

WESTMINSTER

INTERNATIONAL UNIVERSITY IN TASHKENT

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An Accredited Institution of the University of Westminster (UK)

# LECTURE 4

## INDEX NUMBERS

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# AAPL Income Statement

## Apple Inc. (AAPL)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD

★ Add to watchlist

**213.28** +4.09 (+1.96%)

At close: 4:00PM EDT

**213.35** +0.07 (0.03%)

Pre-Market: 4:47AM EDT

Buy

Sell

[Summary](#) [Chart](#) [Conversations](#) [Statistics](#) [Historical Data](#) [Profile](#) **Financials** [Analysis](#) [Options](#) [Holders](#) [Sustainability](#)

Show: **Income Statement** | [Balance Sheet](#) | [Cash Flow](#)

## Income Statement

All numbers in thousands

[Annual](#) | [Quarterly](#)

Revenue	9/29/2018	9/30/2017	9/24/2016	9/26/2015
Total Revenue	265,595,000	229,234,000	215,639,000	233,715,000
Cost of Revenue	163,756,000	141,048,000	131,376,000	140,089,000
<b>Gross Profit</b>	<b>101,839,000</b>	<b>88,186,000</b>	<b>84,263,000</b>	<b>93,626,000</b>

# AAPL Income statement: Fixed Base Index

	2015	2016	2017	2018
Revenue	233,715	215,636	229,234	265,595
Cost of Revenue	140,089	131,376	141,048	163,756
Gross Profit	93,626	84,263	88,186	101,839

	2015	2016	2017	2018
Revenue	233,715	215,636	229,234	265,595
	100.0	92.3	98.1	113.6
Cost of Revenue	140,089	131,376	141,048	163,756
	100.0	93.8	100.7	116.9
Gross Profit	93,626	84,263	88,186	101,839
	100.0	90.0	94.2	108.8

# AAPL Income statement: Chain Base Index

	2015	2016	2017	2018
Revenue	233,715	215,636	229,234	265,595
Cost of Revenue	140,089	131,376	141,048	163,756
Gross Profit	93,626	84,263	88,186	101,839

	2015	2016	2017	2018
Revenue	233,715	215,636	229,234	265,595
	100.0	92.3	106.3	115.9
Cost of Revenue	140,089	131,376	141,048	163,756
	100.0	93.8	107.4	116.1
Gross Profit	93,626	84,263	88,186	101,839
	100.0	90.0	104.7	115.5

# Fixed vs Chain Base Indices

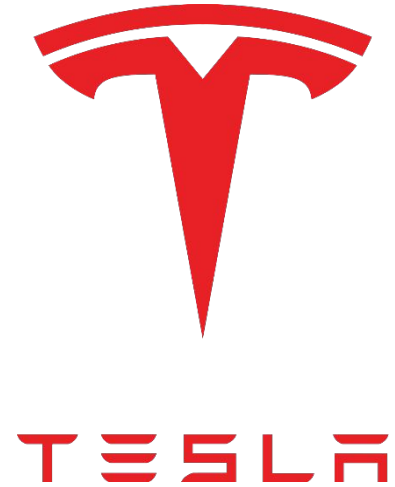
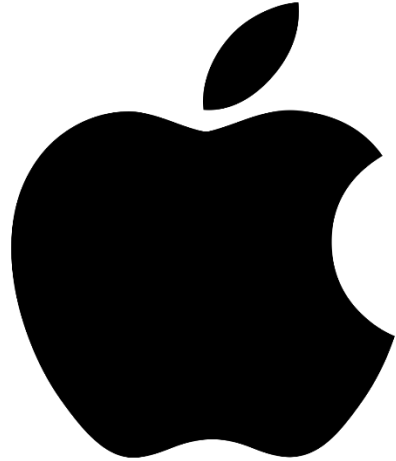
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$$I_F = \frac{x_t}{x_0} \times 100$$

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$$I_C = \frac{x_t}{x_{t-1}} \times 100$$

# Hypothetical Index Composites



Date	Closing price
31.01.2019	166.44
28.02.2019	173.15
31.03.2019	189.95
30.04.2019	200.67
31.05.2019	175.07
30.06.2019	197.92

Date	Closing price
31.01.2019	307.02
28.02.2019	319.88
31.03.2019	279.86
30.04.2019	238.69
31.05.2019	185.16
30.06.2019	223.46

Date	Closing price
31.01.2019	1,718.13
28.02.2019	1,639.83
31.03.2019	1,780.75
30.04.2019	1,926.52
31.05.2019	1,775.07
30.06.2019	1,893.63

# Simple Aggregate Index

Date	Apple	Tesla	Amazon	Sum	Simple Aggregate Index
31.01.2019	166.44	307.02	1,718.13	2,191.59	100
28.02.2019	173.15	319.88	1,639.83	2,132.86	97.3
31.03.2019	189.95	279.86	1,780.75	2,250.56	102.7
30.04.2019	200.67	238.69	1,926.52	2,365.88	108.0
31.05.2019	175.07	185.16	1,775.07	2,135.30	97.4
30.06.2019	197.92	223.46	1,893.63	2,315.01	105.6



# Simple Mean Index

Date	Apple	Fixed Base Index	Tesla	Fixed Base Index	Amazon	Fixed Base Index	Sum	Simple Mean Index
31.01.2019	166.44	100.0	307.02	100.0	1,718.13	100	300	100
28.02.2019	173.15	104.0	319.88	104.2	1,639.83	95.4	303.6	101.2
31.03.2019	189.95	114.1	279.86	91.2	1,780.75	103.6	308.9	103.0
30.04.2019	200.67	120.6	238.69	77.7	1,926.52	112.1	310.4	103.5
31.05.2019	175.07	105.2	185.16	60.3	1,775.07	103.3	268.8	89.6
30.06.2019	197.92	118.9	223.46	72.8	1,893.63	110.2	301.9	100.6

# Simple Aggregate vs Simple Mean Index

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$$SMA = \frac{\sum x_t}{\sum x_0} \times 100$$

$$SMI = \frac{\sum \frac{x_t}{x_0} \times 100}{n}$$

- Jon Curwin..., “Quantitative methods...”, Ch 7
- Glyn Burton..., “Quantitative methods...”, Ch 8
- Richard Thomas, “Quantitative methods...”, Ch 5.1-5.3
- Mik Wisniewski..., “Foundation Quantitative...”, Ch 7
- Clare Morris, “Quantitative Approaches...”, Ch 7
- Louise Swift “Quantitative methods...”, Ch DD2.