Share Buyback Valuation
Relative Value
(Part 6)

by

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Value WITHOUT Share Buyback

... 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.

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

Relative Value of Share Buyback

... is the value of a share buyback relative to a dividend payout:

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

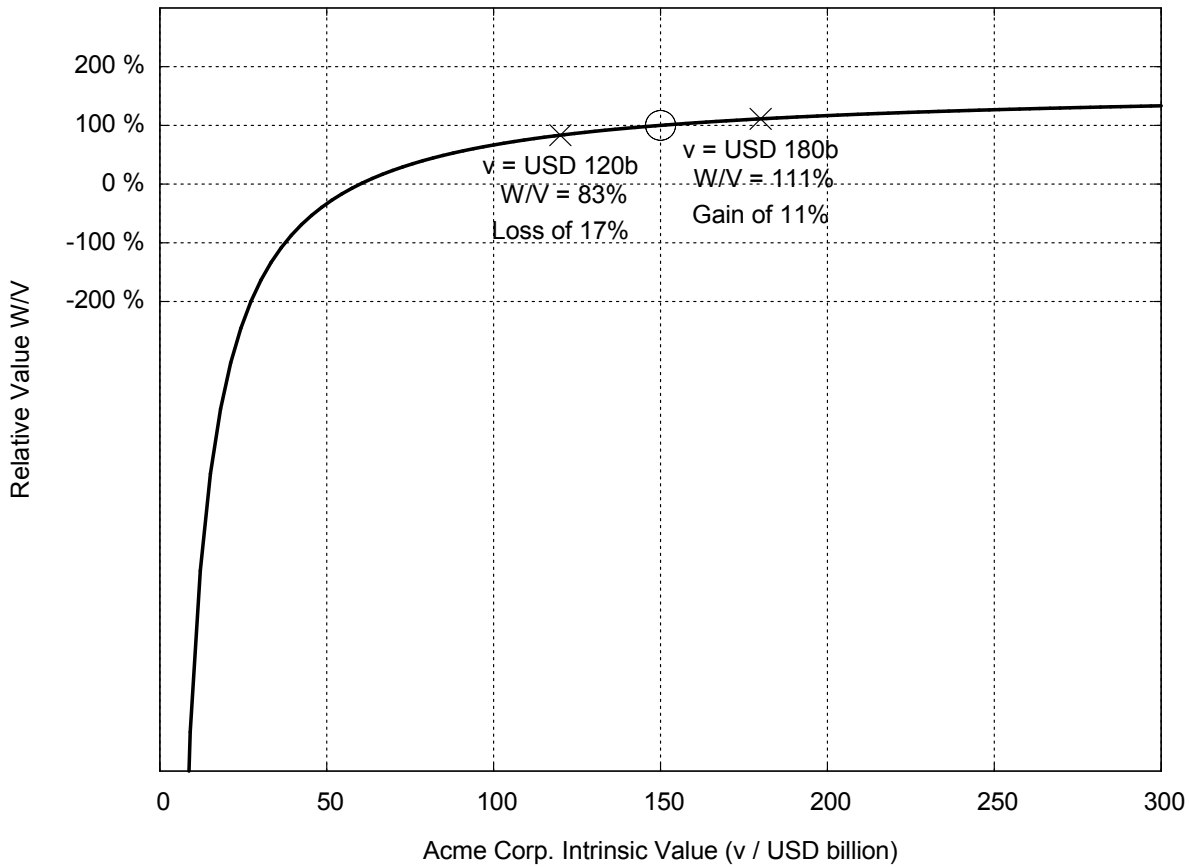
Varying Intrinsic Value

- Fictional company: Acme Corporation.
- Assume $MarketCap = USD\ 150b$
- Buyback amount is USD 60b (40% of $MarketCap$).
- Mispricing between intrinsic value v and $MarketCap$ varies: 20%, 40%, 60% and 80%.

Relative Value (20% Mispricing)

Loss

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$
$$= \frac{1 - \frac{USD\ 60b}{USD\ 120b}}{1 - \frac{USD\ 60b}{USD\ 150b}} \simeq 83\%$$



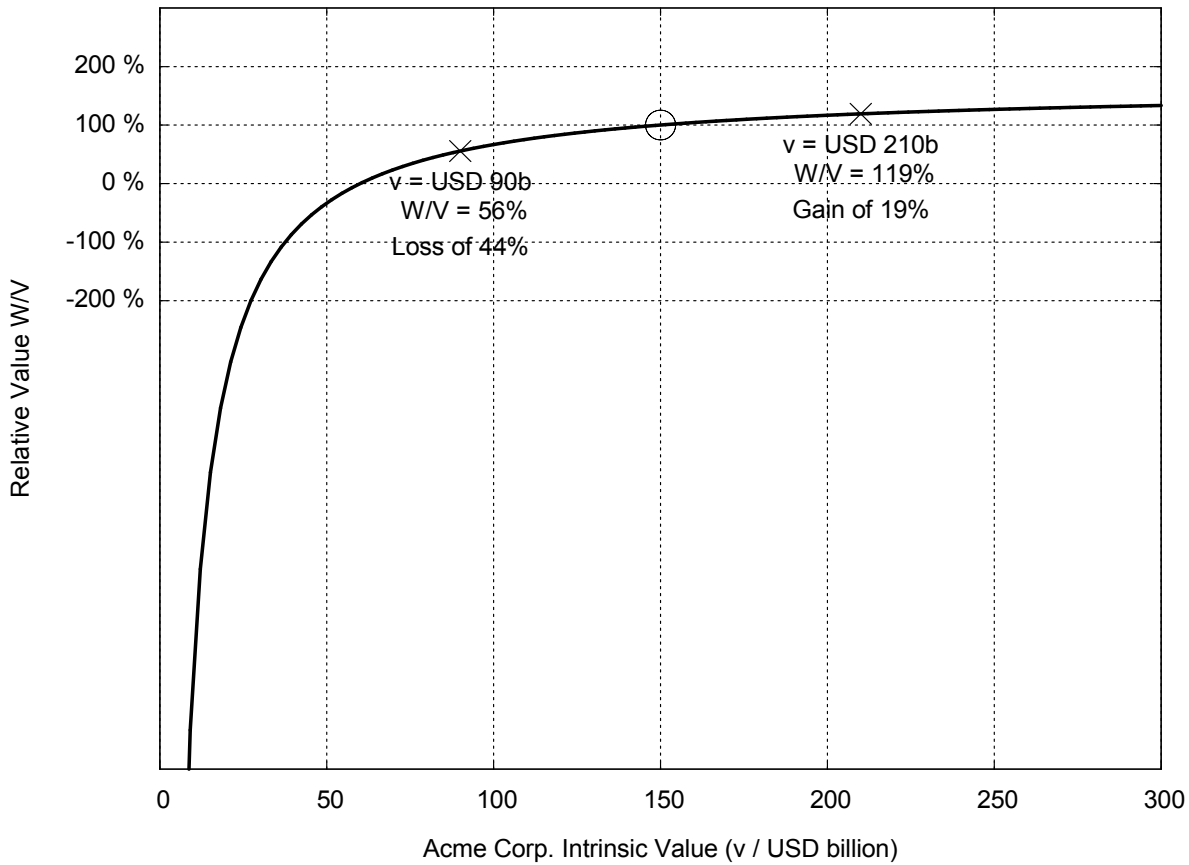
Gain

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$
$$= \frac{1 - \frac{USD\ 60b}{USD\ 180b}}{1 - \frac{USD\ 60b}{USD\ 150b}} \simeq 111\%$$

Relative Value (40% Mispricing)

Loss

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}} = \frac{1 - \frac{USD\ 60b}{USD\ 90b}}{1 - \frac{USD\ 60b}{USD\ 150b}} \simeq 56\%$$



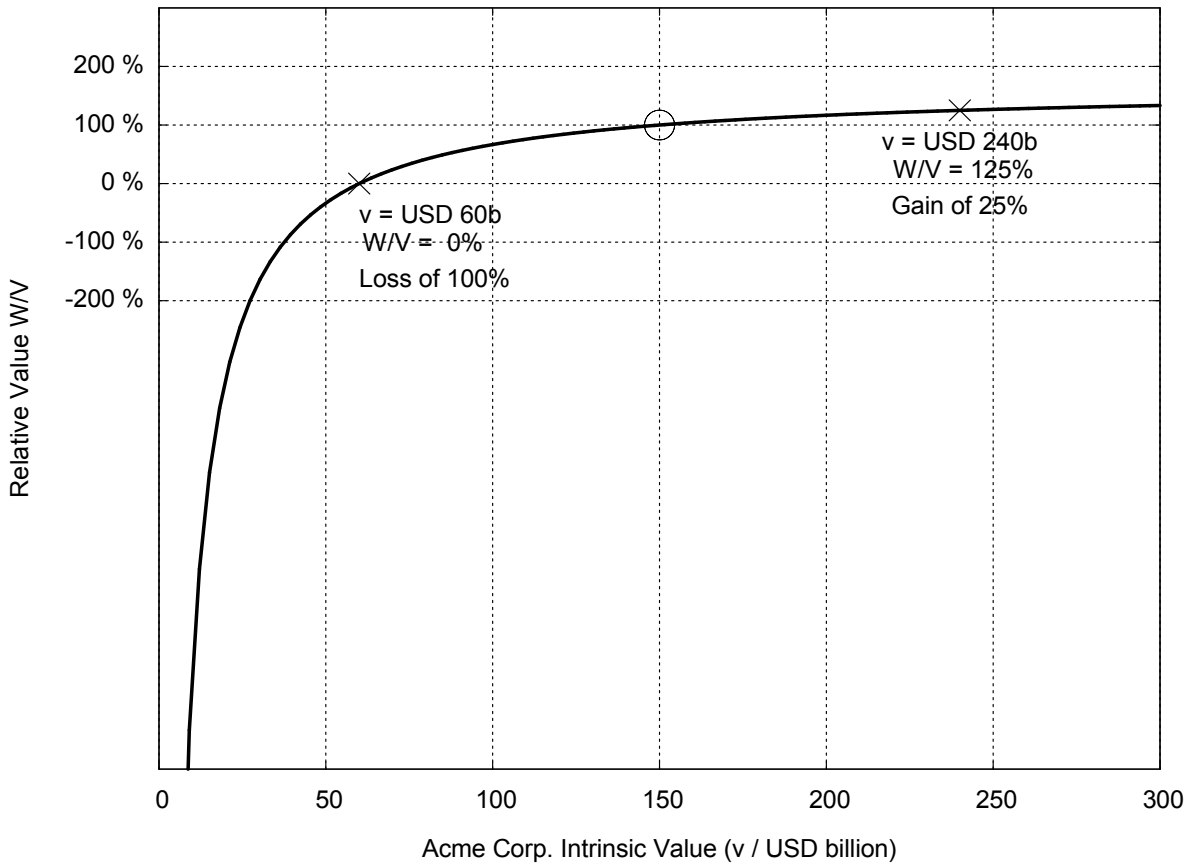
Gain

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}} = \frac{1 - \frac{USD\ 60b}{USD\ 210b}}{1 - \frac{USD\ 60b}{USD\ 150b}} \simeq 119\%$$

Relative Value (60% Mispricing)

Loss

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$
$$= \frac{1 - \frac{USD\ 60b}{USD\ 60b}}{1 - \frac{USD\ 60b}{USD\ 150b}} \simeq 0\%$$



Gain

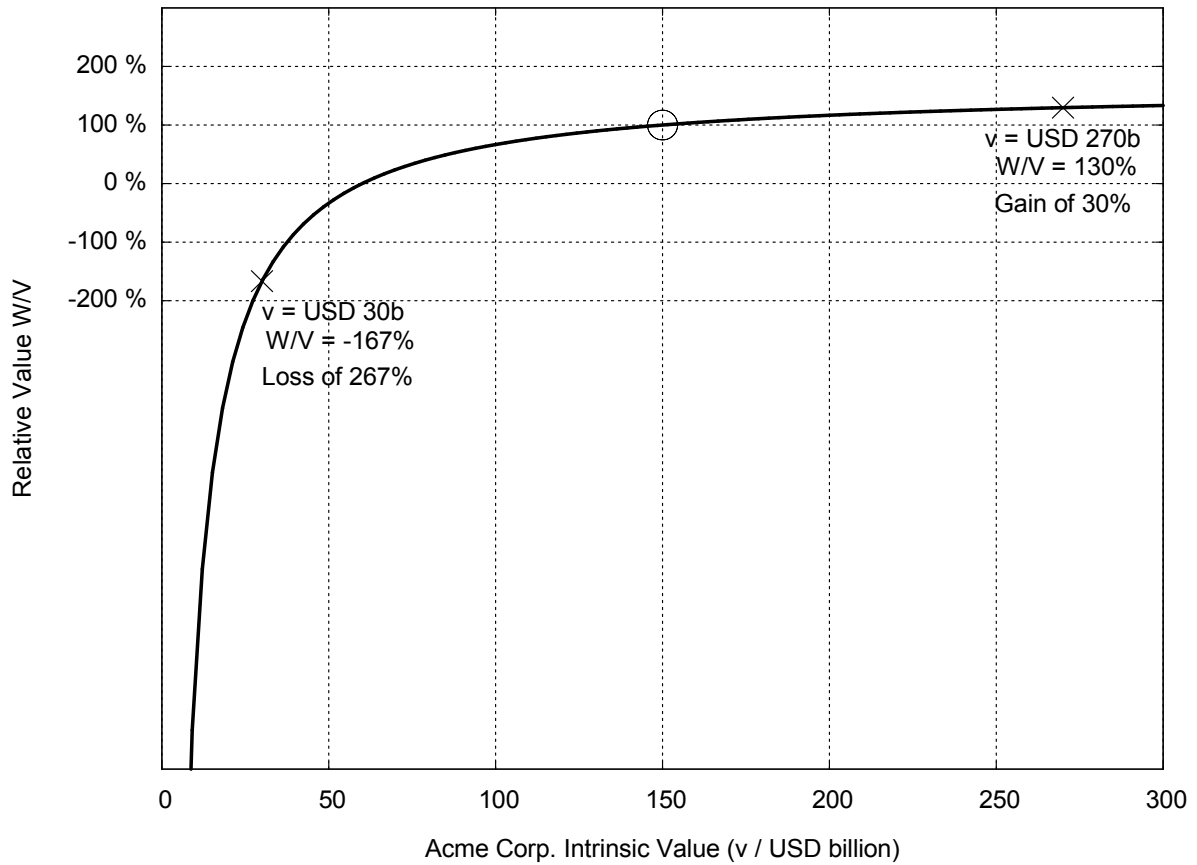
$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$
$$= \frac{1 - \frac{USD\ 60b}{USD\ 240b}}{1 - \frac{USD\ 60b}{USD\ 150b}} \simeq 125\%$$

Relative Value (80% Mispricing)

Loss

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

$$= \frac{1 - \frac{USD\ 60b}{USD\ 30b}}{1 - \frac{USD\ 60b}{USD\ 150b}} \simeq -167\%$$



Gain

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

$$= \frac{1 - \frac{USD\ 60b}{USD\ 270b}}{1 - \frac{USD\ 60b}{USD\ 150b}} \simeq 130\%$$

Varying Buyback Amount

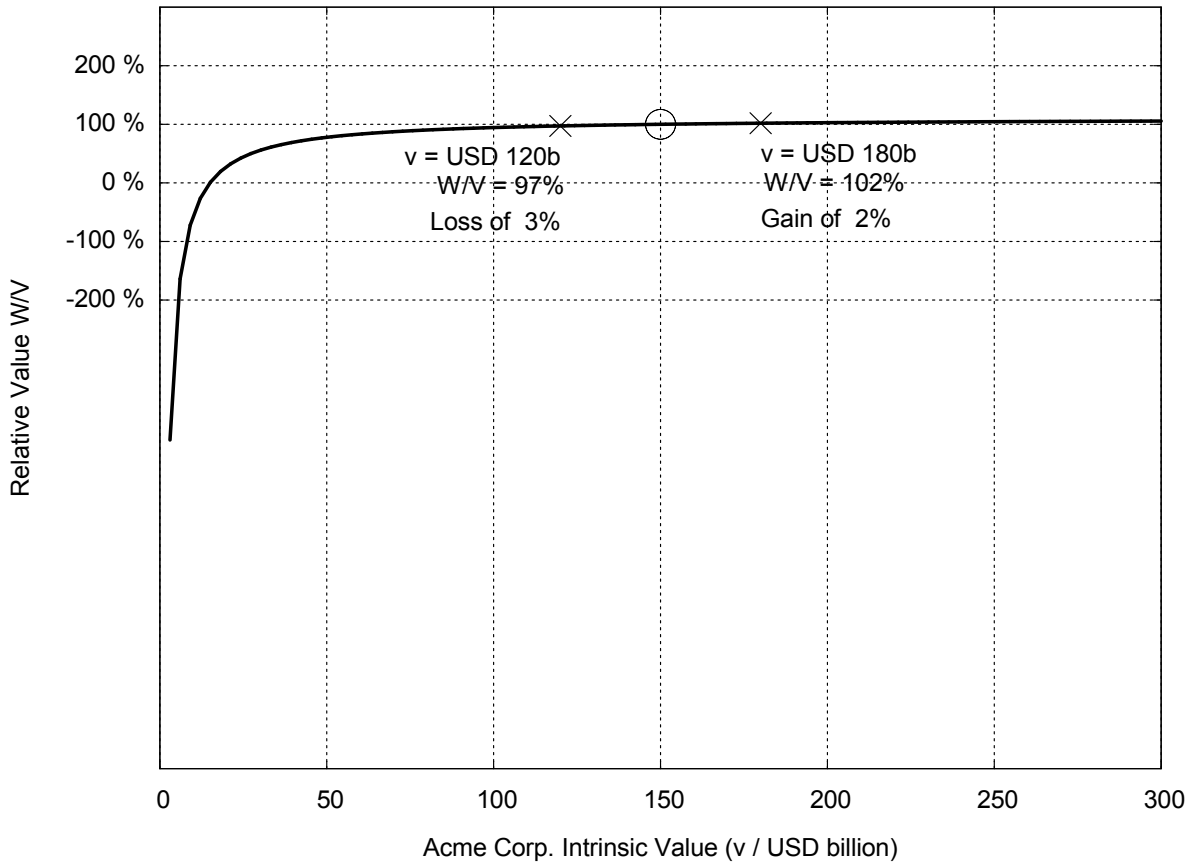
- Assume $MarketCap = USD\ 150b$
- Intrinsic value is either USD 120b or 180b (20% mispricing).
- Buyback amount varies: USD 15b, 30b, 60b, 120b, 127.5b.

Relative Value ($Buyback = USD\ 15b$)

Loss

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

$$= \frac{1 - \frac{USD\ 15b}{USD\ 120b}}{1 - \frac{USD\ 15b}{USD\ 150b}} \simeq 97\%$$



Gain

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

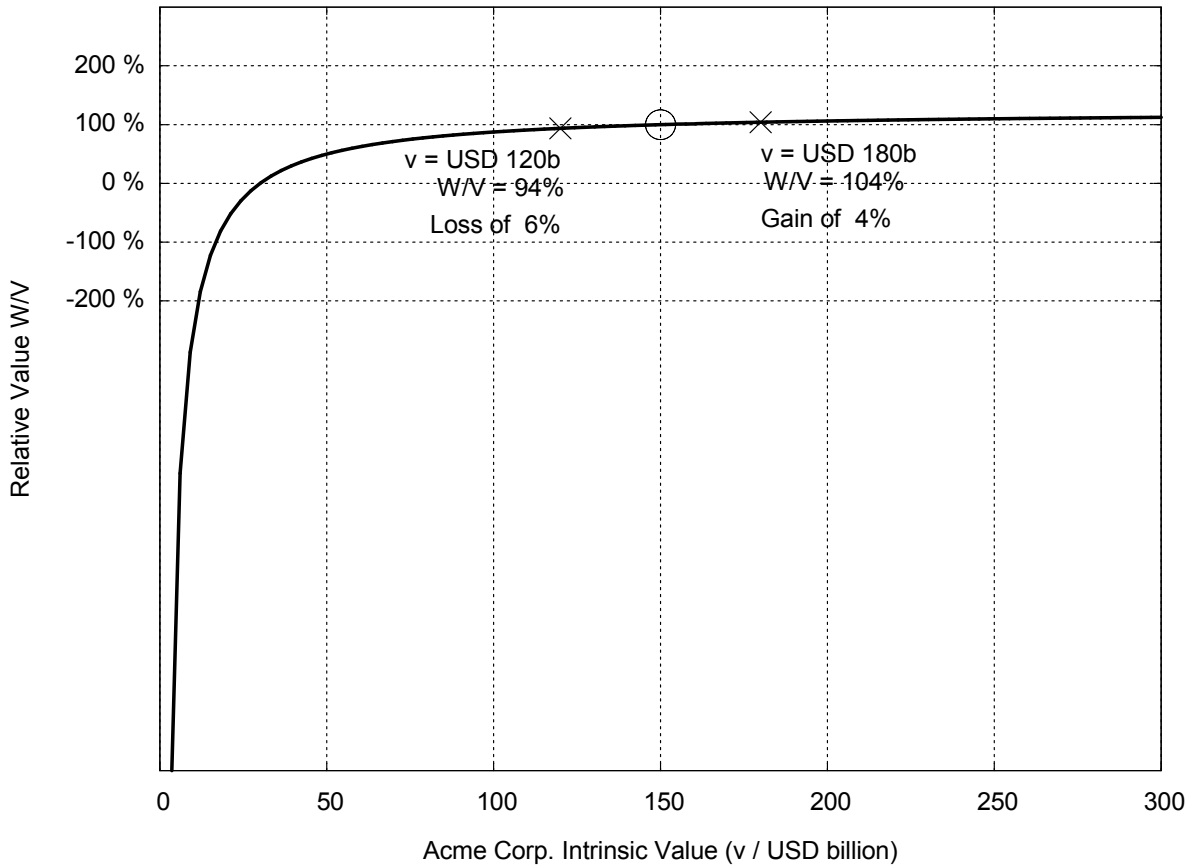
$$= \frac{1 - \frac{USD\ 15b}{USD\ 180b}}{1 - \frac{USD\ 15b}{USD\ 150b}} \simeq 102\%$$

Relative Value ($Buyback = USD\ 30b$)

Loss

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

$$= \frac{1 - \frac{USD\ 30b}{USD\ 120b}}{1 - \frac{USD\ 30b}{USD\ 150b}} \simeq 94\%$$



Gain

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

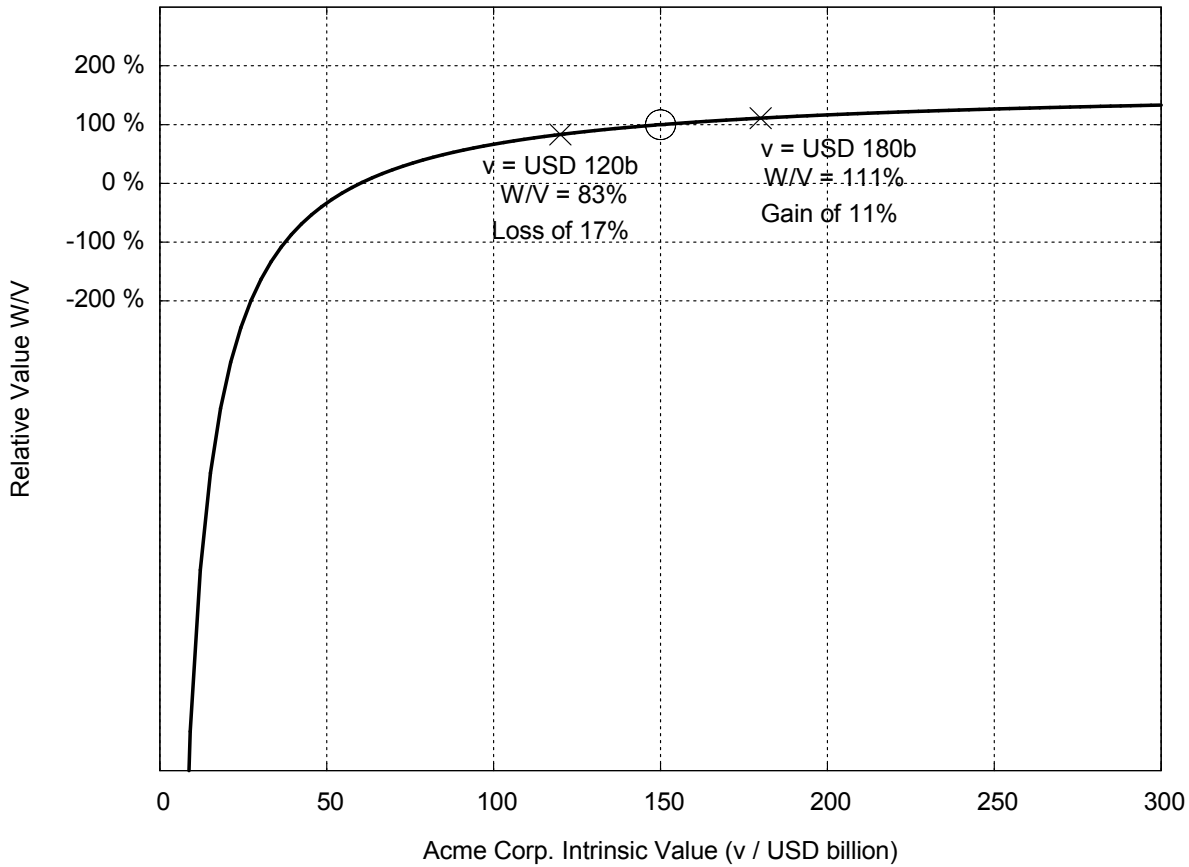
$$= \frac{1 - \frac{USD\ 30b}{USD\ 180b}}{1 - \frac{USD\ 30b}{USD\ 150b}} \simeq 104\%$$

Relative Value ($Buyback = USD\ 60b$)

Loss

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

$$= \frac{1 - \frac{USD\ 60b}{USD\ 120b}}{1 - \frac{USD\ 60b}{USD\ 150b}} \simeq 83\%$$



Gain

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

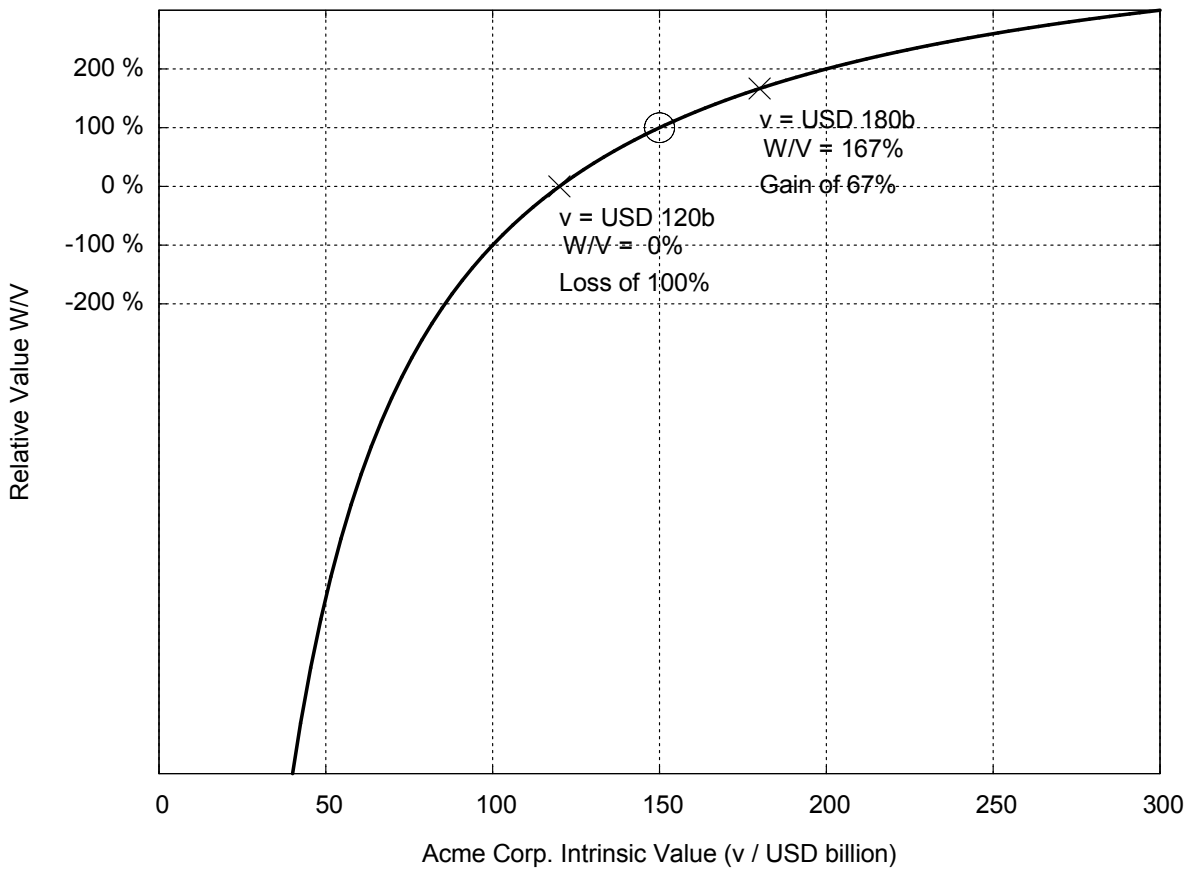
$$= \frac{1 - \frac{USD\ 60b}{USD\ 180b}}{1 - \frac{USD\ 60b}{USD\ 150b}} \simeq 111\%$$

Relative Value ($Buyback = USD\ 120b$)

Loss

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

$$= \frac{1 - \frac{USD\ 120b}{USD\ 120b}}{1 - \frac{USD\ 120b}{USD\ 150b}} \simeq 0\%$$



Gain

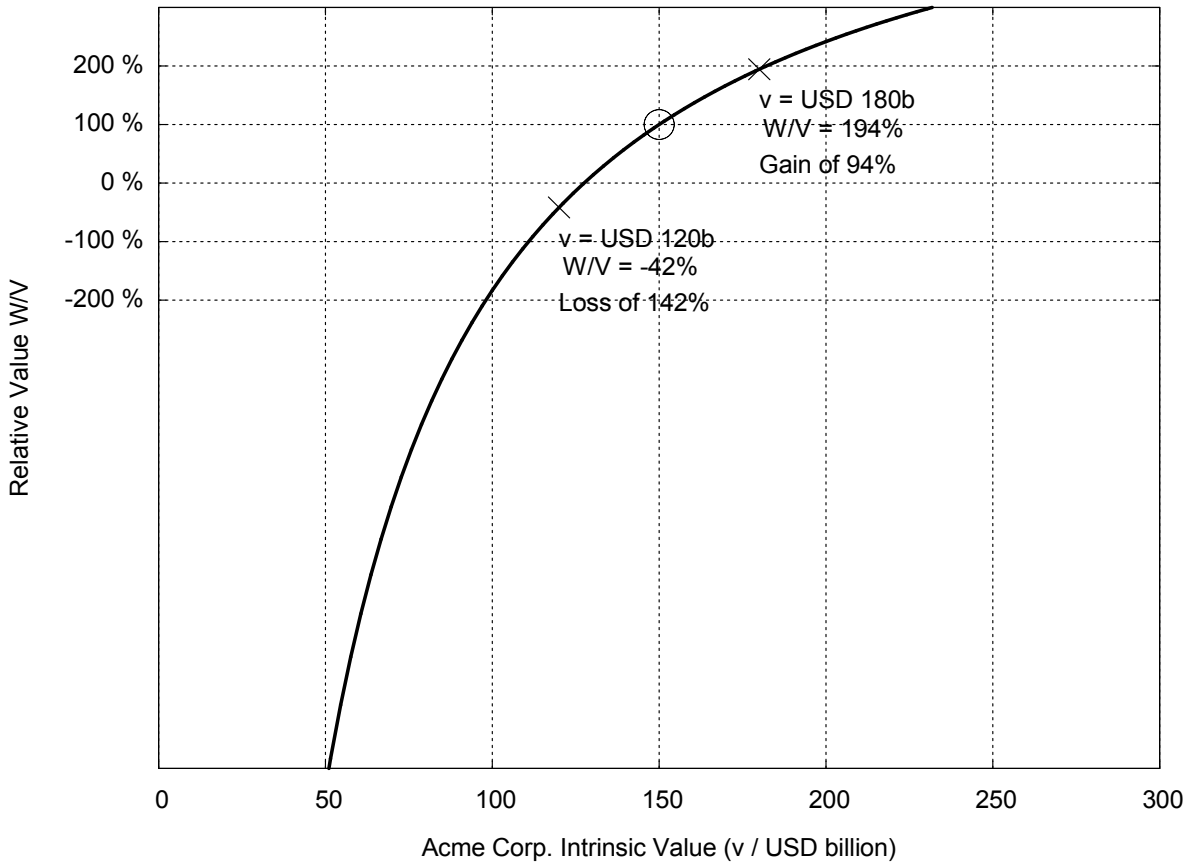
$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}}$$

$$= \frac{1 - \frac{USD\ 120b}{USD\ 180b}}{1 - \frac{USD\ 120b}{USD\ 150b}} \simeq 167\%$$

Relative Value ($Buyback = USD\ 127.5b$)

Loss

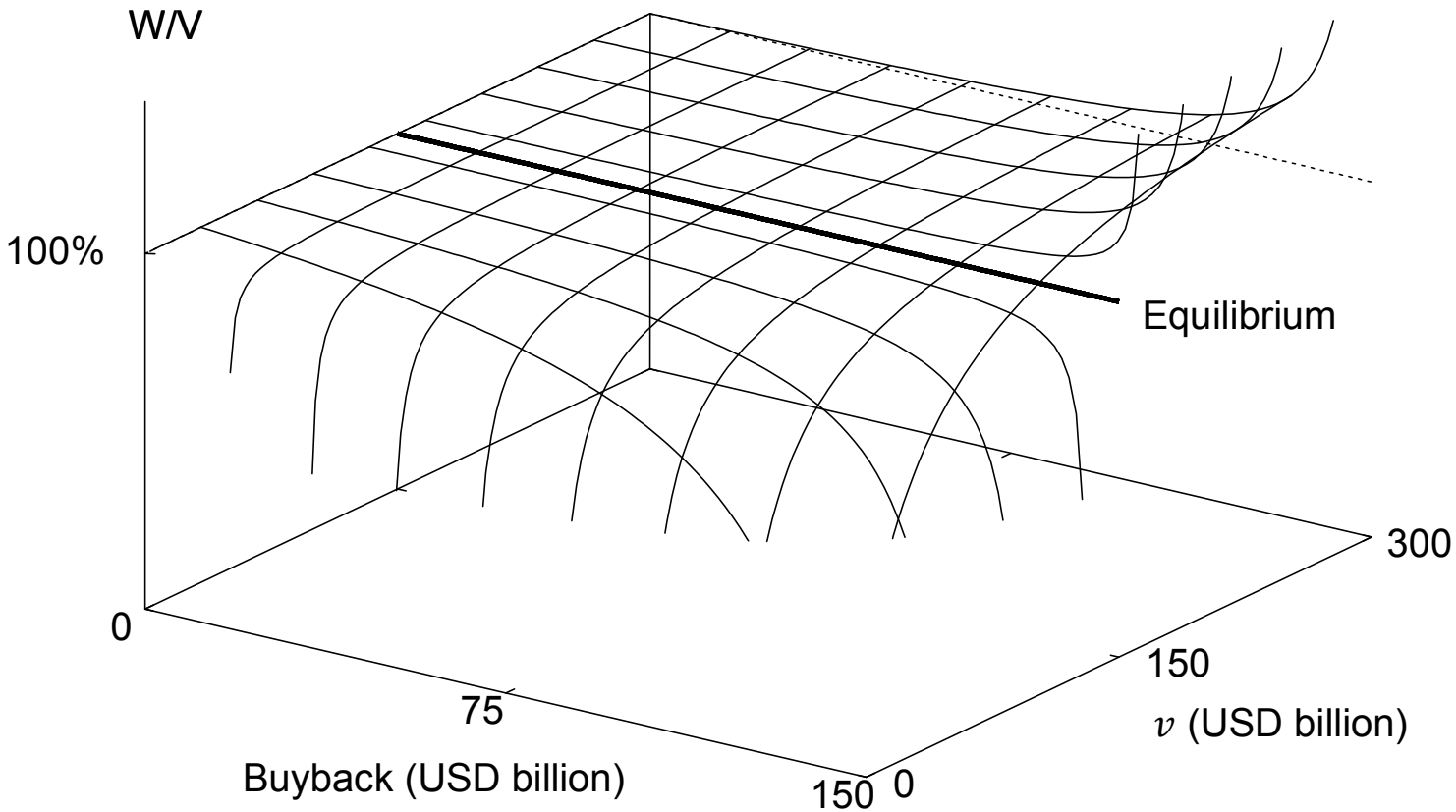
$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}} = \frac{1 - \frac{USD\ 127.5b}{USD\ 120b}}{1 - \frac{USD\ 127.5b}{USD\ 150b}} \simeq -42\%$$



Gain

$$\frac{W}{V} = \frac{1 - \frac{Buyback}{v}}{1 - \frac{Buyback}{MarketCap}} = \frac{1 - \frac{USD\ 127.5b}{USD\ 180b}}{1 - \frac{USD\ 127.5b}{USD\ 150b}} \simeq 194\%$$

Relative Value (Varying v and $Buyback$)



Conclusion

- Buyback of overpriced shares is much more destructive to long-term shareholder value than gains from buyback of underpriced shares.
- This effect is magnified as the buyback amount increases.

Further Reading

This lecture is based on the papers:

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

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Available on the internet:

www.Hvass-Labs.Org