

Shareholder Protection, Creditor Rights and Bank Dividend Policies

Badar Nadeem Ashraf

School of Management; Huazhong University of Science and Technology; Wuhan; China.

Changjun Zheng

School of Management; Huazhong University of Science and Technology; Wuhan; China.

Corresponding author: Changjun Zheng

Corresponding Author's Email: zhchjun@hust.edu.cn

Abstract

We examine the relations between dividend policies of banks and the legal protection of shareholders and bank creditors (e.g., depositors or debt-holders) using a sample of banks from 52 countries over the period 1998-2007, after controlling for deposit insurance coverage and bank- and country-level regulatory pressure. We support the outcome hypothesis by finding that banks pay higher amount of dividends and, are more likely to pay dividends in strong minority shareholder protection countries. However, we reject the substitute hypothesis by finding that banks pay higher dividends and are more likely to pay dividends in weak creditor rights countries, and banks do not substitute weak creditor rights with low dividend payouts. Contrary, we support the literature which argues the importance of creditor rights for capital market development because one possible reason for low dividend payouts in strong creditor rights countries could be that the banks retain more profits for extending more loans.

Keywords: banking, dividend policy, creditor rights, shareholder protection, corporate governance

JEL Classification: G2, G35

1. Introduction

Dividend policies are considered an important element of corporate governance. A large amount of agency theory based literature argues the importance of dividend policies in resolving the agency problems between shareholders and managers, and shareholders and creditors. Despite this recognized role of dividend policies, some of the troubled banks did not decrease the dividend payouts while many of them even increase dividend payouts despite financial difficulties during the financial crisis of 2007-2009 (Acharya *et al.*, 2013). This fact cause some doubt on effectiveness of dividend policies in resolving agency problems, at least in banking industry. In this paper, we provide new empirical evidence on bank dividend policies with respect to their agency problems role.

A growing agency theory based literature demonstrates the important connections between legal protection of creditors and outside/minority shareholders, and dividend payout policies. Research in this area finds that dividend policies address agency problems between corporate insiders and outside shareholders (La Porta *et al.*, 2000), and between creditors and shareholders (Brockman & Unlu, 2009). In their seminal work, La Porta *et al.* (2000) suggest two alternate hypotheses for a causal relation between legal rights of outside shareholders and dividend policies. Their 'outcome hypothesis' predicts that stronger legal rights will enable minority shareholders to extract higher amount of dividends from the firm. Contrary, their 'substitute hypothesis' predicts that weaker legal rights will lead to higher amount of dividend payouts as managers use dividend payouts as a substitute for weak investor protection. La Porta *et al.* (2000) find that the outcome hypothesis explains the empirical linkages between the agency costs of equity, minority shareholder rights, and observed dividend payouts. In a recent study, Brockman and Unlu (2009) argue that the substitute hypothesis explains the connections between the agency costs of debt, creditor rights, and observed dividend payouts. They posit that restrictive dividend policies substitute for weak creditor rights; that is, weak (strong) creditor rights diminish (enhance) the manager's ability to pay out dividends, all else equal. They find strong empirical evidence that firms are less likely to pay dividends and/or pay lower amount of dividends in weak creditor rights countries.

Both of the above studies have excluded firms in banking. Exclusion is logical as a number of theoretical studies argue the important differences in corporate governance mechanism of banks and nonfinancial firms (Mehran *et al.*, 2011; Mülberr, 2009). These studies argue that the factors such as high financial leverage of banks, multitude of stakeholders of banks as compared to nonfinancial firms; and the high level of opacity and complexity of banking business, distinguish governance of banks from nonfinancial firms. For example, over ninety percent of banks' balance sheets comprise of debt as opposed to an average forty percent for nonfinancial firms (Mehran *et al.*, 2011). Further, unlike nonfinancial firms, for which main stakeholders as regard to governance are shareholders and creditors, banks have numerous stakeholders. Main corporate governance partners for banks are depositors, subordinate debt-holders, and the government as both insurer of deposits and residual claimant on systemic externalities, in addition to shareholders. Furthermore, opaqueness of the banks' assets is high as compared to nonfinancial firms. Banks can alter the risk composition of their assets more quickly and can readily hide problems by extending loans to customers that cannot repay their previous loan obligations. Despite the high leverage and numerous stakeholders, control of banks remains with shareholders who have the tendency to use resources for their own benefit causing more severe agency problems of debt in banks (Mülberr, 2009). On the other hand, opacity and complexity of banking business restrains the ability of depositors and debt-holders in monitoring the bank

activities and further exacerbate the opportunity for insiders to expropriate the resources of depositors and debt-holders. This opaqueness sometimes has the unintended consequences of depositor runs due to depositors' inability in judging the financial health of banks. Because depositor runs can cause huge economic costs, governments often use deposit insurance for depositors and regulations for banks to account for the governance problems. However, deposit insurance and regulations make bank governance even more complex. As Mülbert (2009) argues that the deposit insurance and prudential regulations which are used to compensate for deficits in the monitoring and control of banks, both act to exacerbate the particular problems that are inherent in banks' corporate governance.

Given this governance structure of banks and given the importance of dividend policies in reducing agency problems, we examine the role of bank dividend policies in resolving agency problems between bank insiders, and bank creditors (depositors and debt-holders) and minority shareholders after controlling for deposit insurance and regulatory pressure.

We use revised anti-director index of Djankov *et al.* (2008) to measure the strength of control rights granted by the law to the outside shareholders, and creditor rights index of Djankov *et al.* (2007) to measure the legal rights of depositors and debt-holders.

We focus on the pre-financial crisis period (e.g., the period 1998–2007) in our analysis. We employ two dividend policy variables: common dividends paid to total assets ratio, and a dummy variable, equals to one for dividend paying banks and zero otherwise. These two variables are used to test the relations between the legal institutional variables, and the dividend payout amounts and the propensity to pay dividends, respectively.

We use an international sample of banks from the Bankscope database representing 52 countries over the period 1998-2007 to test our predictions on dividend policies.

We begin by examining the impact of shareholder protection and creditor rights on dividend payout amounts using tobit panel regression models. We include bank-level characteristics such as profitability, size and growth opportunities and bank-level regulatory pressure (e.g., equity to total assets ratio), and country-level factors such as deposit insurance coverage, country-level regulatory pressure (e.g., regulatory capital index) as control variables. Next, we estimate logit panel regressions to examine the relations between shareholder protection and creditor rights indices, and the banks' likelihood to pay dividends.

Our results support the outcome hypothesis for minority shareholder protection by finding that banks pay higher amount of dividends, and are more likely to pay dividends in stronger shareholder protection countries. However, opposite to predictions of substitute hypothesis, we find a negative and significant association between creditor rights index and dividend policy variables. Our findings suggest that strong agency costs of deposits do exist in banking, and the managers of banks do not substitute weak legal protection of depositors and creditors with dividend policies, even after considering deposit insurance and regulatory pressure.

We apply several robustness checks to further confirm our main results. We replace the revised anti-director index with the anti-self-dealing index of Djankov *et al.* (2008) as a proxy for minority shareholder protection. We observe same results; anti-self dealing index enters significant and positive with dividend policy variables. Similarly, we replace creditor rights index with its four individual components (e.g., right of creditors to repossess collateralized assets, right to restrict the debtor from unilaterally seeking court protection, right to absolute priority over non-secured creditors, and right to replace management) one-by-one. We find negative and significant associations for the individual components of the creditor rights index with both dividend policy variables.

Our study contributes to the literature in several ways: First, we find that Fama and French (2001) findings regarding firm-level dividend policy determinants such as size, growth opportunities and profitability are also valid for banks. Second, we extend law and finance literature by confirming the importance of minority shareholder rights and creditor rights for bank dividend policies. Specifically, our findings support the outcome hypothesis of La Porta *et al.* (2000), but reject the substitute hypothesis of Brockman and Unlu (2009) for the banking industry. Third, we contribute to growing literature which argues the importance of creditor rights for capital market development at micro-level. In this respect, Houston *et al.* (2010) find that banks take more risk by extending higher amount of loans in strong creditor rights countries and we find that banks pay lower amount of dividends and are less likely to pay dividends in strong creditor rights environments. One possible reason of retaining more profits is the banks tendency to take higher risk in the form of more bank loans. Finally, by finding that creditor rights affect bank dividend policies differently than the industrial firms, we support the literature which maintains that bank dividend policies are different than the non-financial firms (H. K. Baker *et al.*, 2008; H. K. Baker *et al.*, 2001).

The rest of the paper is organized as follows. In section 2, we review literature and provide testable hypotheses. Section 3 introduces data. Section 4 presents empirical results. And, the final section concludes the study.

2. Literature review and hypotheses

We hypothesize that the strength of shareholder and creditor rights are likely to have important influences on the bank dividend policies. In this section, first we review the dividends literature briefly. After that we review how to measure shareholder and creditor rights, and discuss their potential effects on bank dividend policies.

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, life cycle and catering.

According to the signaling theory, firms pay dividends to mitigate information asymmetry between shareholders and management by conveying private information about a firm's future earnings prospects (Bhattacharya, 1979; Booth & Chang, 2011; Caton *et al.*, 2003; John & Williams, 1985).

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

Catering theory argues that 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 (M. Baker & Wurgler, 2004a, 2004b).

Firms' life cycle theory of dividends suggests that the pattern of cash dividends generally changes over a firm's life cycle (Brockman & Unlu, 2011; DeAngelo *et al.*, 2006; Fama &

French, 2001); that is, new and/or growing firms pay fewer dividends and mature firms pay higher dividends. For this theory, 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.

Agency theory based explanations of dividend policies suggest that dividend policies address agency problems between corporate insiders (e.g., controlling shareholders or owner-managers) and outside shareholders (Easterbrook, 1984; La Porta *et al.*, 2000; Myers, 2000; Rozeff, 1982). Unless profits are paid-out as dividends, insiders may divert profits for personal use or commit to un-profitable projects. Therefore, outside shareholders prefer dividends over retained earnings. These early studies mainly focused on agency costs of equity, however, recently Brockman and Unlu (2009) found that managers also use dividend policies to reduce agency costs of debt.

2.2 Banking dividends literature

H. K. 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) find empirical evidence that dividend payments increase external ratings of banks. In a recent study, Abreu and Gulamhussen (2013) find support for signaling hypothesis that managers of banks pay dividends for signaling their future growth opportunities.

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. Dickens *et al.* (2002) argue that the higher percentage of insider ownership reduces agency problems in banks and find empirical evidence that the banks with higher percentage of insider ownership pay lower amount of dividends. Similarly, Abreu and Gulamhussen (2013) finds that the banks which are difficult to monitor pay out higher amount of dividends to counterbalance the increased need for monitoring. Some recent studies examine and find support that firm characteristics such as size, growth opportunities and profitability suggested by Fama and French (2001) as significant determinants of dividend policies are also relevant for banks. For example, Abreu and Gulamhussen (2013) and Imran *et al.* (2013) find that banks having big size and higher profitability pay more dividends, whereas, the banks having more growth opportunities pay lower dividends.

As banks work in highly regulated environment in contrast to nonfinancial firms, several studies have examined and found support for regulatory hypothesis¹ of bank dividend policies. For example, at bank-level, some studies support that undercapitalized banks pay lower amount of dividends because they face higher regulatory pressure for increasing capital levels by not paying dividends (Abreu & Gulamhussen, 2013; Casey & Dickens, 2000; Dickens *et al.*, 2002; Theis & Dutta, 2009). These studies use tier-1 capital to total assets ratio, equity to total assets ratio, or regulatory capital to total assets ratio as proxies of regulatory pressure. At country-level, Zheng and Ashraf (2014) argue that banks face more regulatory pressure in countries which have more stringent regulatory capital requirements than the banks in countries which have less stringent

¹ Abreu and Gulamhussen (2013) explicitly examine regulatory hypothesis.

capital requirements for their banking sectors. They find empirical evidence that regulatory capital index is negatively correlated with bank dividend payouts.

2.3 Shareholder rights and creditor rights

We use two distinct measures of shareholder rights, namely the revised anti-director rights index and the anti-self-dealing index. Both measures are taken from Djankov *et al.* (2008). Revised anti-director index, revised version of original anti-director index of La Porta *et al.* (1998), measures the strength of control rights granted by the law to the outside shareholders. Likewise, the anti-self-dealing index captures the extent to which outside shareholders are protected from self-dealing (expropriation) by controlling insiders. Higher values of both indices imply that outsiders have greater protection and are less likely to be expropriated by insiders.

The creditor rights index is sourced from Djankov *et al.* (2007) and measures the legal rights of creditors against debtor in case of reorganization or liquidation of the debtor. The creditor rights index is computed by summing four dummy variables. The first dummy variable, Restrict_Reorgan, equals one if creditor consent is required to file for reorganization, and zero otherwise. The second dummy variable, No_Auto_Stay, equals one if secured creditor can take possession of collateral assets and there is no automatic stay or asset freeze imposed by the court on a creditor's ability to seize collateral. The third dummy variable, Pay_Secure_First, equals one if secured creditors are given the absolute priority claims during bankruptcy and equals zero if other parties such as government or employees' claims have higher priority than those of secured creditors. The fourth dummy variable, Mgm_Not_Stay, equals one if either creditors or courts can change the incumbent management during bankruptcy proceedings and equals zero if incumbent management retains power during bankruptcy proceedings.

2.4 Hypotheses

2.4.1 Corporate governance and dividend policies

Due to higher opaqueness and complexity of banks, it is quite easy for controlling owners to expropriate bank assets (Morgan, 2002). For example, entrenched controlling shareholders can force banks to lend at favorable conditions to other related-firms where they have substantial financial interests (La Porta *et al.*, 2003). In this regard, extant banking research provides evidence on that strong agency problems do exist between bank controlling and minority shareholders. For example, Azofra and Santamaría (2011) find that Spanish banks, whose owners have higher divergence between control and cash-flow rights, have had significantly lower profitability during the pre-crisis period (i.e., before 2007-08). In a recent study, Tarazi and Zedek (2014) explicitly study the conflicts between controlling and minority shareholders by considering the effects of excess control rights on bank profitability and risk in a sample of banks from 17 Western European countries. Their findings support that banks controlled by shareholders having higher control rights, such as family-controlled and/or concentrated ownership banks, have poorer performance in the form of lower profitability and higher earnings volatility and default risk in the pre-crisis period. Dividend payments, by transferring some profits to minority shareholders, can reduce these agency problems between controlling shareholders and minority shareholders (La Porta *et al.*, 2000). Therefore, we expect that minority shareholders having strong legal protection will demand and bank insiders will pay the higher amount of dividends to resolve agency problems. As banks have more dispersed shareholding patterns in countries providing strong legal protection to investors (Tarazi & Zedek, 2014), while theoretical bank governance literature argues that dispersed bank shareholders care

more about themselves. For example, Mehran *et al.* (2011) argues that although normal shareholders of banks care about the share price and the dividends instead of riskiness of bank operations, this tendency is even higher when the shareholdings are diversified. Hopt (2013) also suggests to not giving more legal power to shareholders because of their tendency to use it for personal benefits. These arguments further reinforce positive relation between minority shareholder protection and dividend payouts and thus our hypothesis is:

H1: *Country-level minority shareholder protection indices are positively related to the banks' dividend payout amounts and the likelihood to pay dividends.*

2.4.2 Creditor rights and dividend policies

Creditor rights index measures the legal protection provided to creditors against debtor in the event that debtor defaults or declare bankruptcy. Creditors of banks are mainly depositors (households or companies) and debt-holders. Some previous studies argue the disciplinary role of depositors and debt-holders for banks (Nier & Baumann, 2006). The disciplining hypothesis suggests that depositors and other debt-holders threat banks, by constantly watching, that they can withdraw their funds and stop their lending to the bank if they see managers misbehaving. In response, bank managers behave prudently by maintaining adequate level of capital and by taking rational risks. In a recent study, John *et al.* (2010) find that strong agency problems do exist in banks due to their high leverage ratios, and regulators and subordinate debt-holders' monitoring reduce these problems.

However, strong country-level legal protection of creditors will balance power between banks and, depositors and debt-holders; and is expected to weaken monitoring of bank activities by the large depositors² and subordinate debt-holders. Moreover, depositors and debt-holders would be more active and disciplining effect would be stronger in weak creditor rights countries where both the parties have higher tendency to be jeopardized by the bank insiders. Therefore, if depositors and subordinate debt-holders strongly discipline bank activities, and this disciplining effect reaches to dividend policies, then, consistent with substitute hypothesis, we expect that banks substitute weak creditor rights with dividend policies and pay lower dividends in weak creditor rights countries.

H2a: *Country-level creditor rights index is positively related to the banks' dividend payout amounts and the likelihood to pay dividends.*

However, recent evidence on depositors and debt-holders' disciplining effect is mixed. For example, recent studies argue that bank deposits normally belong to a large number of small depositors who, individually, have fewer incentives for monitoring the bank managers and thus 'free rider' problem does exist among depositors (Admati & Hellwig, 2013). Additionally, depositors deposit money with banks at standard contract terms which usually do not include loan covenants such as included in borrowing firms' loan contracts. Furthermore, bank debt-holders normally extend short-term secured funding to banks through loan agreements such as repo (or repurchase) contracts which do not necessarily include dividend restrictions. These arguments suggest that the relationship between the role of bank depositors and debt-holders, and bank dividend policies is weak. Consistent with these arguments, H. K. Baker *et al.* (2008) find that managers of financial firms give less importance to the factors such as current degree of

² Most of the countries apply deposit insurance system for depositors. Deposit insurance normally covers small deposits up to a certain limit to avoid bank runs by small depositors.

financial leverage, the contractual constraints such as dividend restrictions in debt contracts, and the financing considerations such as the cost of raising external funds, while deciding about the dividend payments.

This weak relation is further reinforced by the implementation of implicit and/or explicit government guarantees (e.g., deposit insurance and bail-out packages) for depositors and debt-holders. These guarantees provide the assurance to depositors and debt-holders for their deposits and funds in case the bank defaults, and further reduce their incentives for monitoring the bank managers (Gropp *et al.*, 2013; Karas *et al.*, 2013). However, one concern here is that the moral hazard problems linked with these government guarantees can be contained by using the regulations (e.g., capital regulation); therefore, we control our regressions with deposit insurance coverage in each country and country-level regulatory pressure variables also.

On the other hand, several recent studies have found significant effects of strong creditor rights on assets side of bank balance sheets. Together these studies find that banks extend more credit and take higher risk in strong creditor rights countries (Bae & Goyal, 2009; Djankov *et al.*, 2007; Houston *et al.*, 2010; Qian & Strahan, 2007). This positive relation implies that banks would need higher amount of funds in strong creditor rights environments for extending more loans. If assets-side effects of strong creditor rights surpass the weak liability-side effects of depositors and debt-holders, we expect a negative relation between creditor rights index and dividend policies of banks.

H2b: *Country-level creditor rights index is negatively related to banks dividend payout amounts and the likelihood to pay dividends.*

3. Data

We download annual financial accounting information for bank holding companies, and commercial, savings and cooperative banks from *Bankscope* database. Regulatory capital index is taken from Barth *et al.* (2013). Deposit insurance coverage variable is obtained from Demirgüç-Kunt and Detragiache (2002). Shareholder rights indices and creditor rights index are taken from Djankov *et al.* (2008) and Djankov *et al.* (2007), respectively—two studies that update the La Porta *et al.* (1998) database. Annual GDP per capita, GDP growth and stock market capitalization data is obtained from World Development Indicators of World Bank. We begin our sample construction by deleting all bank observations which have missing necessary accounting information or have negative equity to total assets ratios. To make sample representative, we keep only those countries which have at least more than twenty valid bank observations or have total valid observations less than almost twenty percent of the total sample. After applying all filters, we obtain a sample of 26,894 bank observations from 5,918 unique banks across 52 countries during the period 1998-2007. We winsorize all bank-level variables at one and ninety-nine percent levels to eliminate the outlier effects.

We examine the impact of legal protection of minority shareholders and creditors on banks dividend payout amounts and the probability of paying dividends using tobit and logit specifications, respectively. For the tobit regressions, we measure dividend payout amounts, Dividends, by scaling common dividends paid by total assets. For the logit regressions, we create a dividend payer dummy variable, Payer_Dummy, which equals one if dividends paid by a bank are positive, and zero otherwise.

We have country- and bank-specific independent variables. The main country-specific variables are shareholder protection indices and creditor rights index as explained in sub-section 2.2. We

use revised anti-director index and anti-self-dealing index of Djankov *et al.* (2008) as proxies of shareholder protection one-by-one, respectively. Revised anti-director index, RADI, ranges from one (weak shareholder rights) to five (strong shareholder rights), and anti-self-dealing index, ASDI, ranges from zero to one. Higher values of both, RADI and ASDI, indices indicate that the outsider minority shareholders have higher legal protection and the insiders are less likely to expropriate the outsiders' wealth in firms. Creditor rights index, CRI, from Djankov *et al.* (2007) measures the legal rights of creditors against debtor in case of reorganization or liquidation. The index ranges from zero (weak creditor rights) to four (strong creditor rights).

Other country-level control variables are regulatory capital index, deposit insurance coverage, macroeconomic and the level of financial market development. Regulatory capital index, Reg_Cap, is taken from Barth *et al.* (2013). Reg_Cap ranges from one to ten, where higher values indicate more stringent capital requirements. This variable is constructed by adding 1 if the answer is yes to questions 1–8 and no to questions 9–10. The 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? (10) Can borrowed funds be used to increase capital? Since this index is constructed by using data from World Bank surveys on bank regulations conducted in 1999, 2003, 2007 and 2011, therefore, following Agoraki *et al.* (2011) we use index values from survey conducted in 1999 for bank observations over the period 1998–2000, from 2003 survey for bank observations over the period 2001–2003, and from 2007 survey for bank observations over the period 2004–2007. We use deposit insurance coverage ratio from Demirgüç-Kunt and Detragiache (2002). This variable equals coverage limit of deposit insurance per depositor divided by GDP per capita for those countries which implement explicit deposit insurance scheme, and zero for those countries which do not implement explicit deposit insurance scheme. To control for macroeconomic conditions of a country, we use log of annual GDP per capita in current US dollars, Log_GDPPC, and annual GDP growth rate, GDP_Growth, variables. For financial market development, we include annual market capitalization of listed companies to GDP ratio, Market_GDP, of each country.

Bank-specific control variables include Fama and French (2001) three firm characteristics of profitability, size and growth opportunities proxy by return on average equity (ROE), log of total assets (Log_TA) and year-on-year assets growth (Growth_TA), respectively. To control for bank-level regulatory pressure, we use equity to total assets ratio, Equity_TA, of each bank. Bank-specific variables are computed at fiscal year-end. The predicted signs between these bank-specific variables and dividend policy variables are as follows: ROE (+), Log_TA (+), Growth_TA (-), and Equity_TA (+/-)³.

³ 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.

4. Empirical results

4.1 Summary statistics

Table 1 reports summary statistics for the full sample. The mean value for dividends paid to total assets ratio, *Dividends*, is 0.16%. The mean value of payer dummy variable is 33% and suggests that the majority of the banks included in our sample are dividend non-paying banks. Mean values for shareholder protection, *RADI*, and creditor rights, *CRI*, variables are 3.65 and 1.85, respectively. Other bank-level variables also show considerable variation around mean values. Table 2 reports the distribution of banks across countries. Japan has the highest number of bank observations (5,691) and New Zealand has the lowest (22). Table 3 reports pair-wise correlations between main variables.

4.2 Shareholder protection, creditor rights and bank dividend payouts

In this section, we examine the relations between shareholder protection indices, creditor rights and two dividend policy variables: (1) the dividend payout amounts and (2) the probability of paying dividends. We estimate tobit and logit regressions after including bank- and country-level control variables suggested by previous research.

4.2.1 Multivariate tobit analysis: shareholder protection, creditor rights and dividend amounts

In Table 4, we report the results of Tobit regressions. Our Tobit model is specified as follows (with bank subscripts suppressed):

$$\begin{aligned} Dividends_t = & \beta_0 + \beta_1 Shareholder\ Protection + \beta_2 Creditor\ Rights + \beta_3 Log_TA_t \\ & + \beta_4 Equity_TA_t + \beta_5 Growth_TA_t + \beta_6 ROE_t + \beta_7 Reg_Cap_t \\ & + \beta_8 DI_Coverage_t + \beta_9 Market_GDP_t + \beta_{10} GDP_Growth_t \\ & + \beta_{11} Log_GDPPC_t + \beta_{12-20} Year_Dummies_t + \varepsilon_t \quad (1) \end{aligned}$$

where *Dividends* is equal to common dividends declared and paid to total assets ratio if this ratio is positive in year *t* for bank (index suppressed), and zero otherwise. Definitions of other variables are given in section 3.

We estimate six variations of regression Eq. (1) and report the results in columns 1–6 of Table 4. Model 1 reports results of the base model which includes bank- and country-level control variables only. Control variables enter significantly in expected directions. Positive and significant coefficients of *Log_TA* and *ROE* variables indicate that big and more profitable banks pay higher amount of dividends, respectively. Negative and significant coefficient of *Growth_TA* variable indicates that growing banks pay lower amount of dividends. These findings are consistent with Fama and French (2001) findings for industrial firms and Abreu and Gulamhussen (2013) findings for bank holdings companies.

Table 1: Full sample statistics

Variables	Countries	Observations	Mean	S.D.	Min	Max
Dividends	52	26894	0.16	0.54	0.00	3.74
Payer_Dummy	52	26894	0.33	0.47	0.00	1.00
Log_TA	52	26894	13.51	2.09	8.88	19.44
Equity_TA	52	26894	12.37	11.53	0.93	84.91
Growth_TA	52	26894	14.85	31.34	-46.06	185.75
ROE	52	26894	7.31	16.07	-74.45	57.83
Reg_Cap	52	26894	6.01	1.74	2.00	10.00

DI_Coverage	52	26894	2.54	2.26	0.00	10.00
RADI	52	26894	3.65	1.11	1.00	5.00
ASDI	52	26894	0.43	0.18	0.08	1.00
CRI	52	26894	1.85	0.97	0.00	4.00
Market_GDP	52	26894	0.90	0.72	0.02	5.49
GDP_Growth	52	26894	3.23	3.04	-13.12	21.18
Log_GDPPC	52	26894	9.68	1.22	5.67	11.33

Dividends is the annual common dividends paid to total assets ratio. Payer_Dummy equals one if a bank pays a dividend in a year and zero otherwise. Log_TA, Growth_TA, Equity_TA, and ROE are natural log of total assets, year-on-year growth in total assets, equity to total assets ratio, and return on average equity, respectively. Reg_Cap is regulatory capital index from Barth *et al.* (2013). DI_Coverage is deposit insurance coverage per depositor to GDP per capita ratio from Demirgüç-Kunt and Detragiache (2002). RADI and ASDI are revised anti-director index and anti-self-dealing index, respectively, from Djankov *et al.* (2008). CRI is creditor rights index from Djankov *et al.* (2007). 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.

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

Sr. #	Country	Observations	Dividends	Payer_Dummy	Log_TA	Equity_TA	Growth_TA	ROE	Reg_Cap	DI_Coverage	RADI	ASDI	CRI
1	ARGENTINA	562	.027	.027	12.5	23.9	15.4	-1.11	6.71	3	2	.34	1
2	AUSTRALIA	86	.278	.337	14.9	13.1	7	9.56	6.52	0	4	.76	3
3	AUSTRIA	1743	.021	.064	13	9.21	8.64	7.3	6.83	.8	2.5	.21	3
4	BELGIUM	419	.168	.248	13.9	16	10.5	7.22	6.15	.9	3	.54	2
5	BRAZIL	917	.717	.546	13.4	21.7	24.6	13.8	5.66	2.5	5	.27	1
6	BULGARIA	128	.092	.094	12.4	14.3	32.2	13.3	7.37	3.8	3	.65	2
7	CANADA	183	.03	.148	13.2	16	9.96	5.74	4	1.7	4	.64	1
8	CHINA	342	.076	.278	15	9.96	24.8	12	3.58	0	1	.76	2
9	COLOMBIA	124	.043	.081	13.5	13.3	14.4	6.81	5.44	4	3	.57	0
10	CROATIA	269	.073	.13	12.4	16.1	17.6	5.56	4.71	2.5	2.5	.25	3
11	CZECH REPUBLIC	148	.179	.27	14.5	8.27	20	7.97	4.62	3.6	4	.33	3
12	DENMARK	605	.241	.466	12.6	14.2	13.7	10.2	5.68	1	4	.46	3
13	ECUADOR	143	.035	.07	11.5	15.5	16	13.3	9	9.86	2	.08	0
14	EGYPT	237	.413	.54	14.2	9.52	15.2	10.4	5	0	3	.2	2
15	EL SALVADOR	80	.181	.362	13.1	16.7	15.7	10.2	3.51	2.07	2	.43	3
16	FINLAND	41	.281	.366	15.8	15.9	24.4	13.8	4.54	1	3.5	.46	1
17	FRANCE	1708	.252	.354	14.3	11.3	7.22	7.39	5.91	3	3.5	.38	0
18	GHANA	27	1.19	.444	11.5	11.5	37.3	32.8	7.26	0	5	.67	1
19	GREECE	67	.139	.358	15.5	10.8	39.1	7.81	4.31	1.6	2	.22	1
20	HONG KONG	162	.495	.506	14.6	17.4	9.88	11	5.09	0	5	.96	4
21	HUNGARY	192	.385	.37	13.7	11.9	18.8	11.4	7.47	1.8	2	.18	1
22	INDIA	523	.161	.711	14.6	7.37	20.1	13.7	6.74	3.9	5	.58	2
23	INDONESIA	476	.275	.277	13.1	12.4	24.5	12.6	6.63	10	4	.65	2
24	IRELAND	75	.332	.52	15.9	9.2	30.1	11.1	4.59	.7	5	.79	1
25	ISRAEL	123	.089	.35	15.3	7.41	5.89	6.13	5.96	0	4	.73	3
26	ITALY	1757	.06	.152	13.1	12.7	10.7	6.92	4.39	5.1	2	.42	2
27	JAPAN	5691	.022	.529	14.6	5.62	2.42	-916	5.25	2.8	4.5	.5	2
28	MALAYSIA	106	.27	.443	14.3	23.6	6.49	8.45	3.77	10	5	.95	3
29	MEXICO	323	.14	.189	14.3	18.8	28	6.57	6.93	10	3	.17	0
30	MOROCCO	62	.118	.226	15.4	8.48	16.3	6.62	5.55	0	2	.56	1
31	NETHERLANDS	218	.101	.174	15.2	16.6	14.5	10.8	6.25	.8	2.5	.2	3
32	NEW ZEALAND	22	.415	.5	16.1	5.83	11.9	20.5	2.59	0	4	.95	4
33	NIGERIA	201	.711	.577	12	15.5	47.4	22.9	6.85	.8	4	.43	4
34	NORWAY	375	.127	.181	13.3	10.5	16.1	10.1	8.34	6.2	3.5	.42	2
35	PAKISTAN	145	.176	.262	13.3	11	28.5	9.44	8.34	0	4	.41	1
36	PANAMA	356	.153	.213	12.8	12.3	16.3	15.2	4.34	0	2	.16	4
37	PERU	123	.098	.13	13.3	14.8	14.5	8.19	3.88	8.8	3.5	.45	0
38	PHILIPPINES	108	.182	.343	13.4	19	15.7	4	6.56	1.8	4	.22	1
39	POLAND	170	.229	.188	13.9	12.3	26.5	11.3	4.48	5	2	.29	1
40	PORTUGAL	112	.132	.339	15	10.9	16.4	9.02	7.79	2.2	2.5	.44	1
41	KOREA REP.	39	.077	.179	15.2	5.65	19.1	5.01	4.51	3.3	4.5	.47	3
42	ROMANIA	153	.222	.203	13.2	17.1	42.6	9.53	5.03	1.4	5	.44	1
43	RUSSIA	2204	.03	.07	11.3	20	43.4	12.3	7.81	1.84	5	.44	2
44	SINGAPORE	64	.607	.531	14.9	21.8	16.8	11.6	7.14	0	5	1	3
45	SOUTH AFRICA	129	.612	.512	14.2	24.2	26.6	16.3	7.84	0	5	.81	3
46	SPAIN	462	.053	.238	14.5	11.2	14.2	8.73	9	1.2	5	.37	2
47	SWEDEN	517	.057	.044	12.1	14.1	11.4	9.58	3.56	1	3.5	.33	1
48	SWITZERLAND	2777	.307	.509	12.6	11.5	9.15	8.17	6.85	.6	3	.27	1
49	THAILAND	155	.083	.142	15.5	11.4	12.4	-2.16	4.9	10	4	.81	2
50	TURKEY	136	.185	.265	14.5	14.9	35.5	13.4	5.81	10	3	.43	2
51	UK	800	.421	.369	14.1	18.7	14.1	10.1	7.26	.6	5	.95	4
52	VENEZUELA	309	.366	.188	12.8	20.6	52.5	24.2	3.37	1.9	1	.09	3
	Total	26894	.162	.333	13.5	12.4	14.9	7.31	6.01	2.54	3.65	.425	1.85

Dividends is the annual common dividends paid to total assets ratio. Payer_Dummy equals one if a bank pays a dividend in a year and zero otherwise. Log_TA, Growth_TA, Equity_TA, and ROE are natural log of total assets, year-on-year growth in total assets, equity to total assets ratio, and return on average equity, respectively. Reg_Cap is regulatory capital index from Barth *et al.* (2013). DI_Coverage is deposit insurance coverage per depositor to GDP per capita ratio from Demirgüç-Kunt and Detragiache (2002). RADI and ASDI are revised anti-director index and anti-self-dealing index, respectively, from Djankov *et al.* (2008). CRI is creditor rights index from Djankov *et al.* (2007).

Table 3: Pair-wise correlations

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1)	Dividends	1.00													
(2)	Payer_Dummy	0.43	1.00												
(3)	Log_TA	0.02	0.35	1.00											
(4)	Equity_TA	0.17	-0.14	-0.39	1.00										
(5)	Growth_TA	0.00	-0.08	-0.09	0.04	1.00									
(6)	ROE	0.25	0.13	0.04	0.03	0.18	1.00								
(7)	Reg_Cap	0.01	-0.06	-0.16	0.07	0.08	0.05	1.00							
(8)	DI_Coverage	-0.06	-0.05	0.07	-0.00	0.01	-0.04	-0.09	1.00						
(9)	RADI	0.03	0.17	0.08	-0.00	0.04	-0.05	0.20	-0.03	1.00					
(10)	ASDI	0.00	0.09	0.20	-0.01	-0.03	-0.05	-0.05	0.09	0.48	1.00				
(11)	CRI	-0.03	-0.04	-0.00	-0.00	0.03	0.04	-0.02	-0.25	0.09	0.33	1.00			
(12)	Market_GDP	0.09	0.17	-0.03	-0.00	-0.06	0.02	0.16	-0.37	0.11	0.10	-0.14	1.00		
(13)	GDP_Growth	0.01	-0.07	-0.11	0.12	0.24	0.22	0.11	-0.10	0.06	0.09	0.10	0.01	1.00	
(14)	Log_GDPPC	-0.08	0.06	0.12	-0.16	-0.25	-0.16	-0.05	-0.25	-0.05	-0.06	-0.01	0.42	-0.41	1.00

Dividends is the annual common dividends paid to total assets ratio. Payer_Dummy equals one if a bank pays a dividend in a year and zero otherwise. Log_TA, Growth_TA, Equity_TA, and ROE are natural log of total assets, year-on-year growth in total assets, equity to total assets ratio, and return on average equity, respectively. Reg_Cap is regulatory capital index from Barth *et al.* (2013). DI_Coverage is deposit insurance coverage per depositor to GDP per capita ratio from Demirgüç-Kunt and Detragiache (2002). RADI and ASDI are revised anti-director index and anti-self-dealing index, respectively, from Djankov *et al.* (2008). CRI is creditor rights index from Djankov *et al.* (2007). 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.

Results of equity to total assets ratio, Equity_TA, and regulatory capital index, Reg_Cap, verify regulatory hypothesis for bank dividends policies, both at bank- and country-level, respectively. Positive and significant coefficient for Equity_TA variable indicates that well-capitalized banks, by facing lower regulatory pressure, pay higher amount of dividends. This finding is consistent with Theis and Dutta (2009) and Abreu and Gulamhussen (2013) findings for bank-holding companies. Similarly, negative and significant coefficient for Reg_Cap variable indicates that banks in countries which have more stringent regulatory capital requirements retain more profits and pay fewer dividends.

DI_Coverage variable, which represents level of deposit insurance of a country, enters in negative direction. Negative and significant relation between deposit insurance coverage variable shows signaling role of bank dividends on one hand, and moral hazard problems due to deposit insurance on the other hand. As H. K. Baker *et al.* (2008) argue that managers of banks have higher incentives to signal performance of their banks to depositors with dividend policies because failing to do so can cause huge costs to banks in the form of depositor runs. Therefore, negative relation of dividend payouts with deposit insurance coverage suggests that banks have higher incentives to signal their performance to uninsured depositors and pay higher dividends in countries which either do not have explicit deposit insurance schemes or provide lower levels of insurance per depositor. Extant banking literature argues that deposit insurance exacerbates moral hazard problems in the banking sector by incentivizing banks to take on excessive lending risk (Demirgüç-Kunt & Huizinga, 2004), therefore one expectation is that banks have paid less dividends in higher deposit insurance countries for keeping more funds to take on more lending risk.

For other controls, positive and significant coefficient of Market_GDP shows that banks pay higher dividends in developed financial market countries and suggest that financial market development, by substituting high cost bank loan financing with low cost financial market equity/bond financing (Zheng & Ashraf, 2014) reduces loan demand and encourage banks to pay more dividends. Similarly, negative and significant coefficients of GDP_Growth and

Log_GDPPC show that banks pay lower dividends in growing as well as in developed countries. One reason for these lower dividends may be that banks have more opportunities to invest in growing and developed countries.

Results of control variables are consistent with the previous research and with the nature of banking industry, and validate our model for further analyses of shareholder protection and creditor rights' effects on bank dividend payouts.

In models 2 and 3 we include shareholder protection variables, revised anti-director index (RADI) and anti-self-dealing index (ASDI), one-by-one. The estimated coefficients for RADI (0.116) and ASDI (0.254) are positive and significant. The amount of dividends increases with RADI or ASDI suggesting that minority shareholders having higher legal protection extract higher amount of dividends from banks. These results verify our hypothesis H1 and are consistent with the outcome hypothesis of La Porta *et al.* (2000).

Model 4 includes creditor rights index, CRI. The negative and significant coefficient for CRI (-0.038) shows that banks pay lower amount of dividends in strong creditor rights countries. This result is consistent with our hypothesis H2b and suggests that assets-side effect of extending more loans dominates the liability-side disciplining effect of depositors and debt-holders.

Consequently, banks pay lower dividends and retain more profits for extending more loans in strong creditor rights countries. Our result for creditor rights is inconsistent to substitute hypothesis, suggested by Brockman and Unlu (2009), by finding that strong agency costs of deposits do exist in banking and managers of banks do not substitute weak legal protection of depositors and debt-holders with dividend payments, even after controlling for deposit insurance coverage and regulatory pressure.

We include both shareholder protection variables one-by-one with creditor rights index simultaneously in models 5 and 6. Results remain consistent; shareholder protection variables enter significantly positive and creditor rights index enter significantly negative.

Table 4: Shareholder protection, creditor rights and the amounts of dividend payouts

Variables	Dividends					
	(1)	(2)	(3)	(4)	(5)	(6)
RADI		0.116*** (0.000)			0.122*** (0.000)	
ASDI			0.254*** (0.002)			0.460*** (0.000)
CRI				-0.038** (0.018)	-0.057*** (0.000)	-0.081*** (0.000)
Log_TA	0.184*** (0.000)	0.178*** (0.000)	0.178*** (0.000)	0.185*** (0.000)	0.179*** (0.000)	0.176*** (0.000)
Equity_TA	0.008*** (0.000)	0.008*** (0.000)	0.008*** (0.000)	0.009*** (0.000)	0.008*** (0.000)	0.008*** (0.000)
Growth_TA	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)
ROE	0.015*** (0.000)	0.015*** (0.000)	0.015*** (0.000)	0.015*** (0.000)	0.016*** (0.000)	0.015*** (0.000)
Reg_Cap	-0.019*** (0.000)	-0.026*** (0.000)	-0.018*** (0.000)	-0.019*** (0.000)	-0.027*** (0.000)	-0.019*** (0.000)
DI_Coverage	-0.035*** (0.000)	-0.031*** (0.000)	-0.036*** (0.000)	-0.040*** (0.000)	-0.037*** (0.000)	-0.047*** (0.000)
Market_GDP	0.307*** (0.000)	0.287*** (0.000)	0.295*** (0.000)	0.301*** (0.000)	0.278*** (0.000)	0.273*** (0.000)
GDP_Growth	-0.032***	-0.033***	-0.033***	-0.032***	-0.033***	-0.033***

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log_GDPPC	-0.169***	-0.155***	-0.164***	-0.171***	-0.156***	-0.164***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-1.673***	-2.108***	-1.746***	-1.582***	-1.998***	-1.611***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<i>Year_dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Wald chi2	1861.1	1924.9	1868.8	1863.0	1930.9	1879.4
Left censored	17,962	17,962	17,962	17,962	17,962	17,962
Observations	26,894	26,894	26,894	26,894	26,894	26,894
Banks	5,918	5,918	5,918	5,918	5,918	5,918

This table reports the panel random-effects tobit regression results. Sample period is 1998–2007. All regressions include dummy variables for year fixed-effects. The dependent variable, Dividends, is the common dividends paid to total assets ratio. RADI and ASDI are revised anti-director index and anti-self-dealing index, respectively, from Djankov *et al.* (2008). CRI is creditor rights index from Djankov *et al.* (2007). Log_TA, Growth_TA, Equity_TA, and ROE are natural log of total assets, year-on-year growth in total assets, equity to total assets ratio, and return on average equity, respectively. Reg_Cap is regulatory capital index from Barth *et al.* (2013). DI_Coverage is deposit insurance coverage per depositor to GDP per capita ratio from Demirgüç-Kunt and Detragiache (2002). 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. ***, ** and * show significance at one, five and ten percent levels, respectively.

4.2.2 Multivariate logit analysis: shareholder protection, creditor rights and the propensity to pay dividends

We report the results of logit regressions in Table 5. Our logit model is specified as follows (with bank subscripts suppressed):

$$\begin{aligned}
 Prob(Payer_Dummy_t = 1) &= F(\beta_0 + \beta_1 Shareholder\ Protection + \beta_2 Creditor\ Rights + \beta_3 Log_TA_t \\
 &+ \beta_4 Equity_TA_t + \beta_5 Growth_TA_t + \beta_6 ROE_t + \beta_7 Reg_Cap_t \\
 &+ \beta_8 DI_Coverage_t + \beta_9 Market_GDP_t + \beta_{10} GDP_Growth_t \\
 &+ \beta_{11} Log_GDPPC_t) \quad (2)
 \end{aligned}$$

where *Payer_Dummy* takes the value of one if the bank (index suppressed) declared and paid a dividend in year *t*, and zero otherwise. Definitions of other variables are given in section 3. Like Eq. (1), we estimate six variations of regression Eq. (2) and report the results in columns 1–6 of Table 5. The logit regression results for banks' probability to pay dividends in Table 5 are quite similar to the tobit regression results for banks' dividend payout amounts presented in Table 4 except Equity_TA. Negative and significant coefficients for Equity_TA variable indicate that banks having high equity ratios are less likely to pay dividends. One possible reason for this negative relation is that our sample includes many start-up banks which have high equity ratios, but are less likely to pay dividends. In this regard, DeAngelo *et al.* (2006) argue that estimated coefficient of equity ratio with the probability of paying dividends could be negative due to high equity ratio start-up firms.

For bank-level controls, positive and significant coefficients of Log_TA and ROE variables in all models show that the big-in-size and more profitable banks are more likely to pay dividends. Contrary, significantly negative coefficients of Growth_TA variable in all models show that growing banks are less likely to pay dividends.

For country-level controls, results of regulatory pressure variable, Reg_Cap, again confirm that banks in countries which impose stringent capital requirements are less likely to pay dividends. Similarly, negative and significant coefficient of DI_Coverage variable shows that banks are more likely to pay dividends to signal their performance to uninsured/partially less insured

depositors. For other controls, positive and significant coefficient of Market_GDP shows that banks are more likely to pay dividends in developed financial market countries, whereas negative and significant coefficients of GDP_Growth and Log_GDPPC show that banks are less likely to pay dividends in growing as well as in developed countries.

We include revised anti-director index (RADI) and anti-self-dealing index (ASDI), one-by-one in models 2 and 3. Positive and significant coefficients for RADI (0.567) and ASDI (0.629) show that banks are more likely to pay dividends in strong shareholder protection countries. These results verify our hypothesis H1 and are consistent with the outcome hypothesis of La Porta *et al.* (2000).

Negative and significant coefficient for CRI (-0.168) shows that banks are less likely to pay dividends in strong creditor rights countries. This result is consistent with our hypothesis H2b and suggests that assets-side effect of extending more loans dominates the liability-side disciplining effect of depositors and debt-holders. This result for creditor rights is again inconsistent to substitute hypothesis, suggested by Brockman and Unlu (2009), by verifying that strong agency costs of deposits do exist in banking and managers of banks do not substitute weak legal protection of depositors and debt-holders with dividend payments, even after controlling for deposit insurance coverage and regulatory pressure.

We include both shareholder protection variables one-by-one with creditor rights index simultaneously in models 5 and 6. Results remain consistent; shareholder protection variables enter significantly positive and creditor rights index enter significantly negative.

Table 5: Shareholder protection, creditor rights and the propensity to pay dividends

Variables	Payer_Dummy					
	(1)	(2)	(3)	(4)	(5)	(6)
RADI		0.567*** (0.000)			0.594*** (0.000)	
ASDI			0.629* (0.052)			1.330*** (0.000)
CRI				-0.168*** (0.007)	-0.252*** (0.000)	-0.287*** (0.000)
Log_TA	0.892*** (0.000)	0.863*** (0.000)	0.880*** (0.000)	0.894*** (0.000)	0.865*** (0.000)	0.870*** (0.000)
Equity_TA	-0.009** (0.017)	-0.011*** (0.003)	-0.010** (0.011)	-0.009** (0.019)	-0.011*** (0.004)	-0.010*** (0.009)
Growth_TA	-0.009*** (0.000)	-0.010*** (0.000)	-0.009*** (0.000)	-0.009*** (0.000)	-0.010*** (0.000)	-0.009*** (0.000)
ROE	0.035*** (0.000)	0.037*** (0.000)	0.036*** (0.000)	0.036*** (0.000)	0.037*** (0.000)	0.036*** (0.000)
Reg_Cap	-0.084*** (0.000)	-0.129*** (0.000)	-0.083*** (0.000)	-0.087*** (0.000)	-0.135*** (0.000)	-0.087*** (0.000)
DI_Coverage	-0.119*** (0.000)	-0.096*** (0.000)	-0.124*** (0.000)	-0.139*** (0.000)	-0.124*** (0.000)	-0.162*** (0.000)
Market_GDP	1.440*** (0.000)	1.329*** (0.000)	1.411*** (0.000)	1.407*** (0.000)	1.275*** (0.000)	1.322*** (0.000)
GDP_Growth	-0.121*** (0.000)	-0.126*** (0.000)	-0.123*** (0.000)	-0.120*** (0.000)	-0.125*** (0.000)	-0.123*** (0.000)
Log_GDPPC	-0.722*** (0.000)	-0.642*** (0.000)	-0.711*** (0.000)	-0.727*** (0.000)	-0.645*** (0.000)	-0.706*** (0.000)
Constant	-7.380*** (0.000)	-9.447*** (0.000)	-7.567*** (0.000)	-6.966*** (0.000)	-8.931*** (0.000)	-7.072*** (0.000)

<i>Year_dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Wald chi2	1872.9	1925.6	1873.2	1873.7	1926.7	1870.8
Observations	26,894	26,894	26,894	26,894	26,894	26,894
Bank	5,918	5,918	5,918	5,918	5,918	5,918

This table reports the panel random-effects logit regression results. Sample period is 1998–2007. All regressions include dummy variables for year fixed-effects. The dependent variable, *Payer_Dummy*, equals one if the bank pays dividend and zero otherwise. *RADI* and *ASDI* are revised anti-director index and anti-self-dealing index, respectively, from Djankov *et al.* (2008). *CRI* is creditor rights index from Djankov *et al.* (2007). *Log_TA*, *Growth_TA*, *Equity_TA*, and *ROE* are natural log of total assets, year-on-year growth in total assets, equity to total assets ratio, and return on average equity, respectively. *Reg_Cap* is regulatory capital index from Barth *et al.* (2013). *DI_Coverage* is deposit insurance coverage per depositor to GDP per capita ratio from Demirgüç-Kunt and Detragiache (2002). *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. ***, ** and * show significance at one, five and ten percent levels, respectively.

4.3 Creditor rights sub-indices and dividend payouts

Although, our previous analyses confirm strong effects of legal protection of creditors on bank dividend policies, however, following Brockman and Unlu (2009) we examine the impact of creditor rights four sub-indices individually on bank dividend policies. Brief description of these sub-indices is given in sub-section 2.2.

We estimate both tobit and logit regressions for analyzing the effects of creditor rights sub-indices on dividend payout amounts and the likelihood of dividend paying, respectively, and report results in Table 6. Models 1-4 report tobit results for each of the creditor rights sub-indices. The estimated results for all control variables are consistent across all four models, as well as being consistent with the results in Table 4. In regressions 1, 2, 3, and 4, we find a negative and significant relation between the dividend payout amounts and *Restrict_Reorgan* (-0.400), *No_Auto_Stay* (-0.233), *Pay_Secure_First* (-0.183) and *Mgm_Not_Stay* (-0.099), respectively. Among the four sub-indices, the estimated coefficient for *Restrict_Reorgan* is largest and smallest for *Mgm_Not_Stay*. Results for shareholder protection variable, *RADI*, are also remain consistent across all models.

Table 6: Creditor rights sub-indices, and dividend payout amounts and the propensity to pay dividends

Variables	Dividends				Payer_Dummy			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restrict_Reorgan	-0.400*** (0.000)				-1.850*** (0.000)			
No_Auto_Stay		-0.233*** (0.000)				-1.771*** (0.000)		
Pay_Secure_First			-0.183*** (0.000)				-1.173*** (0.000)	
Mgm_Not_Stay				-0.099*** (0.002)				-0.242** (0.046)
RADI	0.091*** (0.000)	0.083*** (0.000)	0.111*** (0.000)	0.130*** (0.000)	0.443*** (0.000)	0.340*** (0.000)	0.539*** (0.000)	0.602*** (0.000)
Log_TA	0.171*** (0.000)	0.173*** (0.000)	0.174*** (0.000)	0.178*** (0.000)	0.820*** (0.000)	0.836*** (0.000)	0.835*** (0.000)	0.862*** (0.000)
Equity_TA	0.008*** (0.000)	0.008*** (0.000)	0.009*** (0.000)	0.008*** (0.000)	-0.010** (0.011)	-0.012*** (0.003)	-0.008** (0.036)	-0.012*** (0.003)
Growth_TA	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.009*** (0.000)	-0.009*** (0.000)	-0.009*** (0.000)	-0.010*** (0.000)
ROE	0.016*** (0.000)	0.015*** (0.000)	0.016*** (0.000)	0.015*** (0.000)	0.037*** (0.000)	0.036*** (0.000)	0.037*** (0.000)	0.037*** (0.000)
Reg_Cap	-0.024***	-0.019***	-0.025***	-0.028***	-0.117***	-0.071***	-0.122***	-0.132***

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DI_Coverage	-0.033***	-0.018**	-0.020***	-0.030***	-0.106***	-0.005	-0.030	-0.094***
	(0.000)	(0.012)	(0.007)	(0.000)	(0.000)	(0.859)	(0.286)	(0.001)
Market_GDP	0.265***	0.293***	0.268***	0.274***	1.194***	1.373***	1.205***	1.293***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP_Growth	-0.027***	-0.028***	-0.031***	-0.033***	-0.098***	-0.092***	-0.116***	-0.126***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log_GDPPC	-0.183***	-0.147***	-0.156***	-0.148***	-0.764***	-0.594***	-0.656***	-0.626***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-1.507***	-2.155***	-2.169***	-2.147***	-6.648***	-9.994***	-9.809***	-9.535***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<i>Year_dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Wald chi2	2002.2	2006.8	1932.9	1931.6	1940.4	2075.6	1935.6	1924.7
Left censored	17,962	17,962	17,962	17,962				
Observations	26,894	26,894	26,894	26,894	26,894	26,894	26,894	26,894
Banks	5,918	5,918	5,918	5,918	5,918	5,918	5,918	5,918

Models 1-4 report the panel random-effects tobit regression results and models 5-8 report the panel random-effects logit regression results. Sample period is 1998–2007. All regressions include dummy variables for year fixed-effects. The dependent variable in models 1-4, Dividends, is the common dividends paid to total assets ratio. The dependent variable in models 5-8, Payer_Dummy, equals one if the bank pays dividend and zero otherwise. Restrict_Reorgan equals one if secured creditor consent is required to file for reorganization and zero otherwise. No_Auto_Stay equals one if there is no automatic stay on the secured creditors' assets. Pay_Secure_First equals one if the secured creditors are given the absolute priority claims during the bankruptcy. Mgm_Not_Stay equals one if either creditors or courts have the authority to change the incumbent management during bankruptcy proceedings. RADI is revised anti-director index from Djankov *et al.* (2008). Log_TA, Growth_TA, Equity_TA, and ROE are natural log of total assets, year-on-year growth in total assets, equity to total assets ratio, and return on average equity, respectively. Reg_Cap is regulatory capital index from Barth *et al.* (2013). DI_Coverage is deposit insurance coverage per depositor to GDP per capita ratio from Demirgüç-Kunt and Detragiache (2002). 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. ***, ** and * show significance at one, five and ten percent levels, respectively.

Models 5-8 report logit regression results for each of the creditor rights sub-indices. The estimated results for all control variables are consistent across all four models, as well as being consistent with the results in Table 5. Similar to models 1-4 results, all sub-indices of creditor rights index enter negatively significant in all models. In regressions 5, 6, 7, and 8, we find a negative and significant relation between the propensity to pay dividends and Restrict_Reorgan (-1.850), No_Auto_Stay (-1.771), Pay_Secure_First (-1.173) and Mgm_Not_Stay (-0.242), respectively. Again, the estimated coefficient for Restrict_Reorgan is the largest and the smallest for Mgm_Not_Stay. Results for shareholder protection variable, RADI, are also remain consistent across all models.

Overall, regressions in Table 6 reveal that results of all creditor rights sub-indices are consistent with the composite index results in Tables 4 and 5. This evidence supports that better creditor rights act as incentives for banks, and banks retain more profits for extending higher amount of loans in better creditor rights environments. Moreover, this evidence suggests that depositors and creditors of banks do not have significant influence over bank dividend policies.

Table 7: Additional control variables and dividend payout amounts and the propensity to pay dividends

Variables	Dividends			Payer_Dummy		
	(1)	(2)	(3)	(4)	(5)	(6)
RADI	0.144*** (0.000)	0.189*** (0.000)	0.196*** (0.000)	0.668*** (0.000)	0.822*** (0.000)	0.796*** (0.000)

CRI	-0.045*** (0.007)	-0.188*** (0.000)	-0.113*** (0.000)	-0.311*** (0.000)	-0.765*** (0.000)	-0.394*** (0.000)
Log_TA	0.160*** (0.000)	0.155*** (0.000)	0.141*** (0.000)	0.818*** (0.000)	0.792*** (0.000)	0.753*** (0.000)
Equity_TA	0.009*** (0.000)	0.009*** (0.000)	0.009*** (0.000)	-0.007 (0.102)	-0.003 (0.377)	0.001 (0.804)
Growth_TA	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.008*** (0.000)	-0.008*** (0.000)	-0.006*** (0.000)
ROE	0.015*** (0.000)	0.016*** (0.000)	0.016*** (0.000)	0.038*** (0.000)	0.040*** (0.000)	0.042*** (0.000)
Reg_Cap	-0.025*** (0.000)	-0.015*** (0.003)	-0.014*** (0.006)	-0.114*** (0.000)	-0.068*** (0.001)	-0.061*** (0.003)
DI_Coverage	-0.016** (0.041)	-0.035*** (0.000)	-0.025*** (0.002)	0.017 (0.578)	-0.123*** (0.000)	0.003 (0.928)
Market_GDP	0.215*** (0.000)	0.177*** (0.000)	0.180*** (0.000)	0.847*** (0.000)	0.845*** (0.000)	0.818*** (0.000)
GDP_Growth	-0.020*** (0.000)	-0.026*** (0.000)	-0.015*** (0.000)	-0.055*** (0.000)	-0.092*** (0.000)	-0.014 (0.343)
Log_GDPPC	-0.365*** (0.000)	-0.146*** (0.000)	-0.352*** (0.000)	-1.870*** (0.000)	-0.736*** (0.000)	-2.258*** (0.000)
Civil_Legal_Origin	0.126*** (0.002)		0.313*** (0.000)	-0.086 (0.597)		1.005*** (0.000)
Rule_of_Law	0.417*** (0.000)		0.370*** (0.000)	2.297*** (0.000)		2.648*** (0.000)
UAI		-0.009*** (0.000)	-0.005*** (0.000)		-0.032*** (0.000)	-0.018*** (0.006)
MAS		0.014*** (0.000)	0.014*** (0.000)		0.065*** (0.000)	0.059*** (0.000)
LTO_WVS		-0.004*** (0.000)	-0.002** (0.048)		-0.014** (0.015)	-0.012*** (0.004)
Constant	-0.309 (0.141)	-1.761*** (0.000)	-0.676*** (0.001)	0.720 (0.398)	-8.846*** (0.000)	-2.558** (0.018)
<i>Year_dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Wald chi2	2064.7	2116.6	2168.6	1860.2	1964.4	1895.3
Left censored	17,962	17,549	17,549			
Observations	26,894	26,395	26,395	26,894	26,395	26,395
Banks	5,918	5,801	5,801	5,918	5,801	5,801

Models 1-3 report the panel random-effects tobit regression results and models 4-6 report the panel random-effects logit regression results. Sample period is 1998–2007. All regressions include dummy variables for year fixed-effects. The dependent variable in models 1-3, Dividends, is the common dividends paid to total assets ratio. The dependent variable in models 4-6, Payer_Dummy, equals one if the bank pays dividend and zero otherwise. RADI is revised anti-director index from Djankov *et al.* (2008). CRI is creditor rights index from Djankov *et al.* (2007). Log_TA, Growth_TA, Equity_TA, and ROE are natural log of total assets, year-on-year growth in total assets, equity to total assets ratio, and return on average equity, respectively. Reg_Cap is regulatory capital index from Barth *et al.* (2013). DI_Coverage is deposit insurance coverage per depositor to GDP per capita ratio from Demirgüç-Kunt and Detragiache (2002). Market_GDP is annual stock market capitalization to GDP ratio. 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. UAI, MAS and LTO_WVS are three dimensions of national culture representing uncertainty avoidance, masculinity and long-term orientation, respectively, from Hofstede *et al.* (2010). 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. ***, ** and * show significance at one, five and ten percent levels, respectively.

4.4 Robustness tests

We apply several robustness tests to further validate our main results. First, we include civil legal origin, rule of law and cultural variables to account for the concern that our results are not biased

due to omitted variables. *Civil_Legal_Origin* is a dummy variable equals one if a country has civil legal origin and zero otherwise. *Rule_of_Law* variable is taken from Kaufmann *et al.* (2010) and measures the likelihood of crime and violence in a country, and the extent to which agents have confidence in and abide by the rules of society, the police, and the courts. Following Zheng and Ashraf (2014), we use three dimensions of national culture (uncertainty avoidance, masculinity and long-term orientation) from cultural framework of Hofstede *et al.* (2010). Uncertainty avoidance index, UAI, measures the extent to which the members of a culture feel uncomfortable with uncertain, unstructured, or unknown situations and try to avoid such situations. Masculinity index, MAS, measures the preference for performance orientation, independence and competitiveness in the dominant values of a society. Long-term orientation index, LTO_WVS, indicates the extent of preference for future rewards such as perseverance and thrift. As shown in Table 7 from Model 1 to 6, our results for shareholder protection and creditor rights variables remain consistent with dividend policy variables after including these additional control variables.

5. Conclusion

We address the primary research questions that how legal protection of shareholders and bank creditors influence the dividend policies of banks. Prior research examines these questions for nonfinancial firms (La Porta *et al.* 2001; Brockman and Unlu 2009) excluding financial firms. Given the important role of creditor rights for capital market development and given that the factors, such as high financial leverage of banks; multitude of stakeholders of banks such as depositors, regulators and deposit insurers in addition to debt-holders; and the high level of opacity and complexity of banking business as compared to nonfinancial firms, which distinguish governance of banks from nonfinancial firms, these questions are very important to be answered for banking.

For shareholder protection, we hypothesis that bank dividend payments are an outcome of legal protection of minority shareholders; that is, strong legal protection of minority shareholders enable them to extract higher amount of dividends from firm insiders (outcome hypothesis of La Porta *et al.* (2000)). For creditor protection, expectation is mixed depending upon the level of depositors and other debt-holders' disciplining effects on bank insiders and assets side effects of creditor rights. If depositors and debt holders have strong disciplining effect on insiders and assets side effects of creditor rights are weak, weak legal protection of creditors force banks to pay lower dividends to owners for attracting future deposits and debt financing at favorable prices (substitute hypothesis of Brockman and Unlu (2009)). And if depositors and debt holders have weak disciplining effect on insiders and assets side effects of creditor rights are strong, banks will not substitute weak legal protection of creditors with lower dividends, but will pay lower dividends in strong creditor protection countries to take more lending risk.

For empirical analyses, we use an international sample of 26,894 bank-year observations from 5,918 unique banks across 52 countries over the period 1998–2007. We examine the relations between dividend policy variables, dividend payout amounts and the propensity to pay dividends, and shareholder protection and creditor rights indices, while controlling for bank characteristics (e.g., bank size, profitability, and assets growth), bank- and country-level regulatory pressure (e.g., equity to assets ratio and regulatory capital index), level of deposit insurance coverage, level of financial market development, level and rate of growth of economic development.

Our findings support outcome hypothesis; that is, banks pay more dividends and are more likely to pay dividends in strong minority shareholder protection countries. However, we reject the substitute hypothesis by finding that banks do not substitute weak legal protection of depositors and debt-holders with dividend policies and pay higher dividends in weak creditor rights countries. Our results, that a bank pays lower amount of dividends and is less likely to pay dividends in a strong creditor rights country, support the literature which argues the importance of creditor rights for capital market development because one possible reason for this finding could be that the incumbent bank retains more profits for extending more loans.

Further, by finding that creditor rights index is negatively correlated with bank dividend policies in contrast to its positive correlation with nonfinancial firms' dividend policies, we support the literature (H. K. Baker *et al.*, 2008) which argues that managers of banks give less importance to factors such as current degree of financial leverage, the contractual constraints such as dividend restrictions in debt contracts, and the financing considerations such as the cost of raising external funds, while deciding about the dividend payments. We also support the literature (H. K. Baker *et al.*, 2008; H. K. Baker *et al.*, 2001) which argues to keep financial and nonfinancial firms separate to better understand the dividend puzzle.

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