# Valuation of contingent considerations and options in corporate transactions

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# 01
# Contingent consideration

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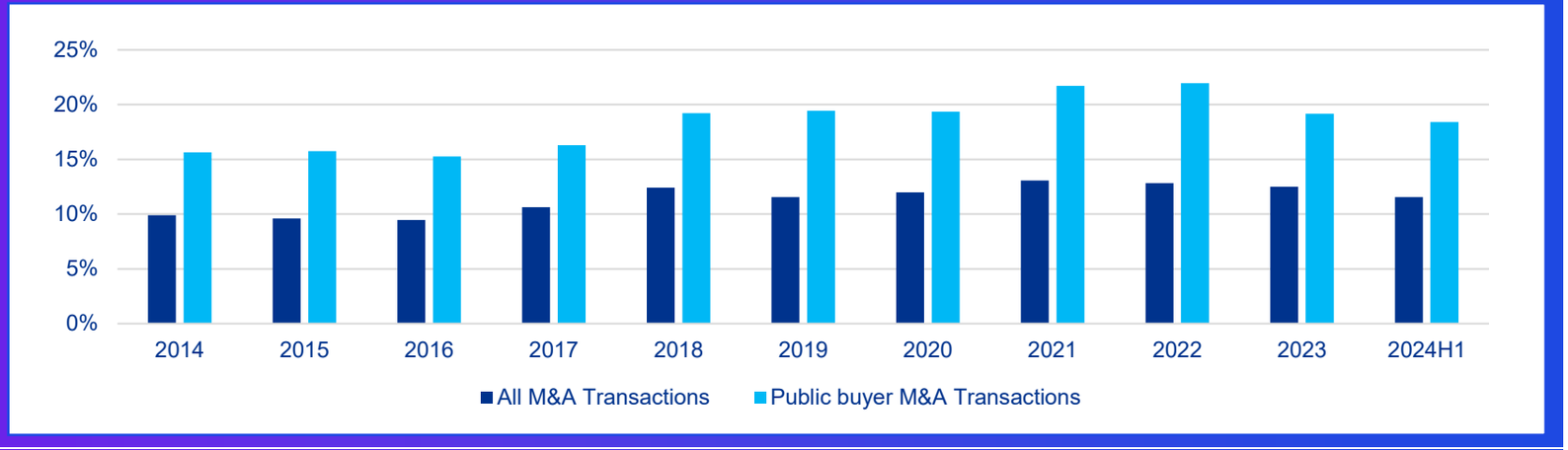
Contingent consideration is generally an obligation of an acquirer to transfer additional assets to the former owners of the acquiree ***if specified future events occur or conditions are met (an "earnout")***

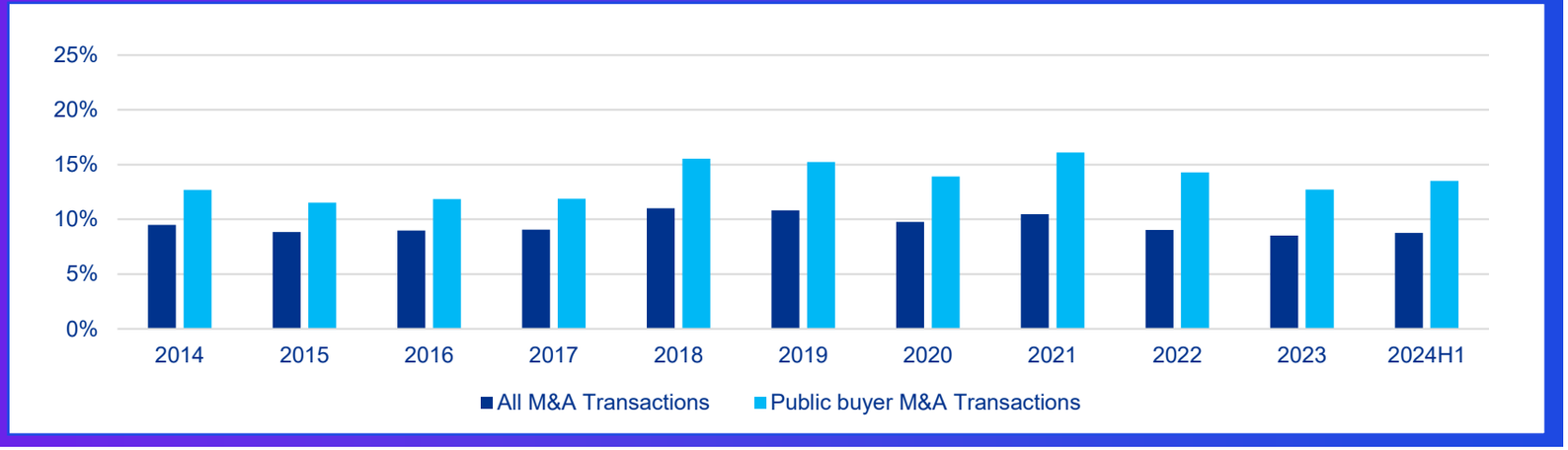
Contingent consideration also may give the acquirer the right to claw back previously transferred consideration *if specified conditions are met* ***(a "clawback")***

# Percentage of transactions with contingent considerations

## Global



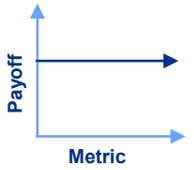
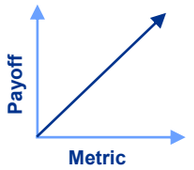
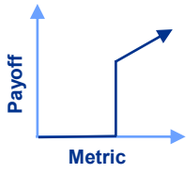

## Asia Pacific




Source: Capital IQ, Internal research

Note: Reverse Takeover (“RTO”) transactions were excluded from the statistics because earnouts in de-SPAC transactions generally function as additional bonuses for SPAC sponsors rather than actual earnouts.

# Payoff structures and associated risks

| | Example | Risk of the Earnout |
|---|---|---|
| **Constant (debt-like) structure**<br>A fixed (deferred) payment | • Payoff is $2M |  | • Counterparty credit risk |
| **Linear structure**<br>Payment is equal to a fixed percentage of the underlying metric | • Payoff is 2x EBITDA in three years based on trailing twelve months EBITDA |  | • Counterparty credit risk<br>• Risk of the underlying metric |
| **Non-linear structure**<br>The relationship between the payoff and underlying metric is not linear | • If EBITDA is at least $2M, the payoff is 2x EBITDA, otherwise the payoff is zero |  | • Counterparty credit risk<br>• Risk of the underlying metric<br>• Impact of the non-linear structure |

Note: Discount rate for these structures should consider the time value of money, in addition to the risks identified above.

# Motivations for structuring contingent consideration

## Bridging the valuation gap in transactions

The initial consideration reflects the buyer's base valuation, while contingent payment is linked to the seller's (more optimistic) projections.

## Deferring Payment

Part of the payment is deferred until a later date, allowing the buyer to pay as the business performs.

## Incentivise Management

Motivate the seller to help achieve specific targets for future success.

## Sharing of risk and reward

Shifting a portion of risk to the seller and allow the seller to participate in the risk and reward of future performance.

# Common valuation methods

| | Scenario-Based Method (SBM) | Option Pricing Methods (OPM) |
|---|---|---|
| **When to use** | Payoff structure is ***linear*** (*or* risk of underlying metric is ***diversifiable***[1]) | Payoff structure is ***non-linear*** (*and* risk of underlying metric is ***non-diversifiable***) |
| **Methods** | a) Identify multiple scenarios<br>b) Probability weight the contingent consideration payoff under each scenario<br>c) Discount the expected payoff at an appropriate rate | Black-Scholes-Merton option formulas (Call, Put, Digital/Binary Options)<br>Monte Carlo simulation<br>Lattice models (e.g., Binomial tree) |
| **Underlying assumptions** | Assessment of the distribution of the underlying metric, based on scenarios, probabilities, and forecasts | Risk-neutral framework for the underlying metric distribution, based on estimated forecasts and volatility |

Notes: [1] Risks associated with certain non-financial events (e.g., technical milestone) might not be influenced by market movements, and are diversifiable. Risks associated with a financial metric (e.g., revenue, earnings) are generally non-diversifiable (i.e., systematic).

[2] Reference: *The Appraisal Foundation - VFR Valuation Advisory #4 - Valuation of Contingent Consideration* (https://www.appraisalfoundation.org/imis/TAF/Valuation_Advisories.aspx)

# Illustrative Example – Valuation of contingent consideration with linear payoff structure (1/3)

| Key features of contingent consideration | |
|---|---|
| Payoff | 5% x 6 x EBITDA (Year 3) |
| Expected payment date | End of Year 3 |

**Key valuation considerations**

- Payoff depends linearly on the underlying metric performance (i.e., EBITDA). Likelihood of EBITDA being negative is *de minimis*.
- Since the earnout payoff function is linear, the earnout payoff has the same risk as the underlying metric, and SBM is adopted with an appropriate discount rate.

**Discount Rate – Key Factors**

Discount rate should consider

1. Time value of money to receiving payment (e.g., risk-free rate)
2. Counterparty credit risk (e.g., credit spread)
3. Required Metric Risk Premium (RMRP) for the underlying earnout metric (e.g., EBITDA) to capture the metric's exposure to systematic risk and portion of any additional risk premiums (e.g., size, country, company-specific) relevant to the earnout metric
4. Impact of earnout payoff structure on risk, if structure is nonlinear

# Illustrative Example – Valuation of contingent consideration with linear payoff structure (2/3)

**EBITDA-specific risk-premium calculation:**

**Step 1:** Estimate equity risk premium

**Step 2:** Estimate $RMRP_{EBIT}$ by de-levering $RMRP_{Equity}$

**Step 3:** Estimate $RMRP_{EBITDA}$ based on the Volatility-Based method

| EBITDA-specific risk premium calculation | | |
|---|---|---|
| Cost of equity | [1] | 10.0% |
| Risk-free rate (long-term) | [2] | 3.0% |
| Equity risk premium | [3] = [1] - [2] | 7.0% |
| | | |
| Tax rate | [4] | 25.0% |
| Net Debt to Equity ratio | [5] | 20.0% |
| EBIT-specific risk premium | [6] = [3] / (1 + (1 - [4]) x [5]) | 6.1% |
| | | |
| EBITDA volatility | [7] | 95.0% |
| EBIT volatility | [8] | 120.0% |
| Ratio of EBITDA volatility to EBIT volatility | [9] = [7] / [8] | 79.2% |
| **EBITDA-specific risk premium** | **[10] = [6] x [9]** | **4.8%** |

Note: Different metrics generally have different RMRPs due to differences in duration, leverage (financial and operational), and applicable additional risk premiums (e.g., size, country, company-specific).

# Illustrative Example – Valuation of contingent consideration with linear payoff structure (3/3)

| Contingent consideration valuation | | |
|---|---|---|
| **Expected payoff estimation** | | |
| Estimated EBITDA (Year 3), SGDm | [1] | 100.0 |
| EBITDA multiplier | [2] | 6.0 |
| **Expected payoff, SGDm** | **[3] = 5% x [1] x [2]** | **30.0** |
| | | |
| **Discounting** | | |
| Risk-free rate (over payment period) | [4] | 2.5% |
| EBITDA-specific risk premium | [5] | 4.8% |
| Credit spread | [6] | 1.0% |
| | | |
| Time to receiving underlying metric (mid-period) | [7] | 2.5 |
| Time to payment | [8] | 3.0 |
| | | |
| Discount factor for time value of money | [9] = exp(-[4] x [8]) | 0.9277 |
| Discount factor for risk of underlying metric | [10] = exp(-[5] x [7]) | 0.8865 |
| Discount factor for credit risk | [11] = exp(-[6] x [8]) | 0.9704 |
| **Total discount factor** | **[12] = [9] x [10] x [11]** | **0.7981** |
| | | |
| **Value of contingent consideration, SGDm** | **[13] = [3] x [12]** | **23.9** |

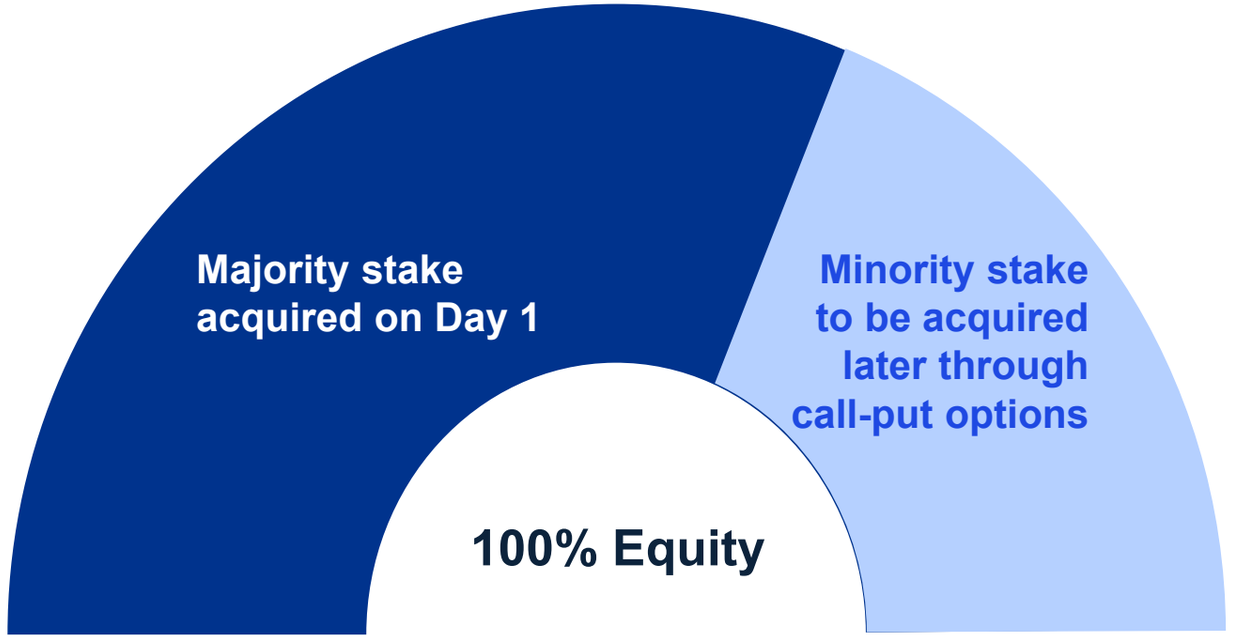
# 02

# Call-put options for minority stake

# Call-put options for minority stake

Call-put options generally arise in an acquisition, where the buyer first purchases a majority stake, and **the remaining minority stake is subject to call-put options** with specified strike prices and exercise dates.

This structure allows the buyer to acquire, or the existing shareholder to sell the remaining shares at a predetermined price in the future, ensuring a complete transfer of 100% ownership to the acquirer.



# Motivations for call-put options for minority stake

## For Buyer

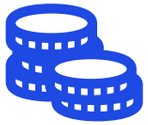
### Delay Investment Commitment

Buying options allows buyers to delay larger investments, enabling them to assess performance before exercising and gathering more information.

### Reduce Exposure to Risks on Day 1

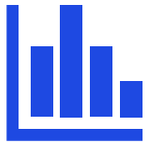
Buyers' exposure is reduced compared to directly purchasing the underlying asset on Day 1.

## For Seller



### Delay capital gains tax triggering event

Using call options, a seller grants the buyer the right to purchase the asset later without an immediate sale. This allows the seller to defer the sale and realization of capital gains.



### Hedge against uncertainty

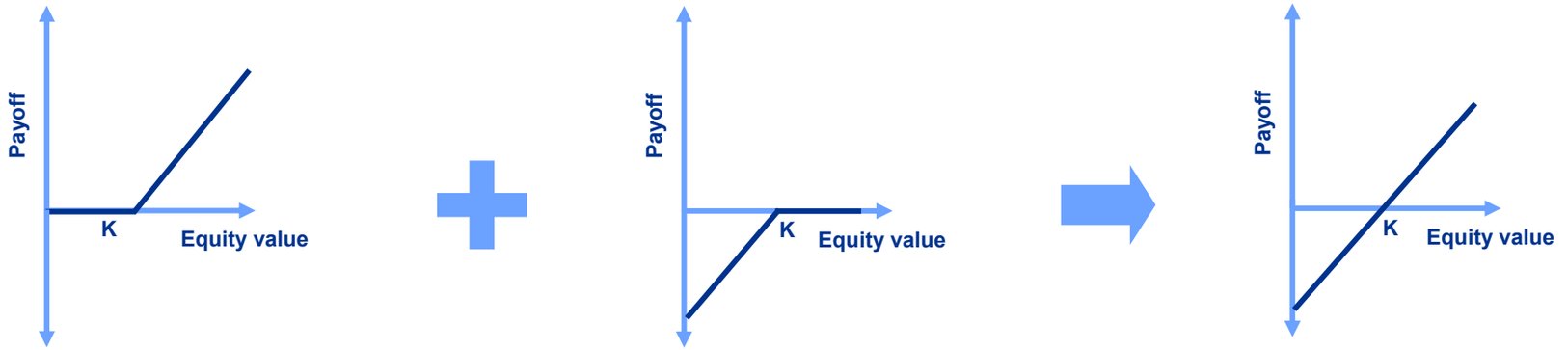
The seller can protect against downside risk while holding shares by holding the put options, allowing them to sell at a predetermined price if the market is down.

# Simple combination – Synthetic forward

A combination of the buyer holding a call option and the seller holding put option simultaneously, in the case of European options with the ***same exercise price and expiration date***, is equivalent to a ***forward contract***, where the buyer will purchase the asset at the strike price upon expiration.

- **Example:**
  - Call and put options allow the buyer (and seller) to buy (sell) at $10 per share, 2 years later.
- **Call Option:**
  - If market price of underlying asset is above the strike price, the buyer will exercise the call option.
- **Put Option:**
  - If market price of the underlying asset is below the strike price, the seller will exercise the put option.

**From the buyer's perspective**

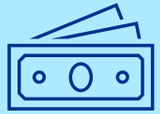



**Long call position** **Short put position** **Synthetic forward**

# Potential complexities

## American style options

- American-style options are a type of financial derivative that allows the holder to exercise the option at any time before its expiration date



## Different exercise prices

- The call and put options have different exercise prices

## Different exercise periods

- The call and put options have different exercise periods (which may or may not overlap)

## Dependency on future performance or conditionality

- Exercise price may not be fixed and is based on future performance (e.g., revenue, EBITDA)
- Options can only be exercised if specific conditions are met (e.g., achieving earnings target).

# Common valuation methods

| Valuation Methods | Generally Applicable For |
| --- | --- |
| **Discounted Cash Flow (e.g., Stock price – Present value of strike price)** | ✓ **European-style options (synthetic forward)**<br>✓ Fixed strikes<br>✓ Same exercise date |
| **Binomial Option Pricing Model (BOPM)** | ✓ **American-style options**<br>✓ Different strikes<br>✓ Different exercise periods |
| **Monte Carlo simulation** | ✓ **Path dependent, exotic options**<br>✓ Different strikes<br>✓ Different exercise periods |

# Illustrative Example – Call-put options in a business combination

| Key terms of the call and put options | |
|---|---|
| Underlying shares | 20% of shares in Target company |
| Exercise period | Put option: Agreement Date to 2nd anniversary of Agreement Date<br>Call option: 2nd anniversary to 3rd anniversary of Agreement Date |
| Exercise price | Put option: Initial investment amount of Seller<br>Call option: 2 x Put option exercise price |
| Other terms | - Exercisable any time during the exercise period<br>- Exercise of the put option shall preclude the exercise of the call option for the same shares |

**Complexities:**

- The options exhibit American-style characteristics
- Different exercise periods
- Different exercise prices

**The Binomial Option Pricing Model was applied**