Share Buyback Valuation

Alternative Investment

(Part 2)

by

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Is it more valuable for a company to make a share buyback or some alternative investment?

Value WITHOUT Share Buyback or Alternative Investment

... is the potential for dividend payouts; that is, the excess cash plus present value of future earnings available for dividend payouts:

$$v = Excess\ Cash + \sum_{t=1}^{\infty} \frac{Earnings_t}{(1+d)^t}$$

$$V = \frac{v \cdot (1 - TaxDividend)}{Shares}$$

Value WITH Share Buyback

- A share buyback reduces the cash available for dividends.
- ... and reduces the number of shares.

$$W = \frac{(v - Buyback) \cdot (1 - TaxDividend)}{Shares \cdot \left(1 - \frac{Buyback}{MarketCap}\right)}$$

Value WITH Alternative Investment

... is the value without a share buyback v, minus the investment amount, plus the present value of the return on the investment:

$$V_{Invest} = \frac{(v - Invest + Return) \cdot (1 - TaxDividend)}{Shares}$$

Relative Value of Investment and Share Buyback

Assume the investment and share buyback amounts are equal, i.e. $Buyback = Invest$:

$$\frac{V_{Invest}}{W} = \left(1 + \frac{Return}{v - Invest}\right) \cdot \left(1 - \frac{Invest}{MarketCap}\right)$$

Equilibriums

Share buyback is more valuable than alternative investment when:

$$W > V_{Invest} \Leftrightarrow MarketCap < Invest \cdot \left(1 + \frac{v - Invest}{Return}\right)$$

This can also be written as:

$$W > V_{Invest} \Leftrightarrow Return < \frac{Invest \cdot (v - Invest)}{MarketCap - Invest}$$

Case Study: Hewlett-Packard

In 2010 HP had Net Income of USD 8.8b and Free Cash Flow (FCF) of USD 8.4b. Assume earnings are constant at USD 8.6b forever, no excess cash and discount rate is 8.5%:

$$v = Excess\ Cash + \frac{Earnings}{d} = \frac{USD\ 8.6b}{8.5\%} \simeq USD\ 101b$$

HP's Relative Value of Share Buyback

In 2010 HP's market-cap was USD 87-127b and HP made share buybacks for USD 11b. At the market-cap extremes, the relative values are:

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}} = \frac{1 - \frac{USD\ 11b}{USD\ 101b}}{1 - \frac{USD\ 11b}{USD\ 87b}} \simeq 102\%$$

$$\frac{W}{V} = \frac{1 - \frac{USD\ 11b}{USD\ 101b}}{1 - \frac{USD\ 11b}{USD\ 127b}} \simeq 97.5\%$$

HP's Acquisition of Autonomy

In 2011 HP acquired Autonomy for USD 10.2b. Assume HP's value v is still USD 101b. HP's lowest market-cap was USD 45b. A share buyback for USD 10.2b would be more valuable than the acquisition when:

$$W > V_{Invest} \Leftrightarrow Return < \frac{Invest \cdot (v - Invest)}{MarketCap - Invest}$$

$$= \frac{USD\ 10.2b \cdot (USD\ 101b - USD\ 10.2b)}{USD\ 45b - USD\ 10.2b}$$

$$\simeq USD\ 27b$$

HP's Restructuring - Firing 29,000 Employees

In 2012 HP began restructuring for USD 3.7b. Assume $v = USD\ 60b$ because FCF was only USD 6b and use a 10% discount rate. At the lowest market-cap of USD 27b a share buyback is more valuable when:

$$W > V_{Invest} \Leftrightarrow Return < \frac{Invest \cdot (v - Invest)}{MarketCap - Invest}$$

$$= \frac{USD\ 3.7b \cdot (USD\ 60b - USD\ 3.7b)}{USD\ 27b - USD\ 3.7b} \simeq USD\ 9b$$

HP's Restructuring – Relative Value

If the present value of the restructuring return is USD 7b, then the relative value is:

$$\frac{V_{Invest}}{W} = \left(1 + \frac{Return}{v - Invest}\right) \cdot \left(1 - \frac{Invest}{MarketCap}\right)$$
$$= \left(1 + \frac{USD\ 7b}{USD\ 60b - USD\ 3.7b}\right) \cdot \left(1 - \frac{USD\ 3.7b}{USD\ 27b}\right)$$
$$\simeq 97.0\%$$

If the present value of the restructuring return is USD 11b, then the relative value is 103.2%.

Summary

- Share buybacks can be valued relative to alternative investments (acquisitions, restructurings, etc.)
- We can also assess the required return on the investment in order for the investment to be more valuable than a share buyback.
- The formulas are non-linear and may be counter-intuitive (see papers).

Further Reading

This lecture is based on two papers:

- **Introduction to Share Buyback Valuation**
- **The Value of Share Buybacks**

Both authored by Magnus Erik Hvass Pedersen.

Available on the internet:

www.Hvass-Labs.Org