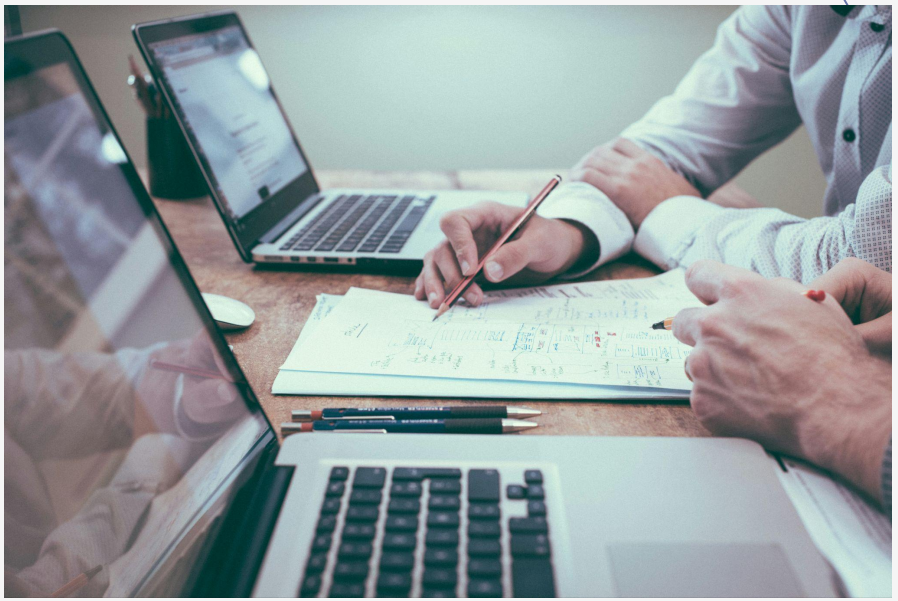
Balance Sheet Building & Analysis



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Introduction

Problem description, objectives

Problem Description

Source of problem

- Data from Yahoo Financial and Amazon's Annual Report.

Current problem

- Financial documents are dense and complex, making them difficult to understand and analysis for non-experts.
- Financial documents lack clear insights into a company's health.

Objective

- Use Amazon's financial documents to create a consolidated balance sheet with formulas and visualizations for easier interpretation and analysis.

NasdaqGS - Nasdaq Real Time Price • USD

Amazon.com, Inc. (AMZN) ☆ Follow Compare

227.03 +6.48 +(2.94%)

At close: 4:00:01 PM EST

226.38 -0.65 (-0.29%)

After hours: 7:59:59 PM EST

Income Statement | Balance Sheet | Cash Flow | Dividends

All numbers in thousands — Annual | Quarterly | Download | Expand All

Breakdown	12/31/2023	12/31/2022	12/31/2021	
Total Assets	527,854,000	462,675,000	420,549,000	32
Total Liabilities Net Minority I...	325,979,000	316,632,000	282,304,000	22
Total Equity Gross Minority In...	201,875,000	146,043,000	138,245,000	9
Total Capitalization	260,189,000	213,193,000	186,989,000	12
Common Stock Equity	201,875,000	146,043,000	138,245,000	9
Capital Lease Obligations	77,297,000	72,968,000	67,651,000	5
Net Tangible Assets	171,399,000	119,658,000	117,767,000	7
Working Capital	7,434,000	-8,602,000	19,314,000	
Invested Capital	260,189,000	213,193,000	186,989,000	12
Tangible Book Value	171,399,000	119,658,000	117,767,000	7
Total Debt	135,611,000	140,118,000	116,395,000	8
Net Debt	--	13,262,000	12,524,000	

Approaches

01 Consolidated Balance Sheet

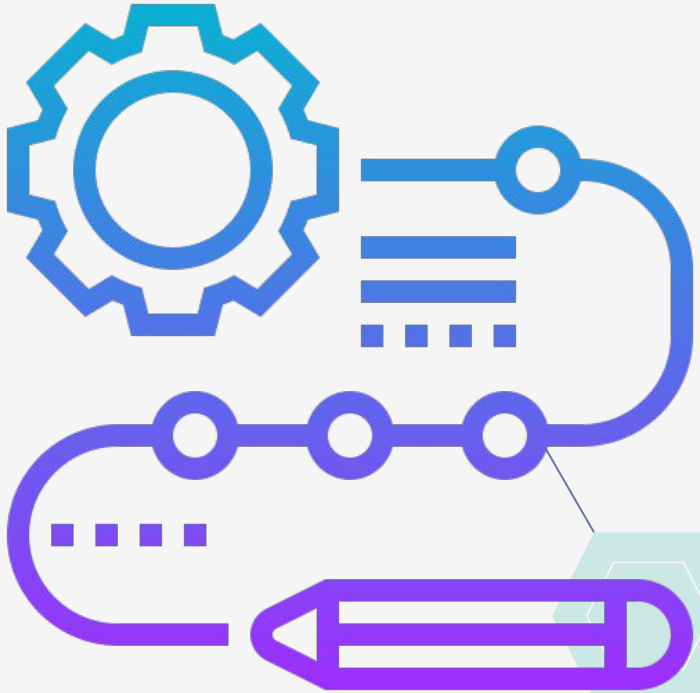
- Based on the generalized accounting equation: Assets = Liabilities + Equity.
- Generate ledgers for Assets, Liabilities, and Equity.

02 Key Financial Metrics

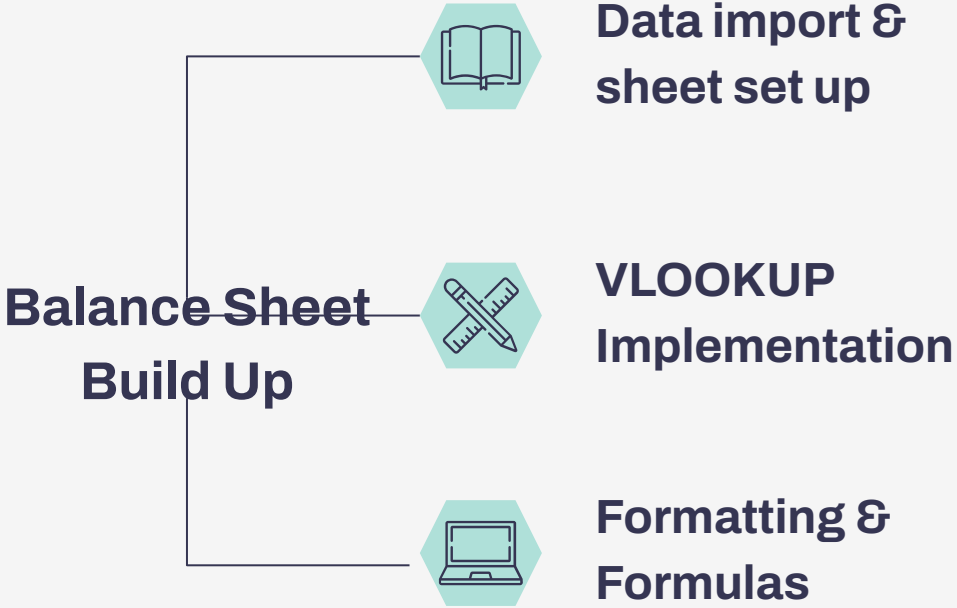
- Calculate liquidity ratio, debt to equity ratio, and breakdown earnings

02 Procedures

Problem description, objectives



VBA: Simplified Balance Sheet



Data import & sheet set up

- Set up worksheet “Input Data” as input data for further execution
- Creating new worksheet:
  - A new worksheet with name “ Balance Sheet” will be created
  - Move this new worksheet to the end of the workbook
- Define and add categories into “Balance Sheet”
  - Define list of categories for use in the balance sheet
  - Add categories in to column A of “Balance Sheet”

AMAZON'S BALANCE SHEET

Breakdown	12/31/23	12/31/22	12/31/21	12/31/20
Total Assets	527,854,000	462,675,000	420,549,000	321,195,000
Current Assets	172,351,000	146,791,000	161,580,000	132,733,000
Cash, Cash Equivalents & Short Term Investments	86,780,000	70,026,000	96,049,000	84,396,000
Cash And Cash Equivalents	73,387,000	53,888,000	36,220,000	42,122,000
Other Short Term Investments	13,393,000	16,138,000	59,829,000	42,274,000
Receivables	52,253,000	42,360,000	32,891,000	24,542,000
Accounts receivable	52,253,000	42,360,000	32,891,000	24,542,000
Gross Accounts Receivable	53,953,000	43,760,000	33,991,000	25,642,000
Allowance For Doubtful Accounts Receivable	-1,700,000	-1,400,000	-1,100,000	-1,100,000
Inventory	33,318,000	34,405,000	32,640,000	23,795,000
Finished Goods	-	-	32,640,000	23,795,000
Other Inventories	36,318,000	37,205,000	35,240,000	26,095,000
Inventories Adjustments Allowances	-3,000,000	-2,800,000	-2,600,000	-2,300,000
Total non-current assets	355,503,000	315,884,000	258,969,000	188,462,000
Net PPE	276,690,000	252,838,000	216,363,000	150,667,000
Gross PPE	396,801,000	349,853,000	294,882,000	211,101,000
Properties	105,293,000	91,650,000	81,104,000	57,324,000
Land And Improvements	105,293,000	91,650,000	81,104,000	57,324,000
Machinery Furniture Equipment	-	-	128,683,000	97,224,000
Other Properties	262,668,000	228,183,000	188,883,000	138,549,000
Construction in Progress	28,840,000	30,020,000	24,895,000	15,228,000
Accumulated Depreciation	-120,111,000	-97,015,000	-78,519,000	-60,434,000
Goodwill And Other Intangible Assets	30,476,000	26,385,000	20,478,000	19,998,000
Goodwill	22,789,000	20,288,000	15,371,000	15,017,000
Other Intangible Assets	7,687,000	6,097,000	5,107,000	4,981,000
Other Non Current Assets	48,337,000	36,661,000	22,128,000	17,797,000
Total Liabilities Net Minority Interest	325,979,000	316,632,000	282,304,000	227,791,000
Current Liabilities	164,917,000	155,393,000	142,266,000	126,385,000
Payables And Accrued Expenses	149,690,000	142,166,000	130,439,000	116,677,000
Payables	84,981,000	79,600,000	78,664,000	72,559,000

```
' Set worksheets
Set wsInput = ThisWorkbook.Sheets("Input Data")
Set wsBalanceSheet = ThisWorkbook.Sheets.Add
wsBalanceSheet.Name = "Balance Sheet"
wsBalanceSheet.Move After:=ThisWorkbook.Sheets(ThisWorkbook.Sheets.Count)

' Copy year headers from Input Data (B3:E3) to Balance Sheet
Set yearHeaders = wsInput.Range("B3:E3")
wsBalanceSheet.Range("B1:E1").Value = yearHeaders.Value

' Define categories to be used for VLOOKUP
Dim categories As Variant
categories = Array( _
    "Total Assets", "Current Assets", "Cash And Cash Equivalents", _
    "Inventory", "Total non-current assets", "Net PPE", _
    "Total Liabilities Net Minority Interest", "Current Liabilities", _
    "Long Term Debt", "Stockholders' Equity", "Retained Earnings", _
    "Total Liabilities & Equity" _
)
' Populate the categories in column A
Dim i As Long
currentRow = 2
For i = LBound(categories) To UBound(categories)
    wsBalanceSheet.Cells(currentRow, 1).Value = categories(i)
    currentRow = currentRow + 1
Next i
```

VLOOKUP Implementation

- Populate respectively number from the ”Input Data” sheet to the ”Balance Sheet” sheet using the VLOOKUP function.
    - Applied to Column B to E reference number from “Input Data”

```
' Add VLOOKUP formulas for financial data (Columns B to E)
Dim colOffset As Long
For colOffset = 2 To 5 ' Columns B to E (2 to 5 in Excel terms)
    For i = 2 To currentRow - 1
        wsBalanceSheet.Cells(i, colOffset).Formula = "=VLOOKUP(A" & i & ",'Input Data'!A:E," & colOffset & ",FALSE)"
    Next i
Next colOffset
```

Formatting & Formulas

- Formatting:
  - Apply currency formatting to range make sure it's readability
    - Range: Columns B to E (numeric range).
- Add Total Rows and SUM Formulas:
  - Create new rows for total number
  - Add SUM formulas for new rows to calculate totals
    - Range: Row 8, 13
- Font Formatting:
  - Set Bold for Header, and important rows (Totals rows)
- Notification by MsgBox:
  - Create a message to notify user that "Balance Sheet" was successfully created

```
' Apply currency formatting to financial columns
wsBalanceSheet.Range("B2:E" & currentRow - 1).Style = "Currency"

' Add SUM formulas for specific rows
wsBalanceSheet.Range("B13:E13").Formula = "=SUM(B2:B12)"


' Bold headers and totals
wsBalanceSheet.Rows(1).Font.Bold = True
 wsBalanceSheet.Rows(2).Font.Bold = True
  wsBalanceSheet.Rows(8).Font.Bold = True
wsBalanceSheet.Rows(13).Font.Bold = True
wsBalanceSheet.Rows(23).Font.Bold = True
wsBalanceSheet.Rows(currentRow).Font.Bold = True

' Adjust column widths
wsBalanceSheet.Columns("A:E").AutoFit

' Notify user
MsgBox "Balance Sheet created successfully!", vbInformation
```

VBA: Calculating Financial Ratios

Sheet set up

Balance Sheet
Ratio Build Up

Calculating
Financial Ratios

Sheet Set Up

- Set up worksheet “Balance Sheet” as input data for further execution
- Creating new worksheet:
  - A new worksheet with name “ Balance Sheet Ratio” will be created
  - Move this new worksheet to the end of the workbook
  - Copy Headers from “Balance Sheet” paste to new Header of “Balance Sheet Ratio”
- Define ratio labels and add into column A of “Balance Sheet Ratio”
  - Current Ratio”, ”Quick Ratio”, ”Working Capital”, ”Debt-to-Equity Ratio”, ”Solvency Ratio”)

```
' Move the new worksheet to the end
wsRatios.Move After:=ThisWorkbook.Sheets(ThisWorkbook.Sheets.Count)

' Define ratio labels
ratioLabels = Array("Current Ratio", "Quick Ratio", "Working Capital", "Debt-to-Equity Ratio", "Solvency Ratio")

' Set year headers dynamically (Assuming year headers are in row 1, starting from column B)
Set yearHeaders = wsInput.Range("B1", wsInput.Cells(1, wsInput.Cells(1, wsInput.Columns.Count).End(xlToLeft).Column))
wsRatios.Range("B1").Resize(1, yearHeaders.Columns.Count).Value = yearHeaders.Value
wsRatios.Rows(1).Font.Bold = True ' Make the year headers bold

' Write ratio labels in column A
For rowIndex = LBound(ratioLabels) To UBound(ratioLabels)
    wsRatios.Cells(rowIndex + 2, 1).Value = ratioLabels(rowIndex)
Next rowIndex
wsRatios.Columns(1).Font.Bold = True

' Process each year column and calculate ratios
For yearColumn = 2 To yearHeaders.Columns.Count + 1
    Dim totalAssets As Double, currentAssets As Double, cashEquivalents As Double, inventory As Double
    Dim totalLiabilities As Double, currentLiabilities As Double, stockholdersEquity As Double, cashFlow As Double
    Dim workingCapital As Double
```

Calculating Financial Ratios

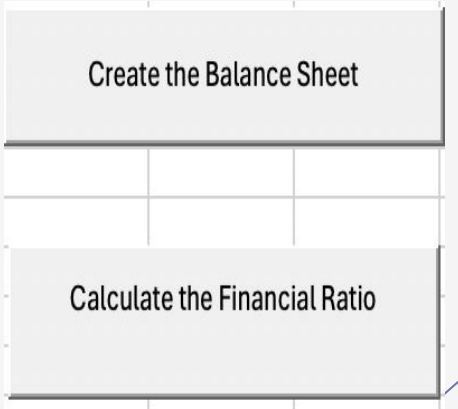
- Extract data from input worksheet
    - Use GetValue function to extract respectively number for current year from “ Balance Sheet” worksheet
- Calculating Ratio
    - Calculate and write ratio for the current year

```
' Extract data for the current year
totalAssets = GetValue(wsInput, "Total Assets", yearColumn)
currentAssets = GetValue(wsInput, "Current Assets", yearColumn)
cashEquivalents = GetValue(wsInput, "Cash And Cash Equivalents", yearColumn)
inventory = GetValue(wsInput, "Inventory", yearColumn)
totalLiabilities = GetValue(wsInput, "Total Liabilities Net Minority Interest", yearColumn)
currentLiabilities = GetValue(wsInput, "Current Liabilities", yearColumn)
stockholdersEquity = GetValue(wsInput, "Stockholders' Equity", yearColumn)
cashFlow = GetValue(wsInput, "Cash Flow", yearColumn) ' Optional, replace if necessary
workingCapital = currentAssets - currentLiabilities

' Calculate and write ratios for the current year
wsRatios.Cells(2, yearColumn).Value = Format(currentAssets / currentLiabilities, "0.00") ' Current Ratio
wsRatios.Cells(3, yearColumn).Value = Format((cashEquivalents + inventory) / currentLiabilities, "0.00") ' Quick Ratio
wsRatios.Cells(4, yearColumn).Value = Format(workingCapital, "0.00") ' Working Capital
wsRatios.Cells(5, yearColumn).Value = Format(totalLiabilities / stockholdersEquity, "0.00") ' Debt-to-Equity Ratio
wsRatios.Cells(6, yearColumn).Value = Format(cashFlow / (currentLiabilities + totalLiabilities), "0.00") ' Solvency Ratio
Next yearColumn
```

Create and Add Button

- On the Developer tab, in the Controls group, click Insert, and then under Form Controls, click Button Button image .
- Click the worksheet location where you want the upper-left corner of the button to appear. The Assign Macro popup window appears.
- Assign a macro to the button, and then click OK.
- Specify the control properties of the button, right-click the button, and then click Format Control.
    - If user click on " Create the Balance Sheet" then it will execute create "Balance Sheet" worksheet
    - If user click on " Calculate the Financial Ratio" then it will execute create "Balance Sheet Ratio" worksheet



03

Analysis of Amazon's Financial Health

Insight find from the execution of system

Analysis

Current & Quick Ratio

- From 2021-2024, Current Ratio volatility from 0.94 to 1.14
- From 2021-2024, Quick Ratio volatility from 0.48 to 0.65

Insight: Amazon is able to cover short-term liabilities but has less liquidity in some assets.

Working Capital Ratio

- From 2021-2024, Working Capital Ratio has positive value except for 2022.

Insight: Indicate that Amazon can cover short-term debts, except for the year-end 2022. However, it already can improved this problem in the following year is 2023.

Current Ratio	1.05	0.94	1.14	1.05
Quick Ratio	0.65	0.57	0.48	0.52
Working Capital	7434000	-8602000	19314000	6348000

Analysis

Debt-to-Equity Ratio

- From 2021-2024, Debt-to-Equity Ratio volatility from 1.61 to 2.44

Insight: Amazon reliance on debt as range is quite far from 0, however it's in healthy range.

Solvency Ratio

- From 2021-2024, Solvency Ratio stable at 0

Debt-to-Equity Ratio	1.61	2.17	2.04	2.44
Solvency Ratio	0	0	0	0

Conclusions

Idea

The project aimed to simplify and consolidate Amazon's financial input data into a easier interpretation balance sheet and analyze the company's financial health through various financial ratios. .

Procedure

Amazon's financial data from 2020 to 2023 was used as input data in Excel, automated with VBA for a simplified balance sheet, and analyzed using financial ratios to provide insights into its financial health.

Finding

From sheets that created by build-in system, it indicates that Amazon has strong financial health.