,2518	a
Current earnings/Total assets	0,6248	a	0,8107	a	0,7603	a	0,8375	a	0,8690	a	0,8056	a
Nat Log total assets	0,0549	a	0,0410	a	0,0607	a	0,0709	a	0,0578	a	0,0726	a
Banks Development	-0,2173	a	-0,1211	a	-0,1690	a	-0,1695	a	-0,1204	a	-0,2138	a
Stock Mkt. Capitalization	0,0357	a	0,0560	a	0,0495	a	0,0467	a	0,0500	a	0,0525	a
err (A)	**0,4697**	**a**	**0,9136**	**a**	**0,6156**	**a**	**0,3683**	**a**	**0,2688**	**b**	**0,8707**	**a**
Capital account restrictions	0,0322	a	0,0356	a	0,0564	a	0,0664	a	0,0471	a	0,0785	a
err specific group effect (B)			-0,8208	a	-0,6319	a	0,4551	c	0,7382	a	-0,8403	a
Constant for the group			0,0837	a	-0,1597	a	0,1305	a	0,0723	a	-0,1805	a
err net group effect (A+B)			**0,0928**		**-0,0163**		**0,8234**	**a**	**1,0070**	**b**	**0,0304**	
Wald test of joint significance:	4012,72	0,0000	1968,36	0,0000	16276,45	0,0000	4885,59	0,0000	7468,87	0,0000	1538,80	0,0000
Sargan test:	64,36	0,8830	63,08	0,9490	62,36	0,7300	65,96	0,9150	66,83	0,9020	64,38	0,9350
Test for first-order serial correlation:	1,74	0,0810	1,42	0,1560	1,52	0,1280	1,38	0,1690	1,32	0,1860	1,45	0,1480
Test for second-order serial correlation:	1,91	0,0560	1,81	0,0700	1,82	0,0690	1,76	0,0780	1,71	0,0880	1,72	0,0850
Test for third-order serial correlation:	0,94	0,3460	0,67	0,5050	0,79	0,4280	0,75	0,4550	0,69	0,4930	0,71	0,4750

Dependent Variable: Retained Earnings	**7. Tradable sector**		**8. Primary sector**		**9. Manufacture**		**10. Utilities**		**11. Services**		**12. Transportation**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	-0,6900	a	-0,3818	a	-0,6624	a	-0,3640	a	-0,7329	a	-0,7107	a
Fixed assets/Total assets	-0,2173	a	-0,3022	a	-0,1470	a	-0,3123	a	-0,1729	a	-0,1455	a
Current earnings/Total assets	0,8327	a	0,8932	a	0,8144	a	0,7427	a	0,7258	a	0,7680	a
Nat Log total assets	0,0550	a	0,0400	a	0,0505	a	0,0384	a	0,0595	a	0,0572	a
Banks Development	-0,1867	a	-0,1950	a	-0,1221	a	-0,1540	a	-0,1833	a	-0,1484	a
Stock Mkt. Capitalization	0,0531	a	0,0469	a	0,0451	a	0,0460	a	0,0405	a	0,0477	a
err (A)	**0,3902**	**b**	**0,2723**	**a**	**0,0388**		**1,4667**	**a**	**0,1630**	**b**	**0,3669**	**a**
Capital account restrictions	0,0488	a	0,0421	a	0,0361	a	0,0372	a	0,0491	a	0,0457	a
err specific group effect (B)	0,3589		0,8546	a	1,6241	a	-2,2132	a	1,7843	a	0,4791	c
Constant for the group	0,0584	b	0,1163	a	0,0601	a	0,0830	a	-0,0719	a	-0,5905	a
err net group effect (A+B)	**0,7492**	**a**	**1,1269**	**a**	**1,6629**	**a**	**-0,7465**	**a**	**1,9474**	**a**	**0,8460**	**a**
Wald test of joint significance:	3307,53	0,0000	9387,06	0,0000	8445,96	0,0000	2848,61	0,0000	48677,69	0,0000	3258,81	0,0000
Sargan test:	65,42	0,9230	92,60	0,2210	64,43	0,9350	64,27	0,6710	63,27	0,7030	63,86	0,9410
Test for first-order serial correlation:	1,37	0,1710	1,30	0,1940	1,57	0,1160	1,82	0,0680	1,75	0,0810	1,54	0,1230
Test for second-order serial correlation:	1,73	0,0840	1,69	0,0910	1,72	0,0850	1,80	0,0720	1,85	0,0640	1,83	0,0670
Test for third-order serial correlation:	0,83	0,4080	0,86	0,3900	0,47	0,6390	0,34	0,7350	0,72	0,4740	0,75	0,4520

Notes
a = sign. at 1%
b = sig. at 5%
c = sig. at 10%

Table 3. Dependent Variable: Capital Asset Ratio

Dependent Variable: Capital asset ratio	**1. Base regression**		**2. Economic Groups**		**3. Can issue securities abroad**		**4. Small firms**		**5. Medium size**		**6. Large firms**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	1,5515	a	1,7840	a	1,7402	a	2,3067	a	1,9408	a	2,2515	a
Fixed assets/Total assets	0,1207	a	-0,0502	a	0,0261		-0,0601	a	-0,0001		0,0033	
Current earnings/Total assets	-0,4751	a	-0,6829	a	-0,6309	a	-0,6392	a	-0,5729	a	-0,5142	a
Nat Log total assets	-0,0662	a	-0,0688	a	-0,0721	a	-0,1007	a	-0,0815	a	-0,1086	a
Banks Development	0,1001	a	-0,0006		0,0707		0,0628	b	0,0791	c	0,1307	a
Stock Mkt. Capitalization	0,0284	a	0,0119		0,0173	c	0,0195	b	0,0237	a	0,0298	a
err (A)	**-0,3080**	**a**	**-0,7155**	**a**	**-0,5956**	**a**	**-0,1377**	**a**	**0,0219**		**-0,8187**	**a**
Capital account restrictions	-0,0227	c	-0,0350	a	-0,0378	a	-0,0758	a	-0,0454	a	-0,0827	a
err specific group effect (B)			0,8894	a	1,9163	a	-0,6522	a	-1,1050	a	1,2971	a
Constant for the group			-0,0460	a	0,0424		-0,0889	a	-0,1244	a	0,1994	a
err net group effect (A+B)			**0,1739**	**a**	**1,3207**	**a**	**-0,7899**	**a**	**-1,0831**	**b**	**0,4783**	**b**
Wald test of joint significance:	3057,34	0,0000	8986,50	0,0000	4182,16	0,0000	55570,93	0,0000	14844,22	0,0000	9673,47	0,0000
Sargan test:	67,11	0,8270	70,06	0,4760	69,39	0,4980	70,02	0,4770	68,32	0,5350	65,25	0,6380
Test for first-order serial correlation:	-0,85	0,3980	-1,41	0,1590	-1,29	0,1980	-1,41	0,1600	-1,29	0,1970	-1,31	0,1900
Test for second-order serial correlation:	1,64	0,1000	1,43	0,1530	1,36	0,1740	1,43	0,1520	1,42	0,1560	1,42	0,1550
Test for third-order serial correlation:	0,32	0,7490	-0,24	0,8140	-0,17	0,8650	-0,25	0,8040	-0,10	0,9190	-0,12	0,9070

Dependent Variable: Capital asset ratio	**7. Tradable sector**		**8. Primary sector**		**9. Manufacture**		**10. Utilities**		**11. Services**		**12. Transportation**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	1,8842	a	1,6826	a	1,6932	a	1,4430	a	2,0301	a	1,8628	a
Fixed assets/Total assets	0,0255		0,0478		0,0820	b	0,1698	a	-0,0159	a	-0,0353	c
Current earnings/Total assets	-0,6494	a	-0,6486	a	-0,5892	a	-0,5576	a	-0,6170	a	-0,6237	a
Nat Log total assets	-0,0747	a	-0,0696	a	-0,0685	a	-0,0581	a	-0,0873	a	-0,0791	a
Banks Development	0,0388		0,0537		0,0493		0,0419		0,0672	a	0,0698	b
Stock Mkt. Capitalization	0,0204	a	0,0324	a	0,0114		0,0209		0,0192	b	0,0197	a
err (A)	**-0,1596**	**a**	**-0,0573**		**0,1979**		**-1,1009**	**a**	**0,0236**		**0,0004**	
Capital account restrictions	-0,0376	a	-0,0304	b	-0,0304	b	-0,0247	c	-0,0586	a	-0,0457	a
err specific group effect (B)	-0,2968	a	-0,7902	a	-1,9016	a	1,8224	a	-1,7424	a	-0,8169	a
Constant for the group	-0,1438	a	-0,0743	a	-0,0786	a	-0,0399	b	-0,0152		0,5178	a
err net group effect (A+B)	**-0,4564**	**a**	**-0,8475**	**a**	**-1,7037**	**a**	**0,7215**	**a**	**-1,7188**	**a**	**-0,8165**	**a**
Wald test of joint significance:	11078,84	0,0000	1368,34	0,0000	1869,78	0,0000	872,26	0,0000	4995,31	0,0000	3228,39	0,0000
Sargan test:	67,98	0,5460	71,74	0,8060	66,17	0,9120	62,89	0,9510	68,87	0,5160	70,07	0,4750
Test for first-order serial correlation:	-1,21	0,2280	-1,14	0,2550	-1,11	0,2660	-0,92	0,3580	-1,25	0,2110	-1,26	0,2090
Test for second-order serial correlation:	1,50	0,1350	1,50	0,1330	1,37	0,1720	1,43	0,1530	1,39	0,1650	1,54	0,1230
Test for third-order serial correlation:	-0,09	0,9270	-0,08	0,9370	-0,10	0,9240	-0,01	0,9930	-0,24	0,8080	-0,10	0,9220

Notes
a = sign. at 1%
b = sig. at 5%
c = sig. at 10%

Table 4. Dependent Variable: Short-term debt over total debt

Dependent Variable: Short term debt over total debt	**1. Base regression**		**2. Economic Groups**		**3. Can issue securities abroad**		**4. Small firms**		**5. Medium size**		**6. Large firms**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	2,4568	a	2,5204	a	2,7674	a	2,2703	a	2,3391	a	2,545	a
Fixed assets/Total assets	-0,2543	a	-0,1978	a	-0,0991	a	-0,0855	c	-0,0872	c	-0,137	a
Current earnings/Total assets	0,2989	a	0,2500	a	0,4282	a	0,3221	a	0,3785	a	0,375	a
Nat Log total assets	-0,0967	a	-0,1077	a	-0,1262	a	-0,0956	a	-0,1015	a	-0,115	a
Banks and Bonds Development	-0,1018	a	-0,0428		0,0290		-0,0023		0,0222		0,052	
err (A)	**0,4279**	**a**	**0,5885**	**a**	**0,3585**	**a**	**0,0307**		**0,5836**	**a**	**0,594**	**a**
Capital account restrictions	-0,0625	a	-0,0734	a	-0,0925	a	-0,0381	c	-0,0471	b	-0,055	b
err specific group effect (B)			-0,4794	c	-0,0842		1,0609	a	-0,6901	a	-0,357	c
Constant for the group			0,1020	a	0,0784	a	-0,0087		0,0214		0,056	
err net group effect (A+B)			**0,1091**		**0,2744**		**1,0916**	**a**	**-0,1065**	**a**	**0,236**	**a**
Wald test of joint significance:	1642,16	0,0000	1732,03	0,0000	6888,62	0,0000	417,05	0,0000	542,17	0,00	819,50	0,00
Sargan test:	62,65	0,6600	66,17	0,8980	67,17	0,5400	56,37	0,4610	58,62	0,38	58,77	0,37
Test for first-order serial correlation:	-3,77	0,0000	-3,80	0,0000	-3,96	0,0000	-3,92	0,0000	-3,94	0,00	-3,93	0,00
Test for second-order serial correlation:	-0,05	0,9640	-0,01	0,9910	-0,03	0,9740	0,01	0,9900	-0,01	0,99	-0,02	0,99
Test for third-order serial correlation:	-0,61	0,5430	-0,57	0,5690	-0,57	0,5710	-0,57	0,5680	-0,55	0,59	-0,57	0,57

Dependent Variable: Short term debt over total debt	**7. Tradable sector**		**8. Primary sector**		**9. Manufacture**		**10. Utilities**		**11. Services**		**12. Transportation**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	2,4786	a	2,4297	a	2,4393	a	2,0511	a	2,8537	a	2,4318	a
Fixed assets/Total assets	-0,1980	a	-0,2538	a	-0,2179	a	-0,1678	a	-0,2367	a	-0,1989	a
Current earnings/Total assets	0,3116	a	0,3426	a	0,2924	a	0,2788	a	0,2494	a	0,2627	a
Nat Log total assets	-0,1049	a	-0,0971	a	-0,0977	a	-0,0716	a	-0,1210	a	-0,0993	a
Banks and Bonds Development	-0,0860	b	-0,0905	b	-0,0904	b	-0,1358	a	-0,0568	c	-0,0579	
err (A)	**0,3673**	**b**	**0,3397**	**a**	**0,4081**	**a**	**0,4376**	**a**	**0,2427**	**a**	**0,4375**	**a**
Capital account restrictions	-0,0824	a	-0,0656	a	-0,0607	a	-0,0425	a	-0,0871	a	-0,0611	a
err specific group effect (B)	-0,0316		0,5540	b	-0,1254		-0,4053		1,0547	a	-0,2799	
Constant for the group	0,1279	a	0,0839	a	0,0195		-0,1325	a	-0,1649	a	0,1322	b
err net group effect (A+B)	**0,3356**	**b**	**0,8936**	**a**	**0,2828**	**c**	**0,0323**		**1,2975**	**a**	**0,1576**	
Wald test of joint significance:	1172,12	0,0000	1571,03	0,0000	1111,40	0,0000	2005,97	0,0000	21926,69	0,0000	764,60	0,0000
Sargan test:	65,17	0,6080	63,47	0,6650	61,54	0,7260	50,52	0,9540	65,53	0,5960	66,60	0,8920
Test for first-order serial correlation:	-3,82	0,0000	-3,79	0,0000	-3,79	0,0000	-3,82	0,0000	-3,77	0,0000	-3,80	0,0000
Test for second-order serial correlation:	-0,04	0,9690	-0,06	0,9500	-0,04	0,9660	-0,01	0,9910	-0,06	0,9560	-0,01	0,9900
Test for third-order serial correlation:	-0,60	0,5480	-0,62	0,5370	-0,60	0,5490	-0,62	0,5360	-0,63	0,5300	-0,58	0,5640

Notes
a = sign. at 1%
b = sig. at 5%
c = sig. at 10%

Table 5. Dependent Variable: Short-term financial over total short-term debt

Short-term financial over total short-term debt	**1. Base regression**		**2. Economic Groups**		**3. Can issue securities abroad**		**4. Small firms**		**5. Medium size**		**6. Large firms**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	0,9012	a	1,2392	a	0,9197	a	1,4565	a	0,804	a	1,383	a
Fixed assets/Total assets	-0,0287		-0,0429		-0,0294		-0,0339		0,018		-0,010	
Current earnings/Total assets	-0,4183	a	-0,3663	a	-0,4541	a	-0,4275	a	-0,425	a	-0,368	a
Nat Log total assets	-0,0066		-0,0309	a	-0,0111	c	-0,0384	a	-0,002		-0,050	a
Banks Development	-0,3289	a	-0,2491	a	-0,2914	a	-0,2589	a	-0,275	a	-0,149	c
Bonds Development	-0,4881	a	-0,5037	a	-0,4479	a	-0,4162	a	-0,511	a	-0,377	a
err (A)	**-0,3499**	**a**	**0,2334**	**c**	**-0,1517**		**-0,6962**	**a**	-0,385	a	-0,172	
Capital account restrictions	-0,2051	a	-0,2299	a	-0,1983	a	-0,2224	a	-0,214	a	-0,232	a
err specific group effect (B)			-1,0135	a	-1,8745	a	1,0117	a	0,120		-0,751	b
Constant for the group			0,0891	b	0,1338	a	-0,2483	a	-0,028		0,279	a
err net group effect (A+B)			**-0,7801**	**a**	**-2,0262**	**a**	**0,3155**	**c**	-0,266		-0,923	b
Wald test of joint significance:	54525,01	0,0000	74640,04	0,0000	2805,97	0,0000	1133,38	0,0000	2.315,61	0,0000	3.214,26	0,0000
Sargan test:	67,16	0,5400	73,28	0,3710	65,31	0,6360	64,61	0,6600	63,70	0,6890	62,93	0,7130
Test for first-order serial correlation:	-4,50	0,0000	-4,49	0,0000	-4,50	0,0000	-4,47	0,0000	-4,48	0,0000	-4,47	0,0000
Test for second-order serial correlation:	-0,95	0,3400	-0,96	0,3390	-1,00	0,3180	-0,94	0,3460	-0,93	0,3510	-0,90	0,3660
Test for third-order serial correlation:	0,14	0,8860	0,17	0,8660	0,19	0,8510	0,20	0,8420	0,14	0,8920	0,20	0,8410

Short-term financial over total short-term debt	**7. Tradable sector**		**8. Primary sector**		**9. Manufacture**		**10. Utilities**		**11. Services**		**12. Transportation**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	0,8882	a	0,3695	a	1,1798	a	0,2729	a	1,4543	a	1,0092	a
Fixed assets/Total assets	0,0071		0,0860	a	0,0560		0,1432	a	0,1177	b	-0,0355	
Current earnings/Total assets	-0,4155	a	-0,4173	a	-0,2370	a	-0,4080	a	-0,2850	a	-0,2787	a
Nat Log total assets	-0,0109	a	0,0210	a	-0,0350	a	0,0265	a	-0,0487	a	-0,0165	b
Banks Development	-0,3011	a	-0,2934	a	-0,2059	a	-0,2827	a	-0,1823	b	-0,2587	a
Bonds Development	-0,4812	a	-0,5771	a	-0,3702	a	-0,5695	a	-0,3564	a	-0,4202	a
err (A)	**-0,0084**		**-0,2589**		**0,1296**		**-0,4777**	**a**	**-0,5242**	**a**	**-0,4328**	**a**
Capital account restrictions	-0,2015	a	-0,1827	a	-0,2177	a	-0,1777	a	-0,2395	a	-0,2024	a
err specific group effect (B)	-0,5979	a	-0,2677	c	-1,0727	a	0,3853		1,3974	a	0,5776	c
Constant for the group	0,0872	a	0,0963	a	0,1331	a	-0,1111	a	-0,1401	a	-0,1400	b
err net group effect (A+B)	**-0,6063**	**a**	**-0,5266**	**a**	**-0,9431**	**a**	**-0,0924**		**0,8732**	**a**	**0,1448**	
Wald test of joint significance:	656,19	0,0000	2485,17	0,0000	212,23	0,0000	6916,01	0,0000	453,62	0,0000	219,83	0,0000
Sargan test:	66,48	0,5970	64,73	0,6560	62,31	0,2930	63,61	0,6920	62,70	0,2810	63,46	0,2590
Test for first-order serial correlation:	-4,48	0,0000	-4,45	0,0000	-4,43	0,0000	-4,48	0,0000	-4,45	0,0000	-4,44	0,0000
Test for second-order serial correlation:	-0,95	0,3440	-0,91	0,3610	-0,90	0,3660	-0,91	0,3660	-0,91	0,3640	-0,91	0,3640
Test for third-order serial correlation:	0,16	0,8740	0,11	0,9100	0,16	0,8700	0,11	0,9160	0,18	0,8600	0,14	0,8890

Notes
a = sign. at 1%
b = sig. at 5%
c = sig. at 10%

Table 6. Dependent Variable: Financial Expenditures

Financial Expenditures	**1. Base regression**		**2. Economic Groups**		**3. Can issue securities abroad**		**4. Small firms**		**5. Medium size**		**6. Large firms**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	0,2045	a	0,2722	a	0,2441	a	0,3274	a	0,2549	a	0,0786	a
Nat Log total assets	-0,0055	a	-0,0085	a	-0,0071	a	-0,0087	a	-0,0061	a	-0,0003	
Leverage	0,0394	a	0,0428	a	0,0419	a	0,0397	a	0,0365	a	0,0568	a
Borrowing int rate, domestic (A)	**0,2305**	**a**	**0,2577**	**a**	**0,3143**	**a**	**0,2943**	**a**	**0,1313**	**a**	**0,2804**	**a**
Restrictions on capital outflows (index)	-0,0101	a	-0,0167	a	-0,0164	a	-0,0213	a	-0,0125	a	-0,0003	
Borrowing int rate, external (B)	**0,0344**	**a**	**-0,0120**		**0,0168**		**-0,0354**	**b**	**0,0257**	**b**	**0,0826**	**a**
Financial liberalization Index	-0,0859	a	-0,1087	a	-0,1051	a	-0,1449	a	-0,1163	a	-0,0648	a
Constant for the group			0,0165	b	0,0866	a	-0,0227	a	-0,0209	a	0,0274	a
Borrowing rate (domestic) group specific effect (C)			-0,0697		-0,7985	a	-0,2116	a	0,3956	a	-0,2888	a
Borrowing int rate (external) group Specific effect (D)			0,0880	a	0,1499	a	0,1928	a	-0,0452		-0,0687	a
Borrowing cost, domestic, net Effect for the group (A+C)			**0,1880**	**a**	**-0,4842**	**a**	**0,0828**		**0,5268**	**b**	**-0,0084**	
Borrowing cost, external, net Effect for the group (B+D)			**0,0760**	**a**	**0,1668**	**a**	**0,1574**	**a**	**-0,0195**		**0,0139**	
Wald test of joint significance:	273,19	0,0000	698,94	0,0000	1153,18	0,0000	790,88	0,0000	646,66	0,0000	527,59	0,0000
Sargan test:	54,54	0,5300	62,50	0,3200	54,75	0,5970	64,20	0,2680	57,67	0,4880	59,81	0,4100
Test for first-order serial correlation:	-3,09	0,0020	-3,10	0,0020	-3,16	0,0020	-3,07	0,0020	-3,06	0,0020	-3,13	0,0020
Test for second-order serial correlation:	-0,49	0,6270	-0,45	0,6500	-0,56	0,5760	-0,44	0,6630	-0,45	0,6500	-0,59	0,5530
Test for third-order serial correlation:	-0,70	0,4840	-0,69	0,4920	-0,71	0,4780	-0,76	0,4490	-0,67	0,5060	-0,67	0,5040

Table 6. Dependent Variable: Financial Expenditures (cont'd)

Financial Expenditures	**7. Tradable sector**		**8. Primary sector**		**9. Manufacture**		**10. Utilities**		**11. Services**		**12. Transportation**	
Variable	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level	Coefficient	Mg sig level
Constant	0,2200	a	0,2292	a	0,2495	a	0,1644	a	0,2783	a	0,1642	a
Nat Log total assets	-0,0065	a	-0,0059	a	-0,0070	a	-0,0040	a	-0,0081	a	-0,0028	a
Leverage	0,0466	a	0,0415	a	0,0436	a	0,0496	a	0,0445	a	0,0275	a
Borrowing int rate, domestic (A)	**0,1902**	**a**	**0,1882**	**a**	**0,2086**	**a**	**0,2012**	**a**	**0,2234**	**a**	**0,2169**	**a**
Restrictions on capital outflows (index)	-0,0122	a	-0,0118	a	-0,0139	a	-0,0070	a	-0,0161	a	-0,0057	b
Borrowing int rate, external (B)	**0,0354**	**b**	**0,0464**	**a**	**0,0001**		**0,0363**	**a**	**0,0419**	**b**	**0,0173**	
Financial liberalization Index	-0,0822	a	-0,1028	a	-0,1049	a	-0,0764	a	-0,1120	a	-0,0866	a
Constant for the group	-0,0039		-0,0038		-0,0013		0,0192	a	-0,0243	a	-0,0038	
Borrowing rate (domestic) group specific effect (C)	0,0558		0,1377		0,0332		-0,0758		0,0573		-0,1242	c
Borrowing int rate (external) group specific effect (D)	0,0052		-0,0900	b	0,0807	b	-0,0066		-0,0113		-0,1059	a
Borrowing cost, domestic, net effect for the group (A+C)	**0,2460**	**b**	**0,3259**	**a**	**0,2418**	**a**	**0,1254**	**b**	**0,2807**	**a**	**0,0928**	
Borrowing cost, external, net effect for the group (B+D)	**0,0406**	**a**	**-0,0436**		**0,0809**	**a**	**0,0297**		**0,0305**		**-0,0886**	**a**
Wald test of joint significance:	336,98	0,0000	818,83	0,0000	665,59	0,0000	448,32	0,0000	473,18	0,0000	563,10	0,0000
Sargan test:	57,03	0,5120	56,23	0,5410	58,38	0,4610	60,17	0,3970	60,54	0,3840	49,84	0,7060
Test for first-order serial correlation:	-3,09	0,0020	-3,03	0,0020	-3,09	0,0020	-3,11	0,0020	-3,08	0,0020	-3,09	0,0020
Test for second-order serial correlation:	-0,50	0,6210	-0,46	0,6450	-0,50	0,6150	-0,51	0,6090	-0,47	0,6350	-0,48	0,6320
Test for third-order serial correlation:	-0,71	0,4770	-0,71	0,4800	-0,71	0,4770	-0,69	0,4910	-0,70	0,4860	-0,68	0,4940

Notes
a = sign. at 1%
b = sig. at 5%
c = sig. at 10%

Table 7. Sample composition: firm classification by different criteria

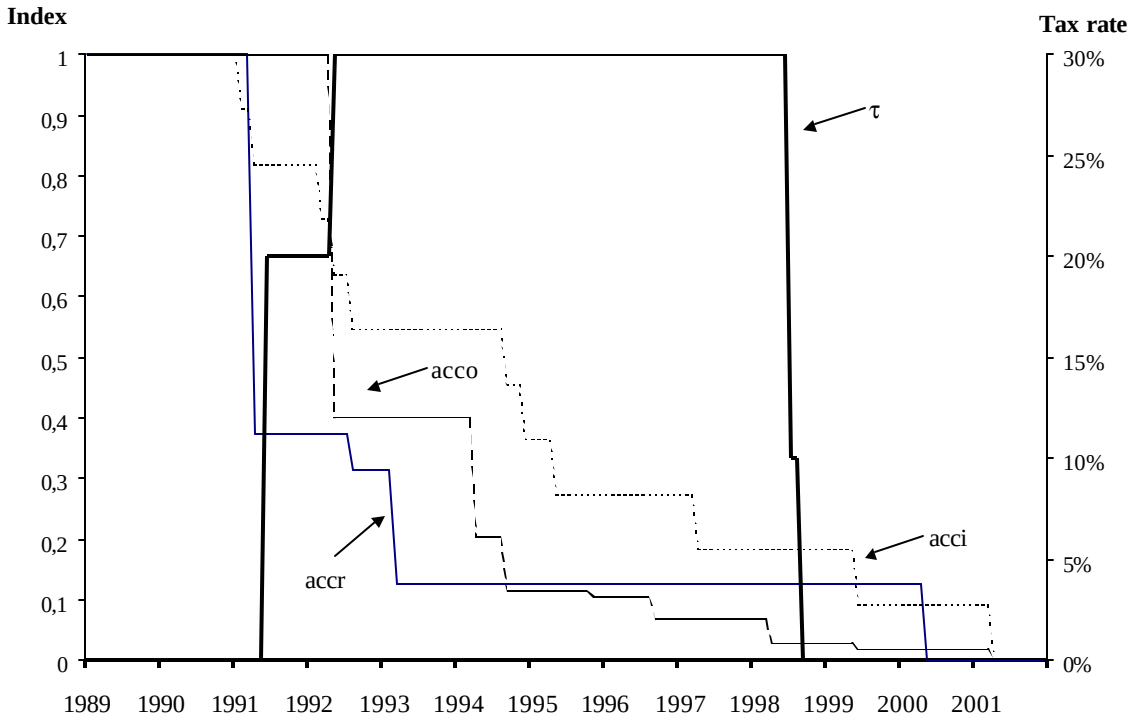
	Economic Conglomerates	Issue ADR & Bonds abroad	Tradable Sector	Primary sector	Manufacture	Utilities	Other services	Transportation	Financial sector	**TOTAL**
Large	21	9	19	4	12	9	1	**4**	0	**30**
Medium size	10	0	17	7	10	3	2	0	1	**23**
Small	5	0	7	2	5	3	8	0	2	**20**
TOTAL	**36**	**9**	**43**	**13**	**27**	**15**	**11**	**4**	**3**	**73**
Economic conglomerates	36	8	22	7	13	10	4	2	0	**36**
Non-economic conglomerates	0	1	21	6	14	5	7	2	3	**37**
TOTAL	**36**	**9**	**43**	**13**	**27**	**15**	**11**	**4**	**3**	**73**
Issue ADR & Bonds abroad	8	9	7	1	5	2	0	1	0	**9**
Non-issue ADR & Bonds abroad	28	0	36	12	22	13	11	3	3	**64**
TOTAL	**36**	**9**	**43**	**13**	**27**	**15**	**11**	**4**	**3**	**73**
Primary sector	7	1	13	13	0	0	0	0	0	**13**
Manufacture	13	5	27	0	27	0	0	0	0	**27**
Utilities	10	2	0	0	0	15	0	0	0	**15**
Other services	4	0	0	0	0	0	11	0	0	**11**
Transportation	2	1	3	0	0	0	0	4	0	**4**
Financial sector	0	0	0	0	0	0	0	0	3	**3**
TOTAL	**36**	**9**	**43**	**13**	**27**	**15**	**11**	**4**	**3**	**73**
Tradable Sector	22	7	43	13	27	0	0	3	0	**43**
Non-tradable Sector	14	2	0	0	0	15	11	1	3	**30**
TOTAL	**36**	**9**	**43**	**13**	**27**	**15**	**11**	**4**	**3**	**73**

Table 8

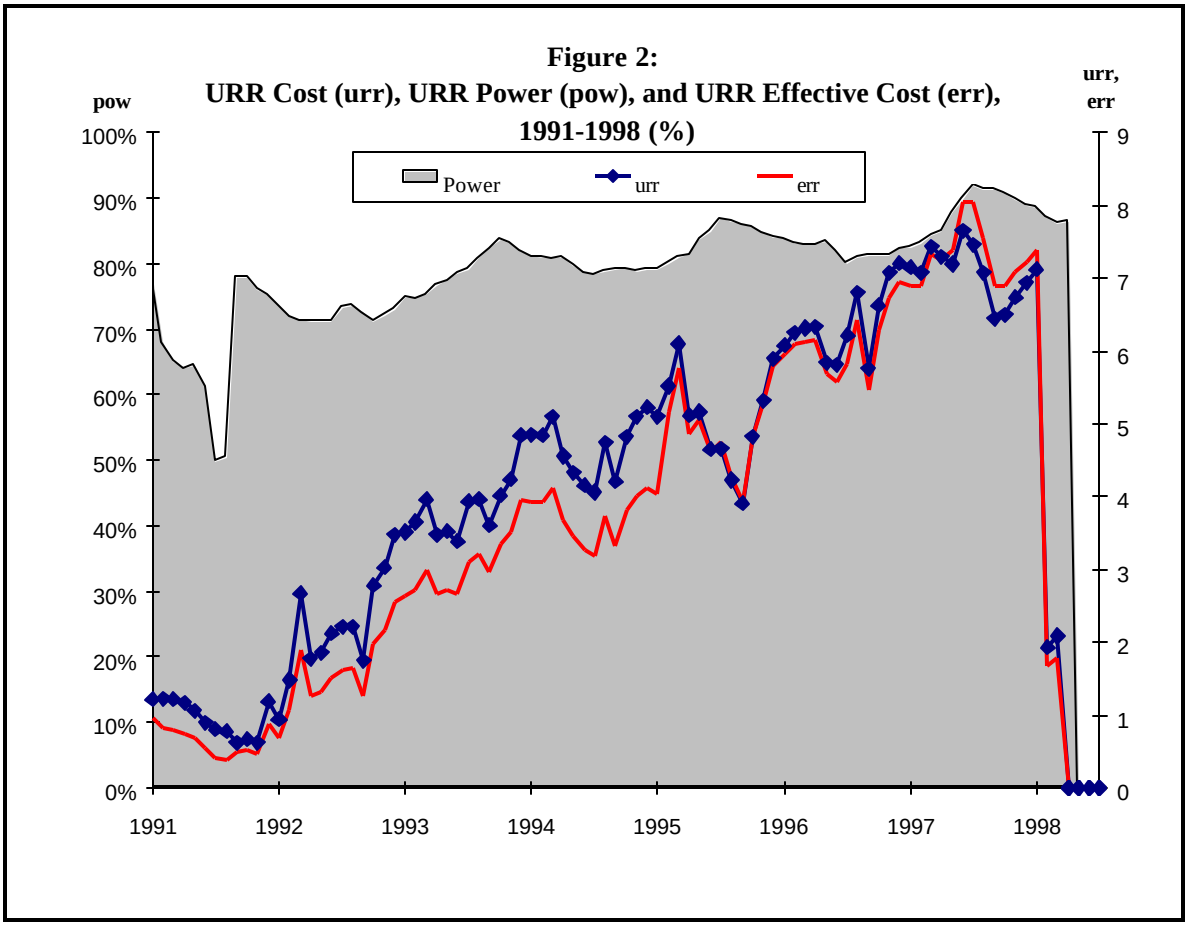
Summary Statistics

Period	N	Financial Expenditures	Short-term over total debt	Leverage	Fixed Assets over Total Assets	Earnings over Total Assets	Retained Earnings over Total Assets	Short-term financial over total short-term debt
Full sample	1168	0,057	0,604	0,299	0,429	0,067	0,178	0,123
1986	73	0,040	0,598	0,325	0,464	0,097	0,045	0,124
1987	73	0,059	0,627	0,322	0,474	0,096	0,082	0,132
1988	73	0,058	0,665	0,298	0,484	0,085	0,140	0,131
1989	73	0,069	0,704	0,314	0,470	0,098	0,152	0,149
1990	73	0,078	0,668	0,303	0,470	0,075	0,160	0,139
1991	73	0,054	0,626	0,281	0,457	0,096	0,199	0,114
1992	73	0,057	0,654	0,280	0,437	0,097	0,216	0,131
1993	73	0,058	0,641	0,276	0,431	0,071	0,213	0,123
1994	73	0,058	0,618	0,265	0,424	0,063	0,223	0,114
1995	73	0,055	0,629	0,269	0,418	0,062	0,226	0,131
1996	73	0,057	0,600	0,279	0,415	0,053	0,229	0,115
1997	73	0,057	0,555	0,287	0,401	0,054	0,235	0,110
1998	73	0,058	0,520	0,307	0,414	0,036	0,210	0,104
1999	73	0,052	0,478	0,325	0,383	0,028	0,182	0,104
2000	73	0,060	0,538	0,322	0,363	0,031	0,173	0,114
2001	73	0,049	0,552	0,334	0,351	0,032	0,158	0,128

Figure 1:
URR Tax Rate (t), Index of Foreign Investment Permanence Requirements (accr), Index of Controls on Capital Issues (acci), and Index of Other Administrative Controls on Capital Flows (acco), 1989-2001



Source: Gallego et al. (2002)



Source: Gallego et al. (2002)

ANNEX 1: VARIABLES DEFINITION AND SOURCES

Variable name	Definition	Source
Dependent variable		
Leverage	$(\text{Total debt})_t/(\text{Total assets})_t$	Computed from firms' financial statements
Retained earnings	$(\text{Retained earnings})_t/(\text{Total assets})_t$	Computed from firms' financial statements
Paid capital	$(\text{Total equity excluding retained earnings})_t/(\text{Total assets})_t$	Computed from firms' financial statements
Short-term debt over total debt	$(\text{Short-term debt})_t/(\text{short- plus long-term debt})_t$	Computed from firms' financial statements
Short-term financial debt over short-term debt	$(\text{Financial short-term debt})_t/(\text{Financial plus other non-financial short-term debt})_t$	Computed from firms' financial statements
Financial expenditures	$(\text{Financial expenditures})_t/ 0.5[(\text{total debt})_t + (\text{total debt})_{t-1} (P_t/P_{t-1})]$	Computed from firms' financial statements
Explanatory Variables		
A. Firm specific		
Fixed assets/Total assets = asset tangibility	$(\text{Fixed assets})_t / (\text{total assets})_t$	Computed from firms' financial statements
Current earnings/Total assets = return on assets	$(\text{Total earnings})_t / 0.5[(\text{total assets})_t+(\text{total assets})_{t-1} (P_t/P_{t-1})]$	Computed from firms' financial statements
Nat Log total assets	Natural log of total assets $_t$	Computed from firms' financial statements
B. Macro variables		
Banks Development	$(\text{Banks' total assets})_t / 0.5[GDP_t+GDP_{t-1} (P_t / P_{t-1})]$	Authors' calculations
Bonds Development	$(\text{Stock of bonds})_t / 0.5[GDP_t+GDP_{t-1} (P_t / P_{t-1})]$	IFC and authors' calculations
Banks and Bonds Development	$[(\text{Banks' total assets})_t + (\text{Stock of bonds})_t]/ 0.5[GDP_t+GDP_{t-1} (P_t / P_{t-1})]$	IFC and authors' calculations
Stock Mkt. Capitalization	Stock Mkt. Capitalization $_t$ / $0.5[GDP_t + GDP_{t-1} (P_t/P_{t-1})]$	
Borrowing interest rate, domestic	Borrowing real (CPI indexed) rate for operations from 90 to 365 days maturity	Central Bank of Chile
Borrowing interest rate, external	LIBOR + ρ (country risk) + err	Authors' calculations
Financial liberalization Index	Index measuring the degree and extent of financial repression (an increase means more liberalization)	Bandiera et al. (2000) and authors' calculations
Restrictions on capital outflows	Index measuring the extent and severity of existing restrictions on capital **outflows** (remittances and other administrative controls); an increase means a more restrictive environment	Gallego et al. (2002)
Capital account restrictions	Index measuring the extent and severity of existing restrictions on both **inflows and outflows** (remittances, minimum periods of stay, issuance of paper –equity and bonds– abroad, etc.); an increase means a more restrictive environment	Gallego et al. (2002)
Err	Effective (financial) cost of the reserve requirement (urr); an increase means a higher effective tax	Gallego et al. (2002)

ANNEX 2: Regressions controlling for taxes

Dependent Variable:	**Leverage**				**Retained Earnings**				**Capital asset ratio**			
	Base regression		**With taxes**		**Base regression**		**With taxes**		**Base regression**		**With taxes**	
Variable	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev
Constant	-0,1801	b	-0,197	b	-0,6009	a	-0,563	a	1,5515	a	1,576	a
Fixed assets/Total assets	0,1775	a	0,181	a	-0,2319	a	-0,248	a	0,1207	a	0,131	a
Current earnings/Total assets	-0,1698	a	-0,199	a	0,6248	a	0,636	a	-0,4751	a	-0,488	a
Nat Log total assets	0,0232	a	0,024	a	0,0549	a	0,054	a	-0,0662	a	-0,068	a
Banks Development	0,1406	a	0,140	a	-0,2173	a	-0,284	a	0,1001	a	0,113	a
Stock Mkt. Capitalization	-0,0665	a	-0,061	a	0,0357	a	0,033	a	0,0284	a	0,028	a
Err (A)	**-0,3029**	**a**	**-0,275**	**a**	**0,4697**	**a**	**0,486**	**a**	**-0,3080**	**a**	**-0,324**	**a**
Capital account restrictions	0,0082		0,021	b	0,0322	a	0,018	c	-0,0227	c	-0,026	b
Taxes			**-0,039**	**c**			**0,067**	**b**			**-0,013**	
Wald test of joint significance:	661,97	0,0000	551,881	0,000	4012,72	0,0000	18371,312	0,000	3057,34	0,0000	54410,423	0,000
Sargan test:	70,26	0,8190	70,075	0,843	64,36	0,8830	65,020	0,888	67,11	0,8270	67,757	0,834
Test for first-order serial correlation:	-2,02	0,0430	-2,026	0,043	1,74	0,0810	1,721	0,085	-0,85	0,3980	0,847	0,397
Test for second-order serial correlation:	-0,39	0,6960	-0,452	0,651	1,91	0,0560	1,898	0,058	1,64	0,1000	1,644	0,100
Test for third-order serial correlation:	1,10	0,2710	1,153	0,249	0,94	0,3460	0,952	0,341	0,32	0,7490	0,303	0,762

Notes: a = significant at 1%; b = significant at 5%; c = significant at 10%

ANNEX 3: GMM System Estimation vs. other simpler techniques

Dependent Variable:	**Leverage**						**Retained Earnings**					
	GMM System		**OLS**		**GMM Levels**		**GMM System**		**OLS**		**GMM Levels**	
Variable	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev
Constant	-0,1801	b	-0,156		-0,105		-0,6009	a	-0,018		-0,274	c
Fixed assets/Total assets	0,1775	a	0,248	a	0,306	a	-0,2319	a	-0,479	a	-0,457	a
Current earnings/Total assets	-0,1698	a	0,083		0,044		0,6248	a	1,331	a	1,624	a
Nat Log total assets	0,0232	a	0,015	c	0,010	b	0,0549	a	0,014		0,024	a
Banks Development	0,1406	a	0,258	b	0,229	a	-0,2173	a	0,023		0,142	b
Stock Mkt. Capitalization	-0,0665	a	-0,051		-0,047	a	0,0357	a	0,070	b	0,093	a
err (A)	**-0,3029**	**a**	**-0,322**		**-0,301**	**a**	**0,4697**	**a**	**0,715**	**b**	**0,507**	**a**
Capital account restrictions	0,0082		0,004		0,007		0,0322	a	0,024		0,054	b
Wald test of joint significance:	661,97	0,0000	46,552	0,000	127,824	0,000	4012,72	0,0000	83,834	0,000	473,020	0,000
Sargan test:	70,26	0,8190			45,015	0,235	64,36	0,8830			47,508	0,165
Test for first-order serial correlation:	-2,02	0,0430	5,784	0,000	5,876	0,000	1,74	0,0810	2,419	0,016	2,553	0,011
Test for second-order serial correlation:	-0,39	0,6960	5,508	0,000	5,591	0,000	1,91	0,0560	2,304	0,021	2,422	0,015
Test for third-order serial correlation:	1,10	0,2710	5,256	0,000	5,339	0,000	0,94	0,3460	2,211	0,027	2,328	0,020

Dependent Variable:	**Capital Asset Ratio**					
	GMM System		**OLS**		**GMM Levels**	
Variable	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev
Constant	1,5515	a	1,174	a	1,406	a
Fixed assets/Total assets	0,1207	a	0,232		0,187	a
Current earnings/Total assets	-0,4751	a	-1,414	a	-1,523	a
Nat Log total assets	-0,0662	a	-0,029		-0,041	a
Banks Development	0,1001	a	-0,281		-0,289	a
Stock Mkt. Capitalization	0,0284	a	-0,019		-0,031	
err (A)	**-0,3080**	**a**	**-0,392**		**-0,329**	**b**
Capital account restrictions	-0,0227	c	-0,028		-0,022	
Wald test of joint significance:	3057,34	0,0000	58,637	0,000	398,505	0,000
Sargan test:	67,11	0,8270			43,504	0,286
Test for first-order serial correlation:	-0,85	0,3980	2,203	0,028	2,338	0,019
Test for second-order serial correlation:	1,64	0,1000	2,099	0,036	2,226	0,026
Test for third-order serial correlation:	0,32	0,7490	2,003	0,045	2,133	0,033

Notes: a = significant at 1%; b = significant at 5%; c = significant at 10%

ANNEX 3: GMM System Estimation vs. other simpler techniques (cont'd)

Dependent Variable:	**ST debt over total debt**					
	GMM System		**OLS**		**GMM Levels**	
Variable	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev
Constant	2,4568	a	2,303	a	2,398	a
Fixed assets/Total assets	-0,2543	a	-0,407	a	-0,492	a
Current earnings/Total assets	0,2989	a	0,245		0,187	
Nat Log total assets	-0,0967	a	-0,078	a	-0,089	a
Banks and Bonds Development	-0,1018	a	-0,203		-0,080	
err (A)	**0,4279**	**a**	**0,330**		**0,515**	**a**
Capital account restrictions	-0,0625	a	-0,065		-0,026	
Wald test of joint significance:	1642,16	0,0000	148,320	0,000	318,943	0,000
Sargan test:	62,65	0,6600			45,513	0,219
Test for first-order serial correlation:	-3,77	0,0000	6,245	0,000	6,332	0,000
Test for second-order serial correlation:	-0,05	0,9640	5,688	0,000	5,761	0,000
Test for third-order serial correlation:	-0,61	0,5430	5,116	0,000	5,162	0,000

Notes: a = significant at 1%; b = significant at 5%; c = significant at 10%

Dependent Variable:	**ST financial over total ST debt**					
	GMM System		**OLS**		**GMM Levels**	
Variable	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev
Constant	0,9012	a	0,518	b	0,362	b
Fixed assets/Total assets	-0,0287		0,128		0,174	a
Current earnings/Total assets	-0,4183	a	-0,425	b	-0,455	a
Nat Log total assets	-0,0066		0,011		0,010	
Banks Development	-0,3289	a	-0,486	b	-0,213	b
Bonds Development	-0,4881	a	-0,235		-0,316	a
err (A)	**-0,3499**	**a**	**-0,496**		**-0,108**	
Capital account restrictions	-0,2051	a	-0,180	a	-0,152	a
Wald test of joint significance:	54525,01	0,0000	22,959	0,002	84,096	0,000
Sargan test:	67,16	0,5400			42,045	0,340
Test for first-order serial correlation:	-4,50	0,0000	6,193	0,000	6,364	0,000
Test for second-order serial correlation:	-0,95	0,3400	5,894	0,000	6,058	0,000
Test for third-order serial correlation:	0,14	0,8860	5,518	0,000	5,636	0,000

Notes: a = significant at 1%; b = significant at 5%; c = significant at 10%

Dependent Variable:	**Financial Expenditures**					
	GMM System		**OLS**		**GMM Levels**	
Variable	Coefficient	Mg sig lev	Coefficient	Mg sig lev	Coefficient	Mg sig lev
Constant	0,2045	a	0,038		0,025	
Nat Log total assets	-0,0055	a	0,002		0,003	a
Leverage	0,0394	a	0,035	b	0,029	b
Borrowing int rate, domestic	**0,2305**	**a**	**0,225**	**a**	**0,209**	**a**
Restrictions on capital outflows (index)	-0,0101	a	0,009		0,008	
Borrowing int rate, external	**0,0344**	**a**	**-0,001**		**-0,001**	
Financial liberalization Index	-0,0859	a	-0,056		-0,057	
Wald test of joint significance:	273,19	0,0000	24,035	0,001	43,222	0,000
Sargan test:	54,54	0,5300			25,360	0,499
Test for first-order serial correlation:	-3,09	0,0020	5,677	0,000	5,733	0,000
Test for second-order serial correlation:	-0,49	0,6270	5,575	0,000	5,653	0,000
Test for third-order serial correlation:	-0,70	0,4840	5,049	0,000	5,156	0,000

Notes: a = significant at 1%; b = significant at 5%; c = significant at 10%

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