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The real effects of share repurchases

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ABSTRACT

We employ a regression discontinuity design to identify the real effects of share repurchases on other firm outcomes. The probability of share repurchases that increase earnings per share (EPS) is sharply higher for firms that would have just missed the EPS forecast in the absence of the repurchase, when compared with firms that "just beat" the EPS forecast. We use this discontinuity to show that EPS-motivated repurchases are associated with reductions in employment and investment, and a decrease in cash holdings. Our evidence suggests that managers are willing to trade off investments and employment for stock repurchases that allow them to meet analyst EPS forecasts.

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1. Introduction

This paper studies the consequences of share repurchases for firm investment and employment. Understanding the consequences of share repurchases is specially important, given the high levels of cash on US company balance sheets. Companies face intense pressure from activist shareholders, institutional investors, the government, and the media to put their cash to good use. Existing evidence appears to suggest

http://dx.doi.org/10.1016/j.jfineco.2015.08.008 0304-405X/© 2015 Elsevier B.V. All rights reserved. that a share repurchase is a good way for companies to return cash to investors, as cash-rich companies tend to generate greater abnormal announcement returns when starting new repurchase programs (Grullon and Michaely, 2004). However, some observers note that the cash that is spent in repurchase programs should instead be used to increase research and employment, and that the recent increase in share repurchases is undermining both the recovery from the recent recession and the economy's long-term prospects.¹ Repurchases have also been cited as a possible explanation for why the increase in corporate profitability following the recent financial crisis has not led to growth in employment, and overall economic prosperity (Lazonick, 2014).² Is there any ground for these claims? Do share repurchases have real effects on other corporate policies such as employment and research and development (R&D)?

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¹ See, for example, "As layoffs rise, stock buybacks consume cash," *The New York Times*, November 21, 2011.

² See also "The repurchase revolution," *The Economist*, September 13, 2014.

Previous studies show a negative correlation between share repurchases and investment, but the standard interpretation for this correlation is that it is driven by variation in growth opportunities (Grullon and Michaely, 2004). That is, firms with poor growth opportunities reduce investment and direct resources towards share repurchases. If this standard interpretation is correct, then claims that repurchases reduce economic growth are incorrect—the reductions in investment would have occurred irrespective of the amount of repurchases. To test whether repurchases have causal effects on firm outcomes, we need to measure variation in repurchases that is not related to unobservable variation in growth opportunities.

Our paper proposes such a test. It does so by exploiting a discontinuity in the likelihood of share repurchases that is caused by earnings management considerations. As first shown by Hribar, Jenkins, and Johnson (2006), there is a strong discontinuity in the probability of accretive share repurchases around the threshold at which the firm would narrowly miss the analyst earnings consensus, without conducting share repurchases (see Fig. 1 for an illustration). Thus, companies that would just miss their earnings per share (EPS) forecasts by a few cents absent executing a repurchase are significantly more likely to repurchase shares than companies that beat their EPS forecasts by a few cents.

To estimate the causal effect of repurchases on investments (Capital expenditures (Capex), employment, and R&D), we regress changes in investment on share repurchases, instrumented with an indicator for whether or not a firm would announce a negative EPS surprise without a repurchase. These regressions compare firms that "just miss" the EPS consensus forecast (the treatment group) with firms that "just beat" the consensus forecast (the control group). To ensure that we are identifying off

the discontinuity in the likelihood of share repurchases, we limit the sample to a small window around zero prerepurchase EPS surprises. In addition, we control throughout for any linear association between prerepurchase EPS surprises and the outcome variables.

We find that an increase in share repurchases made by firms that would have a small negative EPS surprise is associated with significant changes in other corporate policies. These companies tend to decrease employment, Capex, and R&D in the four quarters following increases in EPSinduced repurchases, relative to companies that just meet analyst EPS forecasts. The effects correspond to approximately 10% of the mean capital expenditures, 3% of the mean R&D expenses, and 5% of the average number of employees in our sample. Fig. 2 shows evidence that these outcome variables are discontinuous at the threshold of zero pre-repurchase EPS surprises. In addition, we find a significant decrease in cash holdings, but no significant changes in debt or equity issuance. The results support anecdotal and survey evidence that companies are willing to trade off employment and investment for stock repurchases.

The key identification assumption behind this exercise is as follows: in the absence of a discontinuous jump in share repurchases around zero pre-repurchase EPS surprises, there are no other discontinuous changes in firm policies around zero pre-repurchase EPS surprises that directly affect our outcome variables. Our specification controls for time-invariant observable or unobservable characteristics, since the outcome variable is defined in differences. Because we control for the level of earnings surprise, our test set-up also addresses the possibility that earnings surprises may proxy for stronger future economic fundamentals. A violation of the identification assumption would not only require an unobservable time-varying characteristic that independently predicts the outcome, but also a

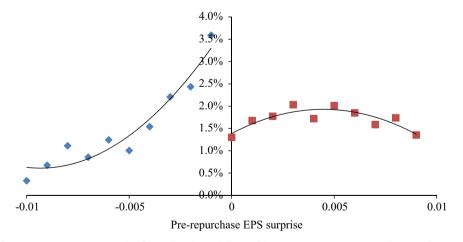


Fig. 1. Probability of accretive share repurchases. This figure plots the probability of doing an accretive share repurchase as a function of a pre-repurchase earnings surprise. For every earnings surprise bin, the dots represent the probability of an accretive share repurchase—the fraction of firm-quarters with an accretive repurchase out of all firm-quarters in that bin. The lines are second-order polynomials fitted through the estimated probabilities on each side of the zero pre-repurchase earnings surprise. We define a share repurchase as accretive if it increases EPS by at least one cent. The pre-repurchase earnings surprise is the difference between the repurchase-adjusted ("pre-repurchase") earnings per share (EPS) and the median EPS forecast at the end of the quarter; this difference is normalized by the end-of-quarter stock price. The pre-repurchase EPS is calculated as follows: $EPS_{adj} = \frac{E_a dj}{S_{adj}} = \frac{E+1}{S+\Delta S}$ where E is

reported earnings, I is the estimated forgone interest due to the repurchase, S is the number of shares at the end of the quarter, and ΔS is the estimated number of shares repurchased (the repurchase amount divided by the average daily share price). The forgone interest is the after-tax interest that would be earned on an amount of funds equal to that used to repurchase shares if it were instead invested in a 3-month T-bill.

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