Revenue Based Contingent Consideration Techniques

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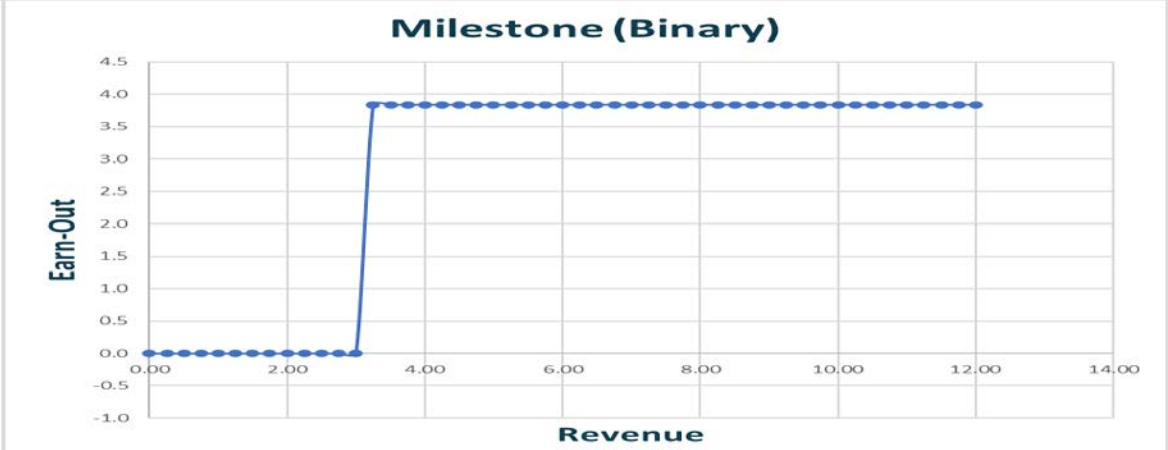
Biography + MNP

Quinn McDermid, MBA, CFA, CBV has been a member of the MNP valuation team for three years, with a focus on financial reporting analysis, both as preparer and reviewer, under IFRS, U.S. GAAP, and Canadian ASPE. He has experience valuing intangible assets, contingent consideration, and investment holdings. Prior to joining MNP, Quinn worked at Empire Valuation Consultants for five years preparing PPAs, 409As, and tax valuations. He holds a MBA from the NYU Stern School of Business and a BMath in Computer Science from the University of Waterloo.

MNP's valuation practice consists of over 50 professionals, with extensive experience in completing valuations of owner managed businesses for a variety of purposes, including in connection with corporate reorganizations, shareholder transactions, strategic planning, tax and estate planning, income tax litigation, mergers and acquisitions, and shareholder and partnership disputes. MNP is the 5th largest chartered accountancy and business advisory firm in Canada, with over 5,700 team members across Canada.

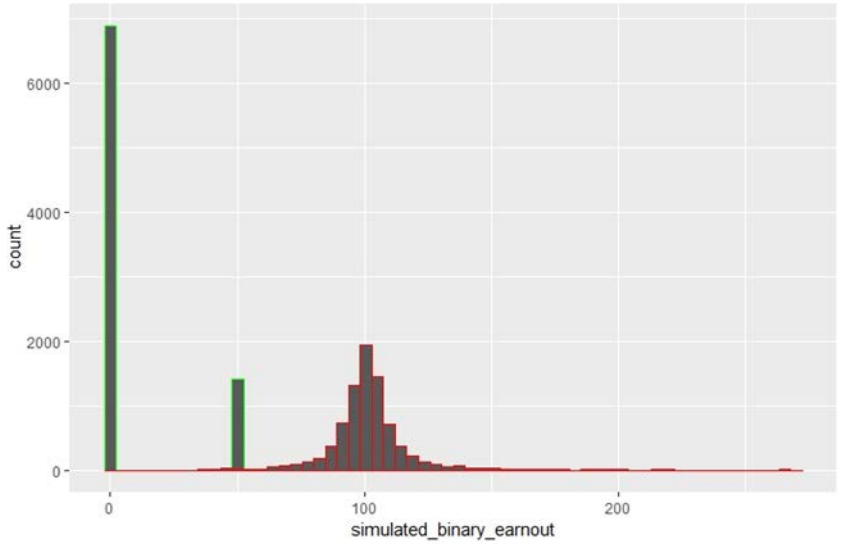
Motivation

Frequently see a diverse set of revenue earn-outs



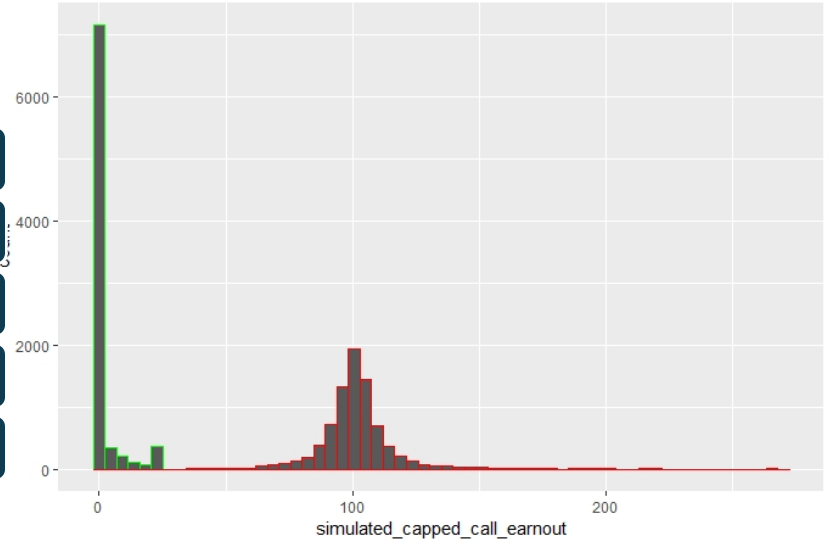
Earnout Payouts vs Underlying Metric

Different structures produce very different outcome distributions



Financial metrics (red) have lognormal(ish) distributions, this works well with standard valuation frameworks where the mean can be used as representative of the sample.

Earn-outs (green) generally do not have lognormal distributions. This leads to the Expected Value ("EV") of the Earn-out ≠ Value of the Earnout at the EV (read as mean) of the Underlying Metric.



Need to account for the variability in outcomes.

E.g.: If the earnout value is 100% of EBITDA above 100 and the projected EBITDA is 100:

Value of the Earnout at EBITDA == 100 is 0;

EV of the Earnout = Black-Scholes call option value with strike of 100;

No one would sell this option to you for $0

When are Option Models Needed?

Systemic + Non-Linear

In the case of revenue earn-outs, the risk is systemic (non-diversifiable) as revenue is closely related to those of assets, earnings, and equity;

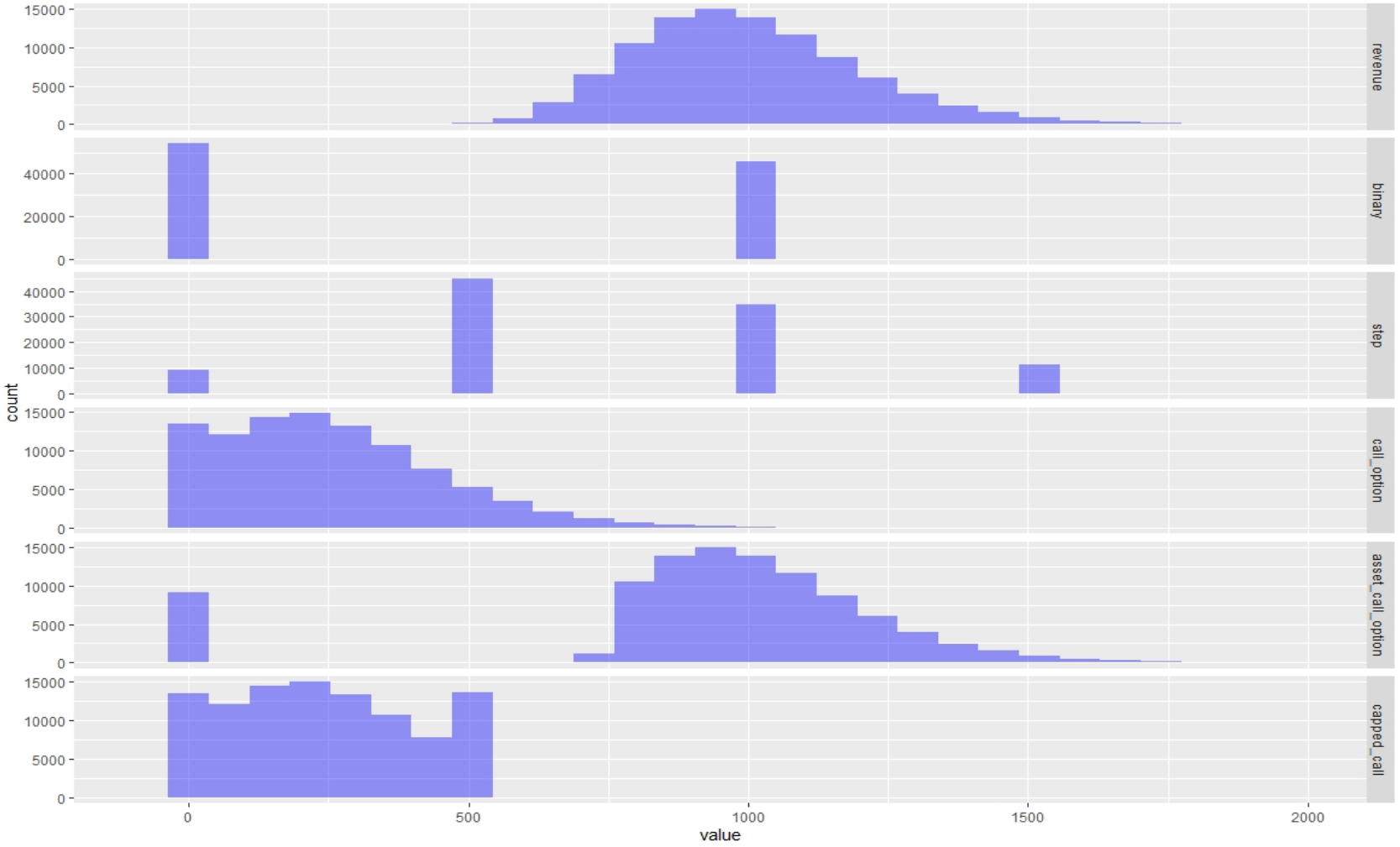
If the earn-out is linear, the Expected Value ("EV") of the Earn-out == Value of the Earnout at the EV of the Underlying Metric, we can use standard discounting (with a revenue discount rate);

If the earn-out is non-linear than an option pricing method is needed to account for the non-linearity. Non-linearity can be introduced by caps or thresholds;

Option pricing models (e.g. Black-Scholes) are designed to account for the non-linearity

Why are Option Models Needed?

Non-Linear payoffs make it difficult and unintuitive to determine the proper discount rate



It is not clear, what the discount rate should be, or how to develop the discount rate for the non-linear distributions.

Approach

Forecast risk with discount rate and non-linearity with OPM

Discount the underlying metric to produce a "risk-neutral" forecast then calculate the earnout payment based on this forecast;

This eliminates the need to calculate a discount rate for the earnout cashflows (use the risk-free rate to account for the time value of money);

The present value of the earnout is then risk-adjusted for counter-party risk (based on debt rates);

Monte Carlo vs Black-Scholes

Is there dependency across time or underlying metrics?

Examples of Correlation / Dependency	Context
Two underlying metrics	If there are two underlying metrics (e.g. revenue and EBITDA), the dependency (and correlation) will need a MC analysis to capture
Dependency across time	If the threshold, cap, or earn-out value depends on the result of a previous period, will need a MC analysis to capture (e.g. result from year 1 becomes the threshold for year 2)
Payment in shares	When payment is in shares, if the revenue results for the target could reasonably affect the share price, then the correlation would be captured in a MC analysis, but not a Black-Scholes analysis

Steps for OPM (includes MC)

- Determine the risk-adjusting discount rate for revenue;
- Discount the revenue forecast;
- Calculate the distribution of the earn-out payouts based on the risk-neutral forecast (Black-Scholes or MC);
- Discount the expected payoff(s) at the risk-free rate (accounted for automatically in Black-Scholes);
- Adjust for counter-party risk

Revenue Discount Rate from De-Levering

Two methods: Fixed Costs vs Assets Method & Volatility-Based Method

Fixed Costs vs Assets	Volatility-Based
Assumption: Systemic risk of fixed costs is approximately zero (similar to assumption for debt in Beta un-levering)	Assumption: Correlation(Market, Revenue) = Correlation (Market, Return on Equity)
$RMRP_{EBIT}$= WACC / IRR (in PPA setting) – RFR_{LT} (simplified)	$RMRP_{EBIT}$= WACC / IRR (in PPA setting) – RFR_{LT} (simplified)
Un-levering Factor = 1 + PV(Fixed Costs) / PV(EBIT)	Un-levering Factor = $Vol_{Revenue}$ / $Vol_{EBIT\ or\ Asset}$
Discount rate for fixed costs -> debt (in-line with assumption of low to no systemic risk); Discount rate for EBIT -> WACC / IRR	$Vol_{EBIT\ or\ Asset}$ can be bottom-up or un-levered
$RMRP_{Revenue}$= $RMRP_{EBIT}$ / Un-levering Factor	$RMRP_{Revenue}$= $RMRP_{EBIT}$ * Un-levering Factor

Revenue Discount Rate from De-Levering

Examples

Fixed Costs vs. Assets

WACC	15.00%
Debt Rate	3.50%
Risk-Free Rate in WACC	1.58%
Asset Volatility	30.00%
Risk-Free Rate for Earnout / Revenue	0.68%

Year	1	2	3
Fixed Costs	1,000,000	1,200,000	1,400,000
Time	0.5000	1.5000	2.5000
Discount Factor	0.9829	0.9497	0.9176
PV Fixed Costs	3,407,222		
EBIT	1,200,000	1,560,000	2,028,000
Time	0.5000	1.5000	2.5000
Discount Factor	0.9325	0.8109	0.7051
PV of EBIT	3,813,927		
Unlevering Factor (1 + PV(FC) / PV(EBIT))	1.89		

WACC	**15.00%**
Less: RFR_{LT}	1.58%
$RMRP_{EBIT}$	**13.42%**
Divided by: Unlevering Factor	1.89
$RMRP_{Revenue}$	**7.09%**
Plus: RFR_{ST}	0.68%
Revenue Discount Rate, Rounded	**8.00%**

Volatility

WACC	15.00%
Debt Rate	3.50%
Risk-Free Rate in WACC	1.58%
Asset Volatility	30.00%
Risk-Free Rate for Earnout / Revenue	0.68%

Revenue Volatility	15.0%
Unlevering Factor ($Vol_{Revenue}$ / Vol_{Asset})	0.50

WACC	**15.00%**
Less: RFR_{LT}	1.58%
$RMRP_{EBIT}$	**13.42%**
Times: Unlevering Factor	0.50
$RMRP_{Revenue}$	**6.71%**
Plus: RFR_{ST}	0.68%
Revenue Discount Rate, Rounded	**7.50%**

Revenue Volatility

With Quarterly Revenue

Tickers	IQ_CQ	IQ_CQ-1	IQ_CQ-2	IQ_CQ-3	IQ_CQ-4	IQ_CQ-5	IQ_CQ-6	IQ_CQ-7	IQ_CQ-8	IQ_CQ-9	IQ_CQ-10	IQ_CQ-11	IQ_CQ-12	IQ_CQ-20
NFLX	5,467.4	5,244.9	4,923.1	4,521.0	4,186.8	3,999.4	3,907.3	3,700.9	3,285.8	2,984.9	2,785.5	2,636.6	2,477.5	1,484.7
AMZN	87,436.0	69,981.0	63,404.0	59,700.0	72,383.0	56,576.0	52,886.0	51,042.0	60,453.0	43,744.0	37,955.0	35,714.0	43,741.0	29,329.0
MSFT	36,906.0	33,055.0	33,717.0	30,571.0	32,471.0	29,084.0	30,085.0	26,819.0	28,918.0	24,538.0	25,605.0	23,212.0	25,826.0	26,470.0
AAPL	91,819.0	64,040.0	53,809.0	58,015.0	84,310.0	62,900.0	53,265.0	61,137.0	88,293.0	52,579.0	45,408.0	52,896.0	78,351.0	74,599.0
FB	21,082.0	17,652.0	16,886.0	15,077.0	16,914.0	13,727.0	13,231.0	11,966.0	12,972.0	10,328.0	9,321.0	8,032.0	8,809.0	3,851.0

Tickers	IQ_CQ	IQ_CQ-1	IQ_CQ-2	IQ_CQ-3	IQ_CQ-4	IQ_CQ-5	IQ_CQ-6	IQ_CQ-7	IQ_CQ-8	IQ_CQ-9	IQ_CQ-10	IQ_CQ-11	IQ_CQ-12	IQ_CQ-19
NFLX	4.2%	6.3%	8.5%	7.7%	4.6%	2.3%	5.4%	11.9%	9.6%	6.9%	5.5%	6.2%	7.9%	5.8%
AMZN	22.3%	9.9%	6.0%	-19.3%	24.6%	6.7%	3.5%	-16.9%	32.4%	14.2%	6.1%	-20.3%	29.0%	-25.5%
MSFT	11.0%	-2.0%	9.8%	-6.0%	11.0%	-3.4%	11.5%	-7.5%	16.4%	-4.3%	9.8%	-10.7%	16.4%	-19.7%
AAPL	36.0%	17.4%	-7.5%	-37.4%	29.3%	16.6%	-13.8%	-36.8%	51.8%	14.7%	-15.3%	-39.3%	51.4%	-25.2%
FB	17.8%	4.4%	11.3%	-11.5%	20.9%	3.7%	10.0%	-8.1%	22.8%	10.3%	14.9%	-9.2%	22.8%	-8.3%

NFLX	1	0	0	0	1	0	0	0	1	0	0	0	1	0
NFLX	0	1	0	0	0	1	0	0	0	1	0	0	0	0
NFLX	0	0	1	0	0	0	1	0	0	0	1	0	0	0
NFLX	4.2%	6.3%	8.5%	7.7%	4.6%	2.3%	5.4%	11.9%	9.6%	6.9%	5.5%	6.2%	7.9%	5.8%
	6.2%	5.9%	6.2%	7.7%	6.2%	5.9%	6.2%	7.7%	6.2%	5.9%	6.2%	7.7%	6.2%	7.7%
	-2.0%	0.4%	2.3%	-0.1%	-1.6%	-3.6%	-0.8%	4.2%	3.4%	1.0%	-0.7%	-1.5%	1.7%	-2.0%
AMZN	1	0	0	0	1	0	0	0	1	0	0	0	1	0
AMZN	0	1	0	0	0	1	0	0	0	1	0	0	0	0
AMZN	0	0	1	0	0	0	1	0	0	0	1	0	0	0
AMZN	22.3%	9.9%	6.0%	-19.3%	24.6%	6.7%	3.5%	-16.9%	32.4%	14.2%	6.1%	-20.3%	29.0%	-25.5%
	28.5%	9.4%	4.4%	-20.5%	28.5%	9.4%	4.4%	-20.5%	28.5%	9.4%	4.4%	-20.5%	28.5%	-20.5%
	-6.3%	0.5%	1.6%	1.2%	-3.9%	-2.7%	-0.8%	3.6%	3.8%	4.8%	1.7%	0.2%	0.5%	-5.0%

=LINEST(E14:X14,E11:X13,TRUE,TRUE)

Can adjust for quarterly seasonality with encoding for 3 of the 4 quarters.

	Volatility - Unadjusted	Volatility - Adjusted
NFLX	4.3%	4.1%
AMZN	36.4%	6.3%
MSFT	21.8%	8.9%
AAPL	60.7%	12.4%
FB	23.9%	5.2%
Average	29.4%	7.4%
Median	23.9%	6.3%

Revenue Volatility

With YoY Revenue

	Quarterly Revenue					Year over Year Change				
Quarter	NFLX	AMZN	MSFT	AAPL	FB	NFLX	AMZN	MSFT	AAPL	FB
0	5,467.4	87,436.0	36,906.0	91,819.0	21,082.0	26.7%	18.9%	12.8%	8.5%	22.0%
4	4,186.8	72,383.0	32,471.0	84,310.0	16,914.0	24.2%	18.0%	11.6%	-4.6%	26.5%
8	3,285.8	60,453.0	28,918.0	88,293.0	12,972.0	28.2%	32.4%	11.3%	11.9%	38.7%
12	2,477.5	43,741.0	25,826.0	78,351.0	8,809.0	30.7%	20.2%	8.2%	3.2%	41.1%
16	1,823.3	35,747.0	23,796.0	75,872.0	5,841.0					
						Stdev	2.7%	6.7%	2.0%	7.2%	9.3%
1	5,244.9	69,981.0	33,055.0	64,040.0	17,652.0	27.1%	21.3%	12.8%	1.8%	25.1%
5	3,999.4	56,576.0	29,084.0	62,900.0	13,727.0	29.3%	25.7%	17.0%	17.9%	28.5%
9	2,984.9	43,744.0	24,538.0	52,579.0	10,328.0	26.5%	29.1%	11.2%	11.5%	38.7%
13	2,290.2	32,714.0	21,928.0	46,852.0	7,011.0	27.6%	25.5%	7.3%	-9.5%	44.3%
17	1,738.4	25,358.0	20,379.0	51,501.0	4,501.0					
						Stdev	1.2%	3.2%	4.0%	11.9%	8.9%
2	4,923.1	63,404.0	33,717.0	53,809.0	16,886.0	23.1%	18.1%	11.4%	1.0%	24.4%
6	3,907.3	52,886.0	30,085.0	53,265.0	13,231.0	33.8%	33.2%	16.1%	16.0%	35.0%
10	2,785.5	37,955.0	25,605.0	45,408.0	9,321.0	28.0%	22.2%	21.7%	7.0%	37.0%
14	2,105.2	30,404.0	20,614.0	42,358.0	6,436.0	24.7%	27.1%	-7.3%	-15.8%	46.5%
18	1,644.7	23,185.0	22,180.0	49,605.0	4,042.0					
						Stdev	4.7%	6.5%	12.6%	13.4%	9.1%
3	4,521.0	59,700.0	30,571.0	58,015.0	15,077.0	20.0%	15.7%	13.1%	-5.2%	23.1%
7	3,700.9	51,042.0	26,819.0	61,137.0	11,966.0	33.9%	35.7%	14.4%	14.5%	39.9%
11	2,636.6	35,714.0	23,212.0	52,896.0	8,032.0	29.8%	20.4%	12.3%	4.5%	40.0%
15	1,957.7	29,128.0	20,531.0	50,557.0	5,382.0	21.9%	24.9%	-5.7%	-13.8%	41.8%
19	1,573.1	22,717.0	21,729.0	58,010.0	3,543.0					
						Stdev	6.6%	8.6%	9.5%	12.2%	8.8%

Treat quarters separately, as the returns (qoq) are correlated.

	NFLX	AMZN	MSFT	AAPL	FB	Average	Median
	2.7%	6.7%	2.0%	7.2%	9.3%		
	1.2%	3.2%	4.0%	11.9%	8.9%		
	4.7%	6.5%	12.6%	13.4%	9.1%		
	6.6%	8.6%	9.5%	12.2%	8.8%		
Average	3.8%	6.2%	7.0%	11.2%	9.0%	7.4%	
Median	3.7%	6.6%	6.8%	12.1%	9.0%		6.8%

Results are very similar to adjusted qoq.

Revenue Beta

Direct Estimate using Regression

Tickers	IQ_CQ	IQ_CQ-1	IQ_CQ-2	IQ_CQ-3	IQ_CQ-4	IQ_CQ-5	IQ_CQ-6	IQ_CQ-7	IQ_CQ-8	IQ_CQ-9	IQ_CQ-10	IQ_CQ-11	IQ_CQ-12	IQ_CQ-20
NFLX	7,163.3	6,644.4	6,435.6	6,148.3	5,767.7	5,467.4	5,244.9	4,923.1	4,521.0	4,186.8	3,999.4	3,907.3	3,700.9	1,957.7
AMZN	108,518.0	125,555.0	96,145.0	88,912.0	75,452.0	87,436.0	69,981.0	63,404.0	59,700.0	72,383.0	56,576.0	52,886.0	51,042.0	29,128.0
MSFT	41,706.0	43,076.0	37,154.0	38,033.0	35,021.0	36,906.0	33,055.0	33,717.0	30,571.0	32,471.0	29,084.0	30,085.0	26,819.0	20,531.0
AAPL	89,584.0	111,439.0	64,698.0	59,685.0	58,313.0	91,819.0	64,040.0	53,809.0	58,015.0	84,310.0	62,900.0	53,265.0	61,137.0	50,557.0
FB	26,171.0	28,072.0	21,470.0	18,687.0	17,737.0	21,082.0	17,652.0	16,886.0	15,077.0	16,914.0	13,727.0	13,231.0	11,966.0	5,382.0
SPY	395.0	371.4	331.3	303.8	252.9	313.9	288.0	283.1	271.6	239.2	276.6	257.0	248.2	186.3

Returns	0	1	2	3	4	5	6	7	8	9	10	11	12	
NFLX	7.5%	3.2%	4.6%	6.4%	5.3%	4.2%	6.3%	8.5%	7.7%	4.6%	2.3%	5.4%	11.9%	nm
AMZN	-14.6%	26.7%	7.8%	16.4%	-14.7%	22.3%	9.9%	6.0%	-19.3%	24.6%	6.7%	3.5%	-16.9%	nm
MSFT	-3.2%	14.8%	-2.3%	8.3%	-5.2%	11.0%	-2.0%	9.8%	-6.0%	11.0%	-3.4%	11.5%	-7.5%	nm
AAPL	-21.8%	54.4%	8.1%	2.3%	-45.4%	36.0%	17.4%	-7.5%	-37.4%	29.3%	16.6%	-13.8%	-36.8%	nm
FB	-7.0%	26.8%	13.9%	5.2%	-17.3%	17.8%	4.4%	11.3%	-11.5%	20.9%	3.7%	10.0%	-8.1%	nm
SPY	6.2%	11.4%	8.7%	18.4%	-21.6%	8.6%	1.7%	4.1%	12.7%	-14.5%	7.4%	3.5%	-1.0%	nm

Using quarterly returns to maximize the sample size.

	Quarter Offset			
Betas	0	1	2	3
NFLX	0.00	-0.02	-0.01	0.06
AMZN	0.31	0.04	0.10	-0.57
MSFT	0.13	-0.04	0.10	-0.18
AAPL	0.84	0.37	0.42	-1.20
FB	0.30	0.27	-0.06	-0.40

	Quarter Offset			
R-Squared	0	1	2	3
NFLX	0.0%	0.5%	0.1%	4.6%
AMZN	2.7%	0.0%	0.3%	9.3%
MSFT	1.7%	0.1%	0.9%	3.5%
AAPL	5.4%	1.1%	1.3%	12.0%
FB	4.3%	3.5%	0.2%	7.8%

The seasonality we discussed earlier is a problem and produces unreliable results.

Revenue Beta

Direct Estimate using Regression

Using annual returns causes auto-correlation between the returns, which is problematic for regressions.

	Auto-Correlation
NFLX	0.756
AMZN	0.772
MSFT	-0.095
AAPL	0.472
FB	0.817

Can adjust the returns for seasonality, using the technique used in volatility section.

Returns	0	1	2	3	4	5	6	7	8	9	10	11	12	19
NFLX	-2.0%	0.4%	2.3%	-0.1%	-1.6%	-3.6%	-0.8%	4.2%	3.4%	1.0%	-0.7%	-1.5%	1.7%	-2.0%
AMZN	-6.3%	0.5%	1.6%	1.2%	-3.9%	-2.7%	-0.8%	3.6%	3.8%	4.8%	1.7%	0.2%	0.5%	-5.0%
MSFT	-3.0%	0.4%	3.1%	5.7%	-3.0%	-1.0%	4.8%	4.2%	2.4%	-1.9%	3.1%	1.1%	2.3%	-8.0%
AAPL	-5.4%	4.9%	6.5%	-1.5%	-12.2%	4.1%	0.2%	-0.9%	10.4%	2.2%	-1.3%	-3.5%	10.0%	10.7%
FB	-4.3%	-3.1%	-2.1%	-2.4%	-1.2%	-3.9%	-3.4%	1.0%	0.7%	2.7%	1.4%	-0.2%	0.8%	0.7%
SPY	6.2%	11.4%	8.7%	18.4%	-21.6%	8.6%	1.7%	4.1%	12.7%	-14.5%	7.4%	3.5%	-1.0%	2.4%

	Quarter Offset			
Betas	0	1	2	3
NFLX	0.03	0.01	-0.09	-0.02
AMZN	0.05	-0.06	-0.08	-0.09
MSFT	0.17	-0.09	-0.07	-0.06
AAPL	0.23	-0.07	-0.03	-0.13
FB	-0.06	-0.01	-0.05	0.02

	Quarter Offset			
R-Squared	0	1	2	3
NFLX	1.8%	0.2%	17.2%	1.0%
AMZN	1.6%	3.1%	6.1%	6.8%
MSFT	11.6%	4.0%	2.3%	2.4%
AAPL	10.8%	1.2%	0.2%	4.1%
FB	4.6%	0.0%	3.1%	0.4%

The R-squared are still low, and for many industries the results are difficult to interpret.

Revenue Discount – Bottom-Up

Each Input Should be Considered with Respect to the Revenue Earn-Out

Discount rate - Revenue		
Cost of equity - CAPM method		**Low**
Revenue beta		0.25
Debt-to-equity		15.0%
Tax rate		27.0%
Relevered equity beta		0.28
Risk free rate - short term		0.5%
Equity risk premium		6.0%
Relevered equity beta		0.28
		2.2%
Small capitalization stock premium		5.5%
Specific company risk premium		2.5%
Cost of equity		10.2%
Cost of debt		
Pre-tax cost of debt	3.5%	
Tax Rate	27.0%	
After-tax cost of debt	2.6%	
Weighted cost of equity		8.8%
Weighted cost of debt		0.3%
Discount Rate - Revenue		**9.0%**

Revenue Earn-Out Example w/ MC

Threshold for Year 2 is Max(Year 1 Revenue, $1 million)

		Notes
Discount Rate	9.00%	
Volatility (Vol)	17.50%	
Risk Free Rate (RFR)	0.07%	
Continuous Risk-Free Grc	-1.46%	*RFR - Vol² / 2*

		2021 Contingent Payment	2022 Contingent Payment
Start Date		30/06/2020	30/06/2021
End		30/06/2021	30/06/2022
Projected Sales	*Adjusted for realized results*	1,000,000	1,200,000
Time	*Mid-period convention*	0.5000	1.5000
Discount Factor		0.9578	0.8787
PV of Digital Sales		957,826	1,054,488
Mean Growth Rate (mu)	*CRFGR scaled to earnout period time*	-0.73%	-1.46%
Volatility of Growth Rate (sd)	*Vol scaled to square root of earnout period time*	12.4%	17.5%
Simulated Growth Rate	*normal(mu , sd)*	(14.7%)	16.1%
Cumulative Growth to Date		0.0%	(14.7%)
Growth for Year		(14.7%)	16.1%
Total Growth for Year Sales (Simulated Total Growth)		(14.7%)	1.3%
Times Projected Sales (Proj)		957,826	1,054,488
Simulated Sales	*Proj * exp(Simulated Total Growth)*	826,726	1,068,788
Threshold		1,000,000	1,000,000
Multiple		0.50	0.70
Payment		-	48,152
Time to Payment	*60 days post-period ending*	1.1639	2.1639
Counter-Party Discount Rate	*Obligor Specific*	5.00%	5.00%
Discount Factor		0.9448	0.8998
Simulated Present Value of Contingent Payment		-	43,327

		Notes
Discount Rate	9.00%	
Volatility (Vol)	17.50%	
Risk Free Rate (RFR)	0.07%	
Continuous Risk-Free Grc	-1.46%	*RFR - Vol² / 2*

		2021 Contingent Payment	2022 Contingent Payment
Start Date		30/06/2020	30/06/2021
End		30/06/2021	30/06/2022
Projected Sales	*Adjusted for realized results*	1,000,000	1,200,000
Time	*Mid-period convention*	0.5000	1.5000
Discount Factor		0.9578	0.8787
PV of Digital Sales		957,826	1,054,488
Mean Growth Rate (mu)	*CRFGR scaled to earnout period time*	-0.73%	-1.46%
Volatility of Growth Rate (sd)	*Vol scaled to square root of earnout period time*	12.4%	17.5%
Simulated Growth Rate	*normal(mu , sd)*	13.7%	39.0%
Cumulative Growth to Date		0.0%	13.7%
Growth for Year		13.7%	39.0%
Total Growth for Year Sales (Simulated Total Growth)		13.7%	52.7%
Times Projected Sales (Proj)		957,826	1,054,488
Simulated Sales	*Proj * exp(Simulated Total Growth)*	1,098,082	1,786,399
Threshold		1,000,000	1,098,082
Multiple		0.50	0.70
Payment		49,041	481,822
Time to Payment	*60 days post-period ending*	1.1639	2.1639
Counter-Party Discount Rate	*Obligor Specific*	5.00%	5.00%
Discount Factor		0.9448	0.8998
Simulated Present Value of Contingent Payment		46,334	433,546

Revenue Earn-Out Example w/ Black-Scholes

Threshold for Year 2 is Fixed at $1.2 million

Discount Rate	9.00%
Volatility (Vol)	17.50%
Risk Free Rate (RFR)	0.07%

Start Date	30/06/2020	30/06/2021
End	30/06/2021	30/06/2022
	2021 Contingent Payment	**2022 Contingent Payment**
Projected Sales	1,000,000	1,200,000
Time	0.5000	1.5000
Discount Factor	0.9578	0.8787
PV of Sales	957,826	1,054,488
Threshold	1,000,000	1,200,000
Contingent Consideration		
N(d1)	0.3884	0.3117
N(d2)	0.3419	0.2403
Value of Call	30,222	40,638
Multiple	50%	70%
Payment	15,111	28,446
Time to Payment	1.1639	2.1639
Counter-Party Premium (Black-Scholes is PV)	4.93%	4.93%
Discount Factor	0.9455	0.9011
Present Value of Contingent Payment	14,288	25,633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