Valuing Acquisitions Paid in Stock

by

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A company pays for an acquisition in stock.

How does it affect shareholder value?
Value to Eternal Shareholders

... 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 Issuance and Investment

• The investment return is added to the value.
• The newly issued shares cause dilution.

\[ W_{\text{Issuance}} = \frac{(v + \text{Issuance} - \text{Invest} + \text{Return}) \cdot (1 - \text{TaxDividend})}{\text{Shares} \cdot \left(1 + \frac{\text{Issuance}}{\text{MarketCap}}\right)} \]

\[ = \frac{(v + \text{Return}) \cdot (1 - \text{TaxDividend})}{\text{Shares} \cdot \left(1 + \frac{\text{Issuance}}{\text{MarketCap}}\right)} \]
Relative Value

... of making the share issuance and investment compared to not making it:

\[
\frac{W_{\text{Issuance}}}{V} = \frac{1 + \frac{\text{Return}}{v}}{1 + \frac{\text{Issuance}}{\text{MarketCap}}}
\]
Equilibrium

... is where the value to eternal shareholders is unaffected by the share issuance and investment:

\[ W_{\text{issuance}} > V \iff \text{MarketCap} > \nu \cdot \frac{\text{Issuance}}{\text{Return}} \]

This can also be written as:

\[ W_{\text{issuance}} > V \iff \nu < \text{MarketCap} \cdot \frac{\text{Return}}{\text{Issuance}} \cdot \frac{\nu}{\text{MarketCap}} \]
Facebook Acquisition of WhatsApp

Facts of the acquisition (February 19, 2014):

• USD 4b paid in cash.
• 184m shares, 46m restricted shares, total 230m.
• Shares valued: USD 15.8b (share-price USD 68.50)
• Facebook’s market-cap: USD 175b

In the following we consider the return on WhatsApp net of the USD 4b cash paid in the acquisition.
Relative Value, Facebook and WhatsApp

When shares of Facebook are overpriced and shares of WhatsApp are underpriced, then they both contribute to increase Facebook’s shareholder value.

Assume: $v = USD\ 140b$, $Return = USD\ 19b$

$$\frac{W_{Issuance}}{V} = \frac{1 + \frac{Return}{v}}{1 + \frac{Issuance}{MarketCap}} = \frac{1 + \frac{USD\ 19b}{USD\ 140b}}{1 + \frac{USD\ 15.8b}{USD\ 175b}} \approx 104.2\%$$
Relative Value, Facebook and WhatsApp

When shares of Facebook are underpriced and shares of WhatsApp are overpriced, then they both contribute to decrease Facebook’s shareholder value.

Assume: \( v = USD \ 210b \), \( Return = USD \ 12.6b \)

\[
\frac{W_{\text{Issuance}}}{V} = \frac{1 + \frac{Return}{v}}{1 + \frac{\text{Issuance}}{\text{MarketCap}}} = \frac{1 + \frac{USD \ 12.6b}{USD \ 210b}}{1 + \frac{USD \ 15.8b}{USD \ 175b}} \\
\approx 97.2\%
\]
Equilibrium, Facebook and WhatsApp

\[ W_{\text{Issuance}} > V \iff v < \frac{\text{Return}}{\text{Issuance}} \cdot \frac{\text{MarketCap}}{\text{Issuance}} \]

\[ = \text{USD 175b} \cdot \frac{\text{USD 12.6b}}{\text{USD 15.8b}} \approx \text{USD 140b} \]

\[ W_{\text{Issuance}} > V \iff \text{Return} > \text{Issuance} \cdot \frac{v}{\text{MarketCap}} \]

\[ = \text{USD 15.8b} \cdot \frac{\text{USD 140b}}{\text{USD 175b}} \approx \text{USD 12.6b} \]
Relative Value, Facebook and WhatsApp
Relative Value, Facebook and WhatsApp
Summary

- The value of an acquisition paid in stock depends on the mispricing of the shares of both the acquiring and acquired companies.
- The above formulas can be used to calculate the relative value and equilibriums.
Further Reading

This lecture is based on:

- **The Value of Share Buybacks**
  Authored by Magnus Erik Hvass Pedersen.

Available on the internet: