Feature

KEY POINTS

- Elon Musk has backed out of bidding for Twitter.
- He had entered into a binding agreement to complete the acquisition at a $54.20 share price.
- Twitter is suing him in Delaware.
- Assuming a binary outcome in the case, the probability of success of the action can be calculated from the current share price.
- The same probability can be calculated using legal analysis.
- The difference between the two can be used by investors to judge whether the shares are cheap or expensive.

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Musk v Twitter: it's not just lawyers who have an opinion on the likelihood of success of the litigation: the market does too!

Despite entering into a binding agreement with Twitter, Elon Musk has backed out of completing the purchase of the company at $54.20 per share. Twitter has commenced action in the court of Delaware. If it wins, its share price should increase to around $54.20 from the current $37.74. On the other hand, if it loses the share price will drop to $37.40, the level it was prior to the announcement of the bid. From this it is possible to calculate the probability of success of Twitter's action implied by the current market share price (using some assumptions). This market implied probability can be compared to that obtained using legal analysis, which can then inform investors whether to buy or sell Twitter shares. It also gives litigators a rare opportunity to back their analysis!

In early April Elon Musk bought 9.2% of the share capital of Twitter, Inc. and launched a $43bn bid – equivalent to $54.20 per share – for the entire company. By early July, Mr Musk had changed his mind. He would no longer buy Twitter. The reasons for his change of heart, some say, is that the bid price seemed steep in view of the general market decline. On the other hand, he says that Twitter did not provide sufficient disclosure on the number of "fake accounts" on the platform. Parag Agrawal, CEO of Twitter, defended the company's assertion that less than 5% of all users are spam accounts.[1] However, it is not straightforward for Mr Musk to back away from his bid:

> "In April 2022, Elon Musk entered into a binding merger agreement with Twitter, promising to use his best efforts to get the deal done."[2]

No doubt the arguments will be complex and fascinating to follow as they unfold in the chancery court in the state of Delaware. As with all litigation, lawyers will have an opinion on the merits of success and their opinions will change as the case progresses and new information comes to light. In this instance, however, it is not only the lawyers who might express an opinion – the market must do so too.

THE MARKET'S OPINION OF LIKELIHOOD OF SUCCESS OF TWITTER'S COMPLAINT

Suppose that the judgment on this case is due today. Twitter's share price would move up to the bid price of $54.20, if they are successful, or move down to the pre-bid average price of $37.40, if they are unsuccessful. In other words, if a trader believes Twitter will fail, they would short the shares if the share price is above $37.40. Alternatively, if a trader believes the case will succeed, they will buy the shares if the share price is below $54.20.

What does the current share price say about the likelihood of success? It is possible to calculate the probability of success (***p***), given the current share price (***S***), the bid price (***B***) and the pre-bid average share price (***F***). The idea is that the sum of the share price should the case succeed (***B***) with a probability ***p*** and the share price should the case fail (***F***) with a probability of ***(1-p)***[3] must be equal to the current share price (**S**). In algebraic form this can be written as:

$$S = p \times B + (1-p) \times F$$

Re-arranging this equation allows the calculation of the probability of the case succeeding:

$$p = (S - F) \div (B - F)$$

Where, B = $54.20, the bid price; F = $37.40, the pre-bid average price; and, S = the current share price. For example, if the current share price is $41.00, then the market implied probability of the case succeeding is calculated to be 21% ((41.00 – 37.40) ÷ (54.20 – 37.40) = 3.60 ÷ 16.80 = 21%).

The relationship between the market implied probability of success and the current share price is shown in Chart 1 opposite.

As can be seen in Chart 2, opposite, of the Twitter share price, on the announcement of the bid the share immediately popped-up to around $50 and subsequently falling down to around its pre-bid average once it became clear that the bid was in trouble.

The current share price of $37.74 implies a probability of success of the litigation of only 2%. Nate Anderson, founder of Hindenburg Research, believes "Twitter has a strong case", which implies the current share price is low. Hindenburg have bought shares.[4]

Litigators with conviction can arbitrage the market using their superior knowledge of the law!

NON-BINARY OUTCOMES

The analysis assumes that the case will result in a binary outcome: either it succeeds, and Elon Musk is forced to buy Twitter at $54.20 per share or it fails and the acquisition is off. In reality, other possibilities exist such as an acquisition at a

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Chart 1: implied probability of success

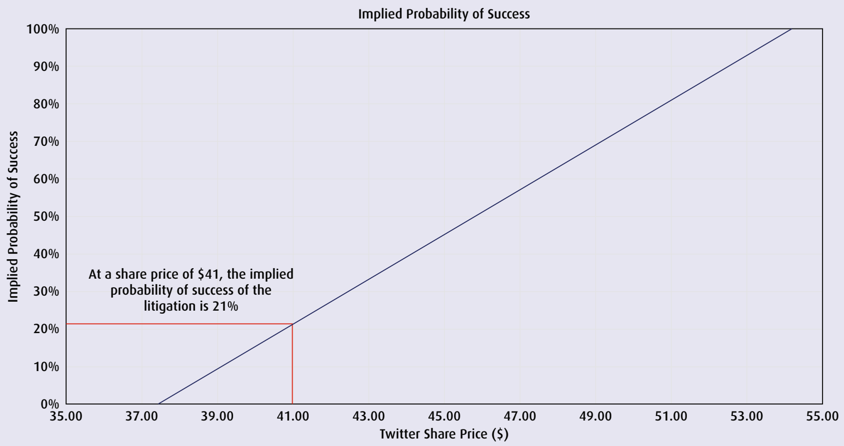
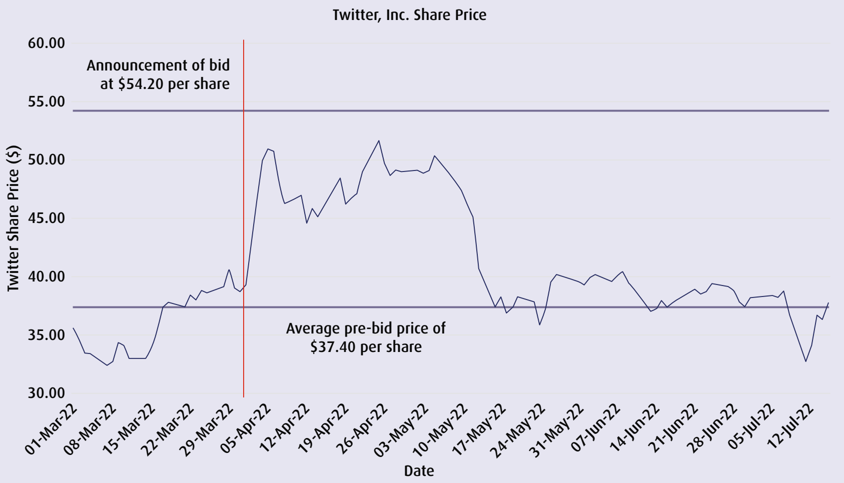


Chart 2: Twitter, inc. share price



lower share price or a financial penalty. Non-binary outcomes complicate the analysis and this is beyond the scope of this article.

PRE-BID AVERAGE PRICE

An important question is what would Twitter's share price be today absent the bid? For the sake of simplicity, for the purpose of this article, a simple average of the closing share prices prior to the announcement of the bid is taken (***F***). However, the Twitter share price is sensitive to, among other things, the general level of the market.

The complete calculation of ***F*** requires an analysis similar to the analysis undertaken when computing the damages in "stock drop" cases (s 90 and s 90A in the UK).[5] For example, assume, as is currently the case, that the general level of the market as measured by an appropriate stock market index, has fallen since the bid. This implies that ***F*** is also lower. In other words, should the bid fail (Twitter loses the case), Twitter's share price will fall not to the pre-bid average share price, but to a lower share price, ie ***F*** is lower than that used above. This in turn implies that the probability of success, ***p***, is higher.

CONCLUSION

Having entered into a binding agreement, Elon Musk has now backed away from bidding \$54.20 per share for Twitter. Twitter's share price has fallen, as has the market more generally. Twitter is keen to complete the sale and has commenced action in the state of Delaware to enforce the purchase agreement. Whether this action succeeds or not will have a binary impact on the share price. A probability of success of the action can be calculated from an analysis of Twitter's share price.

It is common for litigators to give an opinion on the likelihood of a particular action succeeding in the form of a percentage figure. It is sometimes possible to calculate the market's perception of the probability of success from its share price. The difference between the legal view and the market view can be used as an important factor in determining whether to buy or sell shares. It also gives litigators a rare opportunity to back their view financially!

At the current share price and using the assumptions implicit in the calculation, the market probability of success of the action is only 2%. This suggests the shares are cheap unless Twitter's case is hopeless. ■

Disclaimer: This article is not advice and the author accepts no liability for reliance upon any of the facts or matters stated. Financial and legal advice on the issues discussed should be sought in the ordinary way.

1 https://www.bbc.co.uk/news/business-61472388

2 *Twitter, Inc. v Elon R. Musk, X Holdings I, Inc., and X Holdings II, Inc.* https://corpgov.law.harvard.edu/2022/07/14/twitter-vs-musk-the-complaint/

3 The probabilities of the case either succeeding or failing must be 100%, ie there will be a binary judgment. If the probability of success is ***p*** then the probability of failure must be (***1-p***) so that their sum is 100%.

4 *Financial Times* newspaper, 13 July 2022.

5 Hanif Virji, 'FSMA s 90/90A Stock Drop damages calculation: a technical introduction', (2020) 3 JIBFL 35.

Further Reading:

- FSMA s 90/90A Stock Drop damages calculation: a technical introduction (2020) 3 JIBFL 163.
- Is an "all reasonable endeavours obligation" best? (2010) 10 JIBFL 602.
- LexisPSL: Banking & Finance: Practice Note: Reasonable and best endeavours.