Journal of Empirical Finance 35 (2016) 1–13

Contents lists available at ScienceDirect

Journal of Empirical Finance

journal homepage: www.elsevier.com/locate/jempfin

Corporate payout smoothing: A variance decomposition approach☆

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ARTICLE INFO

Article history:
Received 8 September 2014
Received in revised form 26 October 2015
Accepted 27 October 2015
Available online 5 November 2015

JEL classification:
G30
G32
G35

Keywords:
Debt
Investment
Lintner model
Net income
Payout

ABSTRACT

In this paper, we apply a variance decomposition methodology to quantify the smoothness of corporate payouts. We find that firms use debt and investment to smooth a large fraction of shocks to net income to keep payouts less variable. Specifically, our empirical results show that firms keep the growth of payouts relatively small and stable over time. Furthermore, our findings support theoretical work that demonstrates that the dynamics of investment and debt policy should be jointly modeled with payout policy.

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1. Introduction

This paper empirically examines corporate payout policy in a dynamic model that includes both investment and debt. Much of the theoretical and empirical work on corporate payout policy has taken investment and debt policies as being independent from payout policy.[1] However, the corporate finance literature conjectures that other financing decisions, such as investment and debt, may be used to balance the firm's cash flow if managers want to keep corporate payouts less variable. Although previous research has suggested that corporate payouts are smoothed, we make a further contribution to this literature by using a variance decomposition methodology to measure the smoothness of payouts along with quantifying the adjustments of debt and investment that are driven by shocks to net income.

☆ We would like to thank Dale DeBoer, Bart Lambrecht, Bent Sorensen, two anonymous referees, and seminar participants at Carnegie Mellon University and Penn State Harrisburg for comments and suggestions. Any remaining errors are our own.

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[1] Modigliani and Miller (1958) conjectured that in a setting with perfect capital markets, investment and debt financing decisions are made independently. Financial economists have since extended the analysis of firm behavior beyond the assumption of perfect capital markets by incorporating financial frictions in dynamic models examining the interaction between investment and debt financing. For a detailed review, see Strebulaev and Whited (2012).

http://dx.doi.org/10.1016/j.jempfin.2015.10.011
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Examining the joint dynamics of investment, debt and payout policies is important for understanding firm behavior. Goel and Thakor (2003) argue that managers of firms with compensation tied to corporate earnings have an incentive to reduce the volatility of their firm's earnings stream. This suggests that managers may use mechanisms such as investment and debt policies to smooth shocks to earnings to keep the patterns of their compensation smoothed. Lambrecht and Myers (2012) draw from different agency theories to conceptualize their theoretical model of the dynamics of firm behavior, which demonstrates that managers reduce the volatility in the distribution of payouts in order to smooth their own compensation. In their model, for a given investment policy, shocks to earnings are primarily absorbed by debt financing in order to keep payouts and, hence, managerial compensation smooth.

If it is the case that managers have a preference towards maintaining smooth payouts, then it is of the utmost importance to the corporate finance literature to provide empirical evidence on the matter. The setting of payout policy may reflect managerial risk preferences that in turn affects investment and debt financing decisions. For example, managers that prefer to avoid risk may enact less than optimal corporate policies for investment and debt (Gormley and Matsa, 2014). Therefore, measuring the response of payouts may be informative for firm risk management, investment decisions and debt policy.

Using an intertemporal budget constraint formulated by Lambrecht and Myers (2012), we quantitatively describe the dynamics of firm behavior in response to shocks to net income. In their theoretical models of mature and profitable firms, Lambrecht and Myers (2012, 2014) argue that if the optimal level of investment is determined by investment opportunities and managers are motivated to keep payouts smoothed then debt policy is solely responsible for absorbing all of the variation in net income. This implies that debt policy not only absorbs all of the shocks to earnings but also smooths any marginal changes in investment to keep the optimal investment policy unresponsive to net income shocks.

Furthermore, their analysis allows for the possibility that debt policy does not entirely absorb all of the shocks to net income, thus allowing unabsorbed net income shocks to be potentially smoothed by investment. For example, if positive shocks to net income reflect the availability of favorable opportunities for economic growth, managers may choose to increase investment and, therefore, net income shocks will be distributed to investment policy. In this paper, we decompose the variance in net income to estimate the fraction of shocks to net income that are absorbed by debt and investment. The amount left unabsorbed measures the response of payouts after debt and investment have smoothed shocks to net income.

The empirical design of our paper uses panel data covering 6225 public firms from the Compustat database that distributed dividends over the years 1973–2013. Our sample not only includes mature and profitable firms, but also encompasses all of the different types of non-utility and non-financial public firms listed in Compustat. Our findings are based on the decomposition of the variance in net income that produces the following relation: $\beta_D + \beta_I + \beta_P = 1$, where β_D and β_I measure the fraction of shocks to net income absorbed by investment and debt policy, respectively; β_P measures the response of payouts to shocks to net income left unabsorbed by debt and investment. After estimating the components of the relation, we find that debt policy and investment absorb 56.9% and 40.7% of shocks to net income, respectively. Payouts change by 2.4% in response to a shock to net income.

The dynamics of debt, investment, and payouts reported in our study fits well with the theoretical findings in Lambrecht and Myers (2012), which shows that managers are motivated to keep payouts stable by using debt policy or investment to smooth net income shocks. In our empirical framework, if shocks to net income are entirely absorbed by debt policy and investment, then payouts should be completely smoothed (i.e., $\beta_P = 0$). We show that investment and debt together absorb roughly 97.6% of shocks to net income. Since investment and debt financing both smooth a large fraction of shocks to net income, the amount left unabsorbed, 2.4%, is reflected as the change in payouts. Although we do not find complete smoothing, the relatively small change in payouts suggests that managers attempt to keep payouts less variable.

We provide several additional empirical tests to demonstrate that our results are robust to different exogenous settings. For example, shocks to earnings could be attributed to overall economic conditions and industry conditions that in turn would affect payout policy. Beyond our baseline model, we estimate the effects of business cycle fluctuations and capital market conditions on firm behavior, and examine the response of debt, investment, and payouts for firms in different industries. We test whether persistent shocks to net income have a larger effect on investment and payout, as predicted in Lambrecht and Myers (2014). Furthermore, we estimate our empirical model by splitting our data into different time periods, stratifying the firms into small and large size categories, grouping firms based on their age, sorting firms into external financing dependent and independent samples, and using different measures of payouts. In these specifications, the estimates of the responses of investment, debt policy, and payouts are consistent with the baseline results.

The joint dynamics documented in this paper add to a small but growing literature focusing on the interaction of the three corporate financing decisions. Theoretical work provided by Hennessy and Whited (2005, 2007) and DeAngelo et al. (2011) examine the interactions of investment, debt policy, and payouts in models with taxes, and transaction and adjustment costs. Chang et al. (forthcoming), Gatchev et al. (2010), and Ostergaard et al. (2011) decompose firm cash flow and measure the sensitivities of cash flow items such as investment, debt, and dividends. In a closely related paper, Leary and Michaely (2011) find empirical evidence of payout smoothing. We further contribute to this literature by quantifying the smoothness of payouts, which we measure as the sum of dividends and net stock repurchases, in an empirical model that also estimates the amount of variation in net income that is absorbed by investment and debt policies.

In the next section, we discuss the background of the paper. Section 3 describes the empirical implementation. Section 4 presents the results. Section 5 concludes.

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