Regulatory Hypothesis and Bank Dividend Payouts: Empirical Evidence from Italian Banking Sector

Badar Nadeem Ashraf[1*], Sidra Arshad[2], Muhammad Morsheed[1], Muhammad Abdul Kamal[3], Khalid Khan[3]

[1]School of Management, Huazhong University of Science and Technology, Wuhan 430074, Hubei, China.

[2]School of Public Administration, China University of Geosciences Wuhan, Wuhan 430074, Hubei, China.

[3]School of Economics, Huazhong University of Science and Technology, Wuhan 430074, Hubei, China.

Corresponding Author:

Badar Nadeem Ashraf

E-mail: badarfcma@gmail.com
Cell #: +8618202740571
Address: Room #511, Friendship Apartment, Huazhong University of Science and Technology, 1037 Luoyu Road, Hongshan District, Wuhan 430074, China.

Regulatory Hypothesis and Bank Dividend Payouts: Empirical Evidence from Italian Banking Sector

Abstract

This study examines the regulatory hypothesis for bank dividend payouts using a panel dataset of 229 Italian banks over the period 2005-2012. Regulatory hypothesis suggests that undercapitalized banks face more regulatory pressure for increasing capital levels by paying lower amount of dividends. Empirical results support the regulatory hypothesis by finding that the Italian banks having lower equity to total assets ratios or lower regulatory capital ratios retain more profits and pay lower amount of dividends. Results also suggest that dividend payer banks try to maintain dividends at previous level by not skipping or reducing dividends. Results further support that Fama and French (2001)'s three characteristics of dividend payers are also applicable to banks; that is, big-in-size, more profitable and low growth Italian banks pay higher amount of dividends. Findings of this study have important implications for recent regulatory proposals that suggest a direct regulation of dividends. A direct regulation of dividends, on one hand, and regulatory pressure on dividend payout decisions through capital requirements, on the other hand, may have unintended consequences for dividends as signaling and agency cost reducing tools.

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

JEL Classification: G2, G35

1. Introduction

Researchers apply corporate finance and governance theories to financial firms on the grounds of the inherent interplay of interests of a wider set of stakeholders (depositors and regulators, as well as shareholders and managers), which make their agency and governance problems more complex, and the relevance of financial firms for the good functioning and soundness of modern financial systems (Brook *et al.* 2000; Anderson & Campbell Ii 2004; Mülbert 2009; Mehran *et al.* 2011). The financial crisis of 2007-09 has further enhanced the interest in the application of corporate finance and governance theories due to the unique macroeconomic context and the regulatory shift which is believed to have hit financial firms the most (see, for example, Erkens *et al.* (2012)).

Of the several corporate finance and governance issues that are attracting the attention of scholars, dividend policy is receiving significant attention, particularly from the regulators. The recent proposals to increase oversight of the dividend payouts by the Basel Committee on Banking Supervision (BCBS 2011) point towards the increasing regulatory relevance of banks' dividend payout policies. Forcing banks to plowback their earnings may however have the unintended consequence of reducing their ability to both signal their future growth prospects to suppliers of debt and equity, and reduce agency conflicts of their managers with dispersed shareholders. Our paper explicitly studies the regulatory hypothesis for bank dividend policies and sheds critical light on the tension between the bank dividend payout decisions and the regulatory capital requirements by the regulators.

Regulatory hypothesis for bank dividend policies has been studied to some extent previously in the extant literature (Theis & Dutta 2009; Abreu & Gulamhussen 2013). For example, Theis and Dutta (2009) study the influence of the inside ownership on bank dividend payouts after

controlling for the level of capitalization of banks. Abreu and Gulamhussen (2013) explicitly test regulatory hypothesis for financial firms' dividend policies. However, both of these studies use samples of bank holding companies of USA. For the first time, we use Italian banks (non-USA) sample to explicitly study the regulatory hypothesis for bank dividend policies.

Regulators impose a minimum level of capital and recommend that banks operate with an adequate level of capital above that minimum. These capital requirements are considered to ensure banking sector stability because capital buffer protects debtors against losses and, hence, against the possibility of failure. Regulators oblige banks to meet these minimum capital requirements first, and then to pay the dividends, if any. Hence, these minimum capital requirements act as a pressure on managers of banks while they make a decision about the dividend payments. Further, banks having capital ratios much higher than these minimum capital requirements face much less regulatory oversight and are expected to pay higher amount of dividends than the banks which have capital ratios at or only marginally above minimum capital requirements. Therefore, we use capital level of each bank to measure regulatory pressure on bank dividend payout decisions.

Extant literature uses two measures of bank's capital; equity to total assets ratios and regulatory capital ratios. Although, Italian banks report equity to total assets ratio, however, regulatory capital ratio is more relevant because since the original Basel Accord on capital standards (1988) the Italian regulatory authorities have used risk-based capital ratios both as measures of the strength of banks and as trigger devices for supervisors' intervention. The original Basel Accord requires that banks meet a minimum capital ratio that must be equal to at least 8% of total risk-weighted assets. Later amendments in original Basel accord (Basel-II in 2006 and Basel-III in 2010) have tried to make risk-based capital regulation more responsive to the risk in bank assets

portfolios by using more stringent definitions of bank capital and bank risk, and these amendments have been implemented for Italian banks.

We test the regulatory pressure hypothesis in this study, which states that undercapitalized banks face more pressure from regulators and tend to increase capital by retaining earnings rather than to pay dividends.

We use a panel dataset of 229 Italian savings, cooperative and commercial banks over the period 2005-2012 containing a total 1,166 observations over the sample period.

A major finding of our study is that regulatory pressure influences the Italian banks' dividend policy decisions. Specifically, our findings suggest that undercapitalized banks pay lower dividends and retain more profits. We further find that Fama and French (2001)'s characteristics of dividend payers (size, growth and profitability) can be applied to banks also. For example, our findings suggest that big-in-size, more profitable and low growth banks pay higher amount of dividends.

We contribute to the extant literature examining dividend payout decisions in the banking industry in at least two ways. First, this paper contributes to the regulatory reforms that intend to constrain dividend payments under certain limiting conditions. Specifically, we find that stringent capital regulation is effective in constraining banks from paying higher amount of dividends. Second, we find that Fama and French (2001)'s characteristics of dividend payers (size, growth and profitability) are applicable for banking sector and can be extended to the case of banks.

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

2. Literature review and hypothesis

We hypothesize that the regulatory pressure, in the form of more stringent capital requirements, is likely to have important influence on the bank dividend payouts. In this section, first we review the dividends theories literature briefly. After that we review major contributions to bank dividend policies' literature and define our hypothesis.

2.1 Dividend theories

Since the publications of the Miller and Modigliani (1961) dividend irrelevance theory and the Black (1976)'s dividend puzzle, financial researchers have extended several explanations for the question that "why do firms pay dividends". To date, researchers have suggested signaling, tax preferences of investors, life-cycle, catering and agency theories based explanations of dividend payouts.

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

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

Firms' life-cycle theory of dividends suggests that the pattern of cash dividends' payouts, generally, changes over a firm's life-cycle (Fama & French 2001; DeAngelo *et al.* 2006; Brockman & Unlu 2011); that is, new (potentially growing) firms pay fewer dividends whereas

mature firms pay higher dividends. For this theory, DeAngelo *et al.* (2006) find strong empirical evidence that the probability that a firm will pay dividends increases with the relative amount of earned equity in its total capital structure.

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

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

2.2 Banking dividends literature and hypothesis

To date, bank dividends literature has largely considered signaling, agency and regulatory hypotheses based explanations of bank dividend payouts, besides identifying some bank-level characteristics as significant determinants of dividend payouts.

For signaling hypothesis, Filbeck and Mullineaux (1993) examine 177 publicly traded U.S. bank holding companies over the period 1973–1987 and find that unexpected dividend announcements have a direct impact on bank equity valuations. Boldin and Leggett (1995) examine 207 publicly traded U.S. bank holding companies and find empirical evidence that dividend payments

increase external ratings of banks. Abreu and Gulamhussen (2013) find support for signaling hypothesis that managers of banks pay dividends for signaling their future growth opportunities. For agency theory hypothesis for bank dividend policies, Dickens *et al.* (2002) argue that the higher percentage of insider ownership reduces agency problems in banks and find empirical evidence that the banks with higher percentage of insider ownership pay lower amount of dividends. Similarly, Abreu and Gulamhussen (2013) find that the banks which are difficult to monitor pay out higher amount of dividends to counterbalance the increased need for monitoring. Recent evidence on relevance of Fama and French (2001)'s characteristics of dividend payers (size, growth and profitability) for banks is mixed, however. For example, Theis and Dutta (2009) examine dividend payouts of 99 US bank holding companies and their results do not support the applicability of the Fama and French (2001) characteristics of dividend payers to banks. Their findings suggest that size impacts negatively dividends while profitability and investment opportunities have no significant impact. On the other hand, Abreu and Gulamhussen (2013) investigate a sample of 462 publicly traded US bank holding companies over the period 2004–2009 and support Fama and French (2001)'s characteristics of dividend payers for banks by finding that the larger, low growth and more profitable banks pay more dividends. Similarly, Imran *et al.* (2013) find that banks having big size and higher earnings per share pay higher dividends in a sample of listed commercial banks of Pakistan.

There are some studies which examine regulatory hypothesis for bank dividend policies (Casey & Dickens 2000; Dickens *et al.* 2002; Theis & Dutta 2009; Abreu & Gulamhussen 2013; Zheng & Ashraf 2014). For example, Theis and Dutta (2009) and Abreu and Gulamhussen (2013) proxy regulatory pressure with capital adequacy ratios (regulatory measure of bank capital), and find that banks having higher capital adequacy ratios pay more dividends. Whereas, Casey and

Dickens (2000), Dickens *et al.* (2002) and Zheng and Ashraf (2014) proxy regulatory pressure with equity to total assets ratio and find that banks having higher equity ratios face lower regulatory pressure and pay higher amount of dividends.

In this paper, we test the regulatory pressure hypothesis, that is, undercapitalized banks face more pressure from regulators for increasing capital levels by retaining more profits. And, as a result, these undercapitalized banks pay lower amount of dividends. However, in contrast to above studies which mostly have used US bank holding companies samples for testing regulatory hypothesis, in this paper we use data of Italian banks over the period 2005-2012 and provide recent empirical evidence. Further, we also examine relevance of Fama and French (2001) characteristics of dividend payers for Italian banks.

3. Data

We downloaded annual financial accounting information for Italian banks from *Bankscope* database. We begin our sample construction by deleting all bank observations which have missing necessary accounting information. After applying all filters, we obtain a sample of 1,166 bank observations from 229 unique banks over the period 2005-2012.

For examining the impact of regulatory pressure on banks' dividend payout amounts, we measure dividend payout amounts, Dividends, by scaling common dividends paid by total assets and use it as dependent variable.

We use simple equity ratios and regulatory capital ratios of each bank to proxy for regulatory pressure, and use them as main independent variables one-by-one, in our tests. Specifically, we use equity to total assets ratio as our first regulatory pressure variable and rename it as Reg_Pressure_EA. Equity to total assets ratio is simple measure of bank capital and represents

bank's owners equity as a percentage of bank's total assets. As an alternate measure of regulatory pressure, we use regulatory capital ratio (capital adequacy ratio) and rename it as Reg_Pressure_CAR. Regulatory capital ratio represents bank capital as a percentage of bank risky assets. Basel risk-based capital standards link bank capital to bank risk. Each bank is required to calculate total risk-weighted assets based on risk level of each bank asset first, and then maintain a regulatory capital ratio (capital adequacy ratio) equal to some percentage (e.g., 8% specified in Basel-1) of these risk-weighted assets. We predict a positive coefficient on regulatory pressure variables because banks having higher equity to total assets ratios/ regulatory capital ratios face less pressure from regulators and are expected to pay higher amount of dividends.

Bank-specific control variables include Fama and French (2001) three firm characteristics of profitability, size and growth opportunities proxy by return on average equity (ROE), log of total assets (Log_TA) and year-on-year assets growth (Growth_TA), respectively. All variables are computed at fiscal year-end.

The predicted signs between these bank-specific variables and dividend policy variables are as follows: ROE (+), Log_TA (+), Growth_TA (-).

4. Empirical results

4.1 Summary statistics

Table 1 reports summary statistics for the full sample. The mean value for dividends paid to total assets ratio, Dividends, is 0.20 percent showing that a bank included in our sample on average pays a 0.2 percent of its assets in dividends, annually. Mean value and standard deviation of first regulatory pressure variable, Reg_Pressure_EA, are 10.13 and 3.88, respectively. Mean value

and standard deviation of second regulatory pressure variable, Reg_Pressure_CAR, are 14.84 and 5.93, respectively.

[Insert Table 1 here]

4.2 Pair-wise correlations

Table 2 reports pair-wise correlations between main variables. Results for correlations are consistent with expectations. Correlations between Dividends and two regulatory pressure variables, Reg_Pressure_EA and Reg_Pressure_CAR, are positive (0.11 and 0.05, respectively) showing that level of dividend payout is higher if regulatory pressure is lower. Positive correlations between Dividends and Log_TA and ROE variables are also consistent with expectations and show that big and more profitable banks have higher level of dividend payouts.

[Insert Table 2 here]

4.3 Multivariate analysis

After having confirmed our results in pair-wise correlations to some extent, now we turn to multivariate analysis to further confirm our results. As our dataset is a panel of annual bank observations over 2005 to 2012, we specify following model for our empirical multivariate analysis:

$$Dividends_{i,t} = \alpha + \gamma Dividends_{i,t-1} + \beta_1 Regulatory\ pressure\ variable_{i,t} + \beta_2 Log_TA_{i,t} + \beta_3 Growth_TA_{i,t} + \beta_4 ROE_{i,t} + u_i + \varepsilon_{i,t} \quad _____ Eq.(1)$$

where u_i represents the fixed effect of bank i and $\varepsilon_{i,t}$ is the residual effect for year t for bank i. Dependent variable, Dividends, is dividends payouts represented by common dividends paid to total assets ratio. As a number of studies find that dividend payer banks try to maintain dividends

at previous level by not skipping or reducing dividends (Bodla *et al.* 2007; Al-Ajmi 2010), therefore to account for dynamic dependent variable we include one period lag of dependent variable, L.Dividends, at right-hand side of our model.

Key test variable is regulatory pressure variable represented by Reg_Pressure_EA (equity to total assets ratio) and Reg_Pressure_CAR (regulatory capital ratio), one-by-one.

Three bank-level control variables include Log_TA equals to natural log of total assets, Growth_TA equals to year-on-year growth in total assets, and ROE equals to net income to total equity ratio.

Fixed-effects and random-effects panel models are used for panel estimations. However, as our model includes one period lag of dependent variable on right-hand side, fixed-effects estimation technique is not appropriate for our model. Nickell (1981) and Kiviet (1995) established that least squares dummy variable estimates of the lagged dependent variable's coefficient in a dynamic panel model are biased due to the correlation between the fixed effects and the lagged dependent variable (see also Baltagi (2008)). Therefore, we use random-effects estimation technique for our estimations.

We estimate Eq. (1) with panel random-effects estimation technique by including regulatory pressure variables, Reg_Pressure_EA and Reg_Pressure_CAR, one-by-one, and report results in Table 3.

[Insert Table 3 here]

As shown, control variables enter significantly in expected directions in both models. Positive and significant coefficients of Log_TA and ROE variables indicate that big-in-size and more profitable banks pay higher amount of dividends, respectively. Negative and significant

coefficient of Growth_TA variable indicates that banks having higher growth opportunities retain more profits and pay lower amount of dividends. These findings are consistent with Fama and French (2001) finings for industrial firms and Abreu and Gulamhussen (2013) findings for US bank holdings companies, and validate our models for confirming regulatory hypothesis. Positive and highly significant coefficients of lagged dependent variable, L.Dividends, in model-1 (0.427) and model-2 (0.434) show that the banks' dividend payout pattern seems smooth and stable, and the banks do not want to decrease or skip their dividends payout amounts than the previous level. These findings are consistent with Lintner (1956) and some other studies conducted in developed as well as developing countries (DeAngelo & DeAngelo 1990; Bodla *et al.* 2007; Al-Ajmi 2010).

Now we turn to the results of our main regulatory pressure variables. Results of Reg_Pressure_EA and Reg_Pressure_CAR are consistent with our expectations and verify regulatory hypothesis for bank dividends payouts. Positive and significant coefficient (0.014) for Reg_Pressure_EA variable in model-1 indicates that banks having higher equity to total assets ratios, by facing lower regulatory pressure, pay higher amount of dividends. This finding is consistent with Casey and Dickens (2000), Dickens *et al.* (2002) and Abreu and Gulamhussen (2013) findings for US bank-holding companies who use equity to total assets ratio to proxy regulatory pressure for dividend payouts and find significant results.

Similarly, positive and significant coefficient (0.006) for Reg_Pressure_CAR variable in model-2 indicates that banks having higher regulatory capital ratios, by facing lower regulatory pressure, pay higher amount of dividends. This finding is consistent with Theis and Dutta (2009) and Abreu and Gulamhussen (2013) findings for US bank-holding companies who use regulatory capital ratio to proxy regulatory pressure for dividend payouts and find significant results.

These results for two regulatory pressure variables validate regulatory hypothesis for Italian banks, and suggest that well capitalized Italian banks faced lower regulatory pressure for retaining profits and, consequently, paid higher amount of dividends over the sample period. Although, our above results confirm regulatory pressure hypothesis for bank dividend payouts, however, as a robustness test we re-estimate Eq. (1) with pooled panel estimation technique with regulatory pressure variables, one-by-one, and report result in Table 4.

[Insert Table 4 here]

Model-1 includes Reg_Pressure_EA, and model-2 includes Reg_Pressure_CAR regulatory pressure variable. The estimated coefficients and level of significance for all control variables are consistent across both models, as well as being consistent with the results in Table 3. Positive and significant coefficients of Log_TA and ROE variables indicate that big-in-size and more profitable banks pay higher amount of dividends, respectively. Negative and significant coefficient of Growth_TA variable indicates that banks having higher growth opportunities retain more profits and pay lower amount of dividends. Positive and significant coefficients of lagged dependent variable, L.Dividends, show that the banks do not want to decrease or skip their dividends payout amounts than the previous level, and try to maintain a smooth and stable pattern of dividends.

Positive and significant coefficients of Reg_Pressure_EA (0.546) and Reg_Pressure_CAR (0.565) are consistent with our expectations and results of Table 3. These results show that banks having higher equity to total assets ratios or higher regulatory capital ratios face lower regulatory pressure, and pay higher amount of dividends.

In sum, our results for two regulatory pressure variables validate regulatory hypothesis for Italian banks, and suggest that well capitalized Italian banks, by facing lower regulatory pressure, paid higher amount of dividends over the sample period.

5. Conclusion and suggestions

Researchers in corporate finance study financial firms separately than non-financial firms due to their amplified agency and governance problems, and their critical importance for good functioning of the modern financial systems. The recent financial crisis of 2007–09 has further enhanced the interest as a result of the regulatory shifts that occurred during this period.

We construct a new dataset on 229 Italian banks to study the regulatory hypothesis for bank dividend payouts over the period 2005-2012. We test the regulatory hypothesis alongside the Fama and French (2001)'s characteristics of dividend payers for banks.

Our findings support regulatory hypothesis by finding that undercapitalized Italian banks plowback earnings to recapitalize themselves due to higher regulators' pressure for building capital buffers. Further, our findings suggest that Fama and French (2001)'s characteristics that larger, more profitable and low growth non-financial firms tend to pay more dividends hold for banks also.

Our study has important implications for banking dividend regulations. The recent proposals consider a direct mechanism for regulating dividends. However, we find that stringent capital requirements act as regulatory pressure for undercapitalized banks, and are effective in constraining dividend payouts by these undercapitalized banks. As prior bank dividends literature recognizes signaling and agency cost hypotheses for bank dividend payouts, the regulating dividend payouts directly, and capital regulations' effects on dividend payouts

indirectly, may have an unintended impact on the use of dividends as both signaling and agency cost reduction mechanisms. Inability to use these governance mechanisms may reduce the potential to attract external financing, both equity and debt. The level up to which regulators may want to allow signaling and agency mechanisms to work is an issue that deserves serious attention from regulators and academics alike.

References

Abreu, J.F., Gulamhussen, M.A., 2013. Dividend payouts: Evidence from US bank holding companies in the context of the financial crisis. Journal of Corporate Finance 22, 54-65

Al-Ajmi, J., 2010. Modelling the dividend policy of banks in Gulf Cooperation Council countries. Applied Economics Letters 17, 1423-1428

Allen, F., Bernardo, A.E., Welch, I., 2000. A theory of dividends based on tax clienteles. The Journal of Finance 55, 2499-2536

Anderson, C.W., Campbell Ii, T.L., 2004. Corporate governance of Japanese banks. Journal of Corporate Finance 10, 327-354

Baker, M., Wurgler, J., 2004a. Appearing and disappearing dividends: The link to catering incentives. Journal of Financial Economics 73, 271-288

Baker, M., Wurgler, J., 2004b. A catering theory of dividends. The Journal of Finance 59, 1125-1165

Baltagi, B.H., 2008. Econometric Analysis of Panel Data. John Wiley and Sons, West Sussex.

BCBS, 2011. Basel III: a global regulatory framework for more resilient banks and banking systems. Basel Committee on Banking Supervision. June, Available at: http://www.bis.org/publ/bcbs189.pdf

Bhattacharya, S., 1979. Imperfect information, dividend policy, and “the bird in the hand” fallacy. Bell journal of economics 10, 259-270

Black, F., 1976. The dividend puzzle. Journal of Portfolio Management 2, 4

Bodla, B.S., Pal, K., Sura, J.S., 2007. Examining Application of Lintner's Dividend Model in Indian Banking Industry. ICFAI Journal of Bank Management 6, 40-59

Boldin, R., Leggett, K., 1995. Bank Dividend Policy as a Signal of Bank Quality. Financial Services Review 4, 1

Booth, L., Chang, B., 2011. Information Asymmetry, Dividend Status, And Seo Announcement-Day Returns. Journal of Financial Research 34, 155-177

Brockman, P., Unlu, E., 2009. Dividend policy, creditor rights, and the agency costs of debt. Journal of Financial Economics 92, 276-299

Brockman, P., Unlu, E., 2011. Earned/contributed capital, dividend policy, and disclosure quality: an international study. Journal of Banking & Finance 35, 1610-1625

Brook, Y., Hendershott, R.J., Lee, D., 2000. Corporate governance and recent consolidation in the banking industry. Journal of Corporate Finance 6, 141-164

Casey, K.M., Dickens, R.N., 2000. The effects of tax and regulatory changes on commercial bank dividend policy. The Quarterly Review of Economics and Finance 40, 279-293

Caton, G.L., Goh, J., Kohers, N., 2003. Dividend omissions and intraindustry information transfers. Journal of Financial Research 26, 51-64

DeAngelo, H., DeAngelo, L., 1990. Dividend Policy and Financial Distress: An Empirical Investigation of Troubled NYSE Firms. Journal of Finance 45, 1415-1431

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

Dickens, R.N., Casey, K.M., Newman, J.A., 2002. Bank dividend policy: explanatory factors. Quarterly journal of Business and Economics 41, 3-12

Easterbrook, F.H., 1984. Two agency-cost explanations of dividends. American economic review 74, 650-659

Erkens, D.H., Hung, M., Matos, P., 2012. Corporate governance in the 2007–2008 financial crisis: Evidence from financial institutions worldwide. Journal of Corporate Finance 18, 389-411

Fama, E.F., French, K.R., 2001. Disappearing dividends: changing firm characteristics or lower propensity to pay? Journal of Financial economics 60, 3-43

Filbeck, G., Mullineaux, D.J., 1993. Regulatory monitoring and the impact of bank holding company dividend changes on equity returns. Financial Review 28, 403

Foley, F.C., Hartzell, J.C., Titman, S., Twite, G., 2007. Why do firms hold so much cash? A tax-based explanation. Journal of Financial Economics 86, 579-607

Imran, K., Usman, M., Nishat, M., 2013. Banks dividend policy: Evidence from Pakistan. Economic Modelling 32, 88-90

John, K., Williams, J., 1985. Dividends, dilution, and taxes: A signalling equilibrium. The Journal of Finance 40, 1053-1070

Kiviet, J.F., 1995. On bias, inconsistency, and efficiency of various estimators in dynamic panel data models. Journal of econometrics 68, 53-78

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R.W., 2000. Agency Problems and Dividend Policies around the World. The Journal of Finance 55, 1-33

Lintner, J., 1956. Distribution of income of corporation among dividends, retained earnings, and taxes. American Economic Review 46, 97-113

Mehran, H., Morrison, A., Shapiro, J., 2011. Corporate governance and banks: What have we learned from the financial crisis?: Hamid Mehran; Alan Morrison; Joel Shapiro. Staff Report, Federal Reserve Bank of New York

Miller, M.H., Modigliani, F., 1961. Dividend policy, growth, and the valuation of shares. the Journal of Business 34, 411-433

Miller, M.H., Scholes, M.S., 1978. Dividends and taxes. Journal of financial economics 6, 333-364

Miller, M.H., Scholes, M.S., 1982. Dividends and taxes: Some empirical evidence. The Journal of Political Economy 90, 1118

Mülbert, P.O., 2009. Corporate Governance of Banks. European Business Organization Law Review 10, 411-436

Myers, S.C., 2000. Outside equity. The Journal of Finance 55, 1005-1037

Nickell, S., 1981. Biases in Dynamic Models with Fixed Effects. Econometrica 49, 1417-1426

Pettit, R.R., 1977. Taxes, transactions costs and the clientele effect of dividends. Journal of Financial Economics 5, 419-436

Rozeff, M., 1982. Growth, beta and agency costs as determinants of dividend payout ratios. Journal of financial Research 5, 249-259

Theis, J., Dutta, A.S., 2009. Explanatory factors of bank dividend policy: revisited. Managerial Finance 35, 501-508

Zheng, C., Ashraf, B.N., 2014. National culture and dividend policy: International evidence from banking. Journal of Behavioral and Experimental Finance 3, 22-40

Table 1: Summary statistics

Dividends is the annual common dividends paid to total assets ratio. Reg_Pressure_EA equals annual equity to total assets ratio. Reg_Pressure_CAR equals annual regulatory capital ratio. Log_TA, Growth_TA and ROE are natural log of total assets, year-on-year growth in total assets, and return on average equity, respectively

Variables	Observations	Mean	S.D.	Min	Max
Dividends	1,166	0.20	0.31	0.00	1.71
Reg_Pressure_EA	1,166	10.13	3.88	2.56	29.19
Reg_Pressure_CAR	1,153	14.84	5.93	7.65	41.34
Log_TA	1,166	14.35	1.82	10.05	21.13
Growth_TA	1,166	8.60	10.58	-13.51	56.54
ROE	1,166	6.68	4.62	-1.91	23.24

Table 2: Pair-wise correlations

Dividends is the annual common dividends paid to total assets ratio. Reg_Pressure_EA equals annual equity to total assets ratio. Reg_Pressure_CAR equals annual regulatory capital ratio. Log_TA, Growth_TA and ROE are natural log of total assets, year-on-year growth in total assets, and return on average equity, respectively.

	Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
(1)	Dividends	1.00					
(2)	Reg_Pressure_EA	0.11	1.00				
(3)	Reg_Pressure_CAR	0.05	0.76	1.00			
(4)	Log_TA	0.17	-0.41	-0.40	1.00		
(5)	Growth_TA	-0.04	-0.11	-0.10	-0.01	1.00	
(6)	ROE	0.44	-0.13	-0.18	0.11	0.22	1.00

Table 3: Effects of regulatory pressure on dividend payouts (Random-effects model)

This table presents the panel random-effects regression results. Dependent variable, Dividends, equals the annual common dividends paid to total assets ratio in both models. L.Dividends is one period lag of dependent variable. Reg_Pressure_EA is equity to total assets ratio. Reg_Pressure_CAR is regulatory capital ratio. Log_TA, Growth_TA and ROE are natural log of total assets, year-on-year growth in total assets, and return on average equity, respectively. ***, ** and * show significance at one, five and ten percent levels, respectively.

Variables	Dividends	
	(1)	(2)
L.Dividends	0.427***	0.434***
	(0.000)	(0.000)
Reg_Pressure_EA	**0.014*** **	
	(0.000)	
Reg_Pressure_CAR		**0.006*** **
		(0.000)
Log_TA	0.015***	0.012**
	(0.001)	(0.013)
Growth_TA	-0.002***	-0.002***
	(0.000)	(0.003)
ROE	0.022***	0.022***
	(0.000)	(0.000)
Constant	-0.378***	-0.274***
	(0.000)	(0.000)
Observations	720	714
Banks	229	228

Table 4: Effects of regulatory pressure on dividend payouts (Pooled panel model)

This table presents the panel pooled regression results. Dependent variable, Dividends, equals the annual common dividends paid to total assets ratio in both models. L.Dividends is one period lag of dependent variable. Reg_Pressure_EA is equity to total assets ratio. Reg_Pressure_CAR is regulatory capital ratio. Log_TA, Growth_TA and ROE are natural log of total assets, year-on-year growth in total assets, and return on average equity, respectively. ***, ** and * show significance at one, five and ten percent levels, respectively.

Variables	Dividends	
	(1)	(2)
L.Dividends	0.546***	0.565***
	(0.000)	(0.000)
Reg_Pressure_EA	**0.012*** **	
	(0.000)	
Reg_Pressure_CAR		**0.006*** **
		(0.000)
Log_TA	0.009**	0.006*
	(0.016)	(0.090)
Growth_TA	-0.002***	-0.002***
	(0.000)	(0.007)
ROE	0.020***	0.019***
	(0.000)	(0.000)
Constant	-0.281***	-0.213***
	(0.000)	(0.001)
Observations	720	714
R-square	0.698	0.688