How to regulate bank dividends? Is capital regulation an answer?

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Abstract

This paper is a contribution to the debate on "how to regulate banks' dividend payout behaviour", a question that has attracted special attention of academicians as well as policy makers since the onset of 2007-08 financial crisis. In this paper, we examine whether common equity based capital regulation and more stringent risk based capital requirements force banks to restrict dividend payments. Common equity based capital regulation is likely to restrict bank dividends by limiting the sources of new capital for banks. Similarly more stringent risk based capital requirements are likely to force banks to retain profits to meet regulatory capital requirements. We use an international sample of 8,689 banks from 58 countries over the pre-crisis period 1998-2007 for empirical analysis. Results show that banks paid lower dividends, were less likely to pay dividends and were less likely to pay excessive dividends in countries where regulators imposed common equity based capital regulation and more stringent risk based capital requirements for the banking industry during the pre-crisis period. We also extend our sample period from 1998 to 2012 and observe that regulatory capital requirements are less effective in restricting bank dividend payments during crisis period. From a policy perspective, we suggest that regulators can limit banks' options to raise new capital from non-common equity based sources and can impose more stringent risk based capital requirements to restrict banks from dividend over-payments in good times. While regulators can use blanket restrictions on sector wise dividend payments in bad times.

Keywords: bank dividend policy; regulatory hypothesis; banking; capital regulation

JEL Classification: G21, G28, G35

1. Introduction

Recent debate on bank dividends suggests that banks can shift risk from shareholders to debt holders by paying excessive dividends to shareholders. In this study, we contribute to this debate by examining whether a common equity based capital regulation which don't count borrowed funds towards bank capital and whether more stringent risk based capital requirements are helpful in restricting banks from excessive dividend payments.

In many jurisdictions of the world, the bank regulators have the authority to regulate the payout policies of the banks. This regulation of banks' payout behaviour has become especially important since the onset of the 2008 financial crisis. Dividend payments lower the capital ratio of a bank, increase its leverage, and potentially shift risk from shareholders to debt holders and potentially to the general public and tax payers (Acharya *et al.* 2011; Acharya *et al.* 2013; Kanas 2013; Onali 2014). To mitigate these moral-hazard driven deviations, regulators can restrict the dividend payments of undercapitalized and otherwise risky banks. Consistent with this idea Basel Committee on Banking Supervision, in its Basel III Accord, has introduced restrictions on bank dividend distributions when bank capital levels fall below a threshold level (BIS 2011). Though dividend restrictions have a positive welfare effect through a reduction in risk shifting, these same restrictions will also create an incentive for other well capitalized banks to pay additional, economically inefficient dividends to signal better performance (Guntay *et al.* 2015). Thus, restricting dividends on potentially risky banks, besides reducing risk shifting, also distorts the payout incentives of the entire banking industry and may have unanticipated welfare implications. Another problem with this kind of regulation is the banks which have high risk and, at the same time, meet regulatory capital requirements through innovative financial products cannot be restricted to pay dividends on the base of threshold capital levels.

On the other hand, regulators can implement common equity based capital regulation and impose more stringent risk based capital requirements for the banks to force them to retain higher proportion of profits to meet higher capital requirements. For common equity based capital regulation, regulators can require banks to raise new capital in the form of common equity, but not in the form of preferred equity and/or preferred debt. Recent investigation into the capital policies of large twenty-five financial institutions of US shows that these institutions mostly raised preferred equity and preferred debt instead of common equity during pre-crisis period of 2000-2006 (Acharya *et al.* 2011). Before crisis capital regulation (*i.e.*, Basel I and Basel II) allowed financial institutions to raise additional capital from these sources because capital raised through these sources was eligible to count towards regulatory capital requirements. For more stringent risk based capital requirements, regulators can require banks to maintain risk based capital ratios that are higher and cover more balance sheet risks. Higher risk based capital ratios straight forwardly require banks to increase capitalization. While stringent risk based capital requirements synchronise bank risks to bank capital and consequently increase capital needs by requiring banks to maintain additional capital against each marginal risk. Having only common equity based capital regulation and more stringent risk based capital requirements can let the undercapitalized banks to have a choice between retaining profits or to pay dividends to signal performance and then raising common equity funds from the investors. At the same time, this mechanism don't create any incentives for the well capitalized banks to pay economically inefficient dividends, or, alternatively, it can even encourage well capitalized banks to further retain profits to build safety walls against regulatory capital requirements. Though, common equity based capital regulation and risk based regulatory capital requirements, to some extent, were in place before financial crisis period in some countries, however, whether this kind of

capital regulation and capital requirements were effective in forcing banks to restrict dividend payments is unknown and is an open empirical question requiring investigation.

We use an international sample of 8,689 unique banks across 58 countries over the pre-crises period 1998-2007 to answer this question in a cross-country setting. We exploit the data from World Bank surveys on banking regulations to measure the capitalization strategies implemented by banking sector regulators around the world during pre-crisis period. Combining answers to some survey questions related to regulators' capitalization strategies, we construct a sub-index that measures whether the sources of funds counted as regulatory capital can include borrowed funds and assets other than cash or government securities, as well as whether the regulators verify these sources. Similarly combining answers to some other questions, we construct another sub-index that measures the level of risk based capital requirements and whether risk elements and value losses are considered while calculating the risk based regulatory capital requirements. Of these sub-indices, former sub-index measures whether capital regulation is common equity based and latter sub-index measures the country-level stringency in risk based capital requirements. We also generate an overall index by summing these two sub-indices representing combined effect of common equity based capital regulation and stringency in risk based capital requirements. Variation in overall index as well as in two sub-indices indicates that regulators implemented heterogeneous capital strategies for the banking sectors across the globe during pre-crisis period and provides us an opportunity to test our predictions using these indices.

We employ three dependent variables. Common dividends paid to total assets ratio is used to test the relations between capital regulation indices and bank dividend payout amounts. A dummy variable which equals to one for dividend paying banks and zero otherwise is used to test the relations between capital regulation indices and banks' probability to pay dividends. Another dummy variable, which equals to one for 10 percent bank observations having highest dividend payout ratios in sample and zero otherwise, is used to test the relations between capital regulation indices and banks' probability to pay excessive dividends.

We begin by examining the impact of common equity based capital regulation and stringent risk based capital requirements on bank dividend payout amounts, while controlling for bank-level variables such as bank size, equity, profitability, asset growth; and country-level variables such as minority shareholder protection, creditor rights, level of financial market development and national cultural dimensions, as suggested by previous research. We estimate tobit panel regressions to examine the impact of capital requirements indices on dividend payout amounts. We find negative and significant relations between capital requirements indices and dividend payout amounts, suggesting that banks paid lower amount of dividends in countries where regulators imposed common equity based capital regulation and stringent risk based capital requirements for banking sector.

Next, we estimate logit panel regressions to examine the impact of common equity based capital regulation and stringent risk based capital requirements on the probability to pay dividends and on the probability to pay excessive dividends. Similar to dividend amounts results, we find that capital requirements indices have negative and significant relations with both the probability of paying dividends and the probability of paying excessive dividends. These findings suggest that banks were less likely to pay (or to pay excessive) dividends in counties where regulators imposed common equity based capital regulation and stringent risk based capital requirements for banking sector. We apply several robustness tests to confirm main results. Finally, we extend our sample period from 1998 to 2012 to examine the impact of capital regulation on dividend payments during crisis periods.

Our study contributes to the existing literature in at least three ways: *First*, our first and most important contribution is to the recent after-crisis debate that banks use dividends to shift risk from shareholders to debt holders and possibly to depositors and tax payers, and bank dividends payments should be regulated (Acharya *et al.* 2011; Acharya *et al.* 2013; Kanas 2013; Onali 2014). We propose that common equity based capital regulation and more stringent risk-based capital requirements are helpful in restricting banks from dividend over-payments in good times. *Second*, we contribute to the studies examining regulatory hypothesis for bank dividend policies (Dickens *et al.* 2002; Abreu & Gulamhussen 2013; Onali 2014; Ashraf *et al.* 2015). Extant studies largely have examined bank-level regulatory hypothesis, while we extend this literature by measuring regulatory pressure at country-level and carrying out an empirical analysis of a cross-country sample of banks. *Third*, our study contributes to recent multi-country bank dividend studies (Zheng & Ashraf 2014; Ashraf & Zheng 2015). Zheng and Ashraf (2014) find that different dimensions of national culture are significant determinants of bank dividend policies. Ashraf and Zheng (2015) find that formal laws such as legal protection provided to bank creditors and shareholders can determine bank dividend payout decisions. We add to this literature by examining the importance of capital regulation for bank dividend policies.

The rest of the paper is organized as follows. In section 2, we review important dividend theories and related bank dividends literature. Section 3 introduces data. Section 4 presents empirical results. The final section concludes the study.

2. Literature Review

In this section, we first briefly review the major existing dividend theories. Then, we review existing bank dividends literature focusing on whether major dividend theories apply to banking or not. Finally, we specifically focus on regulatory hypothesis for bank dividends and reach to our question that why it is important to examine regulatory hypothesis in a cross-country setting.

2.1 Dividend theories

Since the publications of the Miller and Modigliani (1961) dividend irrelevance propositions and the Black (1976)'s dividend puzzle, financial researchers have extended several explanations for the question that "why do firms pay dividends". Major theories of dividends literature are signaling, agency, tax and clientele effects, catering and firms' life cycle theories.

Signaling theory of dividends suggests that firms use dividend payments to signal the firms' future earnings prospects to outside investors (Bhattacharya 1979; John & Williams 1985; Caton *et al.* 2003; Booth & Chang 2011). According to this theory, managers are reluctant to dividend cuts because it signal weak future earnings prospect to investors.

Agency theory of dividends suggests that dividend policies address agency problems between corporate insiders (e.g., owner-managers or controlling shareholders) and outside shareholders (Rozeff 1982; Easterbrook 1984; La Porta *et al.* 2000; Myers 2000). If firms retain large amount of profits, then firm insiders may easily commit excess funds to un-profitable projects or can divert for personal use. Therefore, outside shareholders prefer dividends over retained earnings to reduce these agency problems. Early studies mainly focused on agency costs of equity, however, recent studies have focused on agency problems between corporate insiders (e.g., owner-managers or controlling shareholders) and outside lenders. For example, Brockman and Unlu (2009) found that managers also use dividend policies to reduce agency costs of debt.

Tax preference and dividend clientele theories suggest that firms have differences in dividend policies because they respond to the demands of different investors who, for tax reasons, prefer either to hold or to avoid dividend-paying stocks (Pettit 1977; Miller & Scholes 1978, 1982; Allen *et al.* 2000; Foley *et al.* 2007). General argument behind this theory is that investors generally prefer to invest in firms whose dividend policies complement their particular tax circumstances.

According to catering theory of dividends, the firms' decision to pay dividends is driven by prevailing investors' demand for dividend payers. Managers cater to investors by paying dividends when investors put a stock price premium on payers, and by not paying when investors prefer non-payers (Baker & Wurgler 2004a, b).

Another theory is firms' life cycle theory of dividends which suggests that the pattern of cash dividends generally changes over a firm's life cycle (Fama & French 2001; DeAngelo *et al.* 2006; Brockman & Unlu 2011). According to this theory new and/or growing firms pay fewer dividends, while firms increase dividends and pay higher dividends as they get mature. DeAngelo *et al.* (2006) find strong empirical evidence that the probability a firm pays dividends increases with the relative amount of earned equity in its capital structure.

2.2 Banking dividends literature

Baker *et al.* (2008) examine perception of managers of financial and nonfinancial firms about above theories of dividends in their survey of managers of financial and nonfinancial firms listed on Canadian stock exchange. They find that managers of financial firms perceive some of the above theories differently for the financial firms. For example, they find that managers of financial firms put more preference on dividends as a signaling device than the managers of non-financial firms.

Some of the empirical banking studies have specifically examined signaling and agency theories based explanations of bank dividend policies. For instance, Boldin and Leggett (1995) employ data of 207 US banks and find empirical evidence that dividend payments increase external ratings of banks. Similarly, Bessler and Nohel (1996) document that commercial banks experience statistically significant negative abnormal returns around the announcement date of dividend cuts or omissions. In a recent study, Abreu and Gulamhussen (2013) examine US bank holding companies and find support for signaling hypothesis that these bank holding companies pay dividends for signaling their future growth opportunities. Forti and Schiozer (2015) find, for Brazilian banks, that banks use dividends to signal their asset quality and liquidity to information sensitive depositors (*i.e.*, institutional investors) and these costly signaling efforts are particularly strong during financial crises when informational asymmetry, asset opaqueness and depositors' concerns regarding bank liquidity are exacerbated. In contrast, Basse *et al.* (2014) examine the dividend policies of European banks over the pre-crisis period of 1998-2008 and interestingly do not find any evidence of dividend signaling or dividend smoothing for European banking industry.

Agency theory based explanations argue that dividend policies can solve the agency problems between managers and shareholders. John *et al.* (2010) find that agency problems are more severe in banks because of their highly levered capital structure. In early studies, Collins *et al.* (1996) analyse how dividend payout ratios react to changes to insider holdings (which obviously affect agency costs) examining data from the U.S. financial services industry (38 banks and 15 insurance companies). They argue that dividend behaviour of firms in U.S. financial services industry is somewhat similar to that of the behaviour of firms in unregulated industries. That is,

banks and insurance companies also tend to increase their dividend payouts when the level of insider holdings decreases. Similarly, Dickens *et al.* (2002) find empirical evidence that US bank holding companies with higher percentage of insider ownership pay lower amount of dividends, consistent with the argument that the higher percentage of insider ownership reduces agency problems in banks. Similarly, Abreu and Gulamhussen (2013) finds that the bank holding companies which are difficult to monitor pay out higher amount of dividends to counterbalance the increased need for monitoring. On the other hand, Ashraf and Zheng (2015) focus on agency problems between bank insiders and outside debt holders and find that managers of banks don't use dividends to reduce agency costs of debt.

Recent debate on bank dividends documents a risk-shifting role of bank dividends. Acharya *et al.* (2011) examine the pre-crisis capital policies of twenty-five large US financial institutions. They find that these institutions paid large scale dividends over the pre-crisis period of 2000-2006 transferring funds from creditors (and potentially taxpayers) to equity holders, in spite of widely anticipated credit losses. Acharya *et al.* (2013) suggest that a combination of risk-shifting incentives and low franchise values can lead to such a striking dividend pattern. Acharya *et al.* (2013) also suggest that risk shifting incentives via coordinated dividend payments are particularly strong during bad times when charter values of some banks become sufficiently low. Extending this literature, Kanas (2013) finds evidence of risk-shifting from 1992 to 2008, with high-risk banks more likely to pay dividends. Similarly, Onali (2014) examines large US and EU banks and finds that banks having higher default risk paid higher dividends.

Banking literature examines and finds support that firm characteristics such as size, growth opportunities and profitability suggested by Fama and French (2001) as significant determinants of dividend policies of nonfinancial firms are also relevant for banks. For example, back in the 1970s for US banks, Gupta and Walker (1975) have shown that bank dividends are related to corporate earnings, liquidity and total asset growth. Mayne (1980) examines data of 12,000 U.S. banks and finds that the size of a bank does influence dividend policy; that is, the larger banks seem to pay higher dividends. This empirical finding is explained by the facts that the stocks of larger banks are more widely held and that these institutions have better access to external capital and therefore do depend less strongly on internally generated funds. Moreover the study shows that banks affiliated with holding companies tend to pay higher dividends than independent banks. More recently, Abreu and Gulamhussen (2013) for US bank holding companies, Imran *et al.* (2013) for Pakistani banks and Ashraf *et al.* (2015) for Italian banks find that banks having big size and higher profitability pay more dividends, whereas, the banks having more growth opportunities pay lower dividends.

2.3 Regulatory hypothesis and bank dividends

Banks work in highly regulated environment in contrast to nonfinancial firms and can face regulatory pressure while making dividend payout decisions. Regulatory hypothesis for bank dividend policies suggests that regulatory influence limits dividend payouts by banks with lower capital standards (Casey and Dickens (2000), p. 286). Extant bank dividend literature has examined the regulatory hypothesis of bank dividend policies. For example, Bessler and Nohel (1996), Casey and Dickens (2000) and Dickens *et al.* (2002) use equity to total assets ratio to measure regulatory pressure on banks. Among these studies, Casey and Dickens (2000) find some evidence that well capitalized banks, by facing lower regulatory pressure, pay higher dividends. On the other hand, Theis and Dutta (2009) use regulatory definition of capital and use capital adequacy ratio to measure regulatory pressure. They find a positive relationship between

capital levels and dividend payouts and support regulatory hypothesis. Recent studies, such as Abreu and Gulamhussen (2013) and Ashraf *et al.* (2015), use both equity to total assets ratios and capital adequacy ratios as alternate measures of regulatory pressure and find evidence supporting regulatory hypothesis. All of these studies examine regulatory hypothesis at bank-level and largely focus on US bank holding companies data except Ashraf *et al.* (2015) who use a sample of Italian banks.

This study also contributes to this strand of literature by examining the regulatory hypothesis for bank dividends in a cross county setting. In single country context, country-level regulatory pressure is irrelevant because all banks face similar country-level capital requirements. However, in a cross-country study of bank dividends, country-level regulatory pressure becomes relevant because regulators might use more stringent regulatory capital requirements in some countries while less stringent in other countries. Hence, expectation is that banks in stringent capital requirements country face more regulatory pressure to increase capital levels by not paying dividends at all or by paying lower amount of dividends, in comparison to the regulatory pressure faced by the banks of a country having less stringent capital requirements.

3. Data

We downloaded annual accounting information for bank holding companies, and commercial, savings and cooperative banks from *Bankscope* database. Bank observations having missing data are deleted. Bank observations of those countries for which data of necessary country-level control variables is not available are also deleted. After applying all filters, final sample consists of 43,263 bank observations from 8,689 unique banks across 58 countries over the period 1998-2007. All bank-level variables are winsorised at one and ninety-nine percent levels to eliminate the outlier effects. For crisis period analysis, we extend this sample from 1998 to 2012. Brief variable definitions and data sources are reported in Table 1.

(Table 1)

Three dependent variables, Dividends, Payer_Dummy and Ex_Dividends_Dummy, are calculated to examine the impact of common equity based capital regulation and stringent risk based capital requirements on the level of dividend payments, the likelihood of a dividend payment and the likelihood of excessive dividend payments, respectively. Dividends variable is calculated by dividing total common dividends paid in a year by the annual total assets of the bank. Payer_Dummy equals one if dividends paid by a bank are positive in a year, and zero otherwise. Ex_Dividends_Dummy equals one for 10 percent bank observations having highest dividend payout ratios in sample, and zero otherwise.

Data for main independent variables is collected from the World Bank surveys on bank regulations as reported in Barth *et al.* (2013). These surveys have been conducted for almost 180 countries and jurisdictions of the world in years 1999, 2003, 2007 and 2011. These surveys include questions regarding what kind of capital policies the regulators implemented for their banking sectors over survey period. Regarding capital policies of regulators, we have chosen following 10 questions to construct our main independent variables: (1) Is the capital adequacy ratio (risk weighted) in line with Basel guidelines? (2) Does the ratio vary with a bank's credit risk? (3) Does the ratio vary with market risk? (4–6) Before minimum capital adequacy is determined, whether any of the following items is deducted from the capital; (a) Market value of

loan losses, (b) unrealized securities losses, and (c) unrealized foreign exchange losses. (7) What fraction of revaluation gains is allowed as part of capital? (8) Are the sources of funds to be used as capital verified by authorities? (9) Can assets other than cash or government securities be used to increase capital? (10) Can borrowed funds be used to increase capital? Reg_Cap is main independent variable and is constructed by adding 1 if the answer is 'yes' to questions 1–8 and 'no' to questions 9-10. Reg_Cap ranges from one to ten, where higher values indicate more stringent risk based capital requirements and a common equity based capital regulation. In our analysis, this variable represents cross-country differences in common equity based capital regulation and stringency in capital requirements. We also construct two sub-indices to examine individual effects of both common equity based capital regulation and more stringent risk based capital requirement on bank dividend payout decisions. First sub-index "Stringent_Reg_Cap" is constructed by adding 1 if the answer is 'yes' to questions 1–7. This sub-index varies from 1 to 7 where higher values represent more risk-based and more stringent capital requirements. Second sub-index "CE_Reg_Cap" is constructed by adding 1 if the answer is 'yes' to question 8 and 'no' to questions 9-10. This sub-index varies from 1 to 3 where higher values represent that the sources available for banks to raise new capital are largely limited to common equity based sources. Since World Bank surveys on bank regulations have been conducted in 1999, 2003, 2007 and 2011, therefore, following Agoraki *et al.* (2011) we use answers values from survey conducted in 1999 to construct our sub-indices to be used for the period 1998–2000, from 2003 survey for sub-indices to be used for the period 2001–2003, from 2007 survey for sub-indices to be used for the period 2004–2007 and from 2011 survey for sub-indices to be used for the period 2008–2012.

We use several bank-level and country-level variables to control for other factors that can impact bank dividend decisions in addition to the impact of our main independent variable(s).

Four bank-specific control variables include size, profitability, growth opportunities and capitalization proxy by log of total assets (Log_TA), return on average equity (ROE), year-on-year assets growth (Growth_TA), and equity to total assets ratio (Equity_TA), respectively. Equity_TA also controls for the bank-level regulatory pressure faced by each bank within a country. The predicted signs between bank-level control variables and dividend policy variables are as follows: Log_TA (+), ROE (+), Growth_TA (-), and Equity_TA (+/-)[1].

Country-level control variables are included to control for existence of explicit deposit insurance, financial market development, and economic, legal, and cultural differences among countries.

DI_Dummy variable equals 1 if a country has explicit deposit insurance and 0 otherwise. Market_GDP variable equals annual market capitalization of listed companies to GDP ratio and thus measures financial market development of a country. GDP_Growth equals year-on-year growth rate of a country's GDP and measures the speed of economic development, while Log_GDPPC equals logarithm of annual GDP per capita of each country and measures the level of economic development.

We use revised anti-director index (RADI) from Djankov *et al.* (2008) and creditor rights index (CRI) from Djankov *et al.* (2007) as proxies of shareholder's legal protection and creditor's legal rights, respectively. RADI index ranges from one (weak shareholder rights) to five (strong shareholder rights) where higher values indicate that the outsider minority shareholders have higher legal protection and the insiders are less likely to expropriate the outsiders' wealth in the

[1] DeAngelo *et al.* (2006) argue that predicted sign for equity to total assets ratio is ambiguous. A firm with a low equity to total assets ratio might be in financial trouble and therefore not pay dividends, whereas, a firm with a high equity ratio might not pay dividends because it is a start-up firm.

banks. CRI index ranges from zero (weak creditor rights) to four (strong creditor rights) where higher values indicate higher legal rights of creditors against debtor in case of reorganization or liquidation.

We use three dimensions of national culture, uncertainty avoidance, masculinity vs. femininity and long-term orientation vs. short-term orientation, from the cultural framework of Hofstede *et al.* (2010) to proxy for national cultural differences. Uncertainty avoidance (UAI) measures the extent to which the members of a culture feel uncomfortable with unstructured, uncertain or unknown situations and this feeling is, among other things, expressed through a need for predictability. Masculinity vs. femininity (MAS) measures the degree of cultural toughness versus tenderness in a society. In masculine cultures (high MAS), social gender roles are clearly separate and men are expected to be tough and assertive, while in feminine societies (low MAS) social gender roles overlap. Long-term orientation vs. short-term orientation (LTO) measures the time orientation in decisions of a society. Members of long-term orientated societies focus on long-term outcomes, while members of short-term oriented societies prefer short-term results and outcomes.

4. Empirical Analysis

4.1 Summary statistics

Table 2 reports countries included in the sample of this study, number of bank observations from each country and country-wise mean value of main variables of interest. As shown, bank observations are higher from some countries such as Germany (15,268), Japan (5,929), Switzerland (2,807) and so on, and are lower from other countries such as Sri Lanka (3), New Zealand (22), Ghana (27) and so on. This sample distribution is consistent with various recent international studies on banking literature (Zheng & Ashraf 2014; Ashraf & Zheng 2015; Ashraf *et al.* 2016).

(Table 2)

Table 3 reports summary statistics of main variables. The mean value of the Dividends (dividends paid to total assets ratio) is equal to 0.11 and shows that banks on average have paid 0.11% of assets as dividends. The mean value of the Payer_Dummy is equal to 0.38 and suggests that 38% banks paid dividends while majority of the banks (62%) included in the sample are dividend non-paying banks. Mean value of Reg_Cap variable is 6.14 and its standard deviation, which is equal to 1.43, shows considerable variation in cross-country regulatory capital requirements. Bank- and country-level control variables also show considerable variation across mean values.

(Table 3)

4.2 Common equity based capital regulation, stringent capital requirements and bank dividend policies

In this section, we examine the relations between our main independent variables and three dependent dividend policy variables: (1) the dividend payout amounts, (2) the probability of

paying dividends, and (3) the probability of paying excessive dividends. We specify Tobit and logit regressions after including bank- and country-level control variables suggested by previous research.

4.2.1 Multivariate models specifications

To examine the impact of cross-country differences in common equity based capital regulation and stringent risk based capital requirements on bank dividend payout amounts, following panel random-effects Tobit model is specified.

$$Dividends_{i,j,t} = \beta_0 + \beta_1 Reg\_Cap_{j,t} + \beta_2 Log\_TA_{i,j,t} + \beta_3 Equity\_TA_{i,j,t} + \beta_4 Growth\_TA_{i,j,t} + \beta_5 ROE_{i,j,t} + \beta_6 DI\_Dummy_{j,t} + \beta_7 Market\_GDP_{j,t} + \beta_8 GDP\_Growth_{j,t} + \beta_9 Log\_GDPPC_{j,t} + +\beta_{10} RADI_j + \beta_{11} CRI_j + \beta_{12} UAI_j + \beta_{13} MAS_j + \beta_{14} LTO_j + \beta_{15-23} Year\_Dummies_t + \varepsilon_{i,j,t} \quad Eq.(1)$$

Here, dependent variable, *Dividends*, equals common dividends declared and paid to total assets ratio if this ratio is positive in year *t* for bank *i*, and zero otherwise. *Dividends* variable represents the amount of yearly dividends paid by a bank.

To examine the impact of cross-country differences in capital regulation on banks' probability to pay dividends, following panel random-effects logit model is specified.

$$Prob(Payer\_Dummy_{i,j,t} = 1) = F(\beta_0 + \beta_1 Reg\_Cap_{j,t} + \beta_2 Log\_TA_{i,j,t} + \beta_3 Equity\_TA_{i,j,t} + \beta_4 Growth\_TA_{i,j,t} + \beta_5 ROE_{i,j,t} + \beta_6 DI\_Dummy_{j,t} + \beta_7 Market\_GDP_{j,t} + \beta_8 GDP\_Growth_{j,t} + \beta_9 Log\_GDPPC_{j,t} + +\beta_{10} RADI_j + \beta_{11} CRI_j + \beta_{12} UAI_j + \beta_{13} MAS_j + \beta_{14} LTO_j) \quad Eq.(2)$$

Here, dependent variable is *Payer_Dummy* which takes the value of 1 if the bank *i* declared and paid a dividend in year *t*, and 0 otherwise.

To examine the impact of cross-country differences in capital regulation on banks' probability to pay excessive dividends, following panel random-effects logit model is specified.

$$Prob(Ex\_Dividends\_Dummy_{i,j,t} = 1) = F(\beta_0 + \beta_1 Reg\_Cap_{j,t} + \beta_2 Log\_TA_{i,j,t} + \beta_3 Equity\_TA_{i,j,t} + \beta_4 Growth\_TA_{i,j,t} + \beta_5 ROE_{i,j,t} + \beta_6 DI\_Dummy_{j,t} + \beta_7 Market\_GDP_{j,t} + \beta_8 GDP\_Growth_{j,t} + \beta_9 Log\_GDPPC_{j,t} + +\beta_{10} RADI_j + \beta_{11} CRI_j + \beta_{12} UAI_j + \beta_{13} MAS_j + \beta_{14} LTO_j) \quad Eq.(3)$$

Here, dependent variable is *Ex_Dividends_Dummy* which takes the value of 1 for 10 percent bank observations having highest dividend payout ratios in sample, and 0 otherwise.

In all three models (*Eq. (1), Eq. (2)* and *Eq. (3)*), *i*, *j* and *t* subscripts represent bank, country and time, respectively. Reg_Cap is main variable of interest, while other variables are included to control for bank- and country-level characteristics. To examine the individual effects of common equity based capital regulation and stringent risk based capital requirements, we also replace main Reg_Cap index with its two sub-indices, common equity based capital regulation (CE_Reg_Cap) and stringent capital requirements (Stringent_Reg_Cap), in *Eq. (1), Eq. (2)* and *Eq. (3)* one-by-one.

We use random-effects estimators for all three equations due to following reasons: First, our main variables of interest as well as many control variables are country level and they are either time-constant or have very small within-country year-on-year variation. In this case, use of fixed effects models removes the theoretical variation of interest and it can be difficult to find a meaningful relationship between the causal variable and the outcome variable, even if this relationship truly exists (Reeb *et al.* 2012). Second, dependent variable in *Eq (1)* is left censored, while country-level explanatory variables are time constant. In this case, panel random-effects Tobit model provides consistent coefficient estimates (Woolridge (2002), page 541). Third, use of random effects Tobit and logit models is an established methodology in cross-country empirical studies on bank dividends (Zheng & Ashraf 2014; Ashraf & Zheng 2015).

4.2.2 Main Reg_Cap index and bank dividend policies: Empirical results

Empirical results using Reg_Cap as main independent variable and including other bank and country level control variables are reported in Table 4. *Eq. (1)* is estimated using panel random-effects Tobit estimator in Stata statistical software and results are reported in Model 1. *Eq. (2)* and *Eq. (3)* are estimated using panel random-effects logit estimator and results are reported in Model 2 and Model 3, respectively.

(Table 4)

As shown in Model 1, negative and significant coefficient of Reg_Cap suggests that banks retain more profits and pay low amount of dividends in countries where banks are restricted to raise new capital in the form of common equity only and where more stringent risk based capital requirements are imposed by the regulators. The economic significance of this result is also noteworthy. One standard deviation change in Reg_Cap (1.43) is associated with a change in Dividends of −0.011 (−0.008 × 1.43) where the mean value of Dividends is 0.11. This economic significance suggests that dividend payouts will decrease by 9 percent if capital regulation is tightened by one standard deviation.

Negative and significant coefficient of Reg_Cap in Model 2 suggests that banks are less likely to pay dividends in countries which have common equity based as well as more stringent regulatory capital requirements for banking sectors. This indicates that banks are more likely to skip dividend announcements to meet common equity based stringent capital requirements. This result is consistent with the above result of Model 1 for dividend payout amounts. The economic significance of this result is also noteworthy. One standard deviation change in Reg_Cap (1.43) is associated with a change in Payer_Dummy of −0.07 (−0.048 × 1.43) where the mean value of Payer_Dummy is 0.38. This suggests that probability of dividend payments will decrease by 18 percent if capital regulation is tightened by one standard deviation.

Similarly, negative and significant coefficient of Reg_Cap in Model 3 suggests that banks are less likely to pay excessive dividends in countries which have common equity based as well as more stringent regulatory capital requirements for banking sectors. This indicates that banks paid excessive dividends in countries where capital regulation was not common equity based or capital requirements were not stringent. This result is consistent with the above results of Model 1 and Model 2. The economic significance of this result is also noteworthy. One standard deviation change in Reg_Cap (1.43) is associated with a change in Payer_Dummy of −0.019 (−0.013 × 1.43) where the mean value of Ex_Dividends_Dummy is 0.10. This suggests that probability of excessive dividend payments will decrease by 22 percent if capital regulation is tightened by one standard deviation.

Results of bank-level control variables confirm that Fama and French (2001)'s three characteristics of dividend payers are applicable to banks; that is, big-in-size, more profitable and low growth banks pay higher dividends and are more likely to pay dividends.

Significantly positive result of Equity_TA in Model 1 confirms that well-capitalized banks, by facing lower regulatory pressure, pay higher dividends, and confirms bank-level regulatory hypothesis reported by previous studies (Casey & Dickens 2000; Theis & Dutta 2009; Abreu & Gulamhussen 2013; Ashraf *et al.* 2015). While, negative result of Equity_TA in Model 2 indicates that banks having high equity ratios are less likely to pay dividends. One possible explanation may be that our sample includes many start-up banks as DeAngelo *et al.* (2006) argue that estimated coefficient of equity ratios with likelihood of dividend payouts could be negative due to high equity ratio start-up firms.

Results that banks pay higher amount of dividends and are more likely to pay dividends in developed stock market countries is an indication of higher signaling incentives in these environments. As information flow is better and investors put higher weightage on financial information in developed financial market environments, the banks have higher advantages of signaling performance by paying higher dividends in these environments.

Results of macro-economic controls that banks pay lower dividends and are less likely to pay dividends in growing and developed countries show that higher opportunities to invest in growing economies and lower agency costs due to better institutions and transparency in developed countries encourage banks to pay lower dividends.

For institutional variables, positive results of RADI support the outcome hypothesis and suggest that bank non-controlling shareholders having strong legal protection grab more dividends from bank insiders. Negative results of CRI do not support substitute hypothesis and suggests that creditors of banks (depositors and debt-holders) having weak legal protection are unable in forcing banks to substitute lower legal protection with lower dividend payments. These results are consistent with Ashraf and Zheng (2015).

For cultural variables, UAI and LTO enter negative and significant while MAS enters positive and significant. These results are consistent with the findings of Zheng and Ashraf (2014). Negative result of UAI indicates that banks pay lower dividends in countries where cultural uncertainty aversion is higher. This result suggests that managers of banks belonging to higher uncertainty aversion cultures tend to retain more cash to handle financial difficulties of future. Positive association between MAS and dividend policies is likely to be due to higher agency costs in higher MAS countries. Agency problems are more severe in high masculine cultures due to individuals' higher tendency towards visible achievements and making money, and to involve in opportunistic behaviours. Since dividend policies are considered an important tool in resolving agency problems, therefore banks pay and investors accept higher dividends in high MAS countries to reduce agency conflicts. Similarly, negative association between LTO and dividend policies is likely to be due to lower agency costs in higher LTO countries. Agency costs are likely to be lower in long-term orientation cultures because participants have values such as patience and preference for long-term results and are less likely to involve in opportunistic behavior.

4.2.3 Reg_Cap sub-indices and bank dividend policies: Empirical results

Next, we replace main Reg_Cap index with its two sub-indices, common equity based capital regulation (CE_Reg_Cap) and stringent capital requirements (Stringent_Reg_Cap), in Models 1, 2 and 3 of Table 4 one-by-one and re-estimate the models. Empirical results are shown in Table

5. Models 1 and 2 report the results of panel random-effects Tobit estimator. CE_Reg_Cap and Stringent_Reg_Cap enter negative and significant in Models 1 and 2, respectively, showing that common equity based capital regulation and stringent capital requirements individually are also effective in restricting banks from higher dividend payout amounts. Models 3, 4, 5 and 6 report the results of panel random-effects logit estimator. CE_Reg_Cap and Stringent_Reg_Cap enter negative and significant in Models 3 and 4 showing that banks are less likely to pay dividends in countries where regulators impose common equity based capital regulation and stringent capital requirements for banks, respectively. Similarly, both indices enter negative and significant in Models 5 and 6 showing that banks are less likely to pay excessive dividends in countries where regulators impose common equity based capital regulation and stringent capital requirements for banks. However, as shown the coefficient estimates of CE_Reg_Cap sub-index are quite higher in Models 1, 3 and 5 as compared to the coefficient estimates of Stringent_Reg_Cap in Models 2, 4 and 6. This suggests that the common equity based capital regulation is more important regulatory tool for restricting banks from higher dividend payments. Results for other control variables largely remain same as in Models 1, 2 and 3 of Table 4.

(Table 5)

4.3 Robustness tests

We apply several robustness tests: *First*, results can be biased due to very high number of observations from one or few countries, therefore, we exclude three countries having highest number of bank observations (Germany, Japan, Switzerland) one-by-one from both models of Table 4 and re-estimate results. As shown in Table 6, the main variable, Reg_Cap, enters negative and significant in all Models from 1 to 6 confirming that our main results in Table 4 are not due to high bank observations from few countries.

(Table 6)

Second, we include additional control variables of legal origin, and law and order situation of a country. Civil_Legal_Origin equals one if a country belongs to civil legal origin, and zero otherwise. Rule_of_Law variable is obtained from Kaufmann *et al.* (2010) and measures the extent to which agents have confidence in and abide by the rules of society, the police, and the courts, and the likelihood of crime and violence. As shown in Table 7, the main variable, Reg_Cap, enters negative and significant in all Models from 1 to 6 confirming that our main variable of interest is not taking the effect of some omitted variables.

(Table 7)

Third, the majority of the bank observations (62%) included in our sample represent dividend non-payer banks, and have zero values for dependent variable 'Dividends'. A large number of zero values of dependent variable (*i.e.*, limited dependent variable) can bias results. Tobit regression model, used in our above analyses, takes into account this limited dependent variable bias by censoring observations having zero values for dependent variable (Long 1997). However, to further confirm the effect of this bias if any, we delete all bank observations with zero values for Dividends variable (*i.e.*, 26,856 bank observations) and re-estimate *Eq. (1)*. Results of

Models 1-3 shown in Table 8 indicate that the coefficients of main Reg_Cap variables and its two sub-indices, CE_Reg_Cap and Stringent_Reg_Cap, enter negative and significant with Dividends variable, confirming main results of Table 4 and Table 5. Finally, we re-estimate Models 1 to 3 of Table 8 for dividend payers' banks using panel random-effects estimator as an alternate estimation technique. As shown in Models 4 to 6 of Table 8, the coefficients of main Reg_Cap variables and its two sub-indices, CE_Reg_Cap and Stringent_Reg_Cap, qualitatively remain same as the main results reported in Table 4 and Table 5.

(Table 8)

4.4 Crisis period analysis

Next, we perform tests to examine the impact of capital regulation on bank dividend payouts during crisis period. To do so, first we extend our main sample from 1998 to 2012 and then keep only crisis years from 2008 to 2012. Results of extended sample and crisis years sample are reported in Table 9. As shown in Models 1, 2 and 3 that results for extended sample largely remain same as pre-crisis sample results reported in Table 4. Dividends and Ex_Dividends_Dummy enter negative and significant, while Payer_Dummy although has negative coefficient but it is insignificant. Results of crisis years sample in Models 4, 5 and 6 are interesting. Reg_Cap enters negative and significant in Model 6 showing that strict capital regulation is effective in restricting excessive dividend payments in crisis years also. However, the positive results of Reg_Cap in Models 4 and 5 show that banks paid higher dividends and were more likely to pay dividends in stringent capital regulation countries during crisis period. These latter results show that capital regulation to some extent is ineffective in limiting bank dividends in crisis periods.

There might be three possible explanations of this positive association between capital regulation index and dividend payout amounts in crisis period. *First*, banks in countries where capital regulation was stringent during pre-crisis period had accumulated higher capital and these banks were able to pay higher dividends during crisis period. In contrast, the banks in countries where capital regulation was not stringent during pre-crisis period had not accumulated enough capital and these banks faced higher pressure in dividend payments during crisis period. Both of these aspects predict a positive association between dividends and capital requirements in crisis period. *Second*, higher capital requirements can decrease liquidity and further strengthen credit crunch during distress periods. Due to this reason, regulators have prolonged the implementation period for Basel III based more stringent capital requirements. Basel III based capital requirements will be phased in periodically from year 2013 and it will be fully effective in year 2019 (BIS 2011). *Third*, banks have higher incentives to signal their performance (Forti & Schiozer 2015) and to shift risk form shareholders to debt holders (Acharya *et al.* 2013) through dividend payments in distress periods. Due to these incentives, banks are likely to pay higher dividends in crisis period despite higher capital requirements.

5. Conclusion

In this paper, we examine whether common equity based capital regulation and more stringent risk based capital requirements force banks to restrict dividend payments. Common equity based capital regulation is likely to restrict bank dividends by limiting the sources of new capital for

banks. Similarly more stringent capital requirements are likely to force banks to retain profits to meet regulatory capital requirements.

We use an international sample of 8,689 banks from 58 countries over the pre-crisis period 1998-2007 for empirical analysis. Overall results show that banks paid lower dividends, were less likely to pay dividends and were less likely to pay excessive dividends in countries where regulators implemented common equity based capital regulation and imposed more stringent capital requirements for the banking industry during the pre-crisis period. We also extend our sample period from 1998 to 2012 and observe that regulatory capital requirements are less effective in restricting bank dividend payments during crisis period.

These results have important implications: After crisis literature on bank dividends suggests that dividend payments lower the capital ratio of a bank, increase its leverage, and potentially shift risk from shareholders to debt holders and potentially to the general public and tax payers. Findings of this study suggest that common equity based capital regulation and more stringent risk based capital requirements act as indirect controls to counter bank risk-shifting through dividend payments. The need is to define strictly that what should be counted as bank capital and whether borrowed funds not having characteristics of common equity are allowed as bank capital for regulatory purposes. Further, banks can be required to maintain higher risk based capital requirements and risk based capital requirements can be made more comprehensive covering more on and off balance sheet risks. In this regard, we support the regulatory changes in Basel III such as an overall increase in minimum risk based capital requirements (*i.e.*, common equity Tier 1 capital and total Tier 1 capital ratios) and the requirement of accumulating capital buffers in good times. We also support strict standards introduced in Basel III for different instruments to qualify as Tier 1 capital and complete elimination of Tier 3 capital.

Another implication is that to let banks to practice standard corporate governance through dividend payments, regulators can impose common equity based capital regulation and higher and more stringent risk based capital requirements in good times. While as capital requirements are less effective in crisis periods and as signaling (Forti & Schiozer 2015) and risk sifting incentives (Acharya *et al.* 2013) through dividend payments increase in distress periods, regulators may impose sector wise blanket dividend restrictions on all banks during distress periods. The question remains that how to restrict those banks from excessive dividend payments who have lower capital standards in good times while at the same time pay higher dividends for risk-shifting purposes. Usually there are only few problem banks with lower capitalization in good times and regulators can easily monitor these problem banks and penalize them through other mechanisms such as stopping them from deposit accepting or loans lending operations.

Finally this paper also contributes by extending regulatory hypothesis to a cross-country setting. Findings support that banks face more regulatory pressure while making dividend payment decisions in countries where regulators implement more stringent capital requirements.

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Table 1: Variable definitions

Variables	Definition	Data Source
Dependent variables		
Dividends	Annual common dividend declared and paid to total assets ratio	Bankscope database and authors' calculations
Payer_Dummy	Equals 1 if dividends paid by a bank are positive in a year and 0 otherwise	
Ex_Dividends_Dummy	Equals 1 for 10 percent bank observations having highest dividend payout ratios in sample, and zero otherwise	
Main independent variable(s)		
Reg_Cap	Regulatory capital index is constructed by adding 1 if the answer is 'yes' to below given questions 1–8 and 'no' to questions 9-10. Questions are (1) Is the capital adequacy ratio (risk weighted) in line with Basel guidelines? (2) Does the ratio vary with a bank's credit risk? (3) Does the ratio vary with market risk? (4–6) Before minimum capital adequacy is determined, whether any of the following items is deducted from the capital; (a) Market value of loan losses, (b) unrealized securities losses, and (c) unrealized foreign exchange losses. (7) What fraction of revaluation gains is allowed as part of capital? (8) Are the sources of funds to be used as capital verified by authorities? (9) Can assets other than cash or government securities be used to increase capital? And (10) Can borrowed funds be used to increase capital?	Barth *et al.* (2013)
CE_Reg_Cap	This sub-index is constructed by adding 1 if the answer is 'yes' to questions 1 to 7. This sub-index varies from 1 to 7 where higher values represent more risk-based and more stringent capital requirements.	
Stringent_Reg_Cap	This sub-index is constructed by adding 1 if the answer is 'yes' to question 8 and 'no' to questions 9-10. This sub-index varies from 1 to 3 where higher values represent that the sources available for banks to raise new capital are largely limited to common equity based sources.	
Independent Control variables		
Bank-level		
Log_TA	Equals logarithm of annul bank total assets	Bankscope database
Growth_TA	Equals year-on-year bank assets growth rate	
Equity_TA	Equals annul bank equity to total assets ratio	
ROE	Equals annul bank equity to total assets ratio Equals net income to average bank equity ratio	
Country-level		
DI_Dummy	Dummy variable equals 1 if a country has explicit deposit insurance and 0 otherwise.	Barth *et al.* (2013)
RADI	Revised anti-director index measuring legal protection of minority shareholders against expropriation by majority shareholders	Djankov *et al.* (2008)
CRI	Creditor rights index measuring legal rights of creditors against debtor in case of reorganization or liquidation.	Djankov et al. (2007)
Market_GDP	Equals annual market capitalization of listed companies to GDP ratio	WDI, World Bank
Log_GDPPC	Equals logarithm of annual GDP per capita of each country	
GDP_Growth	Equals annual growth rate of country GDP	
UAI	Uncertainty avoidance	Hofstede (2001)
MAS	Masculinity vs. femininity	
LTO	Long-term orientation vs. short-term orientation	

Table 2: Country-wise sample distribution and mean values of main variables

Sr. #	Country	Observations	Dividends	Payer_Dummy	Reg_Cap
1	ARGENTINA	592	0.02	0.03	6.82
2	AUSTRALIA	94	0.27	0.36	6.56
3	AUSTRIA	1752	0.02	0.07	6.84
4	BELGIUM	433	0.15	0.25	6.25
5	BRAZIL	935	0.66	0.53	5.66
6	BULGARIA	129	0.08	0.09	7.35
7	CANADA	209	0.03	0.13	4.00
8	CHILE	40	0.16	0.18	5.38
9	CHINA	342	0.08	0.28	3.00
10	COLOMBIA	139	0.04	0.07	5.18
11	CROATIA	276	0.07	0.13	4.69
12	CZECH REPUBLIC	155	0.18	0.28	4.59
13	DENMARK	607	0.22	0.46	5.68
14	EGYPT	237	0.40	0.57	5.00
15	EL SALVADOR	82	0.18	0.37	3.48
16	FINLAND	44	0.35	0.41	4.64
17	FRANCE	1775	0.24	0.35	5.90
18	GERMANY	15268	0.05	0.47	6.38
19	GHANA	27	1.04	0.44	7.26
20	GREECE	74	0.13	0.32	4.38
21	HONG KONG	163	0.47	0.50	4.89
22	HUNGARY	194	0.35	0.37	7.49
23	INDIA	524	0.16	0.71	6.73
24	INDONESIA	486	0.25	0.27	6.62
25	IRELAND	77	0.31	0.52	4.65
26	ISRAEL	124	0.10	0.35	5.95
27	ITALY	1810	0.06	0.15	4.38
28	JAPAN	5929	0.02	0.51	5.26
29	JORDAN	113	0.36	0.50	7.58
30	KENYA	217	0.52	0.47	5.97
31	LATVIA	119	0.19	0.26	5.87
32	LITHUANIA	73	0.05	0.23	3.81
33	MALAYSIA	114	0.25	0.44	3.73
34	MEXICO	327	0.13	0.19	6.94
35	MOROCCO	62	0.12	0.23	5.55
36	NETHERLANDS	224	0.10	0.17	6.24
37	NEW ZEALAND	22	0.41	0.50	2.59
38	NIGERIA	235	0.66	0.56	6.87
39	NORWAY	376	0.11	0.18	8.14
40	PAKISTAN	147	0.17	0.26	7.88
41	PERU	131	0.09	0.12	3.95
42	PHILIPPINES	118	0.19	0.36	6.34
43	POLAND	183	0.21	0.17	4.60
44	PORTUGAL	120	0.13	0.34	7.60
45	REPUBLIC OF KOREA	42	0.07	0.17	4.62
46	ROMANIA	155	0.21	0.21	5.02
47	RUSSIA	2274	0.03	0.07	7.81
48	SINGAPORE	67	0.58	0.55	7.13
49	SOUTH AFRICA	140	0.54	0.50	7.76
50	SPAIN	493	0.05	0.23	9.00
51	SRI LANKA	3	0.06	0.33	6.20
52	SWEDEN	519	0.05	0.04	3.56
53	SWITZERLAND	2807	0.27	0.51	6.83
54	THAILAND	155	0.08	0.14	4.90
55	TURKEY	137	0.18	0.26	6.55
56	UNITED KINGDOM	827	0.37	0.37	7.27
57	URUGUAY	216	0.00	0.00	6.27
58	VENEZUELA	330	0.31	0.20	3.34
	Total/Mean	**43263**	**0.11**	**0.38**	**6.14**

Table 3: Summary statistics

Variables	Countries	Obs.	Mean	S.D.	Min	Max
Dividends	58	43263	0.11	0.38	0.00	2.75
Payer_Dummy	58	43263	0.38	0.49	0	1
Ex_Dividends_Dummy	58	43263	0.10	0.30	0	1
Reg_Cap	58	43263	6.14	1.43	2.00	10.00
Log_TA	58	43263	13.38	1.85	9.10	18.90
Equity_TA	58	43263	10.17	11.60	1.25	77.22
Growth_TA	58	43263	11.05	25.74	-41.36	150.45
ROE	58	43263	6.19	12.99	-62.21	48.48
DI_Dummy	58	43263	0.96	0.19	0	1
RADI	58	43263	3.60	0.91	1	5
CRI	58	43263	2.26	0.94	0	4
Market_GDP	58	43263	0.77	0.61	0.00	5.49
GDP_Growth	58	43263	0.03	0.03	-0.13	0.18
Log_GDPPC	58	43263	9.86	1.06	5.58	11.33
UAI	58	43263	70.50	17.25	8	100
MAS	58	43263	63.28	19.55	5	95
LTO	58	43263	69.75	20.27	4	100

Countries include Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Egypt, El Salvador, Finland, France, Germany, Ghana, Greece, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Jordan, Kenya, Korea (Rep.), Latvia, Lithuania, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Romania, Russia, Singapore, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Turkey, United Kingdom, Uruguay, and Venezuela.

Table 4: Capital regulation and bank dividend payouts

Variables	Dividends (Model 1)	Payer_Dummy (Model 2)	Ex_Dividends_Dummy (Model 3)
Reg_Cap	**-0.008*** **	**-0.048*** **	**-0.013** **
	(0.008)	**(0.001)**	**(0.023)**
Log_TA	0.060***	0.504***	0.521***
	(0.000)	(0.000)	(0.000)
Equity_TA	0.003***	-0.040***	0.024***
	(0.000)	(0.000)	(0.000)
Growth_TA	-0.002***	-0.012***	-0.006***
	(0.000)	(0.000)	(0.000)
ROE	0.012***	0.043***	0.073***
	(0.000)	(0.000)	(0.000)
DI_Dummy	-0.023	0.040	-0.106
	(0.487)	(0.856)	(0.606)
RADI	0.110***	0.678***	0.115**
	(0.000)	(0.000)	(0.043)
CRI	-0.043***	-0.353***	-0.341***
	(0.000)	(0.004)	(0.000)
Market_GDP	0.080***	0.530***	0.664***
	(0.000)	(0.000)	(0.000)
GDP_Growth	-1.675***	-10.002***	2.882**
	(0.000)	(0.000)	(0.044)
Log_GDPPC	-0.096***	-0.798***	-0.406***
	(0.000)	(0.000)	(0.000)
UAI	-0.010***	-0.060***	-0.041***
	(0.000)	(0.000)	(0.000)
MAS	0.009***	0.060***	0.005**
	(0.000)	(0.000)	(0.023)
LTO	-0.002**	-0.011**	-0.051***
	(0.035)	(0.045)	(0.000)
Constant	-0.540***	-5.086***	-2.788***
	(0.000)	(0.000)	(0.000)
Year_Dummies	*Yes*	*Yes*	*Yes*
Wald chi2	2330.79	4324.16	1530.97
Left censored	26,856		
Observations	43,263	43,263	43,263
Banks	8,689	8,689	8,689

This table presents the main panel random-effects tobit regression (Model 1) and panel random-effects logit regression (Model 2 and Model 3) results. All regressions include year fixed-effects dummies. Sample period is 1998–2007. The dependent variable, Dividends, in Model 1 equals the common dividends paid to total assets ratio. The dependent variable, Payer_Dummy, in Model 2 equals one if the bank pays dividend and zero otherwise. The dependent variable, Ex_Dividends_Dummy, in Model 3 equals one for 10 percent bank observations having highest dividend payout ratios in sample and zero otherwise. **Reg_Cap** is overall index representing the combined effect of common equity based capital regulation and stringency in risk based capital requirements. Log_TA, Equity_TA, Growth_TA and ROE are natural log of total assets, equity to total assets ratio, year-on-year growth in total assets and return on average equity, respectively. DI_Dummy equals one if a country implements explicit deposit insurance and zero otherwise. RADI and CRI are revised anti-director and creditor rights indices from Djankov *et al.* (2008) and Djankov *et al.* (2007), respectively. Market_GDP, GDP_Growth and Log_GDPPC are annual market capitalization of listed companies to GDP ratio, annual rate of GDP growth and log of annual GDP per capita in current US$, respectively, from World Development Indicators database. UAI, MAS and LTO_WVS are Hofstede *et al.* (2010)'s three cultural dimensions representing uncertainty avoidance, masculinity and long-term orientation, respectively. ***, ** and * show significance at one, five and ten percent levels, respectively.

Table 5: Capital regulation sub-indices and bank dividend payouts

Variables	Dividends (Model 1)	Dividends (Model 2)	Payer_Dummy (Model 3)	Payer_Dummy (Model 4)	Ex_Dividends_Dummy (Model 5)	Ex_Dividends_Dummy (Model 6)
CE_Reg_Cap	**-0.042*** **		**-0.578*** **		**-0.066*** **	
	(0.000)		**(0.000)**		**(0.002)**	
Stringent_Reg_Cap		**-0.010*** **		**-0.160*** **		**-0.023** **
		(0.006)		**(0.000)**		**(0.039)**
Log_TA	0.061***	0.062***	0.538***	0.531***	0.516***	0.524***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Equity_TA	0.003***	0.003***	-0.035***	-0.039***	0.025***	0.025***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Growth_TA	-0.002***	-0.002***	-0.012***	-0.012***	-0.007***	-0.007***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROE	0.012***	0.012***	0.044***	0.042***	0.074***	0.074***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DI_Dummy	-0.039	-0.038	-0.214	-0.147	-0.136	-0.197
	(0.235)	(0.257)	(0.334)	(0.509)	(0.511)	(0.349)
RADI	0.119***	0.101***	0.801***	0.570***	0.143**	0.094**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.019)	(0.033)
CRI	-0.061***	-0.053***	-0.304***	-0.196***	-0.345***	-0.357***
	(0.000)	(0.000)	(0.000)	(0.008)	(0.000)	(0.000)
Market_GDP	0.053***	0.071***	0.230***	0.468***	0.667***	0.649***
	(0.000)	(0.000)	(0.009)	(0.000)	(0.000)	(0.000)
GDP_Growth	-2.019***	-1.730***	-14.145***	-10.377***	2.046	2.361
	(0.000)	(0.000)	(0.000)	(0.000)	(0.161)	(0.104)
Log_GDPPC	-0.102***	-0.108***	-0.859***	-0.915***	-0.427***	-0.439***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
UAI	-0.010***	-0.010***	-0.059***	-0.064***	-0.041***	-0.042***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MAS	0.009***	0.009***	0.065***	0.066***	0.005**	0.005**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.024)	(0.030)
LTO	-0.002**	-0.002**	-0.012**	-0.012**	-0.051***	-0.051***
	(0.035)	(0.045)	(0.026)	(0.023)	(0.000)	(0.000)
Constant	-0.405***	-0.454***	-3.828***	-4.727***	-2.290***	-2.337***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.002)
Year_Dummies	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Wald chi2	2405.9	2353.5	4416.5	4405.3	1533.41	1527.7
Left censored	26,856	26,856				
Observations	43,263	43,263	43,263	43,263	43,263	42,263
Number of ID	8,689	8,689	8,689	8,689	8,689	8,689

This table presents the panel random-effects tobit regression (Model 1 & 2) and panel random-effects logit regression (Model 3, 4, 5 and 6) results. All regressions include year fixed-effects dummies. Sample period is 1998–2007. The dependent variable, Dividends, in Models 1 & 2 equals the common dividends paid to total assets ratio. The dependent variable, Payer_Dummy, in Models 3 & 4 equals one if the bank pays dividend and zero otherwise. The dependent variable, Ex_Dividends_Dummy, in Models 5 & 6 equals one for 10 percent bank observations having highest dividend payout ratios in sample and zero otherwise. **CE_Reg_Cap** sub-index measures whether capital regulation is common equity based and **Stringent_Reg_Cap** sub-index measures the country-level stringency in risk based capital requirements. Log_TA, Equity_TA, Growth_TA and ROE are natural log of total assets, equity to total assets ratio, year-on-year growth in total assets and return on average equity, respectively. DI_Dummy equals one if a country implements explicit deposit insurance and zero otherwise. RADI and CRI are revised anti-director and creditor rights indices from Djankov *et al.* (2008) and Djankov *et al.* (2007), respectively. Market_GDP, GDP_Growth and Log_GDPPC are annual market capitalization of listed companies to GDP ratio, annual rate of GDP growth and log of annual GDP per capita in current US$, respectively, from World Development Indicators database. UAI, MAS and LTO_WVS are Hofstede *et al.* (2010)'s three cultural dimensions representing uncertainty avoidance, masculinity and long-term orientation, respectively. ***, ** and * show significance at one, five and ten percent levels, respectively.

Table 6: Robustness tests- Excluding largest sample countries one-by-one

Variables	Dividends (Model 1)	Dividends (Model 2)	Dividends (Model 3)	Payer_Dummy (Model 4)	Payer_Dummy (Model 5)	Payer_Dummy (Model 6)
	(Exclude Germany)	(Exclude Japan)	(Exclude Switzerland)	(Exclude Germany)	(Exclude Japan)	(Exclude Switzerland)
Reg_Cap	**-0.010*** **	**-0.014*** **	**-0.015*** **	**-0.053*** **	**-0.061*** **	**-0.064*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.007)**	**(0.000)**	**(0.000)**
Log_TA	0.140***	0.182***	0.231***	0.782***	0.808***	0.919***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Equity_TA	0.007***	0.009***	0.011***	-0.027**	-0.021**	-0.018**
	(0.000)	(0.000)	(0.000)	(0.019)	(0.036)	(0.047)
Growth_TA	-0.003***	-0.003***	-0.003***	-0.008***	-0.008***	-0.007***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROE	0.014***	0.022***	0.022***	0.042***	0.054***	0.053***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DI_Dummy	-0.039	-0.029	-0.060	-0.122	-0.007	-0.146
	(0.361)	(0.600)	(0.306)	(0.532)	(0.974)	(0.447)
RADI	0.153***	0.106***	0.148***	0.736***	0.306***	0.470***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CRI	-0.131***	-0.159***	-0.074***	-0.586***	-0.577***	-0.204***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.005)
Market_GDP	0.163***	0.212***	0.228***	0.876***	0.849***	0.812***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP_Growth	-2.325***	-1.844***	-1.696***	-10.882***	-4.174**	-2.614**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.015)	(0.048)
Log_GDPPC	-0.141***	-0.114***	-0.130***	-0.783***	-0.389***	-0.374***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
UAI	-0.009***	-0.012***	-0.010***	-0.034***	-0.045***	-0.036***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MAS	0.011***	0.008***	0.005***	0.057***	0.028***	0.012***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)
LTO	-0.003***	-0.005***	-0.007***	-0.007**	-0.010***	-0.013***
	(0.001)	(0.000)	(0.000)	(0.027)	(0.007)	(0.000)
Constant	-1.476***	-2.068***	-2.649***	-8.188***	-8.824***	-10.291***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year_dummies	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Wald chi2	2218.90	1749.24	1494.77	2051.36	1261.52	1061.04
Left censored	18,768	15,890	14,512			
Observations	27,994	22,065	19,258	27,994	22,065	19,258
Banks	6,359	5,520	5,035	6,359	5,520	5,035

This table presents robustness test results excluding three largest sample countries one by one. Models 1, 2 and 3 are panel random-effects tobit regression and Model 3, 4 and 5 are panel random-effects logit regression results. All regressions include year fixed-effects dummies. Sample period is 1998–2007. The dependent variable, Dividends, in Models 1, 2 and 3 equals the common dividends paid to total assets ratio. The dependent variable, Payer_Dummy, in Models 4, 5 and 6 equals one if the bank pays dividend and zero otherwise. **Reg_Cap** is overall index representing the combined effect of common equity based capital regulation and stringency in risk based capital requirements. Log_TA, Equity_TA, Growth_TA and ROE are natural log of total assets, equity to total assets ratio, year-on-year growth in total assets and return on average equity, respectively. DI_Dummy equals one if a country implements explicit deposit insurance and zero otherwise. RADI and CRI are revised anti-director and creditor rights indices from Djankov *et al.* (2008) and Djankov *et al.* (2007), respectively. Market_GDP, GDP_Growth and Log_GDPPC are annual market capitalization of listed companies to GDP ratio, annual rate of GDP growth and log of annual GDP per capita in current US$, respectively, from World Development Indicators database. UAI, MAS and LTO_WVS are Hofstede *et al.* (2010)'s three cultural dimensions representing uncertainty avoidance, masculinity and long-term orientation, respectively. ***, ** and * show significance at one, five and ten percent levels, respectively.

Table 7: Robustness tests- Additional control variables

Variables	Dividends (Model 1)	Dividends (Model 2)	Dividends (Model 3)	Payer_Dummy (Model 4)	Payer_Dummy (Model 5)	Payer_Dummy (Model 6)
Reg_Cap	**-0.007****	**-0.007*****	**-0.006****	**-0.044****	**-0.073*****	**-0.068*****
	(0.019)	**(0.008)**	**(0.042)**	**(0.028)**	**(0.000)**	**(0.001)**
Log_TA	0.056***	0.059***	0.052***	0.500***	0.485***	0.452***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Equity_TA	0.002***	0.004***	0.004***	-0.040***	-0.028***	-0.030***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Growth_TA	-0.002***	-0.002***	-0.002***	-0.012***	-0.010***	-0.010***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROE	0.012***	0.012***	0.012***	0.043***	0.045***	0.045***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DI_Dummy	-0.040	-0.024	-0.058*	0.018	0.059	-0.105
	(0.230)	(0.469)	(0.081)	(0.936)	(0.783)	(0.624)
RADI	0.125***	0.102***	0.128***	0.699***	0.608***	0.753***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CRI	-0.028**	-0.037***	-0.024**	-0.272***	-0.204***	-0.187**
	(0.016)	(0.001)	(0.035)	(0.000)	(0.001)	(0.042)
Market_GDP	0.086***	0.087***	0.099***	0.539***	0.563***	0.624***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP_Growth	-1.591***	-0.997***	-0.768***	-9.873***	-3.103**	-1.803
	(0.000)	(0.000)	(0.000)	(0.000)	(0.025)	(0.198)
Log_GDPPC	-0.095***	-0.275***	-0.291***	-0.798***	-2.583***	-2.672***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
UAI	-0.010***	-0.004***	-0.005***	-0.061***	-0.013**	-0.009*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.049)	(0.061)
MAS	0.009***	0.007***	0.008***	0.060***	0.047***	0.051***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LTO	-0.002***	-0.002***	-0.001**	-0.040***	-0.030***	-0.040***
	(0.005)	(0.003)	(0.017)	(0.000)	(0.000)	(0.000)
Civil_Legal_Origin	0.126***		0.254***	0.171		1.357***
	(0.000)		(0.000)	(0.357)		(0.000)
Rule_of_Law		0.314***	0.346***		3.106***	3.282***
		(0.000)	(0.000)		(0.000)	(0.000)
Constant	-0.651***	0.631***	0.537***	-5.243***	6.524***	5.981***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year_dummies	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Wald Chi2	2345.99	2542.93	2589.77	2319.24	2554.57	2523.84
Left censored	26,856	26,856	26,856			
Observations	43,263	43,263	43,263	43,263	43,263	43,263
Number of ID	8,689	8,689	8,689	8,689	8,689	8,689

This table presents robustness test results including additional control variables in main specifications. Models 1, 2 and 3 are panel random-effects tobit regression and Model 3, 4 and 5 are panel random-effects logit regression results. All regressions include year fixed-effects dummies. Sample period is 1998–2007. The dependent variable, Dividends, in Models 1, 2 and 3 equals the common dividends paid to total assets ratio. The dependent variable, Payer_Dummy, in Models 4, 5 and 6 equals one if the bank pays dividend and zero otherwise. **Reg_Cap** is overall index representing the combined effect of common equity based capital regulation and stringency in risk based capital requirements. Log_TA, Equity_TA, Growth_TA and ROE are natural log of total assets, equity to total assets ratio, year-on-year growth in total assets and return on average equity, respectively. DI_Dummy equals one if a country implements explicit deposit insurance and zero otherwise. RADI and CRI are revised anti-director and creditor rights indices from Djankov *et al.* (2008) and Djankov *et al.* (2007), respectively. Market_GDP, GDP_Growth and Log_GDPPC are annual market capitalization of listed companies to GDP ratio, annual rate of GDP growth and log of annual GDP per capita in current US$, respectively, from World Development Indicators database. UAI, MAS and LTO_WVS are Hofstede *et al.* (2010)'s three cultural dimensions representing uncertainty avoidance, masculinity and long-term orientation, respectively. Civil_Legal_Origin is a dummy variable equals one if a country belongs to civil legal origin and zero otherwise. Rule of law variable is from Kaufmann *et al.* (2010) and measures the extent of law and order tradition in a country. ***, ** and * show significance at one, five and ten percent levels, respectively.

Table 8: Robustness tests- Dividend payer banks only and alternate model estimations

Variables	Dividends	Dividends	Dividends	Dividends	Dividends	Dividends
	Dividend payer banks only (Panel Tobit model)			Dividend payer banks only (Panel random effects model)		
	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)	(Model 6)
Reg_Cap	**-0.010*** **			**-0.010*** **		
	(0.000)			**(0.000)**		
CE_Reg_Cap		**-0.038*** **			**-0.037*** **	
		(0.007)			**(0.004)**	
Stringent_Reg_Cap			**-0.016*** **			**-0.016*** **
			(0.000)			**(0.000)**
Log_TA	-0.026***	-0.025***	-0.027***	-0.025***	-0.025***	-0.027***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Equity_TA	0.028***	0.029***	0.028***	0.028***	0.029***	0.028***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Growth_TA	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROE	0.008***	0.008***	0.008***	0.008***	0.008***	0.008***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DI_Dummy	0.073***	0.077***	0.079***	0.073***	0.077***	0.079***
	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
RADI	0.028***	0.024***	0.027***	0.028***	0.024***	0.027***
	(0.000)	(0.002)	(0.000)	(0.000)	(0.002)	(0.000)
CRI	-0.028***	-0.030***	-0.025***	-0.028***	-0.030***	-0.025***
	(0.001)	(0.000)	(0.003)	(0.001)	(0.000)	(0.003)
Market_GDP	0.053***	0.052***	0.055***	0.053***	0.052***	0.055***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP_Growth	-0.250***	-0.211**	-0.213**	-0.250***	-0.211**	-0.213**
	(0.008)	(0.032)	(0.031)	(0.007)	(0.022)	(0.030)
Log_GDPPC	-0.025***	-0.028***	-0.023***	-0.025***	-0.028***	-0.023***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)
UAI	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
	(0.035)	(0.045)	(0.032)	(0.035)	(0.045)	(0.032)
MAS	0.002**	0.002*	0.002**	0.002**	0.002*	0.002**
	(0.039)	(0.071)	(0.022)	(0.039)	(0.071)	(0.022)
LTO	-0.007***	-0.007***	-0.007***	-0.007***	-0.007***	-0.007***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	1.181***	1.131***	1.198***	1.180***	1.131***	1.197***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year_dummes	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Wald Chi2	6006.7	6051.4	6139.6			
Left censored	0	0	0			
R-square				0.52	0.52	0.52
Observations	16,407	16,407	16,407	16,407	16,407	16,407
Number of ID	3,836	3,836	3,836	3,836	3,836	3,836

This table presents robustness test results excluding dividend non-payer banks and using alternate model specifications. All Models are panel random-effects tobit regression results. All regressions include year fixed-effects dummies. Sample period is 1998–2007. The dependent variable, Dividends, equals the common dividends paid to total assets ratio. **Reg_Cap** is overall index representing the combined effect of common equity based capital regulation and stringency in risk based capital requirements. **CE_Reg_Cap** sub-index measures whether capital regulation is common equity based and **Stringent_Reg_Cap** sub-index measures the country-level stringency in risk based capital requirements. Log_TA, Equity_TA, Growth_TA and ROE are natural log of total assets, equity to total assets ratio, year-on-year growth in total assets and return on average equity, respectively. DI_Dummy equals one if a country implements explicit deposit insurance and zero otherwise. RADI and CRI are revised anti-director and creditor rights indices from Djankov *et al.* (2008) and Djankov *et al.* (2007), respectively. Market_GDP, GDP_Growth and Log_GDPPC are annual market capitalization of listed companies to GDP ratio, annual rate of GDP growth and log of annual GDP per capita in current US$, respectively, from World Development Indicators database. UAI, MAS and LTO_WVS are Hofstede *et al.* (2010)'s three cultural dimensions representing uncertainty avoidance, masculinity and long-term orientation, respectively. ***, ** and * show significance at one, five and ten percent levels, respectively.

Table 9: Capital regulation and bank dividend payouts-Crisis period analysis

Variables	Dividends (Model 1)	Payer_Dummy (Model 2)	Ex_Dividends_Dummy (Model 3)	Dividends (Model 4)	Payer_Dummy (Model 5)	Ex_Dividends_Dummy (Model 6)
	Sample period is 1998-2012			Sample period is 2008-2012		
Reg_Cap	**-0.006****	**-0.020**	**-0.010****	**0.058*****	**0.806*****	**-0.175*****
	(0.027)	**(0.166)**	**(0.034)**	**(0.000)**	**(0.000)**	**(0.000)**
Log_TA	0.058***	0.380***	0.500***	0.069***	0.673***	0.747***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Equity_TA	0.003***	-0.029***	0.024***	0.003***	-0.029***	0.043***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Growth_TA	-0.002***	-0.008***	-0.006***	-0.001***	-0.008***	-0.004**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.014)
ROE	0.011***	0.044***	0.066***	0.009***	0.060***	0.069***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DI_Dummy	0.018	0.293*	-0.049	0.013	0.216	-0.164
	(0.500)	(0.097)	(0.757)	(0.754)	(0.603)	(0.568)
RADI	0.093***	0.523***	0.084*	0.107***	1.608***	0.224***
	(0.000)	(0.000)	(0.074)	(0.000)	(0.000)	(0.002)
CRI	-0.032***	-0.293**	-0.260***	-0.028**	-0.134	-0.309***
	(0.000)	(0.016)	(0.000)	(0.034)	(0.251)	(0.000)
Market_GDP	0.065***	0.519***	0.584***	0.035**	0.083	1.066***
	(0.000)	(0.000)	(0.000)	(0.011)	(0.529)	(0.000)
GDP_Growth	-0.877***	-3.319***	0.743	-0.502***	-1.106	-4.063**
	(0.000)	(0.000)	(0.428)	(0.002)	(0.464)	(0.014)
Log_GDPPC	-0.087***	-0.705***	-0.384***	0.027**	0.719***	-0.756***
	(0.000)	(0.000)	(0.000)	(0.011)	(0.000)	(0.000)
UAI	-0.008***	-0.046***	-0.036***	-0.005***	-0.037***	-0.025***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MAS	0.009***	0.060***	0.006***	0.010***	0.143***	0.018***
	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)
LTO	-0.005**	-0.032***	-0.042***	-0.003***	-0.005	-0.036***
	(0.014)	(0.000)	(0.000)	(0.000)	(0.339)	(0.000)
Constant	-0.689***	-5.411***	-2.685***	-2.436***	-36.257***	-1.544
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.189)
Year_Dummies	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Wald Ch2	3385.64	3373.83	2320.01	1616.23	2103.78	734.41
Left censored	46,493			19,637		
Observations	74,238	74,238	74,238	30,975	30,975	30,975
Number of ID	9,970	9,970	9,970	7,291	7,291	7,291

This table presents extended sample period results. Sample period is 1998–2012 in Models 1, 2 and 3. Sample period is 2008–2012 in Models 4, 5 and 6. Models 1 and 4 are estimated with panel random-effects tobit regressions, while Models 2, 3, 5 and 6 are estimated with panel random-effects logit regressions. All regressions include year fixed-effects dummies. The dependent variable, Dividends, in Models 1 and 4 equals the common dividends paid to total assets ratio. The dependent variable, Payer_Dummy, in Models 2 and 5 equals one if the bank pays dividend and zero otherwise. The dependent variable, Ex_Dividends_Dummy, in Models 3 and 6 equals one for 10 percent bank observations having highest dividend payout ratios in sample and zero otherwise. **Reg_Cap** is overall index representing the combined effect of common equity based capital regulation and stringency in risk based capital requirements. Log_TA, Equity_TA, Growth_TA and ROE are natural log of total assets, equity to total assets ratio, year-on-year growth in total assets and return on average equity, respectively. DI_Dummy equals one if a country implements explicit deposit insurance and zero otherwise. RADI and CRI are revised anti-director and creditor rights indices from Djankov *et al.* (2008) and Djankov *et al.* (2007), respectively. Market_GDP, GDP_Growth and Log_GDPPC are annual market capitalization of listed companies to GDP ratio, annual rate of GDP growth and log of annual GDP per capita in current US$, respectively, from World Development Indicators database. UAI, MAS and LTO_WVS are Hofstede *et al.* (2010)'s three cultural dimensions representing uncertainty avoidance, masculinity and long-term orientation, respectively. ***, ** and * show significance at one, five and ten percent levels, respectively.