Amazon's Free Cash Flow

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Introduction

Amazon is an unusual company in many respects, but one of its key differentiating factors for many analysts and investors is its founder's emphasis on Free Cash Flow, the most critical metric for many serious investment practitioners. Amazon is one of very few companies that present cash flow as the first statement in their accounts or 10-K filings. Companies can choose which to show first and most choose the balance sheet or the P&L. Amazon's selection of the Cash Flow Statement as its first statement emphasises its importance. We commend the principle, but in this article we demonstrate that

- Amazon is generating very little free cash flow, relative to its valuation (not unusual for growth companies)
- Amazon's operating cash flow is flattered by its use of stock options
- Amazon's presentation of its cash flow is confusing to the lay reader

We then show how we calculate the parameter in a less conventional, but we believe more meaningful way.

First, a few basics may be helpful. Investment theory states that a business is worth the sum of its cash flows in the future, discounted back to today. The mechanisms for calculating this are complex, and the selection of the correct discount rate is tricky – tiny changes can have a massive impact on the valuation. Hence many investors, including us, use some form of a sustainable free cash flow multiple to value a business. Again this is complex, and outside the scope of this brief article, but the starting point is the company's Free Cash Flow last year. This is why we consider Free Cash Flow to be the single most important parameter to extract from the accounts.

Given the importance placed by Amazon's founder on the metric, it would be reasonable to assume that Amazon would make it simple to calculate its Free Cash Flow, and indeed the company tries, but GAAP is unhelpful in this respect. We shall show Amazon's calculations later, but we first look at how Free Cash Flow is defined:

Free Cash Flow = Operating Cash Flow after tax and interest, less capital expenditure

It's also possible to calculate free cash flow excluding interest, and this metric is then compared to a company's enterprise value (EV). We use both measures, but will cover the free cash flow to enterprise valuation in a later article. Here is the table from

Amazon's 2018 accounts showing how Operating Cash Flow is derived:

AMAZON.COM, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(in millions)

	Year Ended December 31,		
	2016	2017	2018
CASH, CASH EQUIVALENTS, AND RESTRICTED CASH, BEGINNING OF PERIOD	$ 16,175	$ 19,934	$ 21,856
OPERATING ACTIVITIES:			
Net income	2,371	3,033	10,073
Adjustments to reconcile net income to net cash from operating activities:			
Depreciation of property and equipment and other amortization, including capitalized content costs	8,116	11,478	15,341
Stock-based compensation	2,975	4,215	5,418
Other operating expense, net	160	202	274
Other expense (income), net	(20)	(292)	219
Deferred income taxes	(246)	(29)	441
Changes in operating assets and liabilities:			
Inventories	(1,426)	(3,583)	(1,314)
Accounts receivable, net and other	(3,436)	(4,780)	(4,615)
Accounts payable	5,030	7,100	3,263
Accrued expenses and other	1,724	283	472
Unearned revenue	1,955	738	1,151
Net cash provided by (used in) operating activities	17,203	18,365	30,723

This table is simple to read – Amazon generated $30.7bn of cash from operating activities last year, vs $10.1bn of net income/earnings. A key test of the quality of earnings is the extent to which they convert into cash flows – frauds tend to report strong earnings numbers but generate little cash, and this is a key warning indicator. Amazon is a strong generator of cash, and the two principal components of the bridge from earnings to operating cash flow are:

1 Depreciation and amortisation of $15.3bn. Amazon has $96bn of property plant and equipment, of which equipment represents $55bn.

2 Stock-based compensation of $5.4bn. This is not an outsize number as tech companies go, especially for a company of Amazon's size, but it's worth some further examination.

I have not discussed working capital here, again an important feature for a business like Amazon, but will return to this in a later article.

Stock-based Compensation Charge in P&L

Stock Based Compensation is a way of paying employees and directors of a company with shares. It is generally used as an additional motivation for employees above their normal cash compensation and can help align their interests with those of the company and its shareholders. In tech companies, the value can often be significant. Shares generally vest or are issued to employees after a period of years, and employees sacrifice options if they leave before vesting, effectively increasing a competitor's cost of poaching.

The difficulty with stock options is not in their value to the employees, but in assessing the cost to the company. The accounting convention is to treat the award as an option and calculate its value. There are a number of technical issues with the calculation which I shall not go into here, but basically, as the value of the shares increases, so does the value of the options outstanding and this is reflected in the P&L charge.

A rational analyst would expect the P&L charge to be the equivalent of what the employee would require in cash compensation to offset the loss of the stock award, but this would be difficult to calculate. Most companies, if not all, add back the stock based compensation expense (the theoretical accounting adjustment) when calculating adjusted earnings, the number used and forecast by most analysts - I have not seen a company which does not do this, but perhaps one exists (Berkshire?).

> **For most companies, the cost of stock-based compensation is ignored by the street.**

Hence the stock based compensation does not appear as a charge against adjusted earnings and it does not appear in the cash flow statement – it's not a cash item. Clearly this overstates the true profitability and cash generation capacity of the company. The options represent a dilution in shareholders' interests and many companies, especially in the US, buy back stock to offset this dilution – a real use of shareholder cash. The shares are generally issued at a discount and the buyback is done at market price, usually some years after the option was issued (options generally vest after a period of years). Hence there is often a real cash cost to the company, while shareholders always suffer a diminution of value.

This is a difficult problem to resolve. Our approach is to use fully diluted share counts, ie as if the options had all been issued, and for companies which are heavy users of employee/director options, we project a rising share count when forecasting future per share values – generally based on the rate of past issuance.

For Amazon, the $5bn option number is not large relative to the market capitalisation, but it's significant in the context of its net income and its cash from operations and should not be ignored. Note also that Amazon does not receive much cash from employees exercising options – the table shows the Statements of Shareholders' Equity Table – 20 million shares issued against share options in the last three years (7, 7 and 6m) for $2m of additional paid in capital – there is no line for stock issues in the cash flow statement.

AMAZON.COM, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in millions)

	Common Stock						
	Shares	Amount	Treasury Stock	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Total Stockholders' Equity
Balance as of January 1, 2016	471	$ 5	$ (1,837)	$ 13,394	$ (723)	$ 2,545	$ 13,384
Net income						2,371	2,371

Net income	—	—	—	—	—	2,371	2,371
Other comprehensive income (loss)	—	—	—	—	(262)	—	(262)
Exercise of common stock options	6	—	—	1	—	—	1
Excess tax benefits from stock-based compensation	—	—	—	829	—	—	829
Stock-based compensation and issuance of employee benefit plan stock	—	—	—	2,962	—	—	2,962
Balance as of December 31, 2016	477	5	(1,837)	17,186	(985)	4,916	19,285
Cumulative effect of a change in accounting principle related to stock-based compensation	—	—	—	—	—	687	687
Net income	—	—	—	—	—	3,033	3,033
Other comprehensive income (loss)	—	—	—	—	501	—	501
Exercise of common stock options	7	—	—	1	—	—	1
Stock-based compensation and issuance of employee benefit plan stock	—	—	—	4,202	—	—	4,202
Balance as of December 31, 2017	484	5	(1,837)	21,389	(484)	8,636	27,709
Cumulative effect of changes in accounting principles related to revenue recognition, income taxes, and financial instruments	—	—	—	—	(4)	916	912
Net income	—	—	—	—	—	10,073	10,073
Other comprehensive income (loss)	—	—	—	—	(547)	—	(547)
Exercise of common stock options	7	—	—	—	—	—	—
Stock-based compensation and issuance of employee benefit plan stock	—	—	—	5,402	—	—	5,402
Balance as of December 31, 2018	491	$ 5	$ (1,837)	$ 26,791	$ (1,035)	$ 19,625	$ 43,549

Amazon's Capex

The second issue relating to Amazon's cash flow is its capital investments. Amazon uses leases to finance some of its capital expenditure and these alter how the purchases appear in the cash flow statement.

Take two identical $10m assets, one bought on lease and one bought outright. The asset bought outright appears as a $10m outflow. The one bought on a 5 year lease will only show the principal repayment of the lease in investment, which in this case might only be c.$2m. Buying assets on capital leases therefore flatters the cash flow as it defers the cash outflow to later years. For a company which is fast growing like Amazon, in later years the spend will look lower relative to the higher cash generated then. This table in the accounts shows the cash from investing activities and supplemental information:

AMAZON.COM, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(in millions)

	Year Ended December 31,		
	2016	2017	2018
INVESTING ACTIVITIES:			
Purchases of property and equipment	(7,804)	(11,955)	(13,427)
Proceeds from property and equipment incentives	1,067	1,897	2,104
Acquisitions, net of cash acquired, and other	(116)	(13,972)	(2,186)
Sales and maturities of marketable securities	4,577	9,677	8,240
Purchases of marketable securities	(7,240)	(12,731)	(7,100)
Net cash provided by (used in) investing activities	(9,516)	(27,084)	(12,369)
FINANCING ACTIVITIES:			
Proceeds from long-term debt and other	618	16,228	768
Repayments of long-term debt and other	(327)	(1,301)	(668)
Principal repayments of capital lease obligations	(3,860)	(4,799)	(7,449)
Principal repayments of finance lease obligations	(147)	(200)	(337)

Net cash provided by (used in) financing activities	(3,716)	9,928	(7,686)
Foreign currency effect on cash, cash equivalents, and restricted cash	(212)	713	(351)
Net increase (decrease) in cash, cash equivalents, and restricted cash	3,759	1,922	10,317
CASH, CASH EQUIVALENTS, AND RESTRICTED CASH, END OF PERIOD	$ 19,934	$ 21,856	$ 32,173
SUPPLEMENTAL CASH FLOW INFORMATION:			
Cash paid for interest on long-term debt	$ 290	$ 328	$ 854
Cash paid for interest on capital and finance lease obligations	206	319	575
Cash paid for income taxes, net of refunds	412	957	1,184
Property and equipment acquired under capital leases	5,704	9,637	10,615
Property and equipment acquired under build-to-suit leases	1,209	3,541	3,641

Last year, Amazon invested $13.4bn in capital expenditure and received grants and incentives of $2.1bn, making a net capex of $11.3bn. The cash flow shows this and it shows the principal repayments of lease obligations of $7.4bn and $0.3bn, making $7.8bn in total (rounding). This portion of the lease payments represents repayment of principal rather than interest costs.

In the supplemental information which Amazon helpfully shows in the footnotes to the cash flow, the company reveals that it acquired $10.6bn of property and equipment under capital leases and $3.6bn under build-to-suit leases, making a total of $14.3bn (rounding).

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The cash flow shows only the change in cash – this was $10.3bn for Amazon last year. This is not a meaningful or useful number. Some would define the free cash flow as the operating cash flow of $30.7bn above, less the $11.3bn capex ie $19.4bn net. Again, this is not a particularly useful or meaningful number.

Amazon recognise the limitations of GAAP accounting, especially the issues with the cash flow statement and offer three different definitions of free cash flow in their accounts. The first is a straightforward calculation as just described – operating cash flow less capex: $19.4bn, as shown in the table:

FCF Definition 1

	Year Ended December 31,		
	2016	2017	2018
Net cash provided by (used in) operating activities	$ 17,203	$ 18,365	$ 30,723
Purchases of property and equipment, net of proceeds from property and equipment incentives	(6,737)	(10,058)	(11,323)
Free cash flow	$ 10,466	$ 8,307	$ 19,400
Net cash provided by (used in) investing activities	$ (9,516)	$ (27,084)	$ (12,369)
Net cash provided by (used in) financing activities	$ (3,716)	$ 9,928	$ (7,686)

The second takes this number and deducts the principal lease repayments of $7.8bn to derive an $11.6bn figure:

FCF Definition 2

	Year Ended December 31,		
	2016	2017	2018
Net cash provided by (used in) operating activities	$ 17,203	$ 18,365	$ 30,723
Purchases of property and equipment, net of proceeds from property and equipment incentives	(6,737)	(10,058)	(11,323)
Principal repayments of capital lease obligations	(3,860)	(4,799)	(7,449)
Principal repayments of finance lease obligations	(147)	(200)	(337)
Free cash flow less lease principal repayments	$ 6,459	$ 3,308	$ 11,614

The third measure shown by Amazon takes the $19.4bn FCF after capex, and instead of deducting the principal portion of the capital leases, it substitutes the value of the assets acquired of $10.6bn, and then deducts the principal element of the finance leases of $0.3bn. Amazon chooses not to do the same substitution for its build to suit leases.

FCF Definition 3

	Year Ended December 31,		
	2016	2017	2018
Net cash provided by (used in) operating activities	$ 17,203	$ 18,365	$ 30,723
Purchases of property and equipment, net of proceeds from property and equipment incentives	(6,737)	(10,058)	(11,323)
Property and equipment acquired under capital leases	(5,704)	(9,637)	(10,615)
Principal repayments of finance lease obligations	(147)	(200)	(337)
Free cash flow less finance lease principal repayments and assets acquired under capital leases	$ 4,615	$ (1,530)	$ 8,448

Amazon therefore presents readers of its financial data with three definitions of free cash flow to compare with the net cash movement per the cash flow of $10.3bn

1 free cash flow after capex of $19.4bn

2 free cash flow after capex and lease principal payments of $11.6bn

3 free cash flow after capex and assets acquired under capital leases of $8.4bn

I don’t find any of these particularly helpful as a guide to Amazon’s underlying cash generation capacity. Ideally, I would calculate the free cash flow ex the growth expenditure but leave aside that refinement for now. I calculate Amazon’s underlying free cash flow as follows:

	$bn
Cash from Operations	30.7
Capex	(11.3)
Assets acquired under leases	(14.3)
Underlying Free Cash Flow	**$5.1bn**

This underlying number is after growth capex, so it undoubtedly is too low a number to use for valuing the business, assuming that these growth investments will generate returns. But remember the stock options? That was a $5.4bn charge to the P&L. Our free cash flow estimate takes no account of this, yet it's a real cost to the business. Taking account of this charge using the accounting calculation of value would mean free cash flow would have been negative!

I have ignored the subject of operating leases, now being brought onto the balance sheet in a particularly complicated and confusing manner – the accounting standards authorities have lost sight of the fact that the accounts should be comprehensible to more than a tiny fraction of expert practitioners. Operating lease payments for Amazon last year were $3.4bn, and this represents another $25bn+ of assets not on the balance sheet and not in the capex line (although the cost of renting is included both in the P&L and cash flow).

We are not making any judgment here of Amazon's valuation, nor of the sustainable Free Cash Flow which should be used to value the business. But we hope that we have highlighted that the cash flow is a complicated statement and that the use of free cash flow multiples is more complex than it looks. We recommend that Amazon should change its practice and consider using two measures of free cash flow, sustainable and total. This would be more meaningful to investors. Both would calculate capital expenditure as the total of:

- Purchases of fixed assets
- Value of assets acquired under capital leases
- Value of assets acquired under build to suit leases
- Value of assets acquired under operating leases

For the sustainable free cash flow metric, growth investments would be excluded. Then free cash flow would comprise

- Cash from operations
- Less total capital spend above
- Less real cost of stock options

= Free Cash Flow

The real cost of stock options would simply be the number of options granted in the year times the average share price, to reflect what the cash cost would have been each year. A further refinement would be to add the growth in value of the pool of outstanding options, but I shall explore this topic in a later article.

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