Dividend Payout Strategies and Bank Survival Likelihood: A Cross-Country Analysis

A B S T R A C T

In this cross-country study, we examine whether dividend payout decisions affect the survival likelihood of banks. Using unique international banking data from 11 countries from 2010–2019, we find that higher levels of cash dividend payouts increase a bank's survival likelihood, as paying dividends lowers agency problems and cost of debt and facilitates greater public monitoring. Our extended analysis shows an inverted U-shaped relation between large dividends and survival likelihood. At lower dividend levels, the dividend payout is associated with a more resilient insolvency position for banks; however, at higher levels, a lower likelihood of survival is observed. We additionally investigate the effect of the bank type to assess whether differential effects could be realised under the constrained dividend model of Islamic banks compared to the conventional banking model. Our results, interestingly, show that the positive effect of dividend payouts on bank survival is more pronounced in conventional than Islamic banks. This finding is explained by the dominant liquidity management challenges pertaining to the Islamic banking business model in which banks retain more cash and pay lower dividends. Our findings offer important insights and policy implications for regulators, bankers and a broad set of stakeholders engaging with both banking sectors.

Keywords: Survival likelihood, Dividend payouts, Conventional banks, Islamic banks
JEL codes: C23 • G01 • G21 • G28 • L50 • M4

1. INTRODUCTION

The implications of dividend payouts on firm value have been studied extensively in prior literature (Charest, 1978; Grullon et al., 2002; Chen et al., 2007; Charitou et al., 2011). The dividend payout strategy in the banking industry forms a crucial pillar of their rigorous/prudent risk management (Kanas, 2013), which was subjected to stricter scrutiny by policy makers (Lepetit et al., 2018). However, relatively little is known about the impact of dividend strategies and payouts on the survival and long-term resilience of the banks. Bank survival is a central issue influencing macroeconomic developments, financial stability, business cycle fluctuations and economic growth (Berger et al., 2017). A higher survival likelihood implies a lower default risk and, hence, promotes economic stability. In the post-global financial crisis period, the broad consensus considers liquidity holdings and dividend payouts indispensable to promoting the safety and soundness of the banking industry (Chiaramonte and Casu, 2017).[1]

While the extant literature focused on the determinants of the dividend payout policy including default risk (Caliskan and Doukas, 2015; Buchanan et al., 2017; Duqi et al, 2020), little attention is devoted to the plausible effect of dividend policy on financial stability indicators, such as the survival likelihood of firms. Previous studies only investigated the dividend payouts of non-financial firms particularly focused on firm and market risk (Eije et al., 2014; Grullon et al., 2002; Pástor and Veronesi, 2003; Bartram et al., 2012). They find that a rise in dividend payouts marks a firm's transition to a more mature life cycle stage, with diminishing growth opportunities and lower risk-taking. Altered risk levels could constitute the main channel through which payouts affect firm value. This might be particularly dominant within the banking industry where spill-

[1] The revised Basel III capital adequacy and liquidity requirements may impose restrictions on the determinants of banks' survival likelihood given the complexities in the banking business model in integrating dividends and financing decisions (Gropp and Heider, 2010; Onali, 2014). Although higher capitalisation and liquidity could potentially protect banks against expected risks, they tend to trigger changes in risk management strategies, reduce retained profits and dividend payouts and, hence, could increase banks' probability of failure (Chiaramonte and Casu, 2017).

over effects could harm the whole economy, and their bank-related risks could have a first-order impact on financial stability and welfare (Laeven and Levine, 2009; Trinh et al., 2020a).

This paper examines whether dividend levels lead to differences in the survival likelihood of banks. We also investigate whether the predicted relationship holds and/or differs across dividend models utilised by alternative banking systems (i.e. conventional and Islamic banks). Comparative assessments across the two bank types have been evolving over the past few years with respect to corporate governance (Mollah and Zaman, 2015; Mollah et al., 2017; Elnahass et al., 2020, 2022; Trinh et al., 2020a; Trinh et al., 2021); however, no studies have examined the association between dividend payouts and survival likelihood for these different bank types. Several structural differences exist between these two bank types in terms of dividend distribution principles, payout motives, mechanics and techniques, and flexibility of dividend payouts (Trinh et al., 2021). For example, dividends of Islamic banks need to be consistent with Islamic (i.e. Shari'ah) law, and they operate through a profit-loss-sharing investment account holders (PSIA, i.e. as depositors) model. Hence, payout decisions in Islamic banks reflect a nexus of complex contractual arrangements among the bank, the PSIA and the shareholder/investors (Alhabshi, 2002). Their motivations for dividend payments are affected by the depositors and shareholder/investors, while those related to conventional banks are primarily driven by investors (Trinh et al., 2021). Islamic banks also face constraints in accessing external funding sources under Islamic law and have complex governance mechanisms and high agency costs (Abdelsalam et al. 2016; Elnahass et al. 2022), both of which promote substantially high liquidity management challenges. Hence, Islamic banks need to maintain excess cash rather than pay out their dividends (Mollah et al., 2017). Overall, we predict that dissimilarities between the Islamic and conventional business models lead to differential dividend strategies and, hence, differences in the survival likelihood.

We employ the bank survival likelihood index developed by Spong and Sullivan (2012) including capitalisation, profitability and income fluctuations. We utilise a unique international sample of 70 listed banks operating in 11 countries under a dual banking system from 2010 to 2019. We find that banks paying higher levels of dividends exhibit a higher likelihood of survival than those with lower payout levels. Our analysis shows an inverted U-shaped relation between large dividends and survival likelihood. At lower levels of dividends, the payout is associated with a more resilient insolvency position for banks; however, at higher levels, a lower likelihood of survival is observed. Consistent with our expectations, results regarding the different bank types show that the positive effect of dividend payout levels on bank survival is less intense in Islamic banks compared to that in conventional banks. We also examine the channels through which dividend payouts could influence bank survival likelihood by decomposing the survival likelihood into its two components of asset and leverage risk. We note a positive association between dividends and survival likelihood for both risk components. Large (or mature) banks paying dividends exhibit higher survival propensity than smaller (or younger) ones do.

We contribute to the literature in several aspects. To the best of our knowledge, this study is the first to examine the impact of dividend payouts on the survival of banks within a broader international context. This study adds to the strands of literature that consider corporate decisions and dividend payments in both financial and non-financial industries (Dickens et al., 2002; Casey et al., 2009; Sharma, 2011; Abreu and Gulamhussen, 2013; Chen et al., 2017) and also add to the literature on bank resilience and stability (Pathan, 2009; Onali, 2014; Abedifar et al., 2013; Lepetit et al., 2018; Trinh et al., 2020b; Elnahass et al., 2021). The study is also the first to investigate the possible differential impacts on payout policies across different bank types. Such comparative assessments between the alternative dividend models employed by Islamic versus conventional

banks are necessary to extend both prior theoretical studies within the Islamic banking context (Shaheen, 2005; Al-Gurrah Daghi, 2009; Essa, 2010), conventional banking studies (Sharma, 2011; Jiraporn et al., 2011; Chou and Feng, 2018), and comparative empirical studies (Mollah et al., 2017; Abdelsalam et al. 2020; Elnahass et al., 2020, 2021; Trinh et al., 2020a,b). Finally, we extend prior studies by highlighting the influence of financial and institutional characteristics on bank dividend payout strategies and stability (Sharma, 2011; Duqi et al., 2020).

Our findings hold important implications for bank regulators, investors and stock markets engaging with both bank types. As the international capital markets and regulatory standards are continuously revisited to stabilise banking, our results might assist regulators in considering the importance of dividend policies and strategies on bank survival while also capturing the impact of differential payout patterns, which are conditional on the bank type. Regulators and market participants in conventional banks can benefit from our findings indicating the relevance and importance of dividend payouts in relation to bank survival and resilience. Bank survival might not be invoked in the presence of unique institutional characteristics and a complex dividend model, as in Islamic banks. These findings inform the investment decisions of investors who engage with the two bank types and policy makers who govern countries with dual banking systems. The study further raises calls to regulators scrutinising the Islamic banking industry worldwide to develop extended regulation and dividend policies to accommodate the unique and illiquid products to promote long-term survival and mitigate agency conflicts.

The structure of the remainder of our paper is as follows. In *Section 2* and *Section 3*, we present literature and develop hypotheses, and *Section 4* presents data and models. *Section 5* and *Section 6* report the results of empirical analyses with main tests and robustness checks, respectively. *Section 7* concludes the paper.

2. THEORIES AND LITERATURE

Dividend policy is regarded as one of the cornerstones of financial economics, and numerous empirical studies have been conducted since Miller and Modigliani (MM, 1961) introduced the irrelevance of dividend policy. Empirical studies examine the MM proposition (which hypothesises that dividend policy does not influence firm value in a perfect capital market with no taxes, transaction costs and information asymmetry) to test whether the theory can be evidenced with data (e.g. Lease et al., 2000). Subsequent research extends a range of areas covering payout decisions and their associations with *tax clienteles* (Elton and Gruber, 1970), *agency costs* (Easterbrook, 1984), *signalling effects* (Aharony and Swary, 1980), *life-cycle factors* (DeAngelo et al., 2006), *catering incentives* (Baker and Wurgler, 2004), and *behavioural factors* (Turner et al., 2013).

As rational capital suppliers seek regular monitoring and continuous discipline over managers, dividend payouts appear to play a similar role as an implicit governance tool in dealing with managerial discretion over the use of excess free cash flow (Easterbrook, 1984; Sharma, 2011). As such, periodic cash dividends can serve as a quasi-contract to restrain wasteful expenditures by those managers (DeAngelo and DeAngelo, 2000; Edmans, 2011; Harford et al., 2008), especially when managers are more reluctant to return cash to stakeholders (Jensen, 1986). Furthermore, in line with the risk aversion perspective, managers are likely to have lower risk tolerance than shareholders have since they might have substantial personal gains/incentives tied up with the firm's performance. The managers can alter firms' risks by lowering the debt-to-equity ratio (i.e. lower bankruptcy risk) by financing projects from retained earnings, which would transfer wealth from the owners to the creditors (Sharma, 2011). Easterbrook (1984) contends that shareholders might prefer a higher dividend payout since it would mitigate the retained earnings and force

management to raise external financing. This helps shareholders avoid being taken advantage of by debtholders. In turn, leveraging on the monitoring and risk aversion hypotheses, the conclusion is that the dividend mechanism reduces agency conflicts between managers and shareholders within a firm.

Moreover, managers are also likely to manipulate and shift the dividend amounts across future periods (i.e. the earnings smoothing effect) if they have motives to increase the dividend ratios despite the low level of permanent earnings. A managerial discretion to establish the payout policy can exacerbate the agency problems between managers and shareholders. Such conflict is particularly more severe in banks due to their highly leveraged capital structure (John et al., 2010). Specifically, banking firms have a greater level of opaqueness, and, thereby, their agency conflicts are known to be more severe than non-financial businesses (Lepetit et al., 2018). Hence, the signalling role of cash payouts in banks appears to be more important than for any other sector (Forti and Schiozer, 2015).

In corporate finance, two opposing views consider the impact of dividend payout strategies on firm risk within non-financial industries. On the one hand, Eije et al. (2014) document a lower market risk for US firms with dividend initiations and a higher one for those with dividend omissions. They also report different risk-taking behaviours between these two types. Charitou et al. (2011) also find that firms initiating or increasing dividends tend to exhibit lower insolvency risk, which is in line with Cotter et al. (2019) showing that a cut or omission in dividends escalates insolvency risk. Additionally, the risk-based explanation for the value effects of payouts is supported by other studies stating that a higher dividend payment is related to lower risk-taking in firms (Pástor and Veronesi, 2003; Bartram et al., 2012). The most established argument for the observed lower risk is that an increase in dividend payouts could result in a transition to a more

mature life cycle stage and a reduction of investment opportunities. Additionally, a higher dividend may also imply a lower free cash flow that can diminish the opportunistic behaviour of managers. This is consistent with the free cash flow hypothesis in non-financial firms. Furthermore, considering the period of post-dividend payment, if a bank needs capital for promising profitable investments, it may need to issue new equity leading to intense monitoring from the public and more transparency in providing information. Finally, in line with the signalling hypothesis, a high dividend payout policy may positively signal firm profitability to market participants and debtors, lowering the cost of equity and debt, and in turn, lowering the cost of capital. Taken together, higher dividend payment levels are highly likely to be related to lower risk and higher survival likelihood. On the other hand, paying more dividends could also elevate the risk for those firms especially facing higher liquidity challenges in either short- or long-term, or both (Chiaramonte and Casu, 2017). This is because a rise in cash outflow due to dividend payments is likely to result in the inadequacy of providing timely capital to invest in profitable projects in the future and to meet debt obligations.

Recently, more emphasis is laid on understanding banks' dividend payout behaviour in the specific context of financial intermediation (Acharya et al., 2011; Kanas, 2013; Onali, 2014; Onali, 2016). The financial intermediation theory implies that the existence of banks in the financial system needs to be supported by explicit guarantees, such as deposit insurance schemes (or other public guarantees), aimed at encouraging savers to trust the financial system by protecting their deposits (Diamond and Dybvig, 1983). However, it is commonly argued that in the presence of such schemes the depositors, who are the main debtholders in banks, are less likely to monitor bank behaviour, which may lead to the bank moral hazard of excessive risk-taking (Keeley, 1990). In such a setting, bank dividend payout constitutes a type of risk-shifting (termed as *risk-shifting*

hypothesis) that benefits the equity holders at the expense of deposit holders, resulting in a higher future cost of capital (Akerlof and Romer, 1993; Onali, 2014). The distribution of earnings in the form of dividends also decreases banks' ability to generate capital internally, and therefore, shifts the default risk to depositors (or the insurers of deposits; Lepetit et al., 2018). Additionally, Acharya et al. (2011) argue that banks tend to sell their safer assets to pay dividends while keeping and reporting risky assets in the balance sheets. Accordingly, high dividend payouts could aggravate default risk. However, even though there is some evidence that larger dividend payouts may lead to higher bank risk, establishing a clear-cut relationship between dividend payments and bank survival also needs the consideration of implicit government guarantees. In particular, the *too big to fail hypothesis* of financial intermediation posits that banks that are large (or interconnected with other banks) in a financial system will ultimately be implicitly supported (or rescued) by the government. This is because large banks' failure would be disastrous to the financial system, and, more broadly, to the economy. Hence, large banks, even though they take excessive risk, secure their existence in the long term. Accordingly, the eventual survival of large banks may not necessarily be related to their risk-shifting behaviour as survival is a broader term that encapsulates other factors.

3. HYPOTHESIS DEVELOPMENT

3.1. Dividend policy and bank's survival likelihood

Based on the above mixed evidence and arguments on the risk-based value of dividend payouts, our study empirically assesses the causal association between dividend payout decisions and bank risk, proxied by the bank's survival likelihood. The existing literature generally focuses on the identification and assessment for indicators of bank risk (e.g. Berger et al., 2017), bank capital (e.g. Berger and Bouwman, 2013; Allen et al., 2015; Chiaramonte and Casu, 2017), competition

(e.g. Keeley, 1990; Berger et al., 2009), and corporate governance and bank valuation (e.g. Pathan, 2009; Elyasiani and Zhang, 2015; Elnahass et al. 2020, 2022). Some studies reveal a positive association between bank risk and dividend payout levels (e.g. Onali, 2014), while others investigate the determinants of dividend policy (Rozeff, 1982; Chay and Suh, 2009). Accordingly, no prior research investigated the effect of the dividend payout policy on bank survival likelihood. Additionally, prior work rarely discusses the possible differential implications between conventional and non-conventional (i.e. Islamic) banks' dividend models.

In this study, we argue that banks may encounter lower risk since they constantly need to diversify their investment portfolios to reduce risks and maintain adequate capital and reserves to meet expected and unexpected risks as well as regulatory requirements, such as those required by Basel III. Paying more dividends can further reduce the agency problem via a lower level of excess cash flows that can be used by managers for their self-interests. Additionally, the signalling hypothesis indicates that dividends are the only relevant financial information, which helps managers signal returns on investments to the stock market. A higher level of dividend payments may positively signal the market about banks' agency cost reduction and current good financial status while still ensuring a safe liquidity position, which increases the opportunities of banks to enjoy a lower cost of capital. Moreover, although theoretically, less-liquid banks (via a higher level of dividend payouts) could be riskier, this reduces the likelihood that more liquidity will trigger changes in risk management, reduce profitability and increase risk-taking behaviour. We, therefore, set the first hypothesis in an alternative form:

H_1: ***There is a positive association between the levels of dividend payouts and a bank's survival likelihood.***

3.2. The effect of different banking business models on the dividend-survival nexus

Irrespective of the bank type (i.e. conventional or Islamic), the agency conflicts of dividend payouts represent an ultimate cost occurring when managers and shareholders disagree about the distributable profits. However, Islamic banks encounter additional agency costs due to the indirect monitoring by investment account holders who cannot intervene in the banks' financial and business decisions. Islamic banks distribute and share profits among the depositors (known as profit-loss-sharing investment account holders [PSIA]) and shareholders at a pre-determined ratio (Duqi et al., 2020). Therefore, the dividend strategies of Islamic banks should be adjusted to accommodate the interests of all parties involved, including PSIA holders (Archer et al., 2010). In some cases, shareholders may have to sacrifice part of their profits to ensure a competitive return to PSIA holders. Otherwise, the withdrawal risk would be high, substantial destabilising banks and lowering survival likelihood.

Prior studies on dividends in conventional banking focus mainly on examining the factors influencing the dividend policy. They find several determinants including insider holders (Casey et al., 2009), growth opportunities (Collins et al., 1994; Casey and Dickens, 2000; Dickens et al., 2002) and external credit rating of listed banks (Boldin and Leggett, 1995). Notably, Filbeck and Mullineaux (1993) argue that banking firms utilise the dividend payout strategy as a signalling mechanism. This policy appears to significantly signal the market regarding bank profitability and growth opportunities (Abreu and Gulamhussen, 2013). As such, lower dividend payments may lower firm value (Bessler and Nohel, 1996). The dividend literature on Islamic banks is very limited. Hassan (2003) argues that for an Islamic bank, dividends seem to be the only relevant financial information, which can signal investment profitability to the public. Al-Gurrah Daghi

(2009) and Essa (2010) provide some fundamental background concerning the accounting process of profit distribution in Islamic banks.

Recently, a limited strand of the literature has compared the two banking dividend models. Athari et al. (2016) find that Islamic banks tend to hold substantial excess free cash flow, or other liquid assets, at a low rate of return to meet expected/unexpected capital challenges. These constraints can influence the dividend payout strategies in Islamic banks, leading to low payout ratios and less stable dividend distributions in the long term. In contrast, their conventional peers seem to have quicker access to market sources as well as alternative financial instruments, e.g. derivatives and options, which is likely to promote greater flexibility when it comes to dividend payouts strategies (Bitar et al., 2018). Therefore, compared to Islamic banks, both the reduced cost of debt and the availability of funding sources promote more stable and frequent dividend payout at high rates in conventional banks. Furthermore, Duqi et al. (2020) note a significant association between ownership structure and dividend strategies of the two types of banks. Meanwhile, Trinh et al. (2021) offer robust evidence on the differential effect of board busyness on dividend policy between Islamic and conventional banks.

Business model differences between Islamic and conventional banks could affect their different dividend strategies. For example, due to Shari'ah compliance and religious monitoring, the Islamic banks commonly face additional agency problems not present in the conventional banks (Elnahass et al., 2022). Besides, Islamic banks tend to adopt a more cautious capital structure because their financing sources are more restricted than that of conventional banks due to the prohibition of derivatives, limited access to short-run borrowing markets, and operation in less-developed Islamic capital markets (Abdelsalam et al., 2020). These factors limit the asset-liability management abilities of Islamic banks, and thereby, they are likely to be more conservative in establishing

dividend strategies to build capital buffers (Duqi et al., 2020). Beck et al. (2013) find that Islamic banks reveal better capitalisation ratios than their conventional counterparts do, which is consistent with these assumptions.

Accordingly, we expect the effect of dividend payouts on the survival likelihood of Islamic banks to differ from conventional banks. These arguments are based on three factors. First, Islamic banks, with a lower capacity to access external capital sources, such as short-term borrowings and money market and wholesale funding, need adequate levels of cash flows for managing liquidity risk. As such, paying higher dividends implies lower cash flows or higher liquidity risk. Second, Islamic banks need to offer a competitive return rate to PSIA holders to retain their loyalty; thus, shareholders may voluntarily agree to forgo part of their profits. Otherwise, they may face a deposit withdrawal risk. Third, Islamic banks are argued to face greater risks and financial instability compared to conventional banks, due to the complexity of Islamic loan covenants, moral hazard incentives and limited default penalties (Duqi et al., 2020; Trinh et al., 2020a). Ceteris paribus, Islamic banks tend to mitigate bank risks through the restricted distribution of high levels of dividends to meet their liquidity challenges, increase their survival likelihood and reduce bankruptcy risk. Hence, our second hypothesis, developed in the alternative form, is as follows:

H_2: ***The positive effect of dividend levels on survival likelihood is more pronounced for conventional banks than their Islamic counterparts.***

3.3. The effect of bank-specific characteristics on the dividend-survival nexus

We predict that paying higher levels of dividends leads to a higher likelihood for banks to survive; however, given the above explanation, we do not expect a positive effect of dividend payouts on Islamic banks' survival likelihood. Moreover, we also anticipate that such a positive result is more

apparent in banks with lower financial leverage, larger size and older age. The rationale is that less-leveraged banks have lower degrees of interest conflicts between shareholders and debtholders than highly leveraged banks. Thereby, an increase in cash dividends paid for shareholders may exert lower influences on the debtholders' benefits, especially for long-term debtholders. Additionally, undercapitalised (highly leveraged) banking firms could improve their capital position by cutting dividends or issuing new equity. As it is costly to raise new capital via equity (Hellmann et al., 2000), paying dividends of these highly leveraged banks implies foregoing the opportunities to raise the required capital by retaining profits (at the lowest cost; Onali, 2014). More dividends of such firms, however, may increase the future propensity to cut dividends, leading to lower stock returns and/or higher risks and/or lower survival likelihood (Lintner, 1956; Bessler and Nohel, 1996). Thus, highly leveraged banks should distribute a smaller percentage of dividends to shareholders than their less-leveraged peers, which is consistent with the opportunity hypothesis.

Similarly, large and/or mature (i.e. older) banks that are in stable stages of their business cycles, often distribute more dividends to their shareholders (Dickens et al., 2002; Mulyani et al., 2016; Saeed and Sameer, 2017). They often also demand less capital to reinvest for developing products, services and projects. Even if they have growth opportunities, these banks can still access money and capital market sources relatively easily due to their richer experiences and wider network. Additionally, due to the relative competitive advantages in terms of larger economic scales and longer operating periods in the industry compared to smaller and younger banks, large and mature banks can enjoy a lower cost of capital, which in turn leads to higher performance and survival likelihood. In contrast, a higher level of dividends in small and young banks may lower the survival likelihood because they may need more capital for growth and development, but they often face

several challenges in sourcing funding from external markets and may not have the reputational credit, leading to higher cost of capital. Taken together, the third hypothesis and its sub-hypothesis are set as follows:

H_3: ***There is a positive association between dividend levels and a bank's survival likelihood.***

H_{3a}: *The predicted positive association is more pronounced for less-leveraged than highly leveraged banks.*

H_{3b}: *The predicted positive association is more pronounced for large than small banks.*

H_{3c}: *The predicted positive association is more pronounced for mature than young banks.*

4. DATA AND METHODOLOGY

4.1 Sample selection and data sources

We construct our sample based on criteria provided by the literature (Beck et al., 2013; Mollah et al., 2017; Elnahass et al., 2020, 2022; Trinh et al., 2020a,b). We follow these principles: (1) keep all countries that have dual banking systems (i.e. conventional and Islamic banks); (2) keep all countries that include at least two publicly traded banking firms; (3) keep all banks showing data on 31st December of the accounting year and those having annual reports published on their official websites; (4) keep banks classified as commercial and full-ledged; (5) keep banks that show full data availability for at least three consecutive years.

The accounting data is retrieved from DataStream and Bloomberg. The governance data is hand-collected from the annual reports and websites of the banks. The country-level data is

obtained from the World Bank. The final sample represents an unbalanced panel data set of 70 listed banks, with 662 firm-year observations, operating across 11 countries. Among these banks, 43 are conventional banks (404 bank-year observations) and 27 listed Islamic banks (258 bank-year observations). Our sample period is 2010–2019 to avoid the potential effect of the financial crisis period of 2007–2009. Our data has been screened and main variables on them are relatively normally distributed. To treat for outliers, all our variables are winsorisied at 1% and 99%. *Table 1* reports the sample distribution by country and bank.

[Insert **Table 1** here]

4.2 Empirical models and variables

In this study, we employ an OLS regression with robust standard errors to examine our hypotheses. However, due to the nature of research field (i.e., corporate governance and Islamic/Conventional banks), we also followed prior studies (e.g., Baltagi and Wu, 1999; Mollah et al., 2017; Mollah and Zaman, 2015; Trinh et al., 2021) to report the random-effects (RE) GLS regressions. This RE specification is used because the time-invariant parameter like Islamic cannot be estimated with fixed effect estimation. In addition, the inclusion of board structure and CEO duality (for example) which should not significantly change over time, will result in a massive loss of the degrees of freedom (see Daltagi, 2005; Wooldridge, 2002). In robustness checks, we further adopt alternative methods such as the propensity score matching (PSM) technique and the two-step generalised method of moments (GMM) to account for possible sample selection bias and endogeneity problems. We build up a baseline model as follows:

$$Survival\ Likelihood_{i,t} = \beta_0 + \beta_1 Dividend_{i,t} + \phi P + \mu Year\ effects + \Omega bank\ effects + \gamma Country\ effects + \varepsilon_{i,t}$$

where, $Survival\ Likelihood_{i,t}$ is the bank survival likelihood index (Spong and Sullivan, 2012). The index is applicable for our research setting (i.e., banking) because it provides a comprehensive snapshot of the bank risk rather than one-dimensional measures (e.g., capital, credit quality and earnings variations) and combines several indicators of risks and bank financial performance. This is consistent with the study of Spong and Sullivan (2012) that also focuses on the same industry. The index comprises three main indicators: (i) capitalization (i.e. the ratio of equity capital to total assets); (ii) profitability (i.e. the return on average operating assets—ROAA); (iii) and income fluctuations (i.e. the standard deviation of operating return on assets). Overall, the index is the aggregate ratio for these three proxies. A higher index implies a higher bank survival likelihood (i.e. low bank risk) and vice versa. This measure is also considered as an adequate indicator for the failure propensity of banks (i.e., smaller value of this index implies higher chance for bank to fail), which is particularly crucial for banks' stockholders and regulators because the failure of banks might wipe out the investment and capital from stockholders which tend to expose the bank insurance funds to substantial loss (Spong and Sullivan, 2012). We employ two main alternative independent variables ($Dividend_{i,t}$) for the dividend payout levels: (i) the ratio of cash dividend and total assets, *Dividend/Assets*; and (ii) the ratio of cash dividend and total sales, *Dividend/Sales*. This practice is consistent with previous dividend-related literature (e.g. Sharma, 2011; Onali et al., 2016; Trinh et al., 2021). When using the PSM approach, we use the dividend payout decision, *Dividend pay*, which is a binary variable taking the value of one if the observed bank pays a cash dividend, and zero otherwise. We include year and bank fixed effects across all models.

The set of control variables includes an *Islamic bank dummy* for bank types, which takes a value of one if the bank is classified as an Islamic bank, and zero otherwise (Mollah et al., 2017). Following Trinh et al. (2020a) and Trinh and Seetaram (2022), we add several corporate

governance control variables for the board of directors because it is recognised as a powerful internal governance mechanism that impacts performance and risk-taking behaviour. For example, larger and more independent boards and CEO duality could either reduce or increase bank performance, risk and survival likelihood (see Mollah et al., 2017; Trinh et al., 2020a; Trinh and Seetaram, 2022). While larger boards can bring more advising and monitoring benefits to managers, they can also have high coordination costs and free-rider problems (see Mollah and Zaman, 2015). Similarly, more independent directors can increase the effectiveness of monitoring managers' behaviour, yet there is a possibility that these independent directors may not be "really" independent (Trinh et al., 2020a). CEO-Chair role duality can be identified as another aspect of internal governance. It could reduce board independence as well as their flexibility, leading to an ineffective oversight role of boards (Krause, 2014). However, it could also diminish the pressure to ensure short-term financial growth and consequently, CEOs may be more comfortable and flexible in effectively making their decisions. Accordingly, we include *Board size* (i.e. the number of directors serving on the board of directors), *Board independence* (i.e. the number of independent directors divided by board size) and *CEO-Chair duality* (i.e. dummy variable taking the value of one if the chairman is also the CEO, and zero otherwise).

We further include other board-related factors such as *Board directorships* (i.e. the average number of outside directorships), *Board expertise* (i.e. the percentage of outside financial experts serving on the board), *Audit committee size* (i.e. the number of directors serving the in audit committee) and *Audit committee directorships* (i.e. the percentage of busy audit committee members serving in two or more outside firms). These variables are selected as previous studies (Trinh et al., 2020 a,b; Trinh and Seetaram, 2022) reveal that they could significantly affect bank risk. For instance, more directorships held by the boards could lead to their busyness (busyness

hypothesis) and less monitoring effectiveness over the management team, which in turn increases bank risk and reduces bank survival likelihood (Trinh et al., 2020 a,b). Boards with more financial experts could be either beneficial or harmful to the survival of banks. On the one hand, these experts can provide useful advice for managers, but on the other hand, they can increase the confidence of the banks and encourage managers to take higher risks. The characteristics of the audit committee are included because this committee plays an important role in overseeing the financial reporting process, which affects the management's risk-taking behaviour.

For bank-level characteristics, we include *Bank size* (measured by the natural logarithm of total assets in USD), *Bank age* (proxied by the natural logarithm of a number of operation years), *Audited by Big 4* (a dummy variable taking the value of one if the bank is audited by Big 4 audit companies), *Herfindahl-Hirschman index (for* capturing market concentration), *Bank financial leverage* (measured by the ratio of total liabilities over total equity), and *Subsidiaries* dummy variable (taking the value of one if the bank is classified as a subsidiary, and zero otherwise).

For country-level variables, we control for macroeconomic indicators such as the *GDP per capita* and annual *inflation rate*. We also control for the legal framework in the country by using the *Legal system* index. The index is a categorical variable that takes the value of zero for countries not operating on the basis of Shari'ah law to define their legal system, one for countries operating on the basis of both Shari'ah and other laws, and two for countries that use only Shari'ah law. Finally, we create a *country governance index*, which measures the average value of six World Bank country governance indicators comprising corruption, government effectiveness, political stability, regulatory quality, the rule of law, and voice and accountability. Table 2 provides full definitions of all the variables used in our models.

[Insert **Table 2** here]

Table 3 presents summary statistics for all the variables used in our models. We find that the mean of *Survival Likelihood* for all banks is 0.315, yet it is significantly higher in banks paying dividends than in those not paying dividends, which is evident from the t-test statistics. This is similar when we look at the components of survival likelihood: *Asset risk* and *Leverage risk*. The mean values of *Dividend/Assets* and *Dividend/Sales* are 0.273 and 0.071, respectively. In terms of board-related governance indicators, the means (median) of board size, board independence, CEO-Chair duality, board directorships, board expertise, audit committee size and audit committee directorships are 2.196 (2.197), 35.2% (36.4%), 0.041 (0), 2.345 (1.800) outside directorships, 31.5% (25%), 3.722 (3) members and 49.8% (50%) busy audit members. Furthermore, we find that banks paying cash dividends are significantly larger and more mature than peers paying no dividends, as supported by the mean difference t-test results.

[Insert **Table 3** here]

Table 4 reports results for the correlation matrix, showing no serious multicollinearity problems within our estimated models.

[Insert **Table 4** here]

5. MAIN FINDINGS

5.1. The effect of dividend payout levels on the bank survival likelihood

In this section, we present the OLS results of the impact of dividend payout decisions on the bank survival likelihood. Table 5, Panel (A) reports the results for the full sample (including both banks paying and not paying cash dividends) while Panel (B) shows those for only the sample with banks paying cash dividends. We report both OLS and RE results.

In Panel A, the results for the full sample consistently indicate that across all models (Models 1 and 3—OLS; Models 2 and 4—RE), the dividend level is significantly and positively related to bank survival likelihood. This link is evidenced by the positive coefficients on *Dividend/Assets* (Models 1 and 2) and *Dividend/Sales* (Models 3 and 4). Economically, on average, a 1% increase in the dividend ratio (*Dividend/Assets*) can contribute to a 1.5% to 8.3% increase in bank survival likelihood. This strong evidence is consistent with the first hypothesis, suggesting a positive effect of dividends decisions on a bank's survival. Results also indicate significant differences in the characteristics of banks paying dividends compared to those not paying dividends, leading to differential effects in the survival likelihood of those two categories. For controls, we find consistent results with previous studies (e.g. Mollah et al., 2017; Trinh et al., 2020a).

Table 5, Panel (B), presents the results for the second test to examine whether the main results in Panel A still hold when we exclude banks that do not pay cash dividends from the full sample. For this test, we use only banks paying dividends to avoid the noise effects caused by observations from banks paying no dividends. When we replaced all Models 1 to 4 by Models 5 to 8, respectively, for a subsample of only banks paying cash dividends, the results in Panel (B) generally demonstrate robust findings. This method can reduce the noise of errors. Given that results emerging under the RE models are (only) slightly different when compared to the OLS estimations (i.e. in term of p-values for control variables), these alternative estimations indicate the robustness of our estimation procedures and the consistency for our main findings. Therefore, for the brevity of presentation, we will report OLS estimations only for the remaining sensitivity tests.

[Insert **Table 5** here]

5.2. The effect of dividend payout levels across conventional versus Islamic banks

Based on OLS estimations, we next present the results for the effect of dividend payouts on the survival likelihood across the two different bank types: conventional and Islamic banks. We conduct this additional test because of potentially differential dividend payout mechanisms and corporate governance structure as well as the dissimilar levels of financial stability between these two systems (see Trinh et al., 2021; Elnahass et al. 2022). We specifically split our sample into two sub-samples for conventional (Table 6, Panel A) and Islamic banks (Table 6, Panel B), and in each bank type sample, we also test our models for the full sample with all banks (Models 1–2 and 5–6) and for only banks paying cash dividends (to reduce the noise effects; Models 3–4 and 7–8).

Table 6, Panel (A) reports the results of the test investigating the influence of dividend policy on dividend payout levels (i.e. the ratios of *Dividend/Assets* and *Dividend/Sales*) in conventional banks. The results show that across all models (except model 1), dividend level is significantly and positively related to bank survival likelihood. This is evidenced by the positive coefficients on *Dividend/Assets* (Model 3) and *Dividend/Sales* (Models 2 and 4). Economically, on average, a 1% increase in dividend payouts can contribute to a 2–17.6% increase in the survival likelihood of conventional banks that paid cash dividends. However, in Panel (B) testing for the Islamic banking sector, we find an opposite (negative) coefficient sign on the *Dividend/Assets* (Model 7: economically, a 1% increase in dividend payouts can averagely result in a 9% reduction in the survival likelihood of Islamic banks paying cash dividends) or insignificant results in other models (Models 5–6 and 8). We, therefore, conclude that conventional rather than Islamic banks drive the positive effect of dividend ratios on bank survival likelihood. Such a positive effect of dividend payouts on a bank's survival tends to be more pronounced in conventional than in Islamic banks. This can be explained by the fact that Islamic banks, under the Shari'ah framework, are constrained

in accessing capital markets; hence, they are expected to retain higher levels of cash and distribute lower dividend levels to maintain a safe liquidity position and survive in the longer term. Failing to do so, all else being equal, may lead to a default likelihood for this category of Islamic banks.

[Insert **Table 6** here]

6. FURTHER INVESTIGATIONS AND ROBUSTNESS CHECK

6.1. Decomposition of the bank survival likelihood: asset and leverage risk

To shed more light on the channels through which dividend payout decisions influence bank survival likelihood, we decompose survival likelihood into its two components: *asset risk* and *leverage risk*. Asset risk is measured by the ratio of return on average operating assets and the standard deviation of operating return on assets. Leverage risk is estimated by the ratio of equity capital to total assets and the standard deviation of operating return on assets (Trinh et al., 2020a).

Table 7 presents regression results of bank dividend payout decisions on these risk components, employing the same set of control variables as in our main specification. We find that the main results related to the positive nexus of dividends and survival likelihood noted previously (in Table 5) are also obtained under all estimated models for both risk components (except Model 8). That is, paying a cash dividend is significantly associated with lower asset risk and leverage risk, evident by the positive coefficients on these risks (a higher value means lower risk).

[Insert **Table 7** here]

6.2. Alternative measure of the bank's survival likelihood: liquidity risk

We next re-test our models by using an alternative measure of bank survival likelihood, which is the liquidity risk of banks (measured by the ratio of cash and total sales) (Elnahass et al., 2021). The higher liquidity ratio suggests a lower level of liquidity risk due to the larger cash holdings.

We report these results for full sample and for subsample with only banks paying cash dividends in Table 8 (Panel A and B). We find consistent results to the main Table 5 for the subsample with banks paying dividends (i.e., positive and significant coefficients on both measures of dividend policy), while results based on the full sample are insignificant. Therefore, we conclude that our findings are robust for the former (i.e. banks paying cash dividends).

[Insert **Table 8** here]

6.3. Alternative measure of the bank's dividend policy

Although we have employed two alternative measures for dividend policy (i.e., *Dividend/Assets*, and *Dividend/Sales*) in all our tables, we extend our analyses to capture other measures of the bank's dividend policy including: the ratio of dividend over assets (*Dividend/Earnings*), and the natural logarithm of cash dividend payments (*Ln(Cash Dividend)*) (see Trinh et al., 2021). The results are reported in Table 9, and they generally show consistent findings compared to those presented in Table 5. As such, our results remain consistent across different measures of dividend payout strategies.

[Insert **Table 9** here]

6.2. Testing for the possible non-linear effect of dividend levels on bank survival likelihood

Following previous studies (Trinh et al., 2021), we also expect that at lower levels of dividends, the dividend payout is associated with a more resilient insolvency position for banks; however, at higher levels, a lower likelihood of survival is observed. We, therefore, take a step further to test for the possible non-linear effect of dividend payout decisions on the bank survival likelihood. To do so, we include quadratic versions of dividend payout levels, i.e. $(Dividend/Assets)^2$ and

(Dividend/Sales)^2 into the models presented in Table 10. All other variables are the same as those in the main Table 5.

Table 10 presents the results. We find that *Dividend/Sales* (for all columns) and *Dividend/Sales* (for Column 6) variables are positive (and statistically significant), indicating that higher dividend payout increases the likelihood of survival, in line with our first hypothesis. However, we find that the signs of coefficients of the quadratic versions of these variables are negative for *(Dividend/Assets)*^{2} (in Columns 5 and 6) and *(Dividend/Sales)*^{2} (for all columns). These results imply a non-linear relationship between payout levels and bank survival likelihood. At higher levels, payout is related to a safer position of banks in terms of default; however, at very high levels of dividends, such payout lowers the likelihood of survival. This is plausible as higher level of dividend payments could reduce the agency problem as it lowers excess cash flows that can be used by managers for their self-interests. In addition, higher level of dividend payments is a positive signal to the market about banks' low agency cost, stable financial position and safer liquidity position. However, very high level of dividend payout, beyond a threshold (captured by the quadratic variables in Table 10), starts lowering the survival likelihood perhaps because being substantially less-liquid (caused by the higher level of dividend payouts) is riskier, and, therefore, decrease the likelihood of survival. Overall, the non-linear relationship between payout and bank survival indicate that, at very high levels of dividend payment aggravates default risk, perhaps because it erodes equity capital (Acharya et al., 2017). Following Lind and Mehlum (2010), we find that the turning points (thresholds) of *DIV/Assets* and *DIV/Sales* (for the sample of only banks paying dividends) are 1.603 and 0.391, respectively. This result is important to investors and banks themselves that they should not only concern themselves about the levels of dividends paid to

shareholders but also consider their optimal (threshold) rate. Any dividend payments beyond such a threshold could harm a bank's risk profile.

[Insert **Table 10** here]

6.3. The effect of bank-specific characteristics on dividend-survival nexus

We also test whether our main findings are robust after splitting our sample into *Bank financial leverage*, *Bank size* and *Bank age* (using their median values). We implement these tests because these variables are found in prior literature (Dickens et al., 2002; Mulyani et al., 2016; Saeed and Sameer, 2017; Trinh et al., 2020a) to possibly significantly affect bank risk-taking behaviour as well as dividend payout levels. For instance, larger (or mature) banks not only have relatively lower incentives to grow fast due to their current developed business stage but also have a larger network and richer business experience due to their advantages of the economic scale. Hence, they do not retain a large amount of free cash. They may distribute more dividends to shareholders, which should not increase their liquidity risk as they may possess a better capacity to raise external capital at a lower rate because of their higher reputation. Furthermore, less-leveraged banks have less obligation to return money to debtholders leading to lower bankruptcy risk. Thereby, if they decide to distribute greater levels of dividends, they are still safer than their highly leveraged peers. Additionally, long-term debtholders may perceive them to be riskier if the bank chooses to pay more dividends to shareholders, which could require a higher return premium, resulting in a higher cost of capital. This, in turn, raises financial instability and lowers survival likelihood.

Table 11 presents our main results after splitting the full sample into two subsamples of highly leveraged (>= 8.207, median of *Bank financial leverage*) *versus* less-leveraged banks (<8.207) (Models 1–2 and 7–8), those of large (>=15.578, median of *Bank size*) *versus* small banks

(<15.578, Models 3–4 and 9–10), and those of mature (>=3.497, median of *Bank age*) *versus* young banks (<3.497, Models 5–6 and 11–12). We find that large and mature banks drive our results obtained in Table 5, which are consistent with our predictions. However, the results are unclear between less-leveraged and highly leveraged banks. For the sample of only banks paying cash dividends, we find that the positive effect of dividend policy on bank survival likelihood is found in both subsamples of less-leveraged and highly leveraged banks. Although the significance level in less-leveraged bank subsamples (5%) is higher than in highly leveraged bank subsample (10%), our expectations still cannot be confirmed.

[Insert **Table 11** here]

6.4. Robustness check: Using a one-year lag form

We also control for the endogeneity problem of the dividend payout level by including the one-year lag form of all independent variables in the tested models. In other words, we re-test all models presented in Tables 5 and 6 by employing the past values of explanatory factors. This technique could treat the potential endogeneity issues that are pertinent in some of our variables. We present our results in Table 12. We find that our main results do not change: a higher level of dividend payout is likely to be associated with a greater likelihood of survival of a bank. However, this result appears to be more intensified for the sample of conventional banks than Islamic banks. Hence, these findings alleviate concerns and confirm that our main results are not driven by endogeneity bias and are robust.

[Insert **Table 12** here]

6.5. Results from the internal instrumental variable approach

Subsequently, we extend our analysis by employing the internal instrumental variable (IV) approach, through the two-step system generalised method of moments (GMM) method, to extract the exogenous component of bank dividend payout decision. The IVs selected are lagged values of endogenous variables (e.g. corporate governance factors) because these variables in earlier years are unlikely to have resulted from the survival likelihood of banks in subsequent years (see Trinh et al., 2020b). Using GMM is also advantageous as it would capture the unobserved effects by transforming variables employed into first differences. Thus, it could mitigate two issues, including omitted variable bias and unobserved heterogeneity (Arellano and Bover, 1995). Table 13 presents the GMM results, which confirm our main findings (see Section 5.1) that the cash dividend payout level of banks is positively related to their survival likelihood.

[Insert **Table 13** here]

6.6. Results from propensity score matching

Two potential issues are likely to arise, i.e. self-selection bias and the endogeneity of the dividend variable. A reverse causal relationship from payout decisions to survival likelihood is possible. For instance, banks with lower survival likelihood could have incentives not to pay dividends to better manage their liquidity position, which may result in spurious inferences. We resolve such problems and the related concerns of self-selection bias by utilising the propensity score matching (PSM) approach (Rosenbaum and Rubin, 1983). The PSM method estimates matching observations upon the *probability* of undergoing the treatment, which in our case is dividend payout decisions. In other words, PSM analyses the effect of dividend payouts on a bank's survival likelihood by

comparing the survival likelihood indices of a bank that pays a cash dividend (treatment group) and a bank that does not pay a cash dividend (control group).

PSM involves a three-step process. First, we estimate propensity scores for banks paying dividends and those not paying dividends. To estimate the scores, we employ a probit regression of a binary response variable, which takes the value of one for the banks paying dividends, and zero otherwise. Independent variables included in the probit regression are expected to reflect the institutional settings of banking firms as well as the theoretical foundations of the determinants of banks' decisions to pay dividends. The chief aim of this regression analysis is not to predict the treatment but to balance all the covariates between the two groups of treatment and control (Caliendo and Kopeinig, 2008). To do so, three sets of regressors are accordingly constructed to capture corporate governance, bank-level and country-level characteristics. We further use one-year lags of each control variable, which is in line with the required condition in the PSM approach. The treatment is not expected to influence the variables included in the propensity score regressions. Therefore, we illustrate this via Eqs.1: $P(S_{it} = 1|X_{it-1}, Z_{it-1,} St_i)$ (1), where S_{it} is a dividend-paying binary, X_{it-1} is a vector of bank-level characteristics variables, Z_{it-1} is a vector of country-level characteristic variables, and St_i are bank and/or year dummies.

After the propensity score estimations, we match the sample of each paying dividend observation to that of a non-paying dividend observation. We use one-to-one nearest-neighbour matching with and without replacement. The unit chosen from non-paying dividend observations (unit *a* from the control group) as a match for paying dividend observations (unit *b* from the treatment group) is the one closest in terms of the propensity score. This leads to the Eqs.2: $|p_a - p_b| = \min\{|p_a - p_c|\}$, $c \epsilon \{S=0\}$. Additionally, we employ other matching methods including nearest-neighbour matching with n=2 and n=3 with replacement, which matches each paying dividend

observation with the two and three non-paying dividend observations with the closest propensity score, respectively.

We observe the quality of propensity score matching by plotting the distribution of the propensity score for the banks paying and not paying dividends before and after matching (Appendix A). In the unmatched sample, we find that the propensity score distribution of the control group (dividend non-paying observations) appears not to be skewed to the right. Meanwhile, in the matched sample, it is very close to that of the treatment group (dividend-paying observations) showing the appropriateness of matches. We additionally check whether the matching procedure can balance the distribution of all the relevant variables in both paying and non-paying groups. This is because matching needs to be conditioned on the propensity score but not on all covariates (Casu et al., 2013). We find a balance of covariates in both treatment and control groups in the matched sample, whereas we find significant differences for the unmatched sample, implying successful matching.

In the third stage, we estimate the average dividend payout effects. Specifically, we perform regressions on the matched samples to control for observable confounders. Table 14, Panels (A) and (B) report the univariate test results for the average treatment effects (ATE) and average treatment effects on the treated (ATT) estimation with bootstrapping of standard errors (i.e. 100, 1000, 10000 and 100000 replications), respectively. T-statistics for the differences in survival likelihood of banks between treated and control groups (for one-to-one nearest PSM neighbour with replacement and one-to-one nearest PSM neighbour without replacement) suggest that the differences in the survival likelihood index are 0.075 and 0.086, respectively. This implies that the survival likelihood index is higher for banks paying a dividend than for the counterparts not paying a dividend. Applying the other two methods (i.e. n=2 and n=3), we obtain the differences in

survival likelihood index of 0.082 and 0.069, respectively. After the bootstrapping of standard errors with different replications, we find the same results but slightly different levels of significance. Table 14, Panel (C) reports the regression tests in which we regress *survival likelihood* on *bank dividend pay dummy* and all control variables (same set control variables which are used in the main Table 5). Across all the matched samples (Models 1 to 4), we continue to find significant and positive coefficients on the *bank dividend pay dummy.* This strong evidence is consistent with the first hypothesis suggesting a positive effect of dividend decisions on a bank's survival. Results also indicate significant differences in the characteristics of banks paying dividends compared to those not paying dividends, leading to differential effects in the survival likelihood of the two categories of banks.

[Insert **Table 14** here]

7. CONCLUDING REMARKS

We examine the effect of dividends payouts on bank survival likelihood within an international context. We employed alternative measures for dividend payouts and bank risk while utilised different econometric approaches, to control for possible endogeneity and sample selection bias issues. Our results report strong evidence among the full sample that banks paying higher dividends have a higher survival likelihood. We extended our analysis to capture the effect of alternative banking business models (i.e. Islamic versus conventional banks) because differential survival likelihood is expected. We find that the positive association between dividend payouts and banks' survival is more intensified in conventional banks than their Islamic counterparts. Similar findings are also observed for large versus mature banks as well as for banks paying only cash dividends. Our additional analyses show inverted U-shaped relation between large dividends

and survival likelihood. We find that at lower levels of payouts, the bank survival likelihood is positively related to dividend ratios; however, when the levels of payouts exceed a threshold, such a relationship tend to reverse.

The study's findings present new insights for the corporate governance literature and the global banking industry's resilience. This study is the first to examine the impact of dividend payouts on the survival of banks within a broader international context while utilising important determinants of bank survival likelihood (i.e. dividend payout decisions). We add to the strands of literature that consider corporate decisions and dividend payments in both financial and non-financial industries. Moreover, this study contributes to the broad Islamic versus conventional banking literature by capturing differences in institutional characterises and corporate governance mechanisms. Accordingly, we offer new evidence regarding the incremental effects of different bank types' dividend payouts on their survival likelihood.

Overall, this study presents important implications for policymakers, regulators, investors, and several sets of stakeholders. We document that dividend payout policy is a factor that positively affects a bank's likelihood of survival and sets the groundwork for future studies on bank survival likelihood and dividend strategies. Although several researchers and practitioners have long investigated the benefits of survival likelihood in banking by addressing different factors such as internationalisation, capital and corporate governance, our results reveal new insights related to the importance of dividend policies, including cash payout policies. These findings suggest that bank regulators and policymakers should consider the implications on alternative banking business models when developing the intended regulations and guidance for dividend policies, governance and risk management. More broadly, our findings raise plausible calls to policy makers regarding

the importance of considering other bank characteristics (e.g. bank size, age and leverage) when addressing bank survival. Future research studies may extend our study to consider other bank characteristics, such as financial expertise, education and tenure, and their impacts on long-term financial policies and bank survival likelihood across the different bank types.

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Table 1: Final Sample Distributions

Country	Obs. (Islamic Banks)	Obs. (Conventional Banks)	Obs. (Full Sample)	Percentage (Islamic Banks)	Percentage (Conventional Banks)	Percentage (Full Sample)
Bahrain	50	50	100	19%	12%	15%
Bangladesh	60	80	140	23%	20%	21%
Egypt	7	17	24	3%	4%	4%
Indonesia	10	110	120	4%	27%	18%
Jordan	20	45	65	8%	11%	10%
Kuwait	7	24	31	3%	6%	5%
Pakistan	40	10	50	16%	2%	8%
Qatar	30	40	70	12%	10%	11%
Saudi Arabia	10	10	20	4%	2%	3%
UAE	10	10	20	4%	2%	3%
Oman	14	8	22	5%	2%	3%
TOTAL	**258**	**404**	**662**	100%	100%	100%
Number of banks	27	43	70	-	-	-

Notes: This table presents the final sample distributions. Our ultimate sample consists of 70 listed banks (662 bank-year observations) with 43 listed conventional banks (404 bank-year observations) and 27 listed Islamic banks (258 bank-year observations). These banks operated in 11 nations for the 6-year period from 2010.

Table 2: Definitions of Variables

Variables	Abbreviations	Definitions
Survival likelihood	Survival likelihood	It is an index incorporating three main factors: capitalisation, profitability levels and income fluctuations. It is calculated by the ratio of the sum of (equity capital to total assets and average value of operating return on assets) and standard deviation of operating return on assets.
Asset risk	Asset risk	The ratio of the average value of operating return on assets and standard deviation of operating return on assets.
Leverage risk	Leverage risk	The ratio of equity capital to total assets and standard deviation of operating return on assets.
Liquidity risk	Liquidity risk	The ratio of cash to total sales
Dividend dummy	Dividend Pay	Binary variable taking a value of one if the bank pays a cash dividend, and zero otherwise.
Dividend over total assets	Dividend/Assets	Dividend divided by total assets.
Dividend over sales	Dividend/Sales	Dividend divided by total sales.
Dividend over earnings	Dividend/Earnings	Dividend divided by total earnings
Log of cash dividends	Ln(Cash Dividend)	The natural logarithm of cash dividends
Islamic banking dummy	Islamic	Islamic dummy variable, taking a value of one if the observed bank is classified as Islamic, and zero otherwise.
Board size	Board size	The natural logarithm of the total number of directors on the board.
Board independence	Board independence	The number of outside (independent) directors divided by the board size.
CEO-Chair duality	CEO-Chair duality	Binary variable taking a value of one if the chairman is also the CEO, and zero otherwise.
Board directorships	Board directorships	The average number of outside directorships held by the outside directors
Board expertise	Board expertise	The number of outside directors having experience in the financial services industry divided by the number of outside directors.
Audit committee size	Audit committee size	The number of members of the audit committee
Audit committee directorships	Audit committee directorships	The number of busy audit committee members who serve in multiple companies divided by the total members of the audit committee
Bank size	Bank size	The logarithm of total assets
Bank age	Bank age	The logarithm of bank age. Age is calculated as the number of years from the first appearance of the bank to the observed year.
Audited by Big4	Audited by Big4	Binary variable taking a value of one if the bank is audited by a Big 4 firm, and zero otherwise.
Herfindahl-Hirschman Index	Herfindahl-Hirschman Index	The square of the sum of the ratio of total assets of each bank-year to total assets of all banks each year.
Bank financial leverage	Bank financial leverage	Total liabilities divided by total equity
Subsidiaries	Subsidiaries	Binary variable taking a value of one if the bank is classified as a subsidiary, and zero otherwise.
GDP per capita	GDP per capita	Gross domestic products per capita in the natural logarithm form
Inflation rate	Inflation rate	Annual inflation rate (%)
Legal system	Legal system	Legal system index is a categorical variable taking the value of zero for countries not using Shari'ah law to define their legal system, one for countries combining both Shari'ah law and others to define their legal system, and two for countries only using Shari'ah law to define their legal system.
Country governance index	Country governance index	The average value of six country governance indicators, which consists of corruption, government effectiveness, political stability, regulatory quality, the rule of law, and voice and accountability.

Notes: This table shows definitions and measurements of all tested dependent and independent variables.

Table 3: Summary Statistics

	N	Mean	Median	Standard deviation	Min	Max	Dividend Payer	Non-dividend Payer	Mean difference (T-statistics)
Survival Likelihood (index)	662	0.315	0.241	0.240	-0.016	1.130	0.351	0.239	-6.233***
Asset risk (index)	619	0.872	1.082	1.111	-3.158	2.593	1.101	0.292	-7.247***
Liquidity risk (index)	662	1.297	1.036	0.921	0.024	4.771	1.338	1.211	-1.825**
Leverage risk (index)	656	3.078	3.058	0.761	0.709	4.598	3.187	2.847	-5.478***
Dividend/Assets (ratio)	662	0.273	0.005	0.489	0	2.502	0.405	0	-15.570***
Dividend/Sales (ratio)	662	0.071	0.044	0.090	0	0.394	0.106	0	-24.305***
Dividend/Earnings	662	0.310	0.294	0.300	0	1.442	0.456	0	-32.793***
Ln(Cash Dividend)	454	10.457	10.665	2.016	2.302	13.601	10.531	0	-6.894***
Islamic (dummy)	662	0.390	0	0.488	0	1	-	-	-
Board size (log)	662	2.196	2.197	0.345	1.386	3.045	2.220	2.147	-2.335**
Board independence (%)	662	35.2	36.4	0.235	0	100	34.9	35.7	0.441
CEO-Chair duality (dummy)	662	0.041	0	0.198	0	1	-	-	-
Board directorships (number)	662	2.345	1.800	2.046	0	7.667	2.401	2.228	-1.049
Board expertise (%)	662	31.5	25.0	33.9	0	100	26.9	40.8	5.046***
Audit committee size (number)	652	3.722	3	0.923	2	6	3.759	3.684	-1.505*
Audit committee directorships (%)	652	49.8	50	33.2	0	100	49.8	49.8	0.024
Bank size (log)	662	15.597	15.578	1.219	12.572	18.151	15.975	14.816	-12.800***
Bank age (log)	662	3.322	3.497	0.681	1.386	4.754	3.383	3.195	-3.155***
Audited by Big4 (dummy)	662	0.721	1	0.449	0	1	-	-	-
Herfindahl-Hirschman Index	662	0.130	0.109	0.075	0.058	0.491	0.135	0.119	-2.593***
Bank financial leverage (ratio)	662	8.903	8.207	5.550	-4.210	80.266	8.906	8.474	-1.189
Subsidiaries (dummy)	662	0.169	0	0.375	0	1	-	-	-
GDP per capita (ratio)	662	8.764	8.216	1.492	6.634	11.480	-	-	-
Inflation rate (%)	662	0.043	0.043	0.030	-0.024	0.119	-	-	-
Legal system (index)	662	0.637	1	0.540	0	2	-	-	-
Country governance index	662	-0.274	-0.212	0.514	-1.176	0.737	-	-	-

Notes: This table reports the summary statistics of all tested dependent and independent variables. ***, ** and * denote significance levels of 1%, 5% and 10%, respectively. Full definitions and measurements of variables are found in Table 2.

Table 4: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1.Dividend/Assets	1																					
2.Dividend/Sales	0.62*	1																				
3. Dividend/Earnings	0.40*	0.70*	1																			
4. Ln(Cash Dividend)	0.29*	0.58*	0.42*	1																		
5.Islamic	-0.08*	-0.02	-0.02	-0.12*	1																	
6.Board size	-0.01	0.03	0.12*	-0.09*	0.24*	1																
7.Board independence	-0.02	-0.01	-0.03	0.07	-0.04	-0.42*	1															
8.CEO-Chair duality	0.04	0.03	0.05	0.03	-0.16*	0.06	-0.02	1														
9.Board directorships	-0.02	0.04	0.09*	-0.13*	-0.08*	0.11*	0.19*	0.09*	1													
10.Board expertise	-0.21*	-0.15*	-0.17*	-0.06	0.15*	0.08*	0.20*	0.02	0.13*	1												
11.Audit committee size	-0.02	-0.09*	0.07	0.09	0.00	0.34*	-0.10*	-0.07*	-0.04	0.09*	1											
12.Audit committee directorships	0.05	0.15*	0.05	0.08	-0.17*	0.11*	-0.07*	0.07	0.33*	0.00	-0.31*	1										
13.Bank size	0.15*	0.44*	0.30*	0.70*	-0.06	-0.07	0.17*	0.02	-0.05	-0.09*	-0.05	0.07	1									
14.Bank age	-0.04	0.08*	0.15*	0.13*	-0.18*	-0.09*	0.05	0.14*	0.11*	0.07	0.00	0.01	0.23*	1								
15.Audited by Big4	0.20*	0.31*	0.15*	0.37*	-0.17*	-0.29*	0.33*	0.01	0.17*	0.00	-0.11*	0.17*	0.43*	0.21*								
16.Herfindahl-Hirschman Index	0.20*	0.34*	0.16*	0.22*	0.12*	-0.01	-0.10*	0.06	0.06	-0.05	-0.15*	0.11*	0.11*	-0.05	0.24*	1						
17.Bank financial leverage	-0.20*	-0.21*	-0.09*	-0.29*	0.17*	0.21*	-0.17*	0.01	-0.03	0.00	0.03	-0.03	0.01	-0.01	-0.33*	-0.14*	1					
18.Subsidiaries	-0.04	-0.04	-0.01	-0.06	0.08*	-0.07	0.19*	-0.09*	0.06	0.17*	0.02	-0.06	0.01	-0.03	0.04	0.06	0.00	1				
19.GDP per capita	0.27*	0.53*	0.24*	0.33*	0.02	-0.15*	0.20*	-0.07	0.06	-0.06	-0.37*	0.24*	0.46*	0.02	0.63*	0.34*	-0.29*	-0.12*	1			
20.Inflation rate	-0.13*	-0.38*	-0.28*	-0.16*	-0.07	0.01	-0.23*	0.17*	-0.26*	-0.02	0.19*	-0.23*	-0.25*	-0.05	-0.49*	-0.14*	0.21*	0.09*	-0.68*	1		
21.Legal system	0.19*	0.39*	0.21*	0.15*	0.19*	0.04	0.03	0.13*	0.25*	-0.07*	-0.31*	0.29*	0.29*	0.04	0.46*	0.55*	-0.14*	0.00	0.65*	-0.53*	1	
22.Country governance index	0.27*	0.55*	0.26*	0.38*	-0.06	-0.18*	0.32*	-0.12*	0.09*	0.01	-0.27*	0.17*	0.42*	0.07	0.60*	0.28*	-0.36*	-0.16*	0.68*	-0.69*	0.42*	1

Notes: This table reports the Pearson correlation matrix of all independent variables. * denotes significance level 5%. Full definitions and measurements of variables are found in Table 2.

Table 5: The effect of dividend payout levels on the bank survival likelihood

	Panel A: Full sample with all banks				***Panel B: Only banks paying cash dividends***			
VARIABLES	(1) *Survival Likelihood*	(2) *Survival Likelihood*	(3) *Survival Likelihood*	(4) *Survival Likelihood*	(5) *Survival Likelihood*	(6) *Survival Likelihood*	(7) *Survival Likelihood*	(8) *Survival Likelihood*
	OLS	*RE*	*OLS*	*RE*	*OLS*	*RE*	*OLS*	*RE*
Dividend/Assets	0.015**	0.015**			0.023***	0.023***		
	(0.017)	(0.017)			(0.000)	(0.000)		
Dividend/Sales			0.083*	0.083**			0.168***	0.168***
			(0.072)	(0.025)			(0.000)	(0.000)
Islamic	0.047	0.047	0.048	0.048	0.227***	0.227***	0.219***	0.219***
	(0.318)	(0.369)	(0.308)	(0.359)	(0.000)	(0.000)	(0.000)	(0.000)
Board size	0.032*	0.032*	0.034*	0.034*	0.007	0.007	0.013	0.013
	(0.071)	(0.090)	(0.057)	(0.072)	(0.699)	(0.699)	(0.479)	(0.479)
Board independence	0.003	0.003	0.004	0.004	0.034*	0.034*	0.035*	0.035*
	(0.914)	(0.903)	(0.852)	(0.832)	(0.083)	(0.082)	(0.069)	(0.068)
CEO-Chair duality	0.827***	0.827***	0.841***	0.841***	0.839***	0.839***	0.833***	0.833***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Board directorships	-0.003	-0.003	-0.003	-0.003	-0.005**	-0.005**	-0.005**	-0.005**
	(0.323)	(0.255)	(0.270)	(0.212)	(0.042)	(0.042)	(0.040)	(0.039)
Board expertise	-0.051***	-0.051***	-0.049***	-0.049***	-0.022*	-0.022*	-0.015	-0.015
	(0.003)	(0.001)	(0.005)	(0.001)	(0.085)	(0.084)	(0.257)	(0.256)
Audit committee size	0.004	0.004	0.004	0.004	-0.021	-0.021	-0.024	-0.024
	(0.671)	(0.906)	(0.660)	(0.903)	(0.544)	(0.544)	(0.500)	(0.500)
Audit committee directorships	-0.297***	-0.297***	-0.292***	-0.292***	-0.380***	-0.380***	-0.371***	-0.371***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bank size	-0.039***	-0.039***	-0.038***	-0.038***	-0.028**	-0.028**	-0.034***	-0.034***
	(0.005)	(0.000)	(0.005)	(0.000)	(0.015)	(0.014)	(0.003)	(0.003)
Bank age	-0.094***	-0.094***	-0.098***	-0.098***	-0.012	-0.012	-0.019	-0.019
	(0.000)	(0.000)	(0.000)	(0.000)	(0.548)	(0.548)	(0.333)	(0.332)

Audited by Big4	-0.002	-0.002	-0.001	-0.001	0.006	0.006	0.011	0.011
	(0.897)	(0.931)	(0.927)	(0.950)	(0.771)	(0.771)	(0.564)	(0.564)
Herfindahl-Hirschman Index	-0.051	-0.051	-0.056	-0.056	-0.024	-0.024	-0.021	-0.021
	(0.267)	(0.287)	(0.222)	(0.239)	(0.598)	(0.597)	(0.643)	(0.643)
Bank financial leverage	-0.005***	-0.005***	-0.005***	-0.005***	-0.018***	-0.018***	-0.017***	-0.017***
	(0.002)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Subsidiaries	0.274***	0.274***	0.277***	0.277***	0.311***	0.311***	0.305***	0.305***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita	0.023	0.023	0.028	0.028	0.046**	0.046**	0.048**	0.048**
	(0.272)	(0.276)	(0.176)	(0.184)	(0.019)	(0.018)	(0.014)	(0.014)
Inflation rate	0.121	0.121	0.130	0.130	-0.055	-0.055	-0.067	-0.067
	(0.499)	(0.398)	(0.472)	(0.364)	(0.665)	(0.665)	(0.599)	(0.598)
Legal system	0.465***	0.465***	0.468***	0.468***	0.454***	0.454***	0.457***	0.457***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Country governance index	0.095***	0.095***	0.098***	0.098***	0.000	0.000	-0.004	-0.004
	(0.004)	(0.002)	(0.003)	(0.001)	(0.987)	(0.987)	(0.896)	(0.896)
Constant	0.638**	0.638**	0.581**	0.581**	0.210	0.210	0.277	0.277
	(0.031)	(0.019)	(0.049)	(0.031)	(0.428)	(0.428)	(0.297)	(0.296)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	652	652	652	652	436	436	436	436
Adjusted R-squared	0.971	0.971	0.971	0.971	0.985	0.988	0.985	0.988
Wald Chi 2 (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity (p-value)	0.000		0.000		0.000		0.000	

Notes: This table reports pooled OLS and random-effects (RE) GLS regressions with cluster robust standard errors results for the effect of dividend payout levels on bank survival likelihood. ***, ** and * denote significance levels of 1%, 5% and 10%, respectively. Full definitions and measurements of variables are found in Table 2.

Table 6: The effect of dividend payout levels on the bank survival likelihood: Conventional versus Islamic banks

	Panel A: Conventional Banks				***Panel B: Islamic Banks***			
	Full sample with all banks		*Only banks paying cash dividends*		*Full sample with all banks*		*Only banks paying cash dividends*	
VARIABLES	(1) *Survival Likelihood*	(2) *Survival Likelihood*	(3) *Survival Likelihood*	(4) *Survival Likelihood*	(5) *Survival Likelihood*	(6) *Survival Likelihood*	(7) *Survival Likelihood*	(8) *Survival Likelihood*
Dividend/Assets	0.004		0.020**		0.006		-0.090**	
	(0.572)		(0.020)		(0.764)		(0.023)	
Dividend/Sales		0.524***		0.176***		0.024		0.068
		(0.000)		(0.002)		(0.846)		(0.476)
Board size	-0.009	0.072*	-0.000	0.005	0.110***	0.109***	0.120*	0.111***
	(0.674)	(0.055)	(0.987)	(0.845)	(0.001)	(0.001)	(0.070)	(0.003)
Board independence	-0.046*	0.297***	-0.027	-0.028	-0.186***	-0.186***	0.128	0.060
	(0.062)	(0.000)	(0.368)	(0.350)	(0.000)	(0.000)	(0.142)	(0.174)
Board directorships	-0.006**	-0.001	-0.008**	-0.007**	0.005	0.004	-0.043***	-0.029***
	(0.032)	(0.840)	(0.028)	(0.049)	(0.416)	(0.442)	(0.000)	(0.000)
Board expertise	-0.065***	-0.061**	-0.049***	-0.040**	0.080***	0.079***	0.132**	-0.008
	(0.000)	(0.027)	(0.005)	(0.022)	(0.000)	(0.000)	(0.013)	(0.684)
Audit committee size	0.971***	0.018	0.933***	0.921***	-0.042**	-0.042**	-0.064***	-0.001
	(0.000)	(0.158)	(0.000)	(0.000)	(0.012)	(0.012)	(0.005)	(0.935)
Audit committee directorships	1.051***	0.144***	1.074***	1.032***	-0.078**	-0.077**	-0.063	0.091***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.022)	(0.025)	(0.366)	(0.004)
Bank size	-0.030***	0.123***	-0.037*	-0.034*	0.076***	0.076***	-0.016	0.077***
	(0.007)	(0.000)	(0.066)	(0.094)	(0.000)	(0.000)	(0.505)	(0.000)
Bank age	-0.006	-0.003	0.001	-0.009	0.052***	0.052***	0.053*	0.054***
	(0.807)	(0.837)	(0.973)	(0.745)	(0.007)	(0.007)	(0.058)	(0.001)
Audited by Big4	0.008	-0.197***	0.007	0.010	-0.569***	-0.567***	-0.213***	-0.459***
	(0.669)	(0.000)	(0.770)	(0.662)	(0.000)	(0.000)	(0.001)	(0.000)
Herfindahl-Hirschman Index	-0.196***	0.032	-0.187*	-0.177*	-0.067	-0.069	-0.299	0.024

	(0.004)	(0.902)	(0.061)	(0.074)	(0.568)	(0.555)	(0.169)	(0.782)
Bank financial leverage	-0.018***	-0.026***	-0.018***	-0.017***	-0.004***	-0.004***	-0.027***	-0.020***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Subsidiaries	-1.629***	-0.110***	-1.569***	-1.543***	0.279***	0.279***	0.140***	0.214***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita	0.015	-0.075	0.048*	0.039	0.058	0.062	0.191***	0.052
	(0.491)	(0.350)	(0.069)	(0.136)	(0.402)	(0.361)	(0.003)	(0.318)
Inflation rate	-0.321*	-0.334	-0.042	-0.059	0.362	0.361	0.724	-0.253
	(0.051)	(0.593)	(0.819)	(0.745)	(0.367)	(0.370)	(0.309)	(0.371)
Legal system	-1.929***	-2.047***	-1.826***	-1.822***	-0.256*	-0.255*	-0.247***	-0.035
	(0.000)	(0.000)	(0.000)	(0.000)	(0.057)	(0.062)	(0.003)	(0.767)
Country governance index	0.031	-0.166	0.002	-0.007	0.065	0.064	-0.475***	0.048
	(0.351)	(0.185)	(0.960)	(0.851)	(0.513)	(0.520)	(0.002)	(0.583)
Constant	-0.363	0.125	-0.677*	-0.588	-0.914	-0.953	-1.115*	-1.330**
	(0.268)	(0.877)	(0.079)	(0.125)	(0.189)	(0.163)	(0.089)	(0.014)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	404	404	281	281	248	248	155	155
Adjusted R-squared	0.976	0.923	0.979	0.980	0.970	0.970	0.964	0.975
Wald Chi 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: This table reports pooled OLS with robust standard error results for the effect of dividend payout levels on bank survival likelihood across different bank types (i.e. conventional versus Islamic banks). ***, ** and * denote significance levels of 1%, 5% and 10%, respectively. Full definitions and measurements of variables are found in Table 2.

Table 7: Decomposition of bank survival likelihood

	Panel A: Full sample with all banks				***Panel B: Only banks paying cash dividends***			
VARIABLES	(1) *Asset risk*	(2) *Asset risk*	(3) *Leverage risk*	(4) *Leverage risk*	(5) *Asset risk*	(6) *Asset risk*	(7) *Leverage risk*	(8) *Leverage risk*
Dividend/Assets	0.123**		0.246***		0.036**		0.029**	
	(0.039)		(0.000)		(0.037)		(0.011)	
Dividend/Sales		1.645***		1.728***		0.202*		0.040
		(0.000)		(0.000)		(0.060)		(0.588)
Islamic	0.820*	0.844*	1.570***	1.498***	0.495***	0.498***	1.019***	1.025***
	(0.089)	(0.071)	(0.004)	(0.006)	(0.001)	(0.001)	(0.000)	(0.000)
Board size	0.185	0.198	-0.145	-0.085	0.056	0.061	0.017	0.025
	(0.341)	(0.307)	(0.451)	(0.655)	(0.521)	(0.487)	(0.613)	(0.458)
Board independence	0.022	0.068	-0.356*	-0.341	-0.023	-0.019	0.015	0.015
	(0.953)	(0.854)	(0.087)	(0.100)	(0.811)	(0.850)	(0.675)	(0.672)
CEO-Chair duality	0.344	0.457	1.596**	1.541*	1.354***	1.386***	1.558***	1.595***
	(0.542)	(0.404)	(0.043)	(0.050)	(0.000)	(0.000)	(0.000)	(0.000)
Board directorships	0.087***	0.078***	0.086***	0.086***	0.009	0.009	-0.010**	-0.010**
	(0.004)	(0.008)	(0.001)	(0.001)	(0.283)	(0.317)	(0.026)	(0.031)
Board expertise	-0.310*	-0.222	-0.382***	-0.308**	-0.130***	-0.123***	-0.063***	-0.065***
	(0.075)	(0.197)	(0.006)	(0.031)	(0.000)	(0.001)	(0.010)	(0.009)
Audit committee size	-0.170	-0.146	-0.075	-0.100	0.041	0.041	-0.032	-0.038
	(0.366)	(0.445)	(0.843)	(0.790)	(0.317)	(0.329)	(0.625)	(0.561)
Audit committee directorships	-2.886***	-2.949***	-3.041***	-2.947***	-0.542**	-0.527**	-1.033***	-1.023***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.014)	(0.016)	(0.000)	(0.000)
Bank size	0.158	0.151	0.398***	0.337***	-0.352***	-0.353***	-0.242***	-0.245***
	(0.465)	(0.479)	(0.001)	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)
Bank age	0.395	0.297	0.094	0.020	-0.150*	-0.158*	0.087**	0.083**
	(0.201)	(0.344)	(0.655)	(0.924)	(0.071)	(0.054)	(0.018)	(0.025)
Audited by Big4	-0.028	0.000	-0.288	-0.230	0.100	0.101	0.072*	0.072*

	(0.888)	(0.998)	(0.178)	(0.282)	(0.142)	(0.146)	(0.053)	(0.055)
Herfindahl-Hirschman Index	0.216	0.274	0.173	0.200	-0.324**	-0.337***	-0.208**	-0.228***
	(0.649)	(0.571)	(0.719)	(0.677)	(0.015)	(0.010)	(0.013)	(0.007)
Bank financial leverage	-0.047***	-0.045***	-0.119***	-0.110***	-0.042***	-0.042***	-0.077***	-0.077***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Subsidiaries	0.616	0.624	1.617*	1.557*	0.688***	0.692***	0.966***	0.982***
	(0.361)	(0.348)	(0.057)	(0.067)	(0.001)	(0.001)	(0.000)	(0.000)
GDP per capita	-0.312	-0.283	0.012	0.031	0.129**	0.141**	0.167***	0.179***
	(0.131)	(0.162)	(0.954)	(0.882)	(0.040)	(0.020)	(0.000)	(0.000)
Inflation rate	-0.254	-0.287	1.292	1.157	0.781*	0.801*	-0.014	-0.048
	(0.893)	(0.878)	(0.346)	(0.396)	(0.054)	(0.051)	(0.954)	(0.840)
Legal system	-0.032	-0.113	-0.096	-0.048	1.545***	1.553***	1.408***	1.448***
	(0.953)	(0.836)	(0.919)	(0.959)	(0.000)	(0.000)	(0.000)	(0.000)
Country governance index	-0.667*	-0.723**	-0.713**	-0.751**	0.353***	0.360***	0.136**	0.156***
	(0.058)	(0.037)	(0.025)	(0.019)	(0.003)	(0.002)	(0.014)	(0.005)
Constant	3.268	3.205	-2.036	-1.363	6.556***	6.431***	4.673***	4.592***
	(0.251)	(0.250)	(0.473)	(0.632)	(0.000)	(0.000)	(0.000)	(0.000)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	609	609	434	434	646	646	436	436
Adjusted R-squared	0.828	0.831	0.863	0.864	0.977	0.977	0.994	0.994
Wald Chi 2 (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: This table reports pooled OLS with robust standard error results for the effect of dividend payout levels on two components of bank survival likelihood. ***, ** and * denote significance levels of 1%, 5% and 10%, respectively. Full definitions and measurements of variables are found in Table 2.

Table 8: Alternative measures of survival likelihood

	Panel A: Full sample with all banks		***Panel B: Only banks paying cash dividends***	
VARIABLES	(1) *Liquidity risk*	(2) *Liquidity risk*	(3) *Liquidity risk*	(4) *Liquidity risk*
Dividend/Assets	-0.042		0.176**	
	(0.510)		(0.036)	
Dividend/Sales		0.266		1.364**
		(0.521)		(0.014)
Islamic	0.993	0.955	2.335***	2.270***
	(0.124)	(0.143)	(0.001)	(0.001)
Constant	3.483	3.837	6.752*	7.360**
	(0.313)	(0.260)	(0.068)	(0.048)
Year fixed effect	Yes	Yes	Yes	Yes
Bank fixed effect	Yes	Yes	Yes	Yes
Observations	652	652	436	436
Adjusted R-squared	0.772	0.772	0.809	0.810
Wald Chi 2 (p-value)	0.000	0.000	0.000	0.000

Notes: This table reports pooled OLS with robust standard error results for the effect of dividend payout levels on the bank's liquidity risk (measured by cash over sales). ***, ** and * denote significance levels of 1%, 5% and 10%, respectively. Full definitions and measurements of variables are found in Table 2.

Table 9: Alternative measures of dividend policy

	Panel A: Full sample with all banks		*Panel B: Only banks paying cash dividends*	
	(1)	(2)	(3)	(4)
VARIABLES	*Survival Likelihood*	*Survival Likelihood*	*Survival Likelihood*	*Survival Likelihood*
Dividend/Earnings	-0.005		0.026***	
	(0.602)		(0.010)	
Ln(Cash Dividend)		0.003*		0.004*
		(0.056)		(0.053)
Islamic	0.056	0.214***	0.215***	0.232***
	(0.233)	(0.000)	(0.000)	(0.000)
Constant	0.542*	0.181	0.233	0.167
	(0.069)	(0.498)	(0.389)	(0.536)
Year fixed effect	Yes	Yes	Yes	Yes
Bank fixed effect	Yes	Yes	Yes	Yes
Observations	652	444	436	436
Adjusted R-squared	0.971	0.984	0.984	0.984
Wald Chi 2 (p-value)	0.000	0.000	0.000	0.000

Notes: This table reports pooled OLS with robust standard error results for the effect of alternative measures of dividend payout levels (i.e., Dividend/Earnings, and Ln(Cash Dividend)) on the bank's survival likelihood. ***, ** and * denote significance levels of 1%, 5% and 10%, respectively. Full definitions and measurements of variables are found in Table 2.

Table 10: Possible non-linear: The effect of dividend payout decisions on the bank survival likelihood

	Panel A: Full sample with all banks				***Panel B: Only banks paying cash dividends***			
VARIABLES	(1) *Survival Likelihood*	(2) *Survival Likelihood*	(3) *Survival Likelihood*	(4) *Survival Likelihood*	(5) *Survival Likelihood*	(6) *Survival Likelihood*	(7) *Survival Likelihood*	(8) *Survival Likelihood*
Dividend/Assets	0.021	0.021			0.105	0.268***		
	(0.840)	(0.840)			(0.200)	(0.000)		
(Dividend/Assets)^2	-0.011	-0.011			-0.066*	-0.083***		
	(0.844)	(0.844)			(0.056)	(0.004)		
Dividend/Sales			1.445**	1.445**			0.323***	0.323***
			(0.025)	(0.025)			(0.001)	(0.001)
(Dividend/Sales)^2			-4.384***	-4.384***			-0.413*	-0.413*
			(0.006)	(0.006)			(0.051)	(0.051)
Islamic	-0.159***	-0.159***	-0.149***	-0.149***	-0.430***	-0.462***	0.216***	0.216***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
Board size	0.111	0.111	0.099	0.099	0.116***	0.154***	0.013	0.013
	(0.160)	(0.160)	(0.166)	(0.166)	(0.009)	(0.000)	(0.365)	(0.365)
Board independence	0.031	0.031	0.033	0.033	0.086	0.031	0.037*	0.037*
	(0.773)	(0.773)	(0.757)	(0.757)	(0.131)	(0.613)	(0.075)	(0.075)
CEO-Chair duality	0.152	0.152	0.140	0.140	0.144***	0.287***	0.820***	0.820***
	(0.368)	(0.368)	(0.424)	(0.424)	(0.005)	(0.000)	(0.000)	(0.000)
Board directorships	-0.011	-0.011	-0.012	-0.012	-0.029***	-0.001	-0.005**	-0.005**
	(0.299)	(0.299)	(0.265)	(0.265)	(0.000)	(0.834)	(0.050)	(0.050)
Board expertise	-0.094*	-0.094*	-0.071	-0.071	-0.122***	-0.117***	-0.016	-0.016
	(0.078)	(0.078)	(0.173)	(0.173)	(0.001)	(0.000)	(0.286)	(0.286)
Audit committee size	0.029	0.029	0.023	0.023	0.031**	0.017	-0.022*	-0.022*
	(0.330)	(0.330)	(0.424)	(0.424)	(0.025)	(0.193)	(0.091)	(0.091)
Audit committee directorships	0.022	0.022	0.027	0.027	0.023	-0.015	-0.343***	-0.343***
	(0.741)	(0.741)	(0.670)	(0.670)	(0.527)	(0.635)	(0.000)	(0.000)

Bank size	0.022	0.022	0.010	0.010	0.015	0.037***	-0.040***	-0.040***
	(0.385)	(0.385)	(0.697)	(0.697)	(0.226)	(0.003)	(0.001)	(0.001)
Bank age	0.040	0.040	0.036	0.036	0.048***	0.024*	-0.018	-0.018
	(0.171)	(0.171)	(0.192)	(0.192)	(0.004)	(0.084)	(0.442)	(0.442)
Audited by Big4	-0.096	-0.096	-0.093	-0.093	-0.144***	-0.320***	0.016	0.016
	(0.148)	(0.148)	(0.167)	(0.167)	(0.000)	(0.000)	(0.139)	(0.139)
Herfindahl-Hirschman Index	0.122	0.122	0.071	0.071	0.189	0.013	-0.022	-0.022
	(0.677)	(0.677)	(0.802)	(0.802)	(0.346)	(0.951)	(0.637)	(0.637)
Bank financial leverage	-0.008**	-0.008**	-0.007**	-0.007**	-0.019***	-0.010***	-0.017***	-0.017***
	(0.011)	(0.011)	(0.024)	(0.024)	(0.000)	(0.002)	(0.000)	(0.000)
Subsidiaries	0.029	0.029	0.028	0.028	0.121***	0.108***	0.288***	0.288***
	(0.679)	(0.679)	(0.685)	(0.685)	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita	-0.056	-0.056	-0.044	-0.044	-0.101***	-0.092	0.052**	0.052**
	(0.344)	(0.344)	(0.421)	(0.421)	(0.000)	(0.302)	(0.011)	(0.011)
Inflation rate	-2.516**	-2.516**	-2.260**	-2.260**	-3.043***	0.045	-0.054	-0.054
	(0.011)	(0.011)	(0.018)	(0.018)	(0.000)	(0.940)	(0.760)	(0.760)
Legal system	0.147**	0.147**	0.123**	0.123**	0.271***	0.171*	0.458***	0.458***
	(0.032)	(0.032)	(0.047)	(0.047)	(0.000)	(0.078)	(0.000)	(0.000)
Country governance index	0.101	0.101	0.087	0.087	0.249***	-0.032	-0.007	-0.007
	(0.495)	(0.495)	(0.566)	(0.566)	(0.001)	(0.814)	(0.826)	(0.826)
Constant	0.232	0.232	0.320	0.320	1.142***	0.841	0.291	0.291
	(0.695)	(0.695)	(0.564)	(0.564)	(0.000)	(0.345)	(0.284)	(0.284)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	652	652	652	652	436	436	436	436
Adjusted R-squared	0.966	0.966	0.966	0.966	0.985	0.985	0.988	0.988
Wald Chi 2 (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: This table reports pooled OLS with robust standard errors results for the possible non-linear effect of dividend payout levels on bank survival likelihood. ***, ** and * denote significance levels of 1%, 5% and 10%, respectively. Full definitions and measurements of variables are found in Table 2.

Table 11: Highly leveraged banks versus less-leveraged banks; Small banks versus large banks; Young banks versus mature banks

	Panel A: Full sample with all banks						***Panel B: Only banks paying cash dividends***					
	Highly leveraged *vs* less leveraged banks		Small banks *vs* large banks		Young banks *vs* mature banks		Highly leveraged *vs* less-leveraged banks		Small banks *vs* large banks		Young banks *vs* mature banks	
VARIABLES	(1) *Low-leveraged banks*	(2) *Highly leveraged banks*	(3) *Small banks*	(4) *Large banks*	(5) *Young banks*	(6) *Mature banks*	(7) *Less-leveraged banks*	(8) *Highly leveraged banks*	(9) *Small banks*	(10) *Large banks*	(11) *Young banks*	(12) *Mature banks*
Dividend/Sales	-0.014	*0.236***	-0.167**	*0.134***	-0.146***	*0.134***	0.101**	0.145*	0.120	0.073*	0.090	0.172***
	(0.641)	*(0.002)*	(0.026)	*(0.001)*	(0.003)	*(0.001)*	(0.015)	(0.061)	(0.155)	(0.080)	(0.144)	(0.005)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.172	1.038***	-1.008	1.789***	-0.294	0.861*	0.230	0.524**	1.065***	0.100	0.103	-1.190
	(0.641)	(0.000)	(0.173)	(0.000)	(0.410)	(0.054)	(0.540)	(0.030)	(0.005)	(0.813)	(0.823)	(0.119)
Observations	323	329	330	322	325	327	215	221	220	216	202	234
Adjusted R-squared	0.987	0.975	0.965	0.976	0.965	0.985	0.990	0.989	0.988	0.986	0.983	0.989
Wald Chi 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 12: Using one-year log form of the independent variable: Controlling for endogeneity

	Panel A: Full sample		*Panel B: Conventional banks*		*Panel C: Islamic banks*	
VARIABLES	(1) *Survival Likelihood*	(2) *Survival Likelihood*	(3) *Survival Likelihood*	(4) *Survival Likelihood*	(5) *Survival Likelihood*	(6) *Survival Likelihood*
Dividend/Assets $_{t-1}$	0.052***		0.027		-0.009	
	(0.008)		(0.248)		(0.641)	
Dividend/Sales $_{t-1}$		0.607***		0.438**		-0.082
		(0.000)		(0.020)		(0.413)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.326	-0.152	-0.559	-0.159	-1.504**	-1.437**
	(0.657)	(0.842)	(0.458)	(0.843)	(0.043)	(0.042)
Observations	583	583	361	361	222	222
Adjusted R-squared	0.974	0.974	0.974	0.975	0.975	0.975
Wald Chi 2 (p-value)						

Table 13: Endogeneity – two-step system generalized method of moments (GMM) estimation

	Panel A: Full sample with all banks		***Panel B: Only banks paying cash dividends***	
	(1)	(2)	(3)	(4)
VARIABLES	*Survival Likelihood*	*Survival Likelihood*	*Survival Likelihood*	*Survival Likelihood*
Survival Likelihood $_{t-1}$	0.335***	0.484***	0.007*	0.192**
	(0.000)	(0.000)	(0.061)	(0.019)
Dividend/Assets	0.010*		0.032**	
	(0.065)		(0.039)	
Dividend/Sales		0.089*		0.238**
		(0.087)		(0.037)
Bank controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Constant	-0.010	-0.003	-0.220	1.162
	(0.277)	(0.612)	(0.991)	(0.105)
Observations	583	583	404	404
Wald Chi 2 (p-value)	0.000	0.000	0.000	0.000
Number of Instruments	212	198	188	187
Lags	(2 3)	(2 3)	(2 3)	(2 3)
Generated IVs	11	13	11	13
AR(1)	0.029	0.001	0.066	0.000
AR(2)	0.100	0.144	0.349	0.545
Sargan test (p-value)	0.178	0.166	0.219	0.314
Difference-in-Hansen J. for GMM style (p-value)	0.100	0.241	0.101	0.220
Difference-in-Hansen J. for IV style (p-value)	0.186	0.198	0.139	0.104

Notes: This table reports two-step system generalized method of moments (GMM) estimation results (with robust correction for potential heteroskedasticity) for the effect of dividend payout on bank survival likelihood. ***, ** and * denote significance levels of 1%, 5% and 10%, respectively. Full definitions and measurements of variables are found in Table 2.

Table 14: Propensity score matching technique: The effect of dividend payout decisions on the bank survival likelihood

Panel A: Average treatment effects with the nearest neighbour matching method						
		Treated (Pay)	Control	Δ (p-value)	S.E.	T-stat
1:1 matching without replacement						
	Unmatched	0.349	0.232	0.117***	0.021	5.47
Bank survival likelihood	Matched	0.306	0.232	0.075***	0.024	3.17
1:1 matching with replacement						
	Unmatched	0.349	0.232	0.117***	0.021	5.47
Bank survival likelihood	Matched	0.341	0.255	0.086***	0.034	2.53
Nearest neighbour (n=2)						
	Unmatched	0.349	0.232	0.117***	0.021	5.47
Bank survival likelihood	Matched	0.341	0.259	0.082***	0.030	2.72
Nearest neighbour (n=3)						
	Unmatched	0.349	0.232	0.117***	0.021	5.47
Bank survival likelihood	Matched	0.341	0.272	0.069***	0.031	2.26
Panel B: Average treatment effect on the treated with 1:1 nearest neighbour matching and bootstrapping of standard errors						
	No of obs.	Replications	Observed (Δ)	Bias	S.E.	T-stat
Bank survival likelihood	498	100	0.076***	-0.005	0.032	2.321
	498	1000	0.076***	-0.002	0.036	2.116
	498	10000	0.076***	-0.001	0.036	2.083
	498	100000	0.076***	-0.001	0.036	2.097

Panel C: Regressions on matched samples (dependent variable: Bank survival likelihood)				
	(1)	(2)	(3)	(4)
Independent variables	1:1 matching without replacement	1:1 matching with replacement	Nearest neighbour (n=2)	Nearest neighbour (n=3)
Dividend pay	0.069***	0.046***	0.054***	0.042**
	(0.001)	(0.003)	(0.004)	(0.025)
Bank controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Adjusted R-squared	0.263	0.307	0.286	0.292
Observations	358	370	508	525
F test	8.95***	22.19***	13.66***	14.49***

The table presents the propensity score matching technique of the average treatment effects (ATE) of and average treatment effect on the treated (ATT) estimation with the nearest neighbour matching method and/or bootstrapping of standard errors of dividend payout decisions on the bank survival likelihood. The ATE and ATT of dividend payout decisions on the bank survival likelihood (Δ) are estimated as the difference between the mean changes of banks paying dividends (column "Treated") and that of matched banks paying no dividends (column "Non-treated"). T-statistics based on standard errors are presented in the final column. ***, ** and * denote significance levels of 1%, 5% and 10%, respectively. Full definitions and measurements of variables are found in Table 2.

Appendix A: Distribution of the propensity score of treated and non-treated before and after matching