Dividend Payout Policy: Evidence from Latin America

Abstract

This paper examines dividend payout policies for firms in six Latin American countries from 1995 to 2011. As predicted by the pecking order and trade-off models, the dividend payout is positively linked to profitability and negatively related to past indebtedness and investment opportunities. We also find that the target dividend payout ratio is positively related to governance indicators at the country level. In addition, the speed to which firms adjust their dividends to changes in earnings is lower in high governance countries in the region. Thus, firms smooth dividends more in countries with higher governance scores.

Keywords: dividends, pecking order model, trade-off model

Track: Corporate Finance

1. Introduction and literature review

There are two main models in the financial literature that intend to explain leverage decisions: the pecking order model and the trade-off model. Although initially conceived to explain capital structure choices, these two models also offer predictions on how firms decide to pay dividends to their shareholders (Fama & French, 2002).

In the pecking order framework, (Myers, 1984) posits that asymmetric information leads managers to issue risky securities when they are overpriced. As a result, investors demand a premium on new and existing shares, once new issues are announced. In anticipation managers can forego profitable investments if they require additional risky capital. To avoid this problem, minimizing asymmetric information costs, managers prefer to finance new projects with retained earnings, then with low risk debt, risky debt, and as a last option they issue equity. The pecking order model does not explain why firms pay dividends; however, once dividends are paid, firms with less profitable assets in place, large current and expected investments, and high leverage find dividends less attractive, given the financing costs attached to the issue of new risky securities.

Higher stability of income can also be associated with a lower likelihood of foregoing attractive investments or the need of issuing risky securities. Thus, to lower the possibility of not taking advantage of investment opportunities when cash flow is low, firms with volatile income pay less dividends.

The other main venue in explaining capital structure decisions is the trade-off model. In this setting, firms weigh bankruptcy costs and tax considerations when determining a target or optimal level of debt. Firms with higher leverage, more volatile income, and larger expected investment outlays are likely to set a lower leverage level to minimize distress costs. Given the fiscal benefits of interest payments, one also would expect a more intense use of debt by the most profitable firms.

The pecking order and trade-off models make similar predictions in terms of dividends. Firms set dividends as to minimize potential bankruptcy costs (bearing in mind the differential fiscal treatment of dividends versus interest payments). Thus, firms with less volatile earnings, lower leverage, and lower expected investment opportunities are more prone to pay higher dividends. Conversely, firms with unprofitable assets in place are likely to have a low dividend payout ratio.

Under the trade-off model, agency cost considerations can also account for leverage and dividend decisions. (Easterbrook, 1984) analyzes the effect of a consistent dividend policy in an environment characterized by agency problems within the firm. One agency cost firms face is the one related to supervising management. [1] A second agency cost refers to

1 For example, audit costs to avoid manipulation of financial statements and possibly, expropriation by managers.

risk aversion by management (given its human capital investment in the firm) that prompts management to take low risk projects which in many cases may not be the most beneficial for shareholders.

(La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000) discuss two versions of the agency theory of dividends. A first version or "outcome model" states that dividends are a result of an effective legal protection system of shareholders. One would expect a positive relationship between the level of dividends and the level of investor protection across countries. The latter, since investors in more protected countries can extract more dividends from companies they invest.

A second version of the agency theory of dividends ("substitute model") considers dividends and investor protection as substitutes. In this version, dividends become an instrument to strengthen the reputation of companies. This reputation is important since firms may occasionally need to get funding in financial markets. Under this model one would expect an indirect relationship between dividends payments and the level of investor protection across countries, since it is likely that companies in low investor protection countries care more about their reputation and as a means to protect it use dividends more intensely than companies in high investor protection countries.

In addition to pecking order and trade off explanations on how firms pay dividends, (DeAngelo, DeAngelo, & Stulz, 2006) propose a lifecycle theory of dividends. They claim that young firms tend to be less prone to pay dividends since they are likely to be in a capital infusion phase, and thus most of its capital is contributed (e.g., by new shareholders), not earned. On the other hand, as firms mature (and most of its capital is earned not contributed) these older firms are more inclined to pay dividends as they run out of investment opportunities.

(DeAngelo et al., 2006) document a positive and highly significant relationship between the earned over contributed capital ratio (proxied by retained earnings over total equity, or over total assets) and the propensity to pay dividends, even after controlling for firm size, growth, and profitability.

This paper studies dividend payment decisions of firms in six Latin American countries in the 1995-2011 period applying the (Lintner, 1956) model under the framework of (Fama & French, 2002) tests that incorporate firm-specific variables in analyzing the target dividend payout decision. These firm-specific variables (related to profitability, investment opportunities, volatility, and the earned-contributed capital mix) allow us to examine the dividend predictions of the pecking order and trade-off models, as well as those of the lifecycle theory of dividends.

Previous research ((de Jong, Kabir, & Nguyen, 2008), and (Kirch & Terra, 2012)) emphasize the need to account for country-specific factors when examining leverage decisions worldwide.

In a recent study, (de Jong et al., 2008) show that country-specific factors (law abidance, shareholder/creditor right protection, market/bank financial system orientation, stock/bond market development and GDP growth rate) are important

determinants (both directly and indirectly) of the leverage decisions of a panel of firms from 42 countries. In particular, firms in countries with more developed bond markets and higher GDP growth show higher leverage.

We contribute to the literature by examining the extent of how both firm- and country-specific factors (mostly related to corporate governance) shape the dividend decisions of Latin American firms within the framework of the pecking order and trade off models, and the recent lifecycle theory of dividends.

2. Data analysis (sample and descriptive statistics)

Our sample includes financial data for public firms in six Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico and Peru) from 1995 to 2011. We collect firm data from consolidated financial statements and expressed in U.S. dollars. Our source is Economatica, a database specialized in Latin American exchanges. In addition, we gather information on a rule of law index from the World Bank. The scale of the (country) index varies from -2.5 (weak) to 2.5 (strong) rule of law abidance.

To construct our dataset we apply several screens (explained in detail in the full version of the paper). Our main variable, dividends, is calculated indirectly using two methods. In the first method: $D_t = \frac{DPS_t}{P_t} . \frac{P_t}{BVPS_t} . BE_t$, where dividends for fiscal year t $\left(D_t\right)$ are calculated multiplying the current dividend yield (dividends per share, DPS_t, over share price, $\left(P_t\right)$ times the price to book (book value per share, $BVPS_t$) ratio times the book value of common equity $\left(BE_t\right)$. The second method is straightforward: $D_t = \frac{DPS_t}{P_t} . MVE_t$, we just multiply the dividend yield times the total market capitalization (MVE or market value of equity). Our results below employ the first method. Nonetheless, our results remain qualitatively similar using either of the two methods.

The top panel of Table 1 includes a brief description of our main variables. In Panel B of Table 1 we observe that Chilean firms pay the highest dividends as a percentage of assets. Mexican and Brazilian firms are the largest (by assets) possibly because these firms come from the two biggest economies of the region. In addition, Chile scores strongly in rule of law compliance[2], while Colombia shows the weakest score.

2 The rule-of-law indicators remain (not shown) relatively stable or improve throughout the years, except for Argentina which suffered a sudden decline in the rule of law index in the 2000-2002 period.

Insert Table 1 here

3. Methodology and results

(Lintner, 1956) in an influential survey on dividend policy found that firms pay considerable attention to the existing rate of dividend payments when determining the upcoming dividend. Furthermore, changes in dividends were strongly affected by variations in current earnings. In all, (Lintner, 1956) posits that firms have a long term target payout (TP) ratio that affects target dividends in the following way:

$$TD_{t+1} = TP * ¿_t \qquad ()$$

In equation (), TD_{t+1} is target dividend measured in year t+1, and $¿_t$ is the net income that backs the observed dividends. Adjustment costs produce just a partial movement to the target in year t+1, thus the change (Δ) in dividends is the result of the difference between the target dividend and the actual dividend times the speed of adjustment (SOA) plus an error ε_{t+1} :

$$\Delta D_{t+1} = SOA\left(TD_{t+1} - D_t\right) + \varepsilon_{t+1} \qquad ()$$

In order to estimate equation (), (Lintner, 1956) replaced TD_{t+1} to obtain an empirical counterpart of his model:

$$\Delta D_{t+1} = \alpha_1 ¿_t + \alpha_2 D_t + \varepsilon_{t+1} \qquad ()$$

The speed of adjustment is $SOA = -\alpha_2$ and the target payout is $TP = \frac{\alpha_1}{SOA}$.

3.1. *Target payout and speed of adjustment*

We examine the target payout and the speed of adjustment taking into account the effect of the driving variables of dividend decisions according to the pecking order and trade off models as well as the lifecycle theory of dividends. We proxy profitability with $\frac{E_t}{S_t}$ (earnings before interest and taxes over sales) and $\frac{MV_t}{A_t}$ (market value over assets (

A_t)), where market value = market equity + liabilities; investment opportunities with $\frac{\Delta A_{t+1}}{A_t}$ and $\frac{\Delta PPN_t}{A_t}$ (PPN=net plant and equipment). Leverage, Lev_{t+1} , is measured using accounting $\left(\frac{L_{t+1}}{A_{t+1}}\right)$ (liabilities over assets) or market $\left(\frac{L_{t+1}}{MV_{t+1}}\right)$ (liabilities over market value) figures. $\frac{\Re_t}{A_t}$ (retained earnings over assets) is our proxy for the earned over contributed capital ratio which is the main driving variable of dividend decisions according to the lifecycle theory of dividends. We use the natural logarithm of assets, $\ln(A_t)$ as a proxy for volatility (as (Fama & French, 2002)).

We model how TP and SOA are affected by firm specific variables. Thus we follow (Fama & French, 2002), who argued that a more robust approach to test theories about dividends determinants is that firm specific factors affect directly the magnitude of TP and SOA. We also include country effects in our estimation to assess the effect of unobserved heterogeneity among countries on dividend policies. Additionally, there is a substantial body of research (see section) that stresses the need to account for country specific factors in modeling leverage decisions. We expand this approach to dividend decisions by estimating a panel model with country fixed effects.

Our model derived from equation () allows TP to vary using firm specific factors:

$$\frac{D_{t+1}}{A_{t+1}} = a_0 + dc_i + \left(a_1 + a_2\frac{MV_t}{A_t} + a_3\frac{E_t}{S_t} + a_4\frac{\Delta PPN_t}{A_t} + a_5\ln(A_t) + a_6 Lev_{t+1} + a_7\frac{\Re_t}{A_t}\right)\frac{¿_t}{A_{t+1}} + \varepsilon_{t+1} \quad (1)$$

The dummy variables dc_i account for differential intercepts for each country, allowing the estimation of differential target payouts.

We initially estimate equation () using a panel regression with country dummies and clustering errors at the year level. The relation between dividends and the exogenous variables is modeled in five ways. Argentina is use as the omitted country in deriving our country dummies.

Wald tests' results strongly support the inclusion of country dummies (which are mostly negative). We can decisively reject the null that the joint value of the country dummies is equal to zero.

Our evidence of a positive relationship between $\frac{MV_t}{A_t}$ and dividend is similar to that of (Fama & French, 2002) for a U.S. sample. The positive sign of the interaction variable $\frac{\frac{¿_t}{A_{t+1}} * MV_t}{A_t}$ is unexpected since under the pecking order and trade-off models firms with high investment prospects are expected to pay lower dividends. Perhaps this negative sign can be rationalized under the premise that this proxy for investment opportunities can also be thought of as a measure of current profitability of firms.

The positive coefficients of the interaction variables related to $\frac{E_t}{S_t}$ and $\frac{¿_t}{A_{t+1}}$ concur with the pecking order and trade off models that assume that the most profitable firms are more prone to pay higher dividends. Under the trade-off model these higher dividends are explained as a means to counter agency problems prompted by excess cash flows. In the pecking order model, these higher dividends are explained by the use of more profitable assets that allow firms to maintain a low risk debt capacity to finance investment.

The change in net plant and equipment carries the expected negative sign in line with predictions of the pecking order and trade off models. In addition, the slopes for our leverage proxies show an expected and significant negative sign. In the pecking order model where firms balance current and future financing costs this negative relation is natural since if more levered firms pay a higher fraction of their earnings in dividends this would increase the probability of using higher cost financing. [3] In the trade-off model dividends and leverage are considered as substitutes to mitigate agency problems. Thus it is sensible for more indebted firms to control their dividends payments.

The coefficient on the earned to contributed capital variable is negative. The indirect relationship between dividends and the earned-contributed capital mix does not support the lifecycle theory of dividends which predicts a positive relationship. Possibly, firms in the region abstain from paying more generous dividends since they have not reached a full maturity state where profitable investment opportunities are almost non-existent.

In Panel B of Table 2, the implied target payout is calculated for each country in the sample using the same five specifications of the top panel of Table 2. The target payout is calculated as (where $Mn()$ stands for mean):

3 Firms would then have to use either debt at a higher interest rate or equity financing.

$$Lev$$

$$(¿¿t+1^{\square})+a_7 Mn\left(\frac{\Re_t}{A_t}\right)$$

$$TP=\frac{(a_0+dc_i)}{Mn\left(\frac{¿_t}{A^{\square}_{t+1}}\right)}+a_1+a_2 Mn\left(\frac{MV_t}{A^{\square}_t}\right)+a_3 Mn\left(\frac{E^{\square}_t}{S^{\square}_t}\right)+a_4 Mn\left(\frac{\Delta PPN^{\square}_{t+1}}{A^{\square}_t}\right)+a_5 Mn\ln\left(A^{\square}_t\right)+a_6 M \qquad ()$$

Focusing on the last two columns of Panel B we see that target payouts fluctuate widely from 0.27 to 0.58. Chile shows the highest payout, followed by Argentina, Brazil, Colombia, Peru, and Mexico. Interestingly, Chile which according to Panel B of Table 1 has the highest rule of law indicator, also presents the most generous target payout. On the other hand, firms in Peru that face an environment of weak rule of law abidance, showed one of the lowest target payouts. In fact, the correlation between the country orderings by target payout and by rule of law compliance (Chile, Brazil, Argentina, Mexico, Peru, and Colombia) is strong (close to 0.71).

The positive association between the target payout and rule of law abidance gives support to the "outcome model" of the agency theory of dividends. Our results for Latin America mirror those of (La Porta et al., 2000) who in a cross sectional analysis of more than 4000 firms in 33 countries for 1994 found evidence favoring the "outcome model".

In the bottom panel of Table 2 we examine the positive association between TP and the rule of law variable (or governance index, GI) in more detail. Here we use the same model specifications as those of Panel A of Table 2 but with two modifications. We exclude the country dummies and we expand the model with a new interaction $\left(\frac{¿_t}{A_{t+1}} \wedge GI_{t+1}\right)$ to capture the effect of rule of law compliance at the country level and TP.

Error: Reference source not found of Table 2 shows that the magnitude, sign, and significance of our variables to proxy profitability, investment opportunities, risk, and lifecycle effects resemble those of the second panel of Table 2. Importantly, our regression results show that the coefficient of the interaction of the rule of law variable $\left(¿\frac{¿_t}{A_{t+1}}\right)$ is positive and highly significant. This finding gives further credence to the idea that investors in better investor protection countries are more likely to benefit from higher dividends.

Insert Table 2 here

3.2. *Variations in investments and dividends*

This section examines how firms alter their dividends to accommodate variations in their investment outlays. Based on the (Lintner, 1956) model, and including the variable $\frac{\Delta A_{t+1}}{A_{t+1}}$ to account for contemporaneous investment, one could estimate the following dynamic model that takes into account both firm characteristics as well as country effects which likely affect dividend policy:

$$\frac{\Delta D_{t+1}}{A_{t+1}} = a_0 + \left(a_1 + a_2 \frac{MV_t}{A_t} + a_3 \frac{E_t}{S_t} + a_4 \frac{\Delta PPN_t}{A_t} + a_5 \ln(A_t) + a_6 Lev_{t+1} + a_7 \frac{\Re_t}{A_t} \right) \frac{¿_t}{A_{t+1}} \quad ()$$

$$+ \left(b_1 + b_2 \frac{MV_t}{A_t} + b_3 \frac{E_t}{S_t} + b_4 \frac{\Delta PPN_t}{A_t} + b_5 \ln(A_t) + b_6 Lev_{t+1} + b_7 \frac{\Re_t}{A_t} + dc_i \right) \frac{D_t}{A_{t+1}} + c_1 \frac{\Delta A_{t+1}}{A_{t+1}}$$

Equation () implies a speed of adjustment specific for each country, equal to:

$$SOA = -\left(b_1 + b_2 . Mn\left(\frac{MV_t}{A_t}\right) + b_3 . Mn\left(\frac{E_t}{S_t}\right) + b_4 . Mn\left(\frac{\Delta PPN_t}{A_t}\right) + b_5 . Mn(\ln(A_t)) + b_6 . M \right. \quad ()$$

The country dummy is interacted with $\frac{D_t}{A_{t+1}}$ because the SOA is likely to be affected by country characteristics ((Adaoglu, 2000) and (Andres, Betzer, Goergen, & Renneboog, 2009)). Given that TP is defined as the ratio of the coefficients accompanying $\frac{¿_t}{A_{t+1}}$ evaluated at the mean values of the independent variables over SOA, then TP is also modified by the country dummies.

In Panel A of Table 3 we estimate the model of equation () using a pooled panel regression and clustering errors by year. Table 3 shows our results for equation (), the reported coefficients are the result of the interaction terms evaluated at the mean values of the independent variables that account for firm characteristics. We employ five different specifications

similar to those described in section Error: Reference source not found for Table 2. Specification 5 is equivalent to the full model of equation ()).

The positive and significant coefficient of $\frac{\dot{\iota}_t}{A_{t+1}}$ supports the idea that dividend changes are influenced by firms' profits. The coefficients to gauge how dividends change after investments outlays is negative and fluctuates from -0.004 to -0.007. The finding of a negative coefficient supports the idea that firms cut back on dividends when investment requirements grow. Nonetheless, and similar to previous studies for the U.S.(Myers, 1984), (Shyam-Sunder & C Myers, 1999) and (Fama & French, 2002), the magnitude of the coefficient is economically small since the change in dividends absorbs roughly just 0.7% of the change in assets. Furthermore, in the top panel of Table 3 we can see that the interacted country dummies are mostly negative but only significant for Mexico.

In Panel B of Table 3 we report the speed of adjustment of dividends to changes in net income controlling for past dividends and concurrent investment needs. SOA (focusing on the last column of the table) fluctuates from 0.32 to 0.77. Interestingly, our speed of adjustment estimates for Latin American tend to surpass those reported (that range from 0.28 to 0.33) for the U.S. by (Fama & French, 2002).

Factors that favor a higher speed of adjustment in Hong Kong described by (Chemmanur, He, Hu, & Liu, 2010) (i.e., a close alignment between managers and shareholders and a disregard of market signals related to dividend increases or omissions) are likely to apply as well in Latin America. We hypothesize that these factors play a role in understanding our finding of a higher SOA in the region.

Furthermore, we find in Panel B of Table 3 that firms in countries with low scores on rule of law obedience (Colombia, Mexico, and Peru) are more likely to have higher speed adjustments than firms located in countries with higher relative scores on rule of law compliance (Argentina, Brazil, and Chile).

In the literature there is some support for the negative relation between how firms alter their dividends after changes in profits and the environment in which a firm operates. For example, (Andres et al., 2009) claim that dividend volatility is less of a concern for firms in emerging markets (when compared to firms in developed markets). Further, (Adaoglu, 2000) finds that firms in Turkey follow a pure residual policy (i.e., he reports a SOA of 1.0) before and after a change in regulation that took place in 1995 that exempted firms from paying a minimum mandatory dividend.

Target payouts reported in Panel C of Table 3 are roughly consistent (but somewhat smaller) than those reported in Panel B of Table 2. Yet again, firms in countries with higher rule of law scores reward their investors with richer dividends.

The bottom panel of Table 3 reports an alternative model of equation (). The country dummies are replaced by the rule of law index. Confirming our previous findings the coefficient of the governance index is positive and significant, implying that countries with a higher governance score tend to have a lower SOA.

Insert Table 3 here

4. Conclusions

We contribute to the literature by analyzing dividend payment decisions of firms in six Latin American countries from 1995 to 2011. Based upon the classic Lintner model (1956), and examining the predictions of three guiding theories (pecking order model, trade-off model and the lifecycle theory of dividends), our analysis highlights the importance of including both firm and country specific factors when analyzing how firms adjust their dividends after changes in earnings.

We find broad support for the common empirical predictions of the pecking order and trade-off models. More profitable firms tend to pay a higher relative (e.g., with respect to assets) dividend while more indebted firms or firms with higher investment needs are more likely to pay lower dividends. We do not find a significant effect of volatility (proxied by firm size) on the dividend payout ratio.

Furthermore, we find differential target payouts and speeds of adjustments per country. Importantly, we find that firms in countries with a higher rule of law compliance are more likely to pay a higher rate of dividends. This positive association between the target payout and rule of law abidance supports the "outcome model" of the agency theory of dividends ((La Porta et al., 2000)). It appears that investors in more relatively law abiding countries (Argentina, Brazil, and Chile) are able to extract higher dividends than those investors in countries where the rule of law is weaker (Colombia, Mexico, and Peru).

In terms of the speed of adjustment we document an indirect relationship between SOA and rule of law indices. In all, it appears that firms in low rule of law countries are more prone to conduct a more erratic dividend policy than firms in high rule of law countries. We thus extend previous evidence ((Adaoglu, 2000) and (Andres et al., 2009)) that suggests a close link between how quickly firm adjust their dividends to changes in earnings, and country characteristics in which a firm is located.

Selected references[4]

Aivazian, V. A., Booth, L., & Cleary, S. (2006). Dividend smoothing and debt ratings. *Journal of Financial & Quantitative Analysis, 41*(2), 439-453.

Andres, C., Betzer, A., Goergen, M., & Renneboog, L. (2009). Dividend policy of German firms: A panel data analysis of partial adjustment models. *Journal of Empirical Finance, 16*(2), 175-187.

Chemmanur, T. J., He, J., Hu, G., & Liu, H. (2010). Is dividend smoothing universal?: New insights from a comparative study of dividend policies in Hong Kong and the U.S. *Journal of Corporate Finance, 16*(4), 413-430.

de Jong, A., Kabir, R., & Nguyen, T. T. (2008). Capital structure around the world: The roles of firm- and country-specific determinants. *Journal of Banking & Finance, 32*(9), 1954-1969.

DeAngelo, H., DeAngelo, L., & Stulz, R. M. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial Economics, 81*(2), 227-254.

Easterbrook, F.H., 1984, Two agency-cost explanations of dividends. Am. Econ. Rev. 74, 650.

Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies, 15*(1), 1-33. doi: 10.1093/rfs/15.1.1

Iturriaga, F. J. L., & Crisóstomo, V. L. (2010). Do leverage, dividend payout, and ownership concentration influence firms' value creation? An analysis of Brazilian firms. *Emerging Markets Finance and Trade, 46*(3), 80-94.

Kirch, G., & Terra, P. R. S. (2012). Determinants of corporate debt maturity in South America: Do institutional quality and financial development matter? *Journal of Corporate Finance, 18*(4), 980-993. doi: 10.1016/j.jcorpfin.2012.05.004

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (2000). Agency problems and dividend policies around the world. *Journal of Finance, 55*(1), 1-33. doi: 10.1111/0022-1082.00199

Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *The American Economic Review, 46*(2), 97-113.

Velez-Pareja, I., & Benavides Franco, J. (2011). Cost of capital when dividends are deductible. *Brazilian Review of Finance, 9*(3), 309-334.

4 We exclude some references due to space constraints.

Table 1
Selected sample statistics

Panel A
Description of variables

Variable	Definition
D/A	Dividends over Assets
$\Delta D_{t+1}/A_{t+1}$	Change in Dividends over Assets
Ln(A)	Natural logarithm of Assets (in millions of US dollars)
$\Delta A_{t+1}/A_{t+1}$	Proportional Change of Assets
NI_t/A_{t+1}	Net Income over Assets of next fiscal year
MV	Market Value = Market Equity + Liabilities (in millions of US dollars)
MV/A	Market Value over Assets
E/S	Earnings before interest and taxes over Sales
$\Delta PPN_{t+1}/A_t$	Change in Net Plant and Equipment over Assets of past fiscal year
L/A	Liabilities over Assets
L/MV	Liabilities over Market Value
D_t/A_{t+1}	Dividends over Assets of next fiscal year
RE/A	Retained Earnings over Assets
GI	Governance index: Rule of law (World Bank governance indicators)

Panel B
Mean values of selected variables per country (1995-2011)

	Argentina	Brazil	Chile	Colombia	Mexico	Peru	Total
Dt+1/At+1	3.43%	2.53%	3.57%	2.12%	2.30%	3.24%	2.95%
ΔDt+1/At+1	0.45%	0.37%	0.30%	0.05%	0.15%	0.30%	0.33%
NIt/At+1	6.55%	5.44%	5.68%	3.93%	6.73%	7.43%	5.80%
MVt/At	1.19	1.17	1.35	0.92	1.52	1.37	1.25
Et/St	18.23%	13.97%	15.18%	12.35%	13.97%	21.34%	15.31%
At	$ 1,360	$ 1,847	$ 1,128	$ 1,583	$ 2,577	$ 563	$ 1,503
ΔAt+1/At+1	5.20%	6.27%	7.63%	8.93%	5.71%	8.43%	6.83%
ΔPPNt+1/At	1.93%	2.92%	4.66%	3.56%	2.24%	4.27%	3.47%
Lt+1/At+1	43.47%	53.61%	47.17%	35.00%	45.51%	41.54%	49.01%
Lt+1/MVt+	40.01%	51.55%	39.35%	38.46%	33.63%	37.14%	44.62%
REt/At	19.03%	13.23%	20.99%	13.38%	26.60%	13.14%	16.54%
GIt	-0.39	-0.29	1.23	-0.71	-0.55	-0.66	0.09

Panel C
Correlation matrix (1995-2011)

	D_{t+1}/A_{t+1}	$\Delta D_{t+1}/A_{t+1}$	A_t	$\Delta A_{t+1}/A_{t+1}$	NI_t/A_{t+1}	MV_t/A_t
$\Delta D_{t+1}/A_{t+1}$	0.462***					
A_t	-0.047	0.01				
$\Delta A_{t+1}/A_{t+1}$	-0.048	0.055	0.062***			
NI_t/A_{t+1}	0.544***	0.150***	-0.107***	-0.043		
MV_t/A_t	0.331***	0.113***	0.095***	0.197***	0.377***	
E_t/S_t	0.281***	0.094***	0.146***	0.059	0.365***	0.193***
$\Delta PPN_{t+1}/A_t$	-0.001	0.042	0.052	0.683***	-0.015**	0.164***
L_{t+1}/A_{t+1}	-0.171***	-0.03	0.229***	0.062***	-0.275***	0.105***
L_{t+1}/MV_{t+1}	-0.408***	-0.149***	0.069***	-0.206***	-0.454***	-0.461***
D_t/A_{t+1}	0.794***	-0.173***	-0.059	-0.091***	0.501***	0.290***
RE_t/A_t	0.071***	-0.007	-0.058	0.034	0.346***	0.118***
GI_t	0.127***	-0.004	-0.068***	0.017**	-0.039	0.105***

	Et/St	ΔPPNt+1/At	Lt+1/At+1	Lt+1/MVt+1	Dt/At+1	REt/At
ΔPPNt+1/At	0.110***					
Lt+1/At+1	-0.089***	0.064***				
Lt+1/MVt+1	-0.227***	-0.145***	0.638***			
Dt/At+1	0.247***	-0.029	-0.169***	-0.351***		
REt/At	0.012	0.017**	-0.394***	-0.370***	0.084***	
GIt	-0.027***	0.061	-0.022***	-0.124***	0.144***	0.208***

Panel D
Firms per country (1995-2011)

	Firms	Observations (firm-year)	Average (Observations/Firms)
Argentina	70	358	5.11
Brazil	357	2049	5.74
Chile	139	1153	8.29
Colombia	20	96	4.80
Mexico	71	241	3.39
Peru	81	420	5.19
Total	738	4317	5.85

Panel E
Average NI_t/A_{t+1} per country and year

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Argentina	7.39%	5.91%	5.58%	6.16%	4.27%	4.74%	8.55%	2.24%	5.36%	7.51%	8.85%	8.43%	7.40%	5.30%	5.62%	8.34%
Brazil	3.95%	4.90%	5.04%	5.31%	4.25%	6.03%	6.63%	4.06%	5.89%	6.52%	6.02%	4.97%	7.16%	4.38%	4.94%	6.46%
Chile	6.23%	5.81%	6.18%	6.31%	5.65%	5.15%	5.21%	4.24%	5.23%	5.71%	6.07%	5.79%	6.36%	4.66%	5.48%	6.43%
Colombia	2.75%	4.32%	4.87%	4.92%	2.66%	5.26%	5.32%	4.65%	4.62%	2.53%	2.22%	2.18%	2.87%	1.59%	2.19%	5.28%
Mexico	3.20%	9.40%	7.67%	4.92%	7.28%	6.00%	6.23%	7.92%	9.85%	4.70%	6.84%	6.76%	8.39%	4.76%	5.72%	7.81%
Peru	9.07%	7.53%	9.37%	6.64%	6.87%	7.21%	6.42%	5.92%	6.75%	6.99%	6.85%	7.40%	8.14%	7.23%	7.33%	8.23%
Total	5.26%	5.64%	5.97%	5.82%	4.91%	5.76%	6.11%	4.29%	5.71%	6.25%	6.27%	5.87%	7.14%	4.79%	5.48%	6.91%

	Avg	σ	σ/μ
Argentina	6.55%	1.8%	27.9%
Brasil	5.44%	1.0%	18.4%
Chile	5.68%	0.6%	11.1%
Colombia	3.93%	1.4%	34.6%
Mexico	6.73%	1.8%	26.8%
Peru	7.43%	0.9%	12.5%
Total	5.80%	0.7%	12.7%

The table describes the variables we use (Panel A) from Economatica and World Bank Governance Indicators. Panel B reports average values of our main variables per country, all variables are ratios except Assets (A_t) which is measured in millions of US dollars. Panel C reports correlations among variables, where ***, ** and * denote significance of the pairwise correlation (Ho: ρ=0) at the 0.01, 0.05 and 0.10 levels. The next panel shows the number of firms and observations per country. Panel E reports $\frac{¿_t}{A_{t+1}}$ over the sample years per country, the last three columns present the average, the standard deviation and the coefficient of variation, respectively.

Table 2
Determinants of dividend payout ratio

Panel A
Estimates with country effects

	a. No interaction	b. No leverage	c. Book leverage	d. Market leverage	e. Retained earnings
Intercept	0.013***	0.014***	0.014***	0.014***	0.015***
NI_t / A_{t+1}	0.334***	0.127**	0.148***	0.264***	0.401***
d-Brazil	-0.005**	-0.004**	-0.004**	-0.003	-0.004**
d-Chile	0.004**	0.004**	0.004**	0.003*	0.003**
d-Colombia	-0.001	-0.003	-0.003*	-0.004	-0.005**
d-Mexico	-0.011***	-0.012***	-0.012***	-0.014***	-0.013***
d-Peru	-0.006***	-0.007***	-0.007***	-0.007***	-0.008***
NI_t/A_{t+1} * MV_t/A_t		0.106***	0.108***	0.080***	0.065***
NI_t/A_{t+1} * E_t/S_t		0.326***	0.318***	0.216***	0.235***
NI_t/A_{t+1} * $\Delta PPN_{t+1}/A_t$		-0.185**	-0.190**	-0.233***	-0.234***
NI_t/A_{t+1} * $\ln(a_t)$		-0.001	-0.002	0.003	0.005
NI_t/A_{t+1} * L_{t+1}/A_{t+1}			-0.042		
NI_t/A_{t+1} * L_{t+1}/MV_{t+1}				-0.375***	-0.551***
NI_t/A_{t+1} * RE_t/A_t					-0.413***
Wald	266.4***	382.0***	386.8***	323.9***	290.4***
Adjusted R^2	0.287	0.341	0.341	0.363	0.381
N	5365	4363	4312	4317	4250
Firms	800	738	737	738	734

Panel B
Target Payout

Panel C
Estimates with governance indicators

	a. No interaction	b. No leverage	c. Book leverage	d. Market leverage	e. Retained earnings
Intercept	0.010***	0.011***	0.011***	0.011***	0.011***
NI_t / A_{t+1}	0.334***	0.096**	0.117***	0.217***	0.357***
NI_t/A_{t+1} * MV_t/A_t		0.090***	0.090***	0.068***	0.049***
NI_t/A_{t+1} * E_t/S_t		0.350***	0.360***	0.257***	0.276***
NI_t/A_{t+1} * PPN_{t+1}/A_t		-0.197**	-0.207***	-0.239***	-0.247***
NI_t/A_{t+1} * $\ln(a_t)$		0.001	-0.001	0.004	0.008*
NI_t/A_{t+1} * GI_{t+1}		0.137***	0.140***	0.124***	0.150***
NI_t/A_{t+1} * L_{t+1}/A_{t+1}			-0.012		
NI_t/A_{t+1} * L_{t+1}/MV_{t+1}				-0.310***	-0.521***
NI_t/A_{t+1} * RE_t/A_t					-0.496***
R2	0.265	0.353	0.353	0.369	0.394
N	5365	4363	4312	4317	4250
Firms	800	738	737	738	734

The data is from public Latin-American firms in six countries and it covers seventeen years (1995-2011). The dependent variable is $\frac{D_{t+1}}{A_{t+1}}$, dividends for fiscal year t+1 divided by assets in year t+1. Panel A reports the results of panel regressions; all regressions include country dummies; dc_i. is the dummy for country i. Specification a., does not include an interaction term with $\frac{¿_t}{A_{t+1}}$. The next specification, includes interaction terms with $\frac{¿_t}{A_{t+1}}$ for $\frac{MV_t}{A_t}$, $\frac{E_t}{S_t}$, $\frac{\Delta PPN_{t+1}}{A_t}$, and $\ln(A_t)$. Specifications c. and d., expand specification b. interacting $\frac{¿_t}{A_{t+1}}$ with $\frac{Lev_{t+1}}{A_{t+1}}$ and $\frac{Lev_{t+1}}{MV_{t+1}}$ respectively. The last specification augments specification d. with an interaction term of $\frac{¿_t}{A_{t+1}}$ and $\frac{\Re_t}{A_t}$. Panel B presents the implied target payout per country. The target payout is estimated as $\frac{a_0+dc_i}{Mn\left(\frac{¿_t}{A_{t+1}}\right)}+a_1+a_2 Mn\left(\frac{MV_t}{A_t}\right)+a_3 Mn\left(\frac{E_t}{S_t}\right)+a_4 Mn\left(\frac{\Delta PPN_t}{A_t}\right)+a_5 Mn(\ln(A_t))+a_6 Mn(Lev_{t+1})+a_7 Mn\left(\frac{\Re_t}{A_t}\right)$, where $Mn(.)$ is the sample mean of a variable, and Lev_{t+1} is either book leverage or market leverage in t+1. Panel C shows regression results replacing country dummies with a governance indicator variable, interacted with $\frac{¿_t}{A_{t+1}}$. We estimate coefficients' significance based on standard errors clustering by time. R^2 is the adjusted R^2, and N is the number of observations of each model. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels. Wald test proves the null hypothesis that the joint value of the country dummies is equal to zero.

Table 3
Lintner model with dynamic adjustment according to equations () and Error: Reference source not found

Panel A
Estimates with country effects

	a. No interaction	b. No leverage	c. Book leverage	d. Market leverage	e. Retained earnings
Intercept	0.001	0.003***	0.003***	0.004***	0.004***
NI_t / A_{t+1}	0.122***	0.123***	0.116***	0.116***	0.133***
$\Delta A_{t+1} / A_{t+1}$	-0.004*	-0.007***	-0.006**	-0.007**	-0.006**
D_t/A_{t+1}	-0.236***	-0.338***	-0.328***	-0.369***	-0.370***

D_t/A_{t+1} * d-Brasil	-0.001	0.035	0.038	0.049	0.013
D_t/A_{t+1} * d-Chile	0.085	0.055	0.055	0.046	0.052
D_t/A_{t+1} * d-Colombia	-0.04	-0.124	-0.147*	-0.119	-0.148
D_t/A_{t+1} * d- Mexico	-0.073	-0.207**	-0.258**	-0.291**	-0.407**
D_t/A_{t+1} * d-Peru	0.043	-0.049	-0.071	-0.056	-0.113
R^2	0.171	0.255	0.265	0.271	0.296
N	4629	4061	4013	4006	3947
Firms	759	723	720	718	715

Panel B
Speed of adjustment

	a. No interaction	b. No leverage	c. Book leverage	d. Market leverage	e. Retained earnings
Argentina	0.236	0.338	0.328	0.369	0.37
Brazil	0.237	0.303	0.29	0.32	0.358
Chile	0.151	0.282	0.273	0.324	0.319
Colombia	0.276	0.462	0.475	0.488	0.518
Mexico	0.309	0.545	0.587	0.66	0.777
Peru	0.193	0.387	0.4	0.425	0.484

Panel C
Target payout

	a. No interaction	b. No leverage	c. Book leverage	d. Market leverage	e. Retained earnings
Argentina	0.519	0.365	0.352	0.313	0.358
Brazil	0.515	0.407	0.398	0.362	0.371
Chile	0.809	0.437	0.424	0.358	0.416
Colombia	0.443	0.267	0.243	0.237	0.256
Mexico	0.397	0.226	0.197	0.175	0.171
Peru	0.634	0.319	0.289	0.272	0.274

Panel D
Governance indicators

	a. No interaction	b. No leverage	c. Book leverage	d. Market leverage	e. Retained earnings
Intercept	0.000	0.003***	0.003***	0.003***	0.003***
NI_t / A_{t+1}	0.121***	0.121***	0.118***	0.116***	0.135***
$\Delta A_{t+1} / A_{t+1}$	-0.003	-0.005**	-0.005*	-0.006**	-0.005**
D_t/A_{t+1}	-0.197***	-0.310***	-0.311***	-0.344***	-0.368***
$D_t/A_{t+1} * GI_{t+1}$	0.043*	0.031	0.039**	0.028	0.055***
R^2	0.134	0.224	0.235	0.242	0.263
N	4629	4061	4013	4006	3947
Firms	759	723	720	718	715

The data is from public Latin-American firms in six countries and it covers seventeen years (1995-2011). The dependent variable is $\frac{\Delta D_{t+1}}{A_{t+1}}$, the change in dividends for fiscal year t+1 versus year t divided by assets in year t+1. Panel A reports the results of pooled panel regressions; all specifications include country dummies interacting with $\frac{D_{t+1}}{A_{t+1}}$,; dc_i is the dummy for country i. The slope on $\frac{¿_t}{A_{t+1}}$ is the average across years of $a_1+a_2 Mn\left(\frac{MV_t}{A_t}\right)+a_3 Mn\left(\frac{E_t}{S_t}\right)+a_4 Mn\left(\frac{\Delta PPN_t}{A_t}\right)+a_5 Mn\left(\ln\left(A_t\right)\right)+a_6 Mn\left(Lev_{t+1}\right)+a_7 Mn\left(\frac{\Re_t}{A_t}\right)$, where $Mn(.)$ is the sample mean of a variable, a_i are the regression coefficients from equation Error: Reference source not found and Lev_{t+1} is either book leverage or market leverage in t+1. Meanwhile, the slope on $\frac{D_t}{A_{t+1}}$ is the average across years of $b_1+b_2 Mn\left(\frac{MV_t}{A_t}\right)+b_3 Mn\left(\frac{E_t}{S_t}\right)+b_4 Mn\left(\frac{\Delta PPN_t}{A_t}\right)+b_5 Mn\left(\ln\left(A_t\right)\right)+b_6 Mn\left(Lev_{t+1}\right)+b_7 Mn\left(\frac{\Re_t}{A_t}\right)$ where b_i are the regression coefficients from equation Error: Reference source not found. Panel B presents the speed of adjustment per country, which is the negative of the sum of the slope on $\frac{D_t}{A_{t+1}}$ and the dc_i. The implied target payout in Panel C is the slope on $\frac{¿_t}{A_{t+1}}$ divided by the speed of adjustment. Error: Reference source not found shows regression results replacing country dummies with a governance indicator variable, interacted with $\frac{D_t}{A_{t+1}}$. We estimate coefficients' significance based on standard errors clustering by time. R^2 is the adjusted R^2, and N is the number of observations of each model. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels.