



# Demystifying share buybacks

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- Corporate share buybacks have become a controversial topic in recent years as mainly American companies increased leverage to pay out larger sums to investors
- In this context many publications have also raised concerns about share repurchases driving up valuations to unsustainable levels
- We have the impression that the topic is sometimes not very well understood resulting in exaggerated expectations concerning the power of corporate buybacks
- This reading analyzes the mechanics of buybacks using a stylized example and dissects the most common fears and criticism

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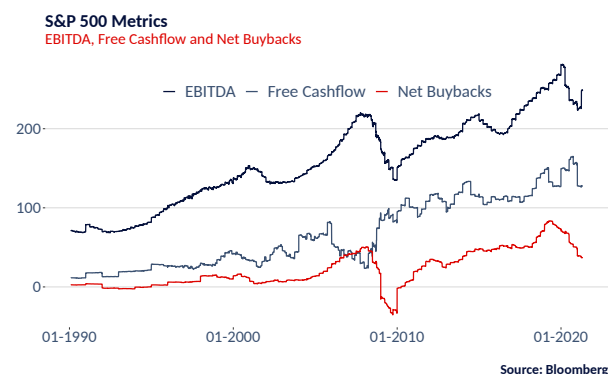
**E**ven before the pandemic, share buybacks had become a controversial topic notably in the US as large scale buyback programs were accompanied by increasing financial leverage. Many market observers question(ed) the sustainability of, expressed in absolute terms, quite impressive and ever higher amounts spent by corporations on their own stocks. Furthermore, excessive share buybacks have often been quoted as a factor driving up individual corporations and aggregate market valuations. We have the impression that despite the ubiquity of the topic, it is sometimes not very well understood resulting in various misconceptions.

## 1 A closely monitored number

There is a large body of research publications, newspaper articles, newsletters and other financial publications commenting extensively on the share repurchases executed especially by US corporations. As cash constraint companies cut back on buyback programs in the wake of the Covid 19 pandemic, interest in the topic has abated a bit but it is probably only a matter of time until speculations about increasing or decreasing repurchase activity will make headlines again. Just as an example, in January last year the Harvard Business Review still titled: "Why Stock Buybacks Are Dangerous for the Economy". In April Schroders asked: *Is a collapse in share buybacks a risk to a stock market recovery?* - stressing that corporations were the single, largest buyer of equities. Finally, in January 2021, the Economic Times cheered again that: "US corporate buybacks are on the rise, lifting investor hopes". There seems to be a strong consensus that share repurchases play an important

role in determining the direction of single stock prices as well as the broad market and investors seem to be prone to either put big hopes in them or condemn them as devil's work. According to our impression, the most common statements in this context are that:

- Share buybacks result in excess leverage and thus pose a risk to financial stability,
- are often ill-timed as corporations tend to buy when prices are "high",
- drive the market higher (beyond justifiable levels) by artificially increasing demand,
- inflate EPS and share prices,
- are abused by corporate executives to manipulate the share price in the short-term and boost performance based remuneration.



**Figure 1:** Buyback volumes are often expressed in billion USD which makes for good stories but reduces comparability. Furthermore, it is often ignored that companies in part repurchase shares to offset dilution caused by employee share options. The key metric should therefore be net buybacks instead of gross repurchases. Expressed in relation to other fundamental metrics they look far less impressive.

We use a stylized example to elaborate on the mechanics of share buybacks and show how this approach can be utilized to measure the impact of the timing of repurchases. In this context we also cover the market's apparent obsession with Earnings per Share (EPS). We subsequently comment on the often heard statements above and why we think that the great focus on buyback activity is exaggerated.

## 2 The mechanics of share buybacks

Essentially, share repurchases are another way of returning capital to shareholders. As such they are comparable to dividend payments. However, while dividends represent a direct and equal cash transfer to all shareholders, buybacks benefit shareholders indirectly. As the company buys back its own shares (and usually destroys them afterwards) the total number of shares outstanding is reduced, thus resulting in a higher percentage holding of investors who keep their shares. In theory an investor owning a dividend paying stock could mimic a share buyback by directly reinvesting the dividend while investors owning a company that is repurchasing shares could mimic a dividend payout by selling a part their holdings. The matter gets complicated though due to the relationship between dividends, buybacks and the share price as well as the popular valuation metric, earnings per share (EPS).

The effect of dividends on the share price is relatively straight forward. All else equal, on the ex-dividend date it should drop by an amount equal to the dividend per share. This simply mirrors the fact that the dividend reduces the company's cash holdings previously priced into the shares. Share buybacks generally have an opposite effect on the share price as, all else equal, a lower number of shares outstanding increases the value of each share. This can already cause confusion for investors who focus on nominal price increases instead of total return and we deem it problematic in this context that many financial data sources either display exclusively the price return or at least display it much more prominently. In practice investors are rarely concerned about their percentage stake in a corporation and will barely notice the change in their stake caused by a reduction of the share count. This is why earnings per share (EPS) as a metric directly comparable to the share price play such an important role. Let's have a look at the following stylized example to illustrate how a share repurchase works and how it affects different metrics as well as the investor's return. The exercise may seem a little dull but we will show later that it can be quite insightful even if the concept is fundamentally well understood.

Our simple example company starts with 1bn. in revenues and a profit margin of 10% (earnings = 100m). We further assume that the company is able to pay out 70% of its earnings (70m) to investors while reinvest-

ing 30% in order to generate 2% revenue growth in eternity. 2% doesn't sound like a lot but as we will soon see translates into impressive EPS growth once buybacks come into play - a note of caution for all investors who search for growth looking at EPS. Let's also assume that the company trades at 15 times trailing earnings and pays no dividend, thus returns all excess cash through share repurchases. Beyond that we assume that the company starts with 1bn shares outstanding thus giving it 10 cents in earnings per shares and a share price of 1.5. Everything else equal we can show that this company with its 2% topline growth will grow EPS by 6.76% per year. How do we get there? As we know the company's growth rate we know how much profit it will generate next year (Year 2 in Figure 2). As defined, 70% of that will be paid out through share buybacks. The question is at which price the company can repurchase those shares. This is where the exercise becomes circular. Obviously the price at which the buyback takes place affects the number of shares repurchased with the given cashflow which in turn affects earnings per share as well as the share price at our fixed 15 P/E multiple.

| Year                  | T 0         | T 1         | T 2         | T 3         |
|-----------------------|-------------|-------------|-------------|-------------|
| Sales m               | 1,000       | 1,020       | 1,040       | 1,061       |
| Sales Growth %        | 2%          | 2%          | 2%          | 2%          |
| Profits m             | 100         | 102         | 104         | 106         |
| Profit Margin %       | 10%         | 10%         | 10%         | 10%         |
| Payout Ratio %        | 70%         | 70%         | 70%         | 70%         |
| Cash paid out m       | 70.00       | 71.40       | 72.83       | 74.28       |
| <b>EPS</b>            | <b>0.10</b> | <b>0.11</b> | <b>0.11</b> | <b>0.12</b> |
| EPS Growth %          |             | 6.76%       | 6.76%       | 6.76%       |
| Shares repurchased m  |             | 44.59       | 42.60       | 40.70       |
| Shares outstanding m  | 1000        | 955         | 913         | 872         |
| ΔShares outstanding % |             | -4.46%      | -4.46%      | -4.46%      |
| Share price           | 1.500       | 1.601       | 1.7097      | 1.8252      |
| Trailing P/E          | 15.00x      | 15.00x      | 15.00x      | 15.00x      |
| Cash Yield            |             | 4.76%       | 4.76%       | 4.76%       |
| Growth (g)            |             | 2.00%       | 2.00%       | 2.00%       |
| Return on Investment* |             | 6.76%       | 6.76%       | 6.76%       |
| Forward P/E           | 14.71x      | 14.71x      | 14.71x      | 14.71x      |
| Forward P/CF          | 21.01x      | 21.01x      | 21.01x      | 21.01x      |
| Expected RoI          | 6.76%       | 6.76%       | 6.76%       | 6.76%       |

\* return realized by the investor/shareholder

Figure 2: From sales to EPS

Obviously, we could solve this problem by using an iterative solver. However, there is a more elegant, analytical approach. From the Gordon-Growth model we know that the value of a share equals the value of the discounted future dividends or assuming a stable perpetuity:  $Price = \frac{Dividend}{DiscountFactor - Growth}$ . There is no reason why this relation should not hold if dividends are substituted for share buybacks. In our example, we know the price in T0, we know the dividend (namely the cash paid out investors) and we know the expected growth. Solved for the Discount Factor we know that with 2% growth, 15x trailing P/E and 70% payout ratio, the implied return on investment is 6.76% ( $\frac{1.02 \cdot 0.7 + 15 \cdot 0.02}{15}$ ). This is the return that ceteris paribus every shareholder, including an investor who doesn't tender any shares, can expect to generate over

the course of the period.

Obviously share price appreciation is the only channel through which this return can be realized in the absence of dividends. As such we can conclude that the repurchase activity should *ceteris paribus* result in a share price appreciation commensurate to the expected return on investment (RoI=Implied Discount Factor). This would give us a new share price of 1.601 and all else equal we would expect the company to exercise its repurchases at this price towards the end of the period thus providing investors who sell with the same return. Figure 2 shows that this indeed solves the equation. At a price of 1.601, the company would repurchase 44.59m shares, thus reducing the share count by 4.5%, resulting in an increase in EPS of 6.76%. We can show that all else equal for a non dividend paying stock and without any revaluation gains and losses period return must equal EPS growth. In-line with the Gordon-Growth model, return on investment in this case can be decomposed into a cash component of 4.76% and a growth component of 2%.

There is sometimes the notion that share buybacks exercised in perpetuity would result in the company "owning itself". The question what happens from a corporate governance perspective when companies don't destroy repurchased shares and thus accumulate treasury shares and the respective voting rights goes beyond the scope of this publication. From an economic perspective however we can clearly show that this idea makes little sense (setting aside distressed situations where companies sell all their assets and subsequently cease to exist). Figure 3 shows the evolution of share price and number of shares repurchased for our stylized example. Obviously, with the price per share growing at the earlier derived rate of 6.76% the absolute number of shares bought back with a cashflow growing at 2% decreases constantly. At some point it is likely that the example company will pursue a share split to make the stock more affordable for smaller investors again.

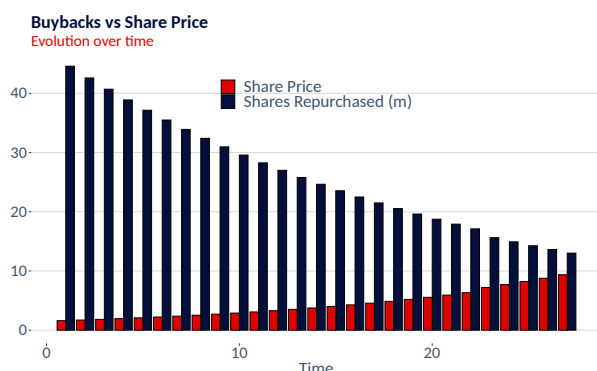


Figure 3: Stylized example buybacks

Most importantly though all this by itself leaves other metrics such as the company's ownership structure unaffected. It also isn't some kind of magic value creator. The observed growth in earnings per share does only to a small degree reflect underlying revenue and profit

growth but is mostly mechanical. So why are analysts and portfolio managers frequently so obsessed with EPS growth? As shown in our example in the absence of dividends, EPS growth is essentially a function of valuation and earnings growth. One possibility is that investors understand this relationship well and use it as a proxy to derive expected return on investment. Practitioners may reasonably find it easier and more intuitive too look at EPS growth compared to solving a Dividend Discount Model. Furthermore it can be useful in cases where companies report high inorganic (M&A driven) revenue growth or have generous share based compensation programs in place. However, it becomes problematic in cases where EPS growth is driven by one time repurchase programs financed through sale of assets or significant changes in the capital structure. In any case investors need to be aware of the shortcomings of the metric and the lack of cross-sectional comparability (especially if the peer group includes dividend paying corporations).

### 3 How justified is the criticism?

Having covered the mechanics of buybacks relatively extensively this brings us back to the earlier mentioned criticism and the question to what degree it may be justified or not.

#### 3.1 Share buybacks result in excess leverage and pose a risk to financial stability

It is probably the most often heard and most pressing point in the discussion about buybacks. Indeed as the Bank for International Settlements (BIS) found in its September 2020 quarterly review, "buybacks appear instrumental in meeting leverage targets" (*Mind the buybacks, beware of the leverage*). It becomes clear from the mechanics of share buybacks that they are a handy tool in managing the capital structure. Returning cash automatically reduces equity, thus increases leverage and it changes the capital structure even quicker if the cash payout is (partly) financed with additional debt instead of cashflow from operations. Compared to dividends, buybacks also make it much easier to fine-tune leverage as they can be executed continuously, distributing exactly the amount of cash needed to meet target ratios. However, blaming share repurchases for excess leverage is a bit like blaming the ski manufacturer for the ski accident. Assuming at least a minimal degree of rationality among CFOs, buybacks are usually the result of capital allocation decisions not the determinant. In fact compared to dividends it is a great advantage of share repurchases that they can be handled in a rather flexible manner. As research has shown, firms are usually reluctant to cut dividends given the negative signalling associated with it. This implies that unsustainable dividends which companies desperately try to maintain could actually be more

likely to eventually cause financial distress than share repurchases.

### 3.2 Share buybacks are often ill-timed as corporations are buying when prices are "high",

There are tons of charts showing the pro-cyclicality of share buybacks including Figure 1 in this reading. As can be seen, net buybacks actually turned negative during the 2009 Great Financial Crisis while increasing strongly before and subsequently. Some critics view this as indication of badly timed buybacks, arguing that companies are repurchasing their own stock when valuation multiples are high thus reducing share count less than they could if the same amount would be deployed when multiples are depressed. This argument has several shortcomings. First of all it is logical and rational that firms return excess cash to investors when it is generated - during cyclical upturns. As Figure 1 confirms, despite all discussions about leverage driven buybacks, on aggregate share repurchases tend to be highly correlated with free cashflow. Having said that it seems unlikely that investors would appreciate it if companies started hoarding cash to wait for a setback in the share price. Also, as we have shown earlier, investors concerned about valuation could essentially mimic a dividend by simply selling a part of their holdings. After all an ill-timed buyback discriminates against investors holding on to all of their shares despite a high valuation (and low expected return/discount factor) while favouring those shareholders who decide to sell at least a part of their holdings.

This topic is also where our stylized example illustrated earlier comes in handy. Our model actually allows us to measure the sensitivity of long-term shareholder wealth to the timing of buybacks. Let's assume our example company's valuation multiple in year three temporarily increases by 20% to 18x and reverts back to 15 in the following period. Let's also assume that the company at the same time steps up its share repurchases by more than 40% to 100% of earnings and reduces them by the same amount in the following period (Ill-timed Buyback).

Figure 4 shows the effect of the ill-timed buyback on long-term shareholder wealth in comparison to a scenario where the company keeps its payout ratio fixed. Obviously as a higher number of shares is repurchased at a higher valuation, thus funneling more cash to investors giving up their position, the aggregate wealth of remaining shareholders is adversely affected. Nevertheless as the example shows the effect is measurable but still relatively small. In year 4, the ill-timed buyback has decreased shareholder value by 0.41% compared to the continuous repurchase. While timing may matter during large scale one off buyback programs, it seems rather negligible in most cases. Of course,

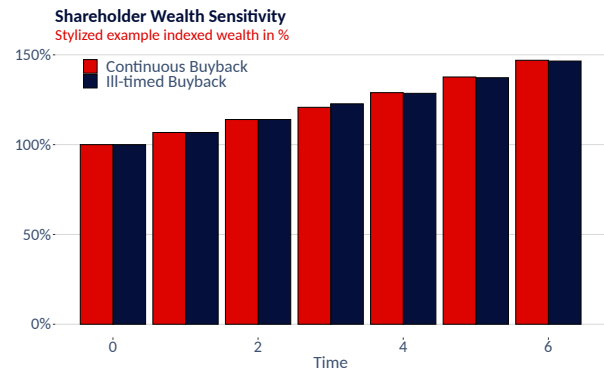


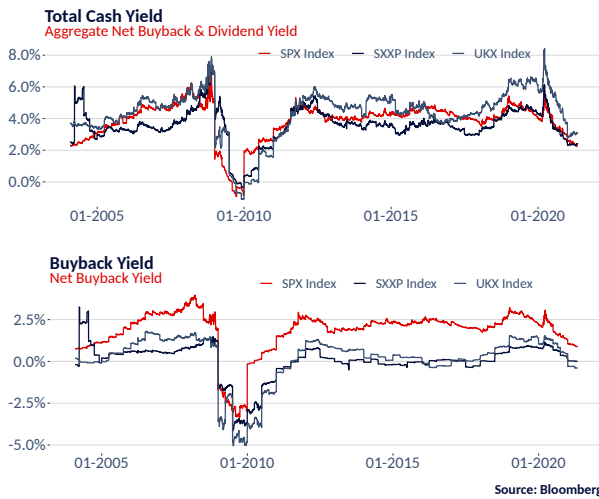
Figure 4: Measuring wealth sensitivity to buyback timing

it is a totally different question whether corporations in general should invest in counter-cyclical buffers. As the ill-fortune of many industries during the Covid 19 crisis demonstrated, some companies probably should have invested in higher cash reserves. This is especially true for historically cyclical businesses such as the airline industry but the crisis also showed that industries traditionally deemed stable and resilient such as cruise operators can be subject to sudden adverse shocks.

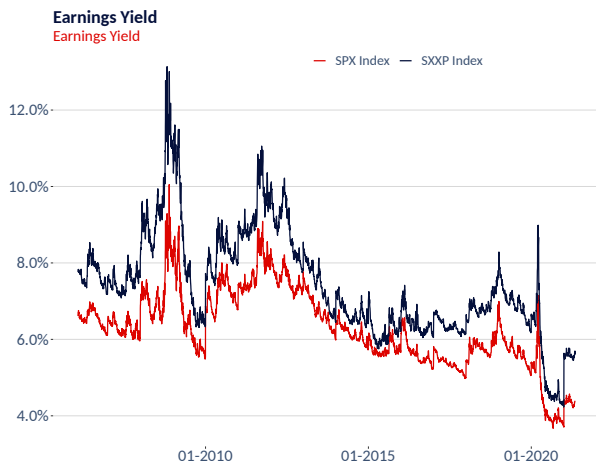
### 3.3 Share buybacks drive the market higher

As indicated earlier, the case has often been made that companies repurchasing their own stock are an important demand factor and thus essentially support the stock market. In recent years some investors made the case that a reduction in buybacks would eventually induce a market crash. This argument got support from the notion that some firms spent more on repurchases than their cashflows allowed, tilting their capital structure towards debt. As of today we can clearly state that these worries have not materialized. Despite a massive cut in buybacks last year the market recovered quickly and is trading higher than ever before today. To what degree this has been driven by liquidity injections by the FED is a different question going beyond the scope of this reading. However, we think that there is little empirical support for the argument that corporate buyback induced demand has essentially been inflating aggregate valuation multiples. Yes, Figure 5 shows total cash yields (share buybacks + dividends) in the US and Europe have moved in tandem while Figure 6 indicates lower earnings yields for the US. However, the US valuation premium has been around even before the financial crisis and is mirrored by similar differences in economic, revenue and profit growth that probably justify it. After all, dividends tend to get reinvested too and in the medium-term the mechanics of cash paybacks to shareholders should not impact valuation levels.





**Figure 5:** Buyback yields are structurally higher in the US as firms and investors prefer share repurchases over dividend payments. However, this difference has no impact on total cash yields



**Figure 6:** The US valuation premium dates back to the early 2000s

### 3.4 Share buybacks inflate EPS and share prices

Yes, share buybacks mechanically increase earnings per share and all else equal result in a higher share price. This by itself is neither particularly great nor problematic. Eventually, investors should focus on total return rather than price increases to compare companies that return cash to shareholders in different ways on an apples and apples basis. Obviously different tax treatments of capital gains and dividend income is a concern for taxable investors and probably the single most important driver of the differences in repurchasing activity across different countries.

### 3.5 Share buybacks are abused by corporate executives to manipulate the share price in the short-term and boost variable remuneration.

While it seems unlikely that a share buyback program by itself has the power to elevate the share price beyond rational levels in the medium-term, it may indeed be able to manipulate it in the short-term. This introduces a clear conflict of interest in cases where executive pay is tied to short-term share price evolution (for instance through share options). The BIS has found some evidence for "managers using buybacks opportunistically". However it also finds "that academic literature suggests that misalignment of managers' and investors' incentives was not a major driver of buybacks". Furthermore, compensation practices have evolved over time and now are usually structured in a way that does not discriminate against dividend payments. Last but not least according to most studies the detrimental effect of opportunistic buybacks seems at the most pretty minor. Yingmei Cheng, 2015 for instance found that companies that pay executive bonuses based on the achievement of certain EPS targets tend to perform in-line with peers that do not repurchase stocks. This is in-line with the findings of our analysis.

## 4 Conclusion - don't kill the messenger

Share buybacks have evolved into an important and widely used instrument mostly in the US. There is empirical evidence that aside from returning surplus cash to investors in a tax efficient manner, firms use it as a tool to manage financial leverage. This has raised concerns about potential threats to financial stability as firms used low interest rates and strong profits to gear up their balance sheets. In this context though it is important to distinguish between cause and effect and keep in mind that share repurchases are merely a tool used as an outcome of capital allocation decisions and not the driver of these decisions. Regardless of that, an important takeaway from the Covid crisis should probably be that tightly managed cash balances and borderline leverage ratios can be problematic even traditionally stable businesses. It remains to be seen whether in the future, investors will reward firms for decreasing the risk of financial distress by running counter-cyclical buffers. Last but not least there is little empirical evidence for excessive abuse of buybacks by corporate executives with misaligned compensation scheme. We also don't believe that share repurchases as such are a major driver of stock market valuations. Having said that we believe that fears about the negative effects of abating repurchase activity are generally as exaggerated as the lauding of buybacks as the ultimate return booster.

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