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**Article**

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# Creditors and dividend policy: Reputation building versus debt covenant

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## ABSTRACT

Agency problem between shareholders and creditors can be reduced by two mechanisms namely reputation-building and debt covenant. Prior studies document supporting evidence for both hypotheses with a positive relationship between creditor rights and dividend policy. However, they fail to test reputation-building mechanism and debt covenant mechanism separately. This paper finds that credit information and legal rules supporting moveable assets are promising variables to fill this gap since the two mechanisms provide opposite effects of credit information and legal rules on dividend policy. With a sample of 37,673 observations collected across 39 countries over the period from 2013 to 2015 we find supporting evidence for debt covenant hypothesis and creditor information has a complementary effect on legal rules in determining corporate dividend policy.

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## 1. Introduction

Agency problem between shareholders and creditors arise due to information asymmetry and firms tend to expropriate lenders' wealth by paying more dividends (Jensen & Meckling, 1976). However, this problem can be mitigated by two mechanisms including reputation-building and debt covenant (Long, Malitz, & Sefcik, 1994). The former predicts that firm reputation is more valuable than expropriation of creditors' wealth. Firms with good investment opportunities are more likely to restrict dividend payment since they need to build reputation capital for better access to external funds in the future (John & Nachman, 1985). Long et al. (1994) investigate dividend decisions following debt issues in the US market and find supporting evidence for reputation-building hypothesis. On the other hand, debt covenant hypothesis argues that creditors use contractual covenants as a mean to control corporate dividend payment (Long et al., 1994). Brockman and Unlu (2009) argue that on creditors' demand, managers tend to consent to dividend constraints via formal debt covenants and informal agreements as a substitute for weak creditor protection. They find that corporate dividend payout is positively related to creditor rights across 52 countries. In addition, their analysis of debt covenant provisions in three large countries including US, UK and Canada also provides supporting evidence for

debt covenant mechanism. Many following studies document the positive relationship between dividend decisions and creditor protection (Byrne & O'Connor, 2012; Shao, Kwok, & Guedhami, 2013; Tran, Alphonse, & Nguyen, 2017). However, this positive relationship may be explained not only by debt covenant hypothesis but also by reputation-building hypothesis since firms in countries of weaker creditor protection are likely to restrict their dividends to build reputation toward creditors. Therefore, most prior studies fail to indicate whether reputation-building hypothesis or debt covenant hypothesis dominates in corporate dividend policy.

In this paper, we are able to test reputation-building hypothesis and debt covenant hypothesis separately when we employ depth of credit information index and strength of legal rights index annually published by the World Bank. Depth of credit information index represents rules and practices influencing credit information disclosed by either a credit bureau or a credit registry. Strength of legal rights index indicates the extent to which collateral and bankruptcy legislations protect borrowers' rights and lenders' rights and thus facilitate lending. We argue that the incentive of restricting dividends to build reputation capital is weaker when credit information is more available and access to credit is expanded by legal rules. However, when debt covenant mechanism is effective, creditors with more credit information are more likely to control corporate dividend policy and expropriation of creditors is reduced. Moreover, lenders have a stronger incentive to use contractual relationships to restrict dividends if more movable assets considered as a high-risk security are accepted by collateral rules. As a result,

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positive (negative) effects of credit information and collateral rules on dividend policy provide supporting evidence for reputation-building (debt covenant) hypothesis.

Following prior studies, we develop pooled Logit and Tobit regression models to examine the effects of depth of credit information index and strength of legal rights index on both the choice to pay dividends and dividend payout ratio. The research sample contains 37,673 observations collected from 15,900 firms incorporated in 39 countries over three years from 2013 to 2015.<sup>1</sup> After controlling both firm-specific variables and country-specific variables, we find that both depth of credit information score and strength of legal rights score are negatively related to corporate dividend policy. These findings are empirical supporting evidence for debt covenant hypothesis. Our robustness checks show that the research findings are stable.

In addition, we posit that when credit information is more available, creditors may employ credit information to reduce the risk that arises when legal rules recognize more movable assets. Hence, legal rules are more effective in dividend policy in countries of high credit information availability and creditor information are more effective in dividend policy in countries of strong legal rules. Therefore, we analyze the effect of depth of credit information index (strength of legal rights index) on dividend decisions in the sub-samples of low and high strength of legal rights index (depth of credit information index). We find that the effect of strength of legal rights score (depth of credit information score) on dividend policy is stronger in countries of high depth of credit information score (low strength of legal rights score).

The remaining of this study is organized as follows: Section 2 reviews prior research on agency costs of creditors and develops research hypotheses. Section 3 presents research models. Section 4 describes the research sample. Section 5 reports our research findings and robustness checks. Section 6 presents additional analysis and Section 7 is conclusions.

## 2. Literature review and hypothesis development

Miller and Modigliani (1961) posit that corporate dividend policy is irrelevant in a perfect capital market; however, the real world has many market frictions that may determine firm dividend decisions. One of the most debatable frictions that attract many studies in corporate finance is agency relationship. According to Jensen and Meckling (1976), agency relationship is deemed as an agreement stipulating that an agent performs some service on behalf of a principal who delegates decision-making authority to the agent. Agency problem arises due to the separation of the ownership of resources and the right to control resources. The agent is not the owner of resources but has the right to manage resources; therefore, the agent tends to make business decisions to serve his/her personal interest instead of the principal's benefits. There are two kinds of agency problems including the conflict of interest between shareholders (the principal) and firm managers (the agent) and the conflict of interest between creditors (the principal) and shareholders (the agent). This paper focuses on the effect of the agency problem between creditors and shareholders on corporate dividend policy. Jensen and Meckling (1976), Myers (1977) argue that shareholders may try to expropriate creditors through excessive dividends.

Long et al. (1994) posit that the agency problem between creditors and shareholders can be reduced by two mechanisms namely reputation-building and debt covenant. The former states that corporate managers prefer firm reputation to expropriation

of creditors' wealth. Hence, firms may restrict their dividend distribution to build reputation capital and thus they are able to have better access to external financing and incur lower costs of external financing in the future (John & Nachman, 1985). On the other hand, the latter states that creditors employ contractual covenants in order to restrict corporate dividend policy (Long et al., 1994). Investigating the relationship between corporate dividend payment and debt issues in US stock market, Long et al. (1994) find that reputation-building hypothesis is the most plausible explanation. Easterbrook (1984), Smith and Warner (1979) also find supporting evidence for debt covenant hypothesis. Creditors modify loan contracts to account for poor enforceability of contracts, weak creditor rights, and information asymmetry.

Brockman and Unlu (2009) argue that creditors demand and managers tend to consent to restrictive dividends as a substitute for poor creditor rights through formal debt covenants and informal agreements in order to reduce agency costs of debt. With a sample of 120,507 observations across 52 countries, they find that both the decision to pay dividends and payout ratio are significantly lower in countries of weaker creditor rights. Besides, their additional analysis of debt covenant provisions in three countries namely US, UK and Canada show that creditors use debt covenants to control corporate dividend policy. Bae and Goyal (2009) document that banks tend to decrease the loan amount, reduce loan maturity, and raise the cost of debt capital when loan contract violations are weakly enforced. Byrne and O'Connor (2012) investigate how creditor protection, shareholder protection and corporate governance affect corporate dividend decisions with a research sample including 22,374 firms collected from 35 countries. They find that the three variables significantly influence both the probability of paying dividends and dividend magnitude and the positive impact of country-level creditor protection on dividend policy dominates. Byrne and O'Connor (2017), Shao et al. (2013), Tran et al. (2017) also find supporting evidence for the positive relationship between creditor rights and corporate dividend policy across countries. However, this positive relationship may be explained by both debt covenant hypothesis and reputation-building hypothesis. Firms incorporated in countries of weaker creditor rights are more likely to constrain their dividends since they follow debt covenant provisions and/or need to build good reputation. Consequently, most prior studies fail to test whether reputation-building hypothesis or debt covenant hypothesis affects corporate dividend policy with country-level creditor protection.

In this study, we find two variables that can be employed to test reputation-building hypothesis and debt covenant hypothesis separately since these hypotheses lead to opposite effects of the two variables on corporate dividend policy. The first variable is depth of credit information score that indicates the availability of credit information (i.e. coverage, scope and accessibility) provided by a credit bureau or a credit registry. The second variable is strength of legal rights score that illustrates how collateral and bankruptcy rules protect the rights of both borrowers and lenders and thus facilitate lending. Both of these indices are published annually by World Bank. We argue that when firms have better access to credit due to stronger collateral rules and creditors have more credit information, corporate managers are less likely to build good reputation through dividend restrictions. Therefore, reputation building hypothesis implies the positive effects of both depth of credit information and strength of legal rights on dividend policy.

**H1.** Under reputation building hypothesis, both depth of credit information score and strength of legal rights score are positively related to corporate dividend policy.

However, under debt covenant mechanism, creditors with more credit information tend to pressure firms to control their corporate dividend policy via formal or informal agreements (Brockman &

<sup>1</sup> The World Bank database for depth of credit information index and strength of legal rights index with the most updated methodology is available from 2013.

Unlu, 2009). In addition, creditors are more likely to use contractual relationships as a means to restrict borrowers' dividend policy if legal rules recognize more movable assets that are considered as a high-risk security. Consequently, debt covenant hypothesis implies the negative effects of depth of credit information score and strength of legal rights score on dividend policy.

**H2.** Under debt covenant hypothesis, both depth of credit information score and strength of legal rights score are negatively related to corporate dividend policy.

### 3. Research design

In line with Brockman and Unlu (2009), Tran et al. (2017), we develop pooled logit and tobit models to investigate the propensity to pay dividends and dividend payout ratio respectively as follows:

$$\begin{aligned} \text{Payer} = & \alpha + \beta_1 \text{Profitability} + \beta_2 \text{Cash holding} + \beta_3 \text{Growth} \\ & + \beta_4 \text{Leverage} + \beta_5 \text{Size} + \beta_6 \text{Tangibility} + \beta_7 \text{Retained earnings} \\ & + \beta_8 \text{Credit information} + \beta_9 \text{Legal rules} + \beta_{10} \text{Anti-self-dealing} \\ & + \beta_{11} \text{Creditor rights} + \beta_{12} \text{GDP growth} \\ & + \beta_{13} \text{Uncertainty avoidance} + \varepsilon \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Payout ratio} = & \alpha + \beta_1 \text{Profitability} + \beta_2 \text{Cash holding} + \beta_3 \text{Growth} \\ & + \beta_4 \text{Leverage} + \beta_5 \text{Size} + \beta_6 \text{Tangibility} + \beta_7 \text{Retained earnings} \\ & + \beta_8 \text{Credit information} + \beta_9 \text{Legal rules} + \beta_{10} \text{Anti-self-dealing} \\ & + \beta_{11} \text{Creditor rights} + \beta_{12} \text{GDP growth} \\ & + \beta_{13} \text{Uncertainty avoidance} + \varepsilon \end{aligned} \quad (2)$$

where Payer is assigned the value of 1 if firms distribute dividends and 0 otherwise. Payout ratio is dividends to net sales ratio. Net sales are used instead of earnings as a deflator due to two reasons: Firstly, dividends to earnings ratio is not stable when earnings are low (Aivazian, Booth, & Cleary, 2003). Secondly, earnings management is various across countries under the impact of the strength of investor protection (Leuz, Nanda, & Wysocki, 2003). We also replicate the regression models with dividends to total assets and dividends to earnings as robustness checks.

Profitability is measured by ratio of net income to total assets. Cash holding is ratio of cash balance to total assets. Growth is calculated by the change in net sales in current year. Firm growth is annual growth of total assets. Leverage is measured by long-term debt scaled by total assets. Size is calculated by the natural logarithm of total assets in U.S. dollars. Tangibility is ratio of net property, plant and equipment to total assets. Retained earnings are ratio of retained earnings to total assets. Credit information is proxied by depth of credit information index ranging from 0 to 8. This index indicates the availability of credit information collected from a credit bureau or a credit registry. Legal rules supporting movable assets is proxied by strength of legal rights index indicating the extent to which collateral and bankruptcy laws protect the rights of borrowers and lenders so that more movable assets are recognized as collateral. This index varies from 0 to 12 and its higher values represent stronger protection and better access to credit. Both strength of legal rights index and depth of credit information index are collected from the World Bank database over the research period. Anti-self-dealing is anti-self-dealing index (ASD) provided by Djankov, La Porta, Lopez-de-Silanes, & Shleifer (2008). Creditor rights are measured by revised creditor right aggregate score developed by Djankov, McLiesh, & Shleifer (2007). GDP growth is annual

GDP growth rate from the World Bank database. Uncertainty avoidance is provided by Hofstede, Hofstede, & Minkov (2010).<sup>2</sup> Bae, Chang, & Kang (2012), Zheng and Ashraf (2014) argue that managers in higher uncertainty avoidance culture are more likely to save cash due to the precautionary motive and they find a negative relationship between uncertainty avoidance index and corporate dividend policy across countries.

All logit and tobit models are run with dummy variables for years and industries to control their effects. Moreover, these regression models are clustered by firm in order to control the correlation between within-firm residuals. The dependent variable and all firm characteristics are winsorized at 5%.<sup>3</sup>

### 4. Research sample

In line with Tran et al. (2017), we collect firm-specific financial and accounting data from Compustat Database. Firms are incorporated in countries specified in La Porta, Lopez-De-Silanes, & Shleifer (2006). Firm-year observations are eliminated if they meet following criteria: (1) firms incorporated in countries requiring mandatory dividend distribution such as Colombia, Greece, Brazil, Chile and Venezuela; (2) firms classified into two industries namely Utilities and Financial; (3) firms with multiple issues of common equity; (4) firms without consolidated financial information; (5) firm-year observations with incomplete or missing information and (6) observations with abnormal information such as negative earnings, negative total assets, negative book equity, and dividend amount higher than total assets. The final research data consists of 37,673 firm-year observations from 15,900 firms incorporated in 39 countries over three years from 2013 to 2015.

Table 1 describes the research sample with firm-specific variables, annual number of firms, distribution of observations by industry and country-specific variables. Panel A illustrates that a major proportion of firms decide to pay dividends. Payers account for 69% of the sample which is considerably higher than 65.81% in Tran et al. (2017) and 64.4% in Brockman and Unlu (2009). Besides, dividend amount is equivalent to 1.97% of net sales. Dividend payout ratio is also higher than 1.2% in Brockman and Unlu (2009) but slightly lower than 2.00% in Shao et al. (2013). The values of mean, median, standard deviation and presented percentiles indicate that the distribution of firm characteristics looks reasonable and selection bias is not present.

Panel B shows distribution of the research data by year. Each year constitutes about 33% of observations in the sample. The largest number of firms is collected in 2013 with 12,726, followed by 12,688 in 2014 and the smallest number is 12,259 in 2015. The variation of number of firms by year also implies no selection bias. Panel C reports number of firm-year observations with industry classification. In consistent with prior studies conducted by Brockman and Unlu (2009), Shao et al. (2013), Tran et al. (2017), the largest percentage of firm-year observations is from Manufacturing. This industry accounts for more than a half (54.29%) of the research data with 20,451 observations, followed by Service industries with 7,176 observations (19.05%). Retail trade and Transportation, communications constitute 6.39% and 6.38% respectively. The other industries make up from 4% to 6% of the

<sup>2</sup> According to Bae et al. (2012) three national culture dimensions including uncertainty avoidance, masculinity and long-term orientation are highly correlated to each other. Therefore, they should be included in regression models separately. In this study, for brevity, we only present regression results with uncertainty avoidance. Replicating both logit and tobit models with masculinity and long-term orientation separately report similar core results.

<sup>3</sup> All regression models are also replicated with samples winsorized at 3% and 10%. Regression results show that main findings are similar to those with 5% winsorization. This implies that outliers fail to impact the research results significantly.

**Table 1**  
Summary statistics.

| Panel A. Firm characteristics   |                        |           |           |                        |                          |                                |                         |                      |                             |
|---------------------------------|------------------------|-----------|-----------|------------------------|--------------------------|--------------------------------|-------------------------|----------------------|-----------------------------|
| Variables                       | Number of observations | Mean      | Median    | Std. Dev.              | 5%                       | 25%                            | 75%                     | 95%                  |                             |
| Payer                           | 37,673                 | 0.69      | 1         | 0.46                   | 0                        | 0                              | 1                       | 1                    |                             |
| Dividends to sales (%)          | 37,673                 | 1.97      | 0.79      | 2.85                   | 0.00                     | 0.00                           | 2.47                    | 10.59                |                             |
| Profitability (%)               | 37,673                 | 5.61      | 4.46      | 4.41                   | 0.44                     | 2.21                           | 7.79                    | 16.60                |                             |
| Cash holding (%)                | 37,673                 | 14.97     | 10.91     | 13.27                  | 0.64                     | 4.30                           | 21.99                   | 47.09                |                             |
| Growth (%)                      | 37,673                 | 9.90      | 6.16      | 15.02                  | -9.41                    | 0.05                           | 15.21                   | 51.63                |                             |
| Leverage (%)                    | 37,673                 | 10.67     | 6.31      | 11.84                  | 0.00                     | 0.12                           | 17.84                   | 38.33                |                             |
| Size                            | 37,673                 | 12.42     | 12.34     | 1.97                   | 8.92                     | 10.98                          | 13.82                   | 16.14                |                             |
| Tangibility (%)                 | 37,673                 | 27.42     | 23.96     | 20.41                  | 1.28                     | 9.69                           | 41.00                   | 70.76                |                             |
| Retained earnings (%)           | 37,673                 | 21.83     | 21.03     | 23.85                  | -29.13                   | 4.86                           | 38.52                   | 65.32                |                             |
| Panel B. Annual number of firms |                        |           |           |                        |                          |                                |                         |                      |                             |
| Year                            | 2013                   | 2014      |           | 2015                   |                          |                                |                         |                      |                             |
| N                               | 12,726                 | 12,688    |           | 12,259                 |                          |                                |                         |                      |                             |
| Percent                         | 33.78                  | 33.68     |           | 32.54                  |                          |                                |                         |                      |                             |
| Panel C. Industry distribution  |                        |           |           |                        |                          |                                |                         |                      |                             |
| SIC industry                    | 2-digit SIC            | N         | Percent   | SIC industry           | 2-digit SIC              | N                              | Percent                 |                      |                             |
| Mineral industries              | 10-14                  | 1,570     | 4.17      | Wholesale trade        | 50-51                    | 2,188                          | 5.81                    |                      |                             |
| Construction industries         | 15-17                  | 1,480     | 3.93      | Retail trade           | 52-59                    | 2,406                          | 6.39                    |                      |                             |
| Manufacturing                   | 20-39                  | 20,451    | 54.29     | Service industries     | ≥70                      | 7,176                          | 19.05                   |                      |                             |
| Transportation, communications  | 40-48                  | 2,402     | 6.38      |                        |                          |                                |                         |                      |                             |
| Panel D. Country-specific data  |                        |           |           |                        |                          |                                |                         |                      |                             |
| Country                         | No. obs                | No. firms | Payer (%) | Dividends to sales (%) | Credit information index | Strength of legal rights index | Anti self dealing index | Creditor right index | Uncertainty avoidance index |
| Argentina                       | 100                    | 40        | 73.00     | 1.33                   | 8-8-8                    | 3-3-3                          | 0.34                    | 1                    | 86                          |
| Australia                       | 1,093                  | 550       | 66.88     | 3.45                   | 7-7-7                    | 11-11-11                       | 0.76                    | 3                    | 51                          |
| Austria                         | 135                    | 55        | 81.48     | 2.07                   | 7-7-7                    | 4-4-4                          | 0.21                    | 3                    | 70                          |
| Belgium                         | 177                    | 76        | 63.28     | 2.32                   | 5-5-5                    | 4-4-4                          | 0.54                    | 2                    | 94                          |
| Canada                          | 1,037                  | 526       | 58.53     | 2.67                   | 8-8-8                    | 9-9-9                          | 0.64                    | 1                    | 48                          |
| Switzerland                     | 378                    | 147       | 82.80     | 3.11                   | 6-6-6                    | 6-6-6                          | 0.27                    | 1                    | 58                          |
| Germany                         | 1,028                  | 433       | 66.34     | 1.87                   | 8-8-8                    | 6-6-6                          | 0.28                    | 3                    | 65                          |
| Denmark                         | 200                    | 81        | 62.50     | 2.32                   | 6-6-6                    | 8-8-8                          | 0.46                    | 3                    | 23                          |
| Egypt                           | 276                    | 117       | 78.62     | 4.71                   | 8-8-8                    | 2-2-2                          | 0.20                    | 2                    | 80                          |
| Spain                           | 197                    | 86        | 64.97     | 2.33                   | 7-7-7                    | 5-5-5                          | 0.37                    | 2                    | 86                          |
| Finland                         | 242                    | 103       | 85.54     | 3.04                   | 6-6-6                    | 7-7-7                          | 0.46                    | 1                    | 59                          |
| France                          | 1,000                  | 410       | 70.40     | 1.77                   | 6-6-6                    | 4-4-4                          | 0.38                    | 0                    | 86                          |
| UK                              | 1,631                  | 715       | 77.56     | 3.06                   | 8-8-8                    | 7-7-7                          | 0.95                    | 4                    | 35                          |
| Hong Kong                       | 276                    | 121       | 75.36     | 3.84                   | 7-7-7                    | 7-7-8                          | 0.96                    | 4                    | 29                          |
| Indonesia                       | 742                    | 308       | 59.30     | 1.91                   | 6-6-6                    | 4-4-5                          | 0.65                    | 2                    | 48                          |
| India                           | 5,253                  | 2,203     | 56.67     | 1.15                   | 7-7-7                    | 6-6-6                          | 0.58                    | 2                    | 40                          |
| Ireland                         | 71                     | 30        | 83.10     | 2.32                   | 7-7-7                    | 7-7-7                          | 0.79                    | 1                    | 35                          |
| Israel                          | 560                    | 239       | 61.43     | 2.56                   | 7-7-7                    | 6-6-6                          | 0.73                    | 3                    | 81                          |
| Italy                           | 375                    | 171       | 64.80     | 2.12                   | 7-7-7                    | 2-2-2                          | 0.42                    | 2                    | 75                          |
| Japan                           | 7,457                  | 2,803     | 90.91     | 1.12                   | 6-6-6                    | 5-5-5                          | 0.50                    | 1                    | 92                          |
| Kenya                           | 17                     | 17        | 94.12     | 4.94                   | M-M-7                    | 7-7-7                          | 0.21                    | 4                    | 50                          |
| South Korea                     | 2,318                  | 1,036     | 70.02     | 0.91                   | 8-8-8                    | 5-5-5                          | 0.47                    | 3                    | 85                          |
| Sri Lanka                       | 437                    | 167       | 81.46     | 2.89                   | 6-6-6                    | 2-2-2                          | 0.39                    | 2                    | 45                          |
| Mexico                          | 208                    | 86        | 50.00     | 1.94                   | 8-8-8                    | 7-8-10                         | 0.17                    | 0                    | 82                          |
| Malaysia                        | 1,602                  | 658       | 69.66     | 3.04                   | 7-7-7                    | 7-7-7                          | 0.95                    | 3                    | 36                          |
| Nigeria                         | 118                    | 66        | 76.27     | 3.40                   | M-6-6                    | 6-6-6                          | 0.43                    | 4                    | 55                          |
| Netherlands                     | 219                    | 95        | 67.12     | 2.22                   | 6-6-6                    | 2-2-2                          | 0.20                    | 3                    | 53                          |
| Norway                          | 219                    | 109       | 67.58     | 3.33                   | 6-6-6                    | 5-5-5                          | 0.42                    | 2                    | 50                          |
| New Zealand                     | 196                    | 82        | 79.08     | 4.26                   | 7-8-8                    | 12-12-12                       | 0.95                    | 4                    | 49                          |
| Pakistan                        | 591                    | 239       | 78.68     | 2.34                   | 3-3-3                    | 2-2-2                          | 0.41                    | 1                    | 70                          |
| Peru                            | 143                    | 64        | 75.52     | 3.23                   | 8-8-8                    | 8-8-8                          | 0.45                    | 0                    | 87                          |
| Philippines                     | 301                    | 120       | 72.76     | 3.70                   | 5-5-5                    | 1-1-1                          | 0.22                    | 1                    | 44                          |
| Portugal                        | 80                     | 33        | 75.00     | 3.11                   | 7-7-7                    | 2-2-2                          | 0.44                    | 1                    | 104                         |
| Singapore                       | 1,030                  | 464       | 71.84     | 2.99                   | 7-7-7                    | 8-8-8                          | 1.00                    | 3                    | 8                           |
| Sweden                          | 648                    | 288       | 70.68     | 2.82                   | 5-5-5                    | 6-6-6                          | 0.33                    | 1                    | 29                          |
| Thailand                        | 1,072                  | 450       | 86.47     | 4.17                   | 6-6-6                    | 3-3-3                          | 0.81                    | 2                    | 64                          |
| Turkey                          | 588                    | 248       | 50.17     | 2.15                   | 6-7-7                    | 2-2-2                          | 0.43                    | 2                    | 85                          |
| US                              | 5,202                  | 2,271     | 50.88     | 1.62                   | 8-8-8                    | 11-11-11                       | 0.65                    | 1                    | 46                          |
| South Africa                    | 456                    | 193       | 74.78     | 2.79                   | 8-7-7                    | 5-5-5                          | 0.81                    | 3                    | 49                          |

Note: Credit information index and strength of legal rights index are presented with the order 2013-2014-2015 and years with missing data are assigned the letter "M".

sample, namely Wholesale trade (5.81%), Mineral industries (4.17%) and Construction industries (3.93%).

Panel D illustrates that number of observations varies significantly across 39 countries. Three countries namely US, Japan and India account for 47.54% and 45.77% of observations in the whole sample. Kenya has the largest proportion of payers with 94.12%, followed by Japan with 90.91% and Thailand at 86.47%. Three countries with lowest percentage of paying firms are Mexico (50%), Turkey (50.17%) and US (50.88%). In line with Brockman and Unlu (2009), Shao et al. (2013), Tran et al. (2017), the likelihood to pay dividends is high in Japan and low in US. Kenya is also the country with the highest payout ratio of 4.94%, followed by Egypt and New Zealand with 4.72% and 4.26% respectively. South Korea has the lowest average payout level at 0.92%. Furthermore, Panel D shows that depth of credit information index ranges from 5 to 8 and strength of legal rights index varies from 1 to 12 across 39 countries. A wide range of values for country-level indices is appropriate to investigate their effects on dividend policy around the world. Therefore, it makes research results more reliable.

## 5. Empirical results

Table 2 presents logit and tobit regression results to investigate how credit information and legal rules supporting movable assets affect dividend decisions. Both depth of credit information index and strength of legal right index are negatively related to the likelihood to pay dividends and payout ratio across countries at 1% of significance. These research findings support debt covenant hypothesis. When creditors have more information on firm credit, they are more likely to use the contractual relationship to restrict dividend payment. In addition, creditors tend to require dividend

constraints via credit agreements as a compensation for higher risk of movable assets. In line with Brockman and Unlu (2009), shareholder rights proxied by anti-self-dealing index and creditor rights proxied by revised creditor right index are positively correlated with corporate dividend policy. These results imply that stronger shareholder protection pressures managers to disgorge more cash and firms pay less dividends as a mean to compensate weaker creditor rights. Moreover, GDP growth rate has a significantly negative relationship with dividend payout ratio. Higher growth economies have more investment opportunities and firms retain more earnings for future projects instead of paying dividends. The relationship between national culture and dividend decisions is mixed.

In addition, similar to Brockman and Unlu (2009), Tran et al. (2017), the research results show that firm profitability is positively associated with the propensity to distribute dividends and dividend payout ratios including dividends to sales and dividends to total assets. Moreover, contrary to Brockman and Unlu (2009), Tran et al. (2017), cash holding is positively related to payout ratios at the significant level of 1%. This finding is consistent with agency theory suggested by Jensen (1986), Jensen and Meckling (1976). Corporate managers tend to exploit firm resources to serve their personal interest instead of maximizing shareholders' benefits; therefore, shareholders are more likely to pressures to pay more dividends in order to mitigate their agency costs when firms have higher cash holding. In line with pecking order theory proposed by Myers and Majluf (1984), we find a negative relationship between firm growth and dividend policy. Firms tend to prefer internal funds to external financing; consequently, firms with higher growth rate are more likely to restrict dividend payment in order to save cash for their investment opportunities. Cao, Du, and Hansen (2017),

**Table 2**  
Effects of credit information and legal rules supporting movable assets on dividend decisions across countries.

|                       | Dependent variable is payer | Dependent variable is dividends to sales | Dependent variable is dividends to assets | Dependent variable is dividends to earnings |
|-----------------------|-----------------------------|------------------------------------------|-------------------------------------------|---------------------------------------------|
| Intercept             | -4.3088***<br>(-17.40)      | -4.2679***<br>(-13.04)                   | -1.9523***<br>(-7.99)                     | -15.0422***<br>(-3.28)                      |
| Profitability         | 0.0742***<br>(15.33)        | 0.2866***<br>(39.60)                     | 0.2803***<br>(52.63)                      | -0.1583*<br>(-1.69)                         |
| Cash holding          | 0.0011<br>(0.66)            | 0.0219***<br>(8.78)                      | 0.0062***<br>(3.56)                       | 0.1896***<br>(5.97)                         |
| Growth                | -0.0140***<br>(-14.05)      | -0.0354***<br>(-20.99)                   | -0.0324***<br>(-27.05)                    | -0.5469***<br>(-24.17)                      |
| Leverage              | 0.0003<br>(0.16)            | 0.0215***<br>(7.70)                      | 0.0062***<br>(3.26)                       | 0.1233***<br>(3.27)                         |
| Size                  | 0.4425***<br>(33.67)        | 0.4628***<br>(28.85)                     | 0.2755***<br>(24.67)                      | 5.4958***<br>(25.38)                        |
| Tangibility           | 0.0053***<br>(4.80)         | 0.0058***<br>(3.49)                      | 0.0008<br>(0.75)                          | 0.0518**<br>(2.44)                          |
| Retained earnings     | 0.0336***<br>(33.11)        | 0.0317***<br>(22.95)                     | 0.0224***<br>(22.80)                      | 0.4339***<br>(23.97)                        |
| Credit information    | -0.3728***<br>(-12.30)      | -0.2717***<br>(-6.25)                    | -0.2659***<br>(-8.54)                     | -4.8586***<br>(-8.49)                       |
| Legal rules           | -0.1047***<br>(-8.17)       | -0.2133***<br>(-9.91)                    | -0.1061***<br>(-7.06)                     | -1.8948***<br>(-6.92)                       |
| Anti-self-dealing     | 1.1780***<br>(8.34)         | 1.5512***<br>(7.86)                      | 0.6962***<br>(4.84)                       | 13.7649***<br>(5.14)                        |
| Creditor rights       | 0.2847***<br>(10.32)        | 0.4491***<br>(10.42)                     | 0.3551***<br>(11.57)                      | 6.5103***<br>(11.29)                        |
| GDP growth            | -0.0103<br>(-1.05)          | -0.0851***<br>(-6.53)                    | -0.0935***<br>(-9.62)                     | -2.3157***<br>(-12.42)                      |
| Uncertainty avoidance | 0.0149***<br>(11.61)        | -0.0116***<br>(-6.39)                    | -0.0069***<br>(-5.36)                     | -0.0872***<br>(-3.55)                       |
| No. of observations   | 37,673                      | 37,673                                   | 37,673                                    | 37,673                                      |
| Left-censored         | 11,334                      | 11,334                                   | 11,334                                    |                                             |

Note: *t*-statistics are in parentheses.

\*\*\* Significance at the 1% level.

\*\* Significance at the 5% level.

\* Significance at the 10% level.

**Table 3**  
Robustness checks.

|                                                                                                       | Dependent variable is payer | Dependent variable is dividends to sales |
|-------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------|
| Panel A – Random effect regression for panel data                                                     |                             |                                          |
| Credit information                                                                                    | –1.0942***<br>(–13.83)      | –0.1192***<br>(–4.71)                    |
| Legal rules                                                                                           | –0.3050***<br>(–8.76)       | –0.1192***<br>(–10.23)                   |
| Number of observations                                                                                | 37,673                      | 37,673                                   |
| Left-censored                                                                                         |                             | 11,334                                   |
| Panel B – Pooled OLS regression for payers only                                                       |                             |                                          |
| Credit information                                                                                    |                             | –0.0636***<br>(–2.78)                    |
| Legal rules                                                                                           |                             | –0.0941***<br>(–8.83)                    |
| Number of observations                                                                                |                             | 26,339                                   |
| Panel C – Regression results for the reduced sample (US, Japan and India are excluded)                |                             |                                          |
| Credit information                                                                                    | –0.1231**<br>(–4.01)        | –0.1466***<br>(–2.92)                    |
| Legal rules                                                                                           | –0.0344*<br>(–2.51)         | –0.0443*<br>(–1.85)                      |
| Number of observations                                                                                | 19,761                      | 19,761                                   |
| Left-censored                                                                                         |                             | 5,825                                    |
| Panel D – Additional controls (Financial architecture index and tax advantage of dividends are added) |                             |                                          |
| Credit information                                                                                    | –0.4348***<br>(–11.84)      | –0.3580***<br>(–6.97)                    |
| Legal rules                                                                                           | –0.0249*<br>(–1.72)         | –0.1135***<br>(–5.16)                    |
| Number of observations                                                                                | 35,531                      | 35,531                                   |
| Left-censored                                                                                         |                             | 10,788                                   |

Note: *t*-statistics are in parentheses.

\*\*\* Significance at the 1% level.

\*\* Significance at the 5% level.

\* Significance at the 10% level.

Denis and Osobov (2008), Fama and French (2001), Shao et al. (2013) also find supporting evidence for this negative relationship. Furthermore, our regression results show that there is a positive relationship between firm leverage and dividend policy. On the one hand, financial leverage is a measure of the cost of external financing, firms with higher leverage tend to pay less dividends (Myers & Majluf, 1984; Rozeff, 1982). On the other hand, financial leverage reflects the relationship between firms and creditors or firm reputation. Firms with stronger relationship with creditors and better reputation have better access to credit and lower costs of external financing; therefore, they have higher dividend payout. Aggarwal and Kyaw (2010), De Miguel, Pindado, and De La Torre (2005), Espen Eckbo and Verma (1994) also find a positive effect of financial leverage on corporate dividend policy. In addition, firms with higher asset tangibility and larger size have an incentive to pay more dividends. The significantly positive impact of retained earnings to assets ratio on dividend decisions supports the life-cycle hypothesis (DeAngelo, DeAngelo, & Stulz, 2006).

Table 3 shows robustness checks to verify regression results reported in Table 2. Both logit and tobit estimation results for panel data presented in Panel A are consistent with those for pooled data clustered by firms in Table 2. In econometric parlance, the data of payout ratios is left-censored; therefore, pooled OLS regression may be biased due to selection problem (Wooldridge, 2010). However, results of pooled OLS regression for payers reported in Panel B still show similar findings with significantly negative effects of depth of credit information index and strength of legal rights index on payout policy.

As presented in Section 3, total number of firms incorporated in US, Japan and India constitutes more than 45% of the research sample. Consequently, we replicate pooled logit and tobit regression models clustered by firm for a reduced sample without these countries for a robustness test. The estimation results in Panel C

show that the data composition problem fails to affect our main research findings. Furthermore, the extant literature shows that dividend policy across countries is affected by tax policy and financial structure (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000). Therefore, we add two country-specific control variables including preferential tax treatment of dividends collected from La Porta et al. (2000) and financial architecture index provided by Cy Kwok (2006) as control variables. Panel D shows that the core research findings are stable.

## 6. Additional analysis

When creditors have more credit information, they are likely to use credit information to mitigate the risk of movable assets associated with legal rules through debt covenant mechanism. Therefore, the relationship between legal rules (creditor information) and dividend policy in countries of high credit information availability (strong legal rules) should be higher. Therefore, we analyze the effect of credit information and legal rules on dividend decisions by levels of legal rules and credit information respectively. We divide the full sample into two pairs of sub-samples of high-low credit information availability and weak-strong legal rules. A firm-year is classified into the sub-sample of high (low) credit information availability if its depth of credit information index is (not) greater than the median value of the year 2015. A firm-year belongs the sub-sample of strong (weak) legal rules if its strength of legal rights index is (not) greater than the median value of the year 2015. The median values of depth of credit information index and strength of legal rights index in the year 2015 are 7 and 5 respectively. Regression results presented in Table 4 show that the effects of credit information availability on both the choice to pay dividends and the magnitude of dividends are stronger in countries of strong legal rules. In addition, the effect of legal rules on dividend policy is also

**Table 4**  
Effect of credit information on dividend policy by strength of legal rules and effect of legal rules on dividend policy by depth of credit information.

|                       | Effect of credit information on dividend policy by strength of legal rules |                               |                                          |                               | Effect of legal rules on dividend policy by depth of credit information |                        |                                          |                        |
|-----------------------|----------------------------------------------------------------------------|-------------------------------|------------------------------------------|-------------------------------|-------------------------------------------------------------------------|------------------------|------------------------------------------|------------------------|
|                       | Dependent variable is payer                                                |                               | Dependent variable is dividends to sales |                               | Dependent variable is payer                                             |                        | Dependent variable is dividends to sales |                        |
|                       | Low credit information index                                               | High credit information index | Low credit information index             | High credit information index | Low legal rules index                                                   | High legal rules index | Low legal rules index                    | High legal rules index |
| Intercept             | −7.1229***<br>(−25.25)                                                     | −4.1520***<br>(−8.48)         | −5.6963***<br>(−16.74)                   | −0.7837<br>(−0.79)            | −7.1699***<br>(−16.54)                                                  | −3.4534***<br>(−10.13) | −2.2978***<br>(−4.97)                    | −4.3235***<br>(−8.50)  |
| Profitability         | 0.0873***<br>(12.94)                                                       | 0.0721***<br>(10.04)          | 0.3145***<br>(36.21)                     | 0.2376***<br>(17.81)          | 0.0266***<br>(3.12)                                                     | 0.1000***<br>(17.41)   | 0.2679***<br>(24.78)                     | 0.2886***<br>(29.22)   |
| Cash holding          | 0.0057*<br>(2.42)                                                          | −0.0094***<br>(−3.65)         | 0.0222***<br>(7.72)                      | 0.0123*<br>(2.40)             | 0.0161***<br>(5.51)                                                     | −0.0067***<br>(−3.18)  | 0.0177***<br>(5.53)                      | 0.0259***<br>(6.79)    |
| Growth                | −0.0105***<br>(−7.82)                                                      | −0.0178***<br>(−11.52)        | −0.0317***<br>(−15.98)                   | −0.0462***<br>(−14.74)        | −0.0107***<br>(−6.01)                                                   | −0.0140***<br>(−11.69) | −0.0277***<br>(−12.00)                   | −0.0396***<br>(−16.58) |
| Leverage              | −0.0054**<br>(−2.12)                                                       | 0.0099***<br>(3.28)           | 0.0171***<br>(5.13)                      | 0.0378***<br>(7.05)           | −0.0221***<br>(−6.53)                                                   | 0.0084***<br>(3.52)    | −0.0002<br>(−0.05)                       | 0.0314***<br>(7.66)    |
| Size                  | 0.5357***<br>(29.72)                                                       | 0.3539***<br>(17.42)          | 0.4673***<br>(26.59)                     | 0.4291***<br>(12.35)          | 0.5454***<br>(23.31)                                                    | 0.4196***<br>(25.65)   | 0.3457***<br>(17.15)                     | 0.5535***<br>(22.42)   |
| Tangibility           | 0.0098***<br>(6.88)                                                        | 0.0013<br>(0.70)              | 0.0045**<br>(2.34)                       | 0.0036<br>(1.03)              | 0.0171***<br>(8.57)                                                     | 0.0029*<br>(2.14)      | 0.0097***<br>(4.17)                      | 0.0058**<br>(2.38)     |
| Retained earnings     | 0.0476***<br>(30.84)                                                       | 0.0203***<br>(14.51)          | 0.0338***<br>(19.40)                     | 0.0299***<br>(11.44)          | 0.0563***<br>(22.37)                                                    | 0.0277***<br>(24.76)   | 0.0281***<br>(14.59)                     | 0.0376***<br>(18.86)   |
| Credit information    |                                                                            |                               |                                          |                               | −0.0355<br>(−0.73)                                                      | −0.5093***<br>(−12.05) | 0.1411**<br>(2.33)                       | −1.1201***<br>(−17.49) |
| Legal rules           | 0.0405***<br>(2.61)                                                        | −0.2574***<br>(−10.10)        | −0.1873***<br>(−8.12)                    | −0.5949***<br>(−10.78)        |                                                                         |                        |                                          |                        |
| Anti-self-dealing     | 1.2688***<br>(6.59)                                                        | 1.5469***<br>(4.92)           | 1.8444***<br>(7.33)                      | 1.2408**<br>(2.38)            | 0.9438***<br>(3.60)                                                     | 0.0313<br>(0.17)       | 0.4229<br>(1.27)                         | 2.6326***<br>(8.98)    |
| Creditor rights       | −0.3954***<br>(−8.40)                                                      | 0.1456***<br>(3.15)           | 0.3255***<br>(5.67)                      | −0.1543<br>(−1.58)            | −0.0977<br>(−1.48)                                                      | 0.5094***<br>(16.17)   | −0.2160***<br>(−2.96)                    | 0.6793***<br>(14.48)   |
| GDP growth            | −0.0459***<br>(−3.92)                                                      | 0.0214<br>(0.63)              | −0.1348***<br>(−9.69)                    | 0.2365***<br>(3.77)           | −0.0712***<br>(−3.10)                                                   | 0.0525***<br>(4.68)    | 0.0071<br>(0.28)                         | −0.0375***<br>(−2.33)  |
| Uncertainty avoidance | 0.0055***<br>(3.50)                                                        | 0.0066*<br>(1.70)             | −0.0164***<br>(−8.18)                    | −0.0351***<br>(−5.02)         | 0.0073***<br>(2.59)                                                     | 0.0066***<br>(2.73)    | −0.0431***<br>(−12.87)                   | 0.0284***<br>(7.17)    |
| No. of observations   | 25,439                                                                     | 12,234                        | 25,439                                   | 12,234                        | 16,740                                                                  | 20,933                 | 16,740                                   | 20,933                 |
| Left-censored         |                                                                            |                               | 6,654                                    | 4,680                         |                                                                         |                        | 3,353                                    | 7,981                  |

Note: *t*-statistics are in parentheses.

\*\*\* Significance at the 1% level.

\*\* Significance at the 5% level.

\* Significance at the 10% level.



stronger in countries of high credit information availability. These findings imply the complementary effect of creditor information on legal rules.

## 7. Conclusion

Agency problem between shareholders and creditors can be reduced by two mechanisms namely reputation-building and debt covenant. Prior studies document supporting evidence for both hypotheses with a positive relationship between creditor rights and dividend policy. However, they fail to test reputation-building mechanism and debt covenant mechanism separately. This paper finds that credit information and legal rules supporting moveable assets are promising variables to fill this gap. When credit information is more available and legal rules create more access to credit, the incentive to constrain dividends in order to build reputation capital is weaker. Nevertheless, according to debt covenant hypothesis, creditors with more credit information are more likely to demand dividend restrictions through contractual relationship. In addition, from credit perspective, movable assets have higher risk than non-movable assets. When more movable assets are accepted as collateral, creditors tend to have a stronger incentive to control dividend decisions. Consequently, reputation-building mechanism and debt covenant mechanism provide opposite effects of credit information and collateral rules on dividend decisions. With a sample of 37,673 observations collected across 39 countries over the period from 2013 to 2015 we find supporting evidence for debt covenant hypothesis and creditor information has a complementary effect on legal rules in determining corporate dividend policy.

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