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Share buybacks, monetary policy, and crowding out

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Abstract

We extend the results of Elgouacem and Zago (2020). The authors demonstrate that expansionary monetary policy increases debt issuance and share buybacks on the part of US corporations. The earning per share also increases. We extend their results to the crowding out of capital and labour as a result of the policy stance.

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1. Introduction

Many would claim that share buybacks are the sole occupation of US corporations given the paucity of action on the investment and even production front. Elgouacem and Zago (2020) (E&Z hereafter) make the strong claim in simple language that the monetary easing stance of the Federal Reserve in the form of the downward trend of the government bond rate causally induces firms to undertake the activity. The purpose is not hard to ascertain. Just one stock market payoff function is used here but it is well known that one share price index or the other is the solitary metric on the radar of corporation executives.

E&Z are concerned with the impact of buybacks on the real economy in general and on "productive investments" in particular. The context is "the aftermath" of the Great Recession when firms flush with funds chose this mode of activity rather than "new investments and job openings". They display, through scrupulous testing, that the use of low-cost debt to finance share repurchases diverts resources away from capital expenditures and new hires thereby blunting the pass through of the monetary transmission mechanism. They conclude that in the absence of buybacks a 1% easing of monetary policy would have increased investment and employment by 11% and 14% respectively in America.

E&Z hint at but do not prove crowding out. Given the importance of the proposition suggested in the previous paragraph, we demonstrate the outcome.

In a fruitful distinction between "GDP finance and non-GPD finance", Joseph Huber records that the quantum of dividend payouts are less salient on the horizon of firms and rentiers than the expectation of continuing share price increases. An illustration of non-GDP finance is debt for the purpose of share buyback in the E&Z model. Demand and supply are intertwined in a 'doom loop'. Growth in goods and services is not the object here.

In the next section, we follow literally in the tracks of the E&Z paper to facilitate easy reference.

2. "EPS Manipulation and the Cost of Money"

The earning-per-share (EPS) ratio is

$$EPS = \frac{(1-\tau)[y - r^s nP]}{N-n}$$

where y is the profit of the firm net of production and financial costs, τ is the corporation tax rate, P is the current stock price, n is the number of own shares purchased, r^S is the return on a three-months government bond, and N is the number of outstanding shares. The primary issue of shares means $n < 0$. The EPS is manipulable. Listed firms are loth to announce losses. Instead, they reduce operating costs and working capital. Wage costs are the chief component of variable costs. The satisfaction of shareholders is paramount and steps will be undertaken to that end even to the detriment of the long-term survival of the company. Short termism is so overwhelming that a successful strategy of stock price manipulation over a few quarters is regarded as a positive signal on the fundamentals of the company.

A&Z introduce a static model where the firm is described by a leverage ratio d and, along with other prices, takes the costs on freshly-issued debt r^B as given at the beginning of the period. It is assumed that $r^B = \kappa r^S$, with $\kappa > 1$. We extend the production function to the Leontief production function $y = f(K, L) = min[(z_1 L)^\alpha, (z_2 K)^\alpha]$ where z_1 and z_2 are the productivities of labour and capital respectively. Accordingly, the labour and capital demand functions by $L(Y, w, r^S)$ and $K(Y, w, r^S)$ respectively.
The maximand is

$$\Omega = \frac{(1-\tau)[f(B-nP) - r^B B - r^s nP]}{N-n} - \frac{\theta}{2}[B - d(B-nP)]^2$$

The budget constraint is $K = B - nP$ and the choice variables are K, B, and n. A&Z derive the maximisation conditions for the second and the third control variables. We state and extend (and make amendments to) Lemma 1. to include the optimal choice of the capital stock in condition iii below.

Lemma 1.

$$i)\ \frac{\partial \Omega}{\partial B} = 0, i.e.\ (1-\tau)[f' - r^B] = \theta(1-d)[B(1-d) + dnP](N-n)$$
$$ii)\ \frac{\partial \Omega}{\partial n} = 0, i.e.\ (1-\tau)P[f' + r^S] = \theta d[(1-d)B + dnP]P(N-n)$$
$$iii)\ \frac{\partial \Omega}{\partial K} = 0, i.e.\ (1-\tau)f' = 2\theta d(K-B)(N-n)$$

We have three equations in three unknowns that can be solved for B^* and n^* and K^*. A&Z calculate the comparative statics on (i) B^*, (ii), n^*, (iii) EPS^* with respect to changes in r^S in the Proposition below. In the spirit of the Lemma, we extend the result to include (iv), the impact of the change of the policy rate on investment (and employment). Dropping the corporation tax rate, we have

Proposition 1. *For 'small' θ, a marginal decrease in the interest rate leads to (i) higher debt issuance ($\partial B^*/\partial r^S < 0$), (ii) higher repurchase ($\partial n^*/\partial r^S < 0$), (iii) higher EPS ($\partial EPS^*/\partial r^S < 0$), (iv) crowding out ($\partial K^*/\partial n^* < 0$, $\partial K^*/\partial r^S > 0$).*

Proof. See Appendix.

Crowding out goes through with a high level of share buybacks.

3. Conclusion

So-called short termism, real-time movements of finance to avail of arbitrage opportunities, might not impact on output and employment in the short run. Indeed, the activity might be welfare-enhancing if the economy consists of managers and rentiers. Long-term welfare of consumers and producers defined by the growth of the capital stock in the model does not follow if financial flows do not correspond with investment flows. The hiatus between the two is characteristic of the times in the USA and increasingly in other developed economies.

References

Elgouacem, Assia and Riccardo Zago (2020). "Share buybacks, Monetary Policy and the Cost of Debt" Banque de France working paper number 773

Huber, J. (2020). "The hemispheres of finance: GDP and non-GDP finance" *real-world economics review* **94**, 113-139.

Appendix. Proof of Proposition 1

Following in the tracks of Appendix B in E&Z, we have

$$f'(B^* - n^*P) - \kappa r^s = \theta(1-d)[B^*(1-d) + dn^*P](N-n^*)$$
$$P[f'(B^* - n^*P) + r^s] = \theta d[(1-d)B^* + dn^*P]P(N-n^*)]$$
$$z_2K^{\alpha-1} = 2\theta d(K-B)(N-n)$$

Perturbing the conditions for marginal changes in r^S, we get

$$f''\frac{\partial B^*}{\partial r^s} + z_2(\alpha-1)K^{\alpha-2}\frac{\partial K^*}{\partial r^S} - f''P\frac{\partial n^*}{\partial r^s} - \kappa$$
$$= \theta(1-d)^2(N-n^*)\frac{\partial B^*}{\partial r^s} - \theta(1-d)2n^*dP\frac{\partial n^*}{\partial r^s} - \theta(1-d)(N-n)\frac{\partial K^*}{\partial r^S}$$

$$Pf''\frac{\partial B^*}{\partial r^s} + Pz_2(\alpha-1)K^{\alpha-2}\frac{\partial K^*}{\partial r^S} - P\frac{\partial n^*}{\partial r^S} + P$$
$$= \theta d(1-d)P(N-n^*)\frac{\partial B^*}{\partial r^S} - \theta d^2P^2 2n^*\frac{\partial n^*}{\partial r^S} - \theta d(1-d)P(N-n^*)\frac{\partial K^*}{\partial r^S}$$

$$f''\frac{\partial B^*}{\partial r^s} + z_2(\alpha-1)K^{\alpha-2}\frac{\partial K^*}{\partial r^S} - f''P\frac{\partial n^*}{\partial r^s} = 2\theta d\frac{\partial K^*}{\partial r^S} - 2\theta d\frac{\partial B^*}{\partial r^S}$$

Using the E-Z catchalls for the coefficients and some more, we have

$$a\frac{\partial B^*}{\partial r^S} + b\frac{\partial n^*}{\partial r^S} + e\frac{\partial K^*}{\partial r^S} = \kappa$$

$$c\frac{\partial B^*}{\partial r^S} + d\frac{\partial n^*}{\partial r^S} + f\frac{\partial K^*}{\partial r^S} = -P \qquad (1)$$

$$g\frac{\partial B^*}{\partial r^S} + h\frac{\partial n^*}{\partial r^S} + i\frac{\partial K^*}{\partial r^S} = 0$$

where

$$a = f'' - \theta(1-d)^2(N-n^*)$$
$$b = -f''P + \theta(1-d)2n^*dP$$
$$c = Pf'' - \theta d(1-d)P(N-n^*)$$
$$d = -P - \theta d^2P^2(N-2n)$$
$$e = z_2(\alpha-1)K^{\alpha-2} + \theta(1-d)(N-n^*)$$
$$f = Pz_2(\alpha-1)K^{\alpha-2} + \theta d(1-d)P(N-n^*)$$
$$g = f'' + 2\theta d$$
$$h = -f''P$$
$$i = z_2(\alpha-1)K^{\alpha-2} - 2\theta d$$

Consider the combination of our three equilibrium equations as follows.

$(B^* - n^*P) - \kappa r^s - \theta(1-d)[B^*(1-d) + dn^*P](N - n^*) - P[f'(B^* - n^*P) + r^s] +$
$\theta d[(1-d)B^* + dn^*P]P(N - n^*)] - z_2 K^{\alpha-1} + 2\theta d(K - B)(N - n^*) = 0$

The purpose is to derive the sign of the expression $\partial K^*/\partial n^*$. Using the implicit function theorem, we have

$$\frac{\partial K^*}{\partial n^*} = -\frac{-P - \theta(1-d)P(dN - 2n^*) + P^2 f'' + \theta d^2 P^2 (N - 2n^*) - 2\theta d(K - B)}{1 - Pf'' - f'' + 2\theta d(N - n^*)}$$

Our result goes through with the magnitude of the term $2n^*$. We need $N \leq 2n^*$.
Using Cramer's rule for the system (1) we can find out the sign of $\partial K^*/\partial r^S$. The following signs of the coefficients can be established; $a \leq 0$, $b \geq 0$, $c \leq 0$, $d \leq 0$, $e \geq 0$, $f \geq 0$, $h \geq 0$, $i \geq 0$. We assume that $g \leq 0$ and $|ch/d| \leq |g| \leq |ci/f|$ to get

$$\frac{\partial K^*}{\partial r^S} \geq 0$$

Current Federal Reserve policy crowds out private investment.