

Dividend Smoothing and Signaling Under the Impact of the Global Financial Crisis: A Comparison of US and Southeast Asian Markets

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Abstract

Under the impact of the global financial crisis, firms experience more external financial constraints and this is a good opportunity to investigate dividend smoothing and signaling behavior. Using data from the US market where the crisis originates and five Southeast Asian markets which are slightly affected by the crisis, we find that US firms pursue dividend smoothing model and they also follow signaling theory by increasing dividends in the post-crisis period to earn good reputation. However, Malaysia, Philippines and Indonesia following dividend smoothing model fail to pay more dividends in the post-crisis period. Thailand and Singapore increase dividend payments in the post-crisis period but they fail to pursue the dividend smoothing model significantly.

Keywords: dividend policy, dividend smoothing, signaling, global financial crisis

1. Introduction

Dividend policy is one of the most interesting and arguable topics in corporate finance. According to Allen and Michaely (1995) dividend policy is so important due to two reasons: Firstly, the proportion of earnings which should be paid as dividends is one of the key financial decisions that the management faces. Secondly, a proper understanding of dividend paying policy is essential for other fields of financial economics. In a classic work, Black (1976) fails to find a reasonable argument to explain why firms distribute cash dividends to their stockholders and consider dividends as a “puzzle”. Since then, dividend policy is studied intensely by financial economists and it becomes. Initially, Miller and Modigliani (1961) propose the irrelevance theory of dividend policy with the assumption that capital markets are perfect and complete. However, later studies find both theoretical and empirical evidence that dividend policy is related to market value of equity due to market frictions including information asymmetry, agency problems, transaction costs, firm maturity, catering incentives and taxes.

Based on results of a field study on dividend payment of U.S. firms, Lintner (1956) proposes a partial adjustment model to illustrate corporate dividend behavior. In this model, the target level of dividend payment is measured by current income and the target payout ratio. The extant literature review shows that dividend smoothing is in line with signaling mechanism since high quality firms are reluctant to cut dividends. This study finds that the global financial crisis is a good opportunity to investigate dividend smoothing and signaling behavior. Under the impact of the global financial crisis, firms experience more external financial constraints; therefore, firms tend to change dividend policy as a reaction to this exogenous shock. We examine the difference in dividend policy between the pre-crisis period from 2003 to 2007 and the post-crisis period from 2008 to 2012 in two types of typical markets including US market and five markets in Southeast Asia. The former is the origin of the global financial crisis and the latter is affected slightly by the global financial crisis. We use Tobit model to avoid the selection bias caused by OLS regression due to censored dividend payments. The rest of this paper is as follows: Section 2 is the literature review. Section 3 presents the research methodology. Section 4 demonstrates the research findings with pooled Tobit model. Section 5 is concluding remarks.

2. Literature Review

Miller and Modigliani (1961) are initial authors developing information content of dividend payment. In stock markets, the information perceived by firms' managers and outside investors is asymmetric (Miller & Rock, 1985). Firm managers have more information on firms' earnings; therefore, dividend payment contains information evaluated by outside investors. Signaling theory is one of the latest and faddish way to explain dividend payment

mechanism (Mollah, 2001). Dividend policy is considered as a signal of future prospect to outsiders and firms tend to maintain a stable dividend payout. The asymmetric information model developed by Heinkel (1978) and Bhattacharya (1979) shows that firm value is determined by cash dividend. Cash dividend implies firms' future cash flows; therefore, firms paying higher dividend levels are deemed to have better expected profitability than those paying lower ones. As a result, outside investors consider dividends as a signal for making their investment decisions and valuing firms' stocks. John and Williams (1985) and Miller and Rock (1985) support the dividend signaling theory; however, they explain the theory with different arguments. John and Williams (1985) claim that information revealed by corporate audits about future performance is unreliable since they fail to illustrate firms' future profitable investment opportunities completely. Given imperfect information on firms' expected profitability, firms can communicate perfectly with outside investors only by paying cash dividends or issuing new shares. When private information about firms' future profits is favorable, a dilution of proportional ownership is not beneficial to current stockholders. As a result, insiders acting for existing stockholders' benefit may choose to distribute dividends instead of selling new shares. Outside investors are convinced by these signals and offer higher prices for firms' stocks. In this case, although there is a higher tax rate on dividends than on capital gains, tax disadvantages for dividends are compensated by increases in stock prices while insiders maintain their fractional ownership. Miller and Rock (1985) posit that cash dividends contain information about expected profits; however, they communicate with outsiders indirectly and need not reflect intentional policy of firms' managers to convey the information about future performance. In fact, dividend declarations only supply investors with the missing information about corporations' current profits. Then, these profits are used to forecast future earnings. There are several empirical studies with various research methods supporting the dividend signaling theory in different countries. H. Kent Baker, Farrelly, and Edelman (1985) use mail questionnaires addressed to chief financial officers of 562 corporations listed in NYSE during the period from February to April 1983 to collect information about dividend policy. Their findings show that respondents seem to agree on the signaling mechanism of dividend and investors use dividend declaration to value firms' securities. H. Kent Baker and Powell (1999), H. Kent Baker and Powell (2000) survey listed firms in NYSE in 1997 with various dividend hypotheses and compare the results with those of the survey in 1983. They conclude that current and forecasted earnings are one in two the most important determinants of firms' dividend policy and they have highly similar explanatory power in the two studies conducted in 1983 and 1997. In addition, H. Kent Baker, Powell, and Veit (2001) conduct a survey with a sample of 188 managers of firms listed in NASDAQ and find that the factors which are significant with NYSE-listed firms are also significant to NASDAQ-listed firms. Similar findings with the survey method are released in Australia (Partington, 1989), Norway (H. Kent Baker, Mukherjee, & Paskelian, 2006), France (Albouy, Bah, Bonnet, & Thévenin, 2012), Canada (H. K. Baker, Saadi, Dutta, & Gandhi, 2007), and 16 European countries (Bancel, Bhattacharyya, Mittoo, & Baker, 2009). Due to dissipative costs associated with signaling mechanism, only high quality firms can use dividends to mitigate the asymmetric information with outsiders and illustrate their future prospects. Therefore, firms should maintain their dividend payments at a sustainable level. Low quality firms are not able to follow this signaling mechanism since they cannot maintain a stable dividend level. A dividend cut is likely to make share price fall and firms may lose their creditability *ceteris paribus* (Al-Malkawi, Bhatti, & Magableh, 2014).

Lintner (1956) is considered as the initial author conducting research on dividend behavior in the U.S stock market. After reviewing the literature on dividend policy, he finds 15 potential factors determining firms' dividend payment. Nevertheless, his empirical study shows that firm managers change dividend levels when there are unanticipated and sustainable changes in their earnings. About two thirds of interviewed managers respond that their firms have well-defined dividend policy which follows a relatively standardized speed of adjustment towards a long-term target payout ratio. Besides, managers think that outside investors expect firms to follow a stable dividend payment mechanism. Therefore, firms tend to keep their dividend levels sustainable. Firms try to maintain current dividends equal to those paid in previous years even when their income in the current year is lower than in previous years. As a result, he suggests a theoretical model of dividend behavior which posits that current dividend payment is determined by current income and prior dividend amount. In this theoretical model, the target level of dividends $TDV_{i,t}$ of firm i for year t is measured by current earnings per share $EPS_{i,t}$ and the target payout ratio TPR as follows:

$$TDV_{i,t} = TPR * EPS_{i,t} \quad (1)$$

In any year, firms partially adjust their dividend levels towards the target dividend level.

$$DPS_{i,t} - DPS_{i,t-1} = a + b * (TDV_{i,t} - DIV_{i,t-1}) + u_{i,t} \quad (2)$$

Where a is a constant, b is the speed of dividend adjustment coefficient with $0 \leq b \leq 1$, $DPS_{i,t}$ is dividend per share of firm i in year t , $DPS_{i,t-1}$ is dividend per share of firm in year $t-1$.

Equation (2) can be written as follows:

$$DPS_{i,t} = a + b*TDV_{i,t} + (1 - b)*DPS_{i,t-1} + u_{i,t} \quad (3)$$

Substitution of Equation (1) into Equation (3) gives:

$$DPS_{i,t} = a + b*TPR*EPS_{i,t} + (1 - b)*DPS_{i,t-1} + u_{i,t} \quad (4)$$

The testable equation is presented as follows:

$$DPS_{i,t} = a + d*EPS_{i,t} + (1 - b)*DPS_{i,t-1} + u_{i,t} \quad (5)$$

H. Kent Baker et al. (1985) carry out a survey on a sample of 562 firms listed in New York Stock Exchange in order to compare determinants of dividend payment at their time with those presented in Lintner's pioneering behavioral model. Their research findings indicate that the statements supporting Lintner's arguments gain the highest level of agreement from respondents. Particularly, they prefer to maintain continuous dividend payment. Moreover, Pruitt and Gitman (1991) find supporting evidence for Lintner's model when analyzing 114 responses of financial managers collected in a survey on 1,000 largest corporations in the U.S market by mail questionnaire. Lasfer (1996) investigates Lintner's theoretical model with a panel data collected from a sample of commercial and industrial firms in the U.K stock market and also finds consistent research findings.

The extant literature reviews show that dividend smoothing is consistent with signaling mechanism. Firms are more reluctant to cut dividends than to increase dividends. An increase in dividends is likely to be deemed as a signal of a permanent rightward shift in the distribution of earnings (Lintner, 1956). Several prior studies show supporting evidence for the link between dividend stability and signaling mechanism (Al-Malkawi, 2007; Dewenter & Warther, 1998; Kumar & Lee, 2001).

The global financial crisis is a exogenous shock in the macro-economic environment that limits the availability of external financing. Hence, firms experience more external financial constraints. Campello, Graham, and Harvey (2010) conduct a survey with a sample of 1,050 Chief Financial Officers working at corporations in the U.S., Europe, and Asia to evaluate whether these firms are credit constrained under the impact of the global financial crisis of 2008. They find that the inability to finance externally makes many firms to bypass profitable investment opportunities with 86% of constrained U.S. firms whose investment in profitable projects are restricted during the crisis. More than half of CFOs in the US state that their planned investments are cancelled or delayed. These research results held in Europe and Asia. When firms are financially constrained, they need to consider their dividend policy to retain more earnings for their planned investments. As a result, the crisis is a good opportunity to examine dividend smoothing and signaling.

3. Research Methodology

The research data of this study contains both positive and zero dividend observations. This results in two outcomes of the dependent variable, namely zero and positive dividends. From econometric perspective, dividends are continuous to the right of zero; therefore, the research data is left-censored. Using OLS regressions both for the full sample of non-payers and payers or the subsample of payers leads to biased results due to selection problem. Consequently, the OLS regression is not applicable to the research data due to the nature of the dependent variable and Tobit regression model is applied instead (Huang, 2001; Kim & Maddala, 1992). The estimation model is presented in the following formula:

$$Y_{it} = \begin{cases} Y_{it}^* & \text{if } Y_{it}^* > 0 \\ 0 & \text{otherwise} \end{cases} \quad (6)$$

Where Y_{it} is the observable dependent variable and Y_{it}^* is the latent variable: $Y_{it}^* = \alpha + \beta X_{it} + u_{it}$; $u_{it} \sim N(0, \sigma^2)$. X_{it} is the column vector of explanatory variables of firm i at time t . u_{it} is the residual term of firm i at the time t .

The application of Tobit model to investigate dividend smoothing is presented as follows:

$$DPS_{it} = \begin{cases} DPS_{it}^* & \text{if } DPS_{it}^* > 0 \\ 0 & \text{otherwise} \end{cases} \quad (7)$$

Where

$$DPS_{it}^* = a + d*EPS_{i,t} + (1 - b)*DPS_{i,t-1} + u_{i,t} \quad (8)$$

To investigate the effect of the global financial crisis on dividend stability, we develop the Lintner model by adding a dummy variable GFC which is assigned 0 for the pre-crisis period from 2003 to 2007 and 1 the post-crisis period from 2008 to 2012. The model in Eq. (8) is as follows:

$$DPS_{it}^* = a + d*EPS_{i,t} + (1 - b)*DPS_{i,t-1} + GFC + u_{i,t}$$

Under the global financial firms' cash flows are negatively affected and firms are more financially constrained. This implies that the pressure on dividend policy becomes stronger. Therefore, the sign of GFC is expected to be negative (Al-Malkawi et al., 2014).

The data of US market is collected from Compustat North America and the data of five Southeast Asian countries including Indonesia, Malaysia, Thailand, Singapore and Philippines is collected from Compustat Global. To enhance the quality of research findings, we eliminate the following firm-year observations:

- Firms have data for less than 8 years over the period from 2003 to 2012.
- Firms in utilities industry (SIC codes 4900-4999) and financial sector (SIC codes 6000-6999) (Fama & French, 2001).
- Observations with missing or incomplete information.

The final research sample includes 22,479 observations in US market and 11,338 observations in five Southeast Asian markets including USA, Singapore, Thailand, Indonesia, Malaysia and Philippines.

4. Research Findings

Table 1 presents regression results of partial adjustment model with Pooled Tobit. In the US market, the coefficients of DPS_{t-1} and EPS are significantly positive at 1%. This indicates US firms' dividend policy is determined considerably by current earnings and lagged dividends and consistent with dividend smoothing model suggested by Lintner (1956). The speed of adjustment is 0.8594 while Lintner (1956) finds a lower speed of 0.3. This can be explained that the research sample of this study includes both payers and non-payers. Remarkably, GFC is positively related to DPS at the significant level of 1%. This implies that despite external financial constraints under the impact of the global financial crisis, firms consider this exogenous shock as a temporary period and tend to follow signaling mechanism by pay more dividends to earn good reputation for future prospects which may prevent decreases in stock prices.

Table 1. Regression results with Pooled Tobit model

	USA	Malaysia	Philippines	Indonesia	Thailand	Singapore
DPS_{t-1}	0.1406*** (103.17)	0.1722*** (12.40)	0.8524*** (34.60)	0.7712*** (08.19)	0.0009* (01.71)	0.4195*** (20.28)
EPS	0.0039*** (08.18)	0.2725*** (90.21)	0.1642*** (12.19)	0.0382*** (03.12)	0.1753*** (12.80)	-0.0001 (-00.50)
GFC	0.6320*** (03.03)	-0.0102 (-01.06)	-0.1064 (-00.21)	-2.201*** (-08.96)	0.7410*** (02.82)	0.6993*** (05.03)
Intercept	-12.1244*** (-68.00)	-0.1689*** (-23.12)	-6.1934*** (-13.82)	-2.140*** (-15.07)	-6.3781*** (-21.10)	-2.4382*** (-22.24)
SOA	0.8594	0.8278	0.1476	0.2288	0.9991	0.5805
No. obs	31,077	6,813	1,204	2,008	3,379	4,288
LR chi2	243.18***	2162.95	939.49	209.05	153.47	403.62
Left-censored	22,479	3,483	917	1,779	2,873	2,286

Notes. Dependent variable is dividend per share (DPS_t). DPS_{t-1} is lagged dividend per share, EPS is earnings per share. GFC is a dummy variable which is 1 for the post-crisis period, 0 otherwise. SOA is speed of adjustment. *** Denotes significance at the 1% level. ** Denotes significance at the 5% level. * Denotes significance at the 10% level.

There are three Southeast Asian markets including Malaysia, Philippines and Indonesia follow dividend smoothing model. However, there are no differences in dividend policy between the pre-crisis and the post-crisis period in Malaysia and Philippines since firms following signaling mechanism are reluctant to cut dividends and the global financial crisis does not affect these countries significantly. Indonesian firms experience a decline in dividend payment in the post-crisis period. One of explanations for this decline is that firms experience financial constraint and decreases in cash flows under the global financial crisis but they are not likely to follow signaling mechanism. Moreover, firms in Thailand and Singapore pay more dividends in the post-crisis period but they fail to pursue the dividend smoothing model significantly.

6. Conclusion

Under the impact of the global financial crisis, firms experience more external financial constraints and this is a

good opportunity to investigate dividend smoothing and signaling behavior. Using data from the US market where the crisis originates and five Southeast Asian markets which is slightly affected by the crisis, we find that US firms pursue dividend smoothing model and they also follow signaling theory by increasing dividends in the post-crisis period to earn good reputation. However, Malaysia, Philippines and Indonesia following dividend smoothing model fail to pay more dividends in the post-crisis period. Thailand and Singapore increase dividend payments in the post-crisis period but they fail to pursue the dividend smoothing model significantly.

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