UWorld | ACCOUNTING

BAR

Business Analysis and Reporting

CPA Exam Review

2026
Edition

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Keeping the course materials updated and accurate would not be possible without the contribution of our team of content experts. Our team includes academics and professionals who have expertise and experience in their respective fields; several have had experience at the Big Four or have PhDs in areas related to the exam. All are passionate about helping candidates pass the exam and about UWorld's dedication to creating the highest-quality materials.

Business Analysis and Reporting

Introduction

Introduction

Introduction

How to Best Use Your Course

Welcome to the UWorld CPA Review course! Our expert team is passionate about helping you succeed and has developed an award-winning program that is proven to yield results. Before you get started, please read through this guide on how to best use your course so that you can master all of the topics laid out for you in the AICPA Blueprints and ultimately pass the CPA Exam. At UWorld, our passion is to make the hard stuff easy to learn and understand.

Plan Your Studies

When preparing for the CPA Exam, half the battle is setting yourself up for success with a solid plan from the get go. This includes establishing short- and long-term goals to ensure you're staying on track.

To get started, use the Study Plan in your course. Start your plan by setting the beginning and ending dates for your schedule. Then select your pace (Fast Track versus Customize) and set the number of hours per day you will study. The system will create your plan based on your choices. It is important to follow your plan steadily so that you can ensure you hit your goals. If you miss a day, make it up!

Tip!

Download the app; this gives you access to everything your course offers even while on the go.

Master the Concepts through Active Learning

With this program, you will build your foundational knowledge and mastery of core exam topics through **active learning**. This evidence-based learning methodology centers around the principle that students retain information best when they actively participate in answering questions.

- **Begin with the Representative Task.** Read through each representative task carefully. (The Representative Tasks are from the AICPA Blueprints and are presented in our books and videos to guide you through the materials.) Pay particular attention to the words at the beginning of the task; they provide guidance on level and focus
- **Scan the book chapter.** Do you feel confident with the material? If you do, you might want to move directly to the questions and begin to practice. If you find that you are hesitant about an area, read the book or watch the video to solidify your understanding before you practice on some questions
- **Watch the videos.** If you prefer to absorb material on video rather than by reading the book, you will notice that the videos are deliberately set up in small segments. Our team created these segments so you can review what you need, either as part of the whole topic or for specific review of a smaller area
- **Practice the questions.** In our question bank (our QBank) we have taken great care to provide you with very high-quality questions and explanations. Each explanation not only tells you why the concept tested is important to understand but also teaches you why the answer is correct and why the other answer choices are not correct. Images, tables, definitions, and TBS Mastery videos also help fill in gaps as you use the questions and explanations to learn by doing

Track Your Progress and Performance

As you complete each chapter, track your progress and performance using our signature **SmartPath Predictive Technology™**. SmartPath is a data-driven platform that provides recommended targets based on those of previous students who have passed the CPA Exam. This is an important tool to help you study efficiently and gauge whether you are *exam-ready*. Your goal is to hit both your progress target (Questions Attempted) and performance target (Score) for each chapter.

As you work through the material, don't worry about hitting your "Score" target right away and focus your efforts on hitting the "Questions Attempted" target first. This approach may feel uncomfortable, but trust that you are building your knowledge as you absorb the answer explanations.

Once you've completed all the topics in a chapter, you can go back and focus your efforts on hitting the "Score" target. If you are falling short, drill down in the Performance tab to see which topics need extra attention.

Tip!

Don't over-study. **SmartPath™** helps determine when you can move on to the next topic.

Solidify the Concepts

Need extra help mastering the concept? Take advantage of the additional learning tools that are integrated into your course. For example, you could be working through a difficult question and find you need further explanation. No problem! There's a link to the supporting lecture right there in the question. Want to remember something for later review? You can easily transfer content directly from the question to a digital flashcard. These are just a few ways we make it easy for you to navigate to and access the right tools at the right time.

These additional tools are designed to enhance your studies—**you do not necessarily need to read or watch all of this material!** Rather, use these tools as a means to improve on any weak areas you might have:

- **Video Lectures** – From the Lectures tab or from the direct link at the bottom of each practice question, you have access to the profession's most motivating and effective lecturers. The lectures break down difficult topics into simplified concepts and provide helpful memory aids. These are especially recommended for visual and auditory learners
- **Textbooks** – The video lectures are accessible side by side with the digital eTextbooks or, in some of our course packages, a printed format. These guides can be used as a reference if you need further explanation of a concept. Many students also find it beneficial to follow along in the textbook while watching the lectures and taking notes, either directly in the physical books or by using the Notes feature and highlighting tool in the platform
- **Digital Flashcards** – Create custom flashcards directly from your practice questions by clicking on the lightning bolt symbol. Depending on your program package, your course may also be pre-loaded with an "Expert Deck" of flashcards covering the most heavily tested topics. You can review all your cards in Study Mode or by using our **spaced-repetition technology**. This is an evidence-based learning method that presents cards you've marked as *difficult* more frequently and cards you've marked as *easy* less frequently. The spacing of how and when the flashcards are introduced has been proven to increase retention and strengthen memory recall

Get Exam-Ready

The final days leading up to the exam are a critical time in which you're going to want to review your SmartPath data and ask, "Am I *exam-ready*?" If you have hit all the targets, you are in a really good spot. However, if any areas are still marked "Needs Improvement," now is the time to focus your efforts on meeting those targets.

We recommend you **take at least one full practice exam before exam day** (click on the "Exam Sim" tab in the QBank). This allows you to hone your test-taking skills in an exam-like environment that follows the same 5-testlet, 4-hour structure as the exam. The Exam Sim pulls questions from the QBank, and there is no limit to the number of times you can create an Exam Sim.

As a final step to assess your exam day readiness, we recommend you take the full-length mock exam. Curated with a unique set of questions not featured in the regular QBank, these practice tests are directly aligned to the content allocation and difficulty level of each CPA exam testlet. We recommend using this feature about 1–2 weeks before exam day.

AICPA Blueprints

The UWorld CPA Review course is based on the AICPA Blueprints, which show candidates what skills and content topics will be tested on the CPA Exam. You don't have to make tough decisions about what concepts to focus on. If you follow our methodology, you will be well on your way to passing the exam.

Let's take a look at what we mean by starting with the AICPA Blueprints. The Blueprints have four levels:

- Area
- Group
- Topic
- Representative Task

Each Representative Task also has a Skill level.

- Remembering & Understanding
- Application
- Analysis
- Evaluation (used only in AUD)

The Table of Contents of the book shows how each UWorld textbook is set up to follow the order of the AICPA Blueprints, with

- Area
- Group
- Topic

In the pages of each book, we provide the Representative Tasks from the AICPA Blueprints. We did that to make a direct connection between the exam and our content. Our team deliberately focused on what the Tasks say and wrote study materials that match with each Task. There is no closer connection between what will be tested and what you are studying.

Beyond connecting to the topics of the AICPA Blueprints, our team also differentiated the textbook content to match the Skill Levels of the Tasks.

- **Remembering & Understanding** tasks require you to understand the definitions and fundamentals of the topic. We have presented the information in these areas with an eye to creating clear explanations of the topics
- **Application** tasks are more about using your knowledge in scenarios to indicate that you understand the concepts. Our authors have therefore provided examples that show you how to apply your knowledge in specific situations. Many of these examples are similar to questions that you will find on the exam
- **Analysis** tasks require a higher level of thinking, many times requiring you to choose one outcome over another or to make a decision. On the exam, these tasks will always be addressed in Task-Based Simulations, or TBSs. The AICPA intentionally makes these more challenging to determine if you really know the material and can work with it as a professional. In our materials, our authors often guide you through the critical thinking required to work with TBSs
- **Evaluation** tasks are only in the AUD section of the exam and are at the highest level of thinking. They go a step further than the Analysis level and require you to evaluate or judge different approaches or outcomes

The CPA Exam

Within the AICPA Blueprints, there is information about how much time candidates have for each section and how many questions each section contains, categorized by question type. Question types include Multiple-Choice Questions (MCQs) and Task-Based Simulations (TBSs).

Section	Section Time	Multiple-Choice Questions (MCQs)	Task-Based Simulations (TBSs)
AUD − Core	4 hours	78	7
FAR − Core	4 hours	50	7
REG − Core	4 hours	72	8
BAR − Discipline	**4 hours**	**50**	**7**
ISC − Discipline	4 hours	82	6
TCP − Discipline	4 hours	68	7

Scoring Weight by Exam Section

The AICPA also shows candidates how the question types for each section are weighted and account for their overall score.

Section	Score Weighting	
	Multiple-Choice Questions (MCQs)	Task-Based Simulations (TBSs)
AUD – Core	50%	50%
FAR – Core	50%	50%
REG – Core	50%	50%
BAR – Discipline	**50%**	**50%**
ISC – Discipline	60%	40%
TCP – Discipline	50%	50%

Skill Allocations

As mentioned earlier, each Representative Task is tested at a specific Skill Level, and each part of the exam has its own weighting of the Skill Levels, as seen here.

Section	Remembering & Understanding	Application	Analysis	Evaluation
AUD – Core	30–40%	30–40%	15–25%	5–15%
FAR – Core	5–15%	45–55%	35–45%	–
REG – Core	25–35%	35–45%	25–35%	–
BAR – Discipline	**10–20%**	**45–55%**	**30–40%**	**–**
ISC – Discipline	55–65%	20–30%	10–20%	–
TCP – Discipline	5–15%	55–65%	25–35%	–

Content Allocations

The AICPA Blueprints address how coverage of the various content areas is allocated in each exam. Using the UWorld system that ties directly to the Blueprint structure, it is easy to see the extent to which each topic is covered.

AUD

Content Area		Allocation
Area I	Ethics, Professional Responsibilities, and General Principles	15–25%
Area II	Assessing Risk and Developing a Planned Response	25–35%
Area III	Performing Further Procedures and Obtaining Evidence	30–40%
Area IV	Forming Conclusions and Reporting	10–20%

FAR

Content Area		Allocation
Area I	Financial Reporting	30–40%
Area II	Select Balance Sheet Accounts	30–40%
Area III	Select Transactions	25–35%

REG

Content Area		Allocation
Area I	Ethics, Professional Responsibilities, and Federal Tax Procedures	10–20%
Area II	Business Law	15–25%
Area III	Federal Taxation of Property Transactions	5–15%
Area IV	Federal Taxation of Individuals	22–32%
Area V	Federal Taxation of Entities (including tax preparation)	23–33%

BAR

Content Area		Allocation
Area I	**Business Analysis**	**40–50%**
Area II	**Technical Accounting and Reporting**	**35–45%**
Area III	**State and Local Governments**	**10–20%**

ISC

Content Area		Allocation
Area I	Information Systems and Data Management	35–45%
Area II	Security, Confidentiality, and Privacy	35–45%
Area III	Considerations for System and Organization Controls (SOC) Engagements	15–25%

TCP

Content Area		Allocation
Area I	Tax Compliance and Planning for Individuals and Personal Financial Planning	30–40%
Area II	Entity Tax Compliance	30–40%
Area III	Entity Tax Planning	10–20%
Area IV	Property Transactions (disposition of assets)	10–20%

Exam Testlets

Each section of the exam is divided into five testlets. Two testlets cover MCQs and three testlets cover TBSs. Not all sections have an equal number of MCQs and TBSs, as the following chart shows.

	Testlet						
	1	2	3	4	5	Total	
Section	MCQ	MCQ	TBS	TBS	TBS	MCQ	TBS
AUD – Core	39	39	2	3	2	78	7
FAR – Core	25	25	2	3	2	50	7
REG – Core	36	36	2	3	3	72	8
BAR – Discipline	**25**	**25**	**2**	**3**	**2**	**50**	**7**
ISC – Discipline	41	41	1	3	2	82	6
TCP – Discipline	34	34	2	3	2	68	7

Finally, to manage your time effectively in the exam, we recommend that you:

- Use 75 seconds per multiple-choice question as a benchmark,
- Allocate 15–20 minutes per task-based simulation, depending on complexity, and
- Take the standard 15-minute break after the third testlet; it doesn't count against your time.

To see the full AICPA Blueprints, visit the AICPA website.

Above all, start the study process with confidence! As Roger always says, "You do not have to be a genius to pass the CPA Exam. If you study, you will pass!" You've got this.

BAR

Area I: Business Analysis

BAR 1
Current Period/Historical Analysis, Including the Use of Data

BAR 1: Current Period/Historical Analysis, Including the Use of Data

1.01 Financial Statement Analysis

Overview

A company appraises the past, present, and future execution of goals and economic fitness by performing **financial statement analysis** on its results from operations in a given period. Refer to the financial ratios used in the FAR exam for this section.

The results are viewed in relation to prior periods, budgets, and key performance indicators (ie, benchmarks). Companies **make informed decisions** using this analysis. The analysis is often presented using summaries and visualizations that present the financial data in an easy-to-understand, meaningful report.

Attribute Structures, Format, and Sources of Data

Representative Task (Application): Determine attribute structures, format, and sources of data needed to prepare financial statement analysis.

Additional coverage on data can be found in BAR 2.01 Budgeting, Forecasting, and Projection as well as BAR 5.01.

Entities generate large volumes of data due to enterprise resource planning (ERP) systems, customer relationship management (CRM) systems, social media use, website-tracking data, and e-commerce transactions. Instead of merely storing information for contractual, operational, reporting, and compliance purposes, this **data can be mined** and analyzed to **identify trends**, enhance insight, and support decision-making.

Not all data and data sources are the same. Depending on the method of extraction and compatibility of different software applications, data may be extracted and loaded in a readily useable format. Structured data that comes from relational databases can normally be transferred between applications by CSV file. However, other types of data, such as unstructured and semi-structured, may need to be transformed prior to analysis.

Structured Data
Organized in a predefined manner

Semi-Structured Data
Loosely organized into categories

Unstructured Data
Not organized in a predefined manner

Structured: Data contained in fields within records or files (eg, databases and spreadsheets)

Semi-structured: Data that has information associated (ie, metadata or tags) that makes it easier to process than unstructured data (eg, HTML-tagged text)

Unstructured: Raw data not contained within a database/spreadsheet (eg, text, video, audio, photos, etc.)

Financial data is used to perform financial statement analysis. It is important to understand the data attributes (ie, data characteristics or features) in order to perform the analysis. Data attributes can be qualitative or quantitative.

Qualitative Data Attributes	Quantitative Data Attributes
Nominal: names of data	Numeric: measurable quantity
Binary: only two values (Yes/No)	Discrete: finite values (numeric or categorical)
Ordinal: data with a meaningful sequence	Continuous: infinite values

Generally, the data used to perform financial statement analysis comes from an entity's accounting system. The entity's results of operations and financial position are represented with numeric data. Other types of data can be combined with the financial results to generate a meaningful analysis. Examples include the following:

- **Nominal data:** regions, product descriptions, macroeconomic data (eg, GDP, inflation)
- **Binary data:** yes/no fields on information like open invoices, debt covenants met, etc.
- **Ordinal data:** top 10 clients
- **Discrete data:** average sales price for products

Techniques used to extract, transform, and load data in the context of prospective analysis are covered later in BAR. The focus of this section is the analysis of current and historical financial data.

Data Analysis Techniques

The following techniques are used to perform data analysis:

- **Sorting:** A simple categorizing of data in ascending/descending order (eg, largest A/R balance by customer) to identify outliers
- **Cluster analysis:** Grouping data by similarities in a way that shows the structure/relationships between the data
- **Matching:** Comparing data from various sources (eg, electronic documents) to identify unexpected differences
- **Process mining:** Identifying the specific activities to create a process model for achieving a defined goal so that deviations from the model (eg, bottlenecks) can be corrected, with the goal of optimizing processes
- **Comparative analysis:** Comparing the relationships between variables (eg, financial statement items) over two or more periods
- **Trend analysis:** Analyzing changes in data (eg, account balances) over time to look for trends (a type of comparative analysis).
- **Ratio analysis:** Calculating ratios to discover relationships among financial and nonfinancial data
- **Predictive modeling:** Comparing expectations to actual data to identify deviations (eg, reasonableness test).

- **Regression analysis:** Using a statistical analysis to examine the relationship between one or more independent variables (eg, predictors) and a dependent variable
- **Time-series regression analysis:** A regression analysis that uses data from *more than one past period* to make predictions for future periods
- **Cross-sectional regression analysis:** A regression analysis that uses data from *one period of time or a point in time* to make predictions

There are many different software applications (eg, Microsoft Excel, Tableau, Power BI) that perform data analytics. These programs can be used in conjunction with accounting software (eg, QuickBooks, Sage Intacct) to report the financial results of a company using visualizations showing relationships between financial and nonfinancial data.

Comparison of Current Period Results to Prior Periods or Budget

Representative Task (Analysis): Compare current period financial statement accounts to prior periods or budget and explain variances.

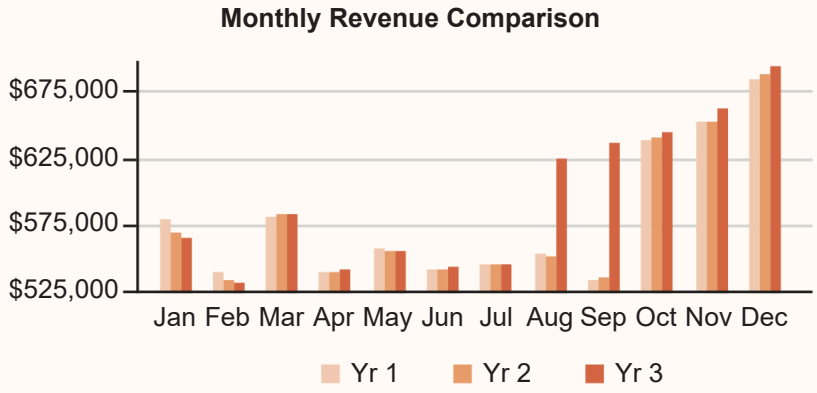
A company compares current-period financial statement accounts to prior-period or budgeted amounts as a way to provide context for current-period performance. **Variances** are used to identify and investigate areas where the actual results were over or under the amounts being compared. Variances are either **favorable** (ie, positive) or **unfavorable** (ie, negative).

A favorable variance is the result of **actual performance being better** than the amounts compared. This type of analysis can be performed monthly, quarterly, annually, or for even longer periods of time.

Once the variance is determined, the reasons for the **difference are investigated**. Understanding budget variances can also improve **forecasting** results. For example, a company might have seasonal fluctuations in sales. By comparing current results to prior periods, the company can confirm this pattern and adjust staffing and expenses accordingly.

A toy company is comparing monthly revenue for the past three years. Sales tend to increase in the last quarter of the year for holiday shopping. The company launched a marketing campaign in August of Year 3 in an attempt to increase sales.

By comparing the monthly revenue results, the company can easily see the seasonality of its sales as well as the effectiveness of the marketing campaign.



A service company compares budgeted expenses to actual results each period. The variances are identified, and significant variances are investigated. Positive variances (ie, actual expense is less than budget) are flagged with green, and negative variances (ie, actual expense is greater than budget) are flagged with red.

In this example, overall expenses were $6,011 more than budgeted. However, that only shows part of the picture. A comparison of each expense line shows the following:

- Marketing and personnel costs were higher than expected
- Legal and other general and administrative expenses were lower than expected

These differences should be investigated.

Expenses:	Budget	Actual	Variance
Personnel			
Contract	$ 17,843	17,402 •	(441)
In-house	67,435	71,094 •	3,569
Benefits	6,329	8,985 •	2,656
Sales & marketing			
Services	5,900	12,565 •	6,665
Marketing collateral	500	1,963 •	1,463
Technology	8,000	9,035 •	1,035
Legal & professional	12,000	6,587 •	(5,413)
Occupancy	3,000	2,490 •	(510)
Other office G&A	2,500	83 •	(2,417)
Interest expense	5,000	4,305 •	(695)
Amortization	1,600	1,609 •	9
Total expenses	$130,107	136,118 •	6,011

Financial Statement Fluctuations and Ratios

Representative Task (Analysis): Interpret financial statement fluctuations and ratios (eg, profitability, liquidity, solvency, performance).

Ratio Analysis

Ratio analysis entails reviewing a company's liquidity, activity, leverage, profitability, and coverage ratios. Detecting important economic connections between different ratios is crucial in making economic decisions; the ratios alone are just statistics regarding a company's performance.

A company can compare its financial ratios internally over different time periods, with competitor ratios, or in relation to industry averages to benchmark performance. This comparison provides insight that management can use to determine the company's strategy going forward. The ratios are also used by investors and lenders in assessing the company's health.

Ratio Analysis Limitations

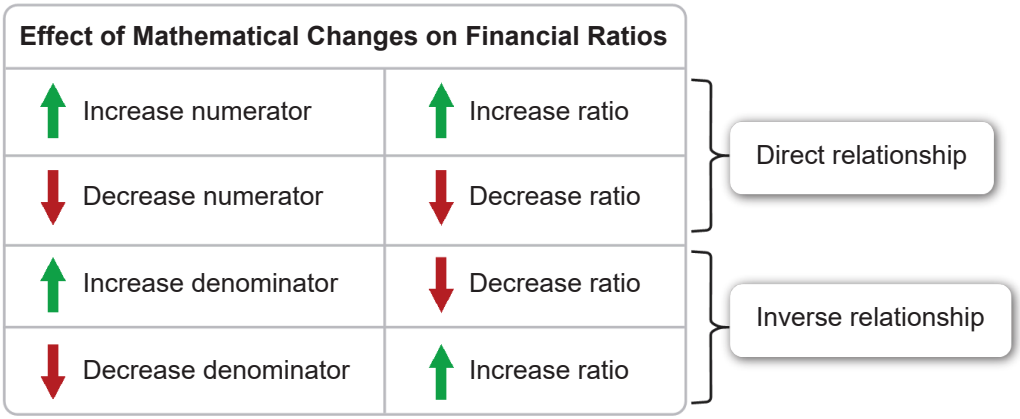
Companies use ratios to analyze and assess financial performance or position. Although ratio analysis may provide useful insight, it also comes with limitations:

- **Heterogeneity in operation:** If the company's divisions individually operate in distinct industries, then combining performance may oversimplify data at an aggregate level and not provide insight into divisional performance
- **Inconsistent interpretation of results:** Different ratios may provide conflicting interpretations of performance for the same company. For example, one ratio can suggest improving liquidity, whereas another ratio can suggest worsening liquidity
- **Need for judgment:** Companies must determine whether ratios are reliable in the context of industry and company history. Ratios are statistical measures with no inherent value and alone are incomplete; it is the company's interpretation that creates insight
- **Different accounting standards:** Differences in accounting methods or standards limit the comparability of ratios across companies. For example, one company may use FIFO inventory reporting, whereas another company uses LIFO inventory reporting

Effects of Changes on Ratios

It's important to understand how changes to financial statement accounts can impact ratios.

- The **numerator** has a **direct relationship** with the ratio; increases to the numerator result in an increased ratio
- The **denominator** has an **inverse relationship** with the ratio; increases to the denominator result in a decreased ratio
- If the numerator and the denominator are both impacted by a change, the impact to the ratio may not be easy to determine; substitute numbers into the ratio to evaluate the impact of the change in this instance



The following information pertains to Ali Corp. as of and for the year ended December 31, Year 1:

Liabilities	$ 60,000
Stockholders' equity	$500,000
Net income	$ 30,000
Shares of common stock issued and outstanding	10,000

During Year 1, Ali's officers exercised stock options for 1,000 shares of stock at an option price of $8 per share. This transaction is reflected in the above balances. Determine the effect of exercising the stock options on the following ratios:

- Debt to equity
- Asset turnover
- Earnings per share

Remember, when stock options are exercised, additional shares of stock are issued. The original equity related to the options is reclassified to common stock at par value and APIC. Assets (cash) and common shares outstanding increase.

For the following ratios, the denominator increases from exercising stock options, causing the ratios to decrease:

- **Debt to equity** (Total liabilities / Stockholders' equity): Debt of $60,000 (numerator) is unchanged, but equity (denominator) increases to $500,000. This results in a decreased ratio
- **Asset turnover ratio** (Net sales / Average total assets): Net sales (numerator) is unchanged, but average total assets (denominator) increase by the cash received. Therefore, the ratio decreases
- **Earnings per share** ([Net income − Preferred dividends] / Weighted shares outstanding): Net income is decreased when compensation expense is recognized, not when the options are exercised. The weighted number of shares outstanding (denominator) increases from 9,000 to 10,000 shares. EPS therefore decreases

Analyzing Company Results

Let's look at the financial results of a company to perform financial statement analysis and **interpret the results**.

StickU is a health care company that provides specialized medical equipment to hospitals and health care facilities. StickU's Year 2 and Year 3 balance sheet, income statement, and condensed statement of cash flows are used for all ratio calculations. Here is some additional information:

- StickU began operations on January 2, Year 1, as a corporation by issuing 10,000, $1 par value shares of common stock. There is no preferred stock. No dividends have been declared or paid
- All sales are on credit
- StickU uses the LIFO inventory method
- In Year 2, StickU recognized other income from loan forgiveness via the government Paycheck Protection Program
- StickU is a small company that has elected to amortize goodwill over 10 years
- StickU's largest supply vendor has 60-day payment terms and does not offer incentives for early payments
- For the purposes of average calculations used in certain ratios, assume the following Year 1 ending balances: A/R $652,786, Inventory $172,359, Total assets $1,784,358, Current liabilities $872,634, Total equity (Common stock + APIC + Retained earnings + Net income) ($607,397)
- StickU uses 365 days for all relevant calculations

StickU
Balance Sheet

	Year 2	Year 3	Initial Observations
Current assets:			
Cash and cash equivalents	404,359	175,736	
Accounts receivable, net	788,972	865,936	Current assets decreased. Decline in cash is the main driver.
Inventory	199,703	252,118	
Prepaid expenses	26,751	46,618	
Other receivables	101,642	129,149	
Total current assets	1,521,409	1,469,557	
Fixed assets:			
Property, plant, and equipment	902,173	1,304,361	Fixed assets and intangible assets increased. StickU is making investments in the business.
Less: Accumulated depreciation	(782,457)	(956,102)	
Total fixed assets	119,715	348,259	
Intangible assets:			
Goodwill	339,548	339,548	
ROU asset for office space lease	–	44,243	New office space lease in Year 3.
Internally developed software	15,000	85,815	
Less: Accumulated amortization	(30,563)	(49,867)	
Total intangible assets	323,985	419,739	
Total assets	**1,965,109**	**2,237,556**	
Current liabilities:			
Accounts payable	615,294	848,733	Current liabilities increased slightly. Large increase in A/P offset by decreases in accrued liabilities.
Notes payable	52,798	19,357	
Accrued and other liabilities	263,573	84,558	
Total current liabilities	931,665	952,647	
Long-term liabilities:			
Notes payable	1,173,815	1,049,201	
Total liabilities	2,105,480	2,001,849	
Stockholders' equity:			
Common stock ($10,000 shares at $1 par)	10,000	10,000	Retained earnings deficit decreased due to Year 2 net income. Therefore, the overall equity position improved from Year 2 to Year 3.
Additional paid-in capital	40,000	40,000	
Retained earnings	(657,397)	(190,371)	
Net income	467,026	376,079	
Total liabilities and equity	**1,965,109**	**2,237,556**	

StickU

Income statement for year ended	Year 2	Year 3
Sales	5,847,407	7,280,893
Costs of goods sold	3,915,498	5,408,988
Gross profit	1,931,909	1,871,905
Operating expenses	1,207,545	1,144,049
Interest expense	101,532	64,549
Depreciation and amortization	287,228	287,228
Total expenses	1,596,305	1,495,826
Operating income	335,605	376,079
Other income	131,421	–
Net income before taxes	**467,026**	**376,079**

Initial Observations

Sales and COGS increased, but gross profit decreased. Costs are increasing at a higher rate than sales.

Year-over-year operating income increased.

StickU
Condensed Statement of Cash Flows

	Year 2	Year 3
Operating activities		
Net income	467,026	376,079
Net adjustments to reconcile net income	(195,228)	(155,790)
Cash provided by operating activities	271,798	220,289
Investing activities	(115,412)	(324,289)
Financing activities	223,491	(124,614)
Net cash increase for period	379,877	(228,623)
Cash balance, beginning	24,482	404,359
Cash balance, ending	**404,359**	**175,736**

Initial Observations

Use of cash for investing activities increased.

Repayments of debt impacted financing activities. This corresponds with the decrease in notes payable on the balance sheet.

Using StickU's financial ratios provides more insight into business operations. Without the ratio analysis, a quick review shows that StickU's total assets and equity increased. StickU is making investments into the business in PP&E and internally developed software.

Let's look deeper into StickU's financial picture by calculating the common financial ratios and interpreting the results.

Liquidity: What is StickU's short-term ability to pay its obligations?

Ratio	Formula	Year 2		Year 3	
Working Capital	Current assets − Current liabilities	$1,521,409 − $931,665	= $589,744	$1,469,557 − $952,647	= $516,910
Current Ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	$\frac{\$1,521,409}{\$931,665}$	= 1.63	$\frac{\$1,469,557}{\$952,647}$	= 1.54
Quick Ratio	$\frac{\text{Cash and cash equivalents} + \text{ST marketable securities} + \text{Receivables (net)}}{\text{Current liabilities}}$	$\frac{\$404,359 + \$0 + \$788,972}{(\$931,665)}$	= 1.28	$\frac{\$175,736 + \$0 + \$865,936}{(\$952,647)}$	= 1.09

Current and quick ratios are greater than 1.0, indicating that StickU *can meet* short-term obligations. Working capital is positive in both years.

However, all liquidity measures declined in Year 3. A/P increased, and cash decreased significantly. Because StickU is a young company, the decrease in cash is probably due to reinvesting resources into the business. However, the decline in liquidity ratios leads to questions such as the following:

- How much leverage is StickU using to grow business?
- What happens if sales decline? Can the company keep up with borrowing costs?

Activity: How effectively is StickU using assets?

Ratio	Formula	Year 2		Year 3	
A/R Turnover	$\frac{\text{Sales (net)}}{\text{Average A/R (net)}}$	$\frac{\$5,847,407}{(\$652,786 + \$788,972) / 2}$	= 8.11	$\frac{\$7,280,893}{(\$788,972 + \$865,936) / 2}$	= 8.80
Days Sales in A/R	$\frac{\text{Ending A/R (net)}}{\text{Sales (net)} / 365}$	$\frac{\$788,972}{(\$5,847,407) / 365}$	= 49.3 days	$\frac{\$865,936}{(\$7,280,893) / 365}$	= 43.4 days
Inventory Turnover	$\frac{\text{Cost of goods sold}}{\text{Average inventory}}$	$\frac{\$3,915,498}{(\$172,359 + \$199,703) / 2}$	= 21.05	$\frac{\$5,408,988}{(\$199,703 + \$252,118) / 2}$	= 23.94
Days in Inventory	$\frac{\text{Ending inventory}}{\text{COGS} / 365}$	$\frac{\$199,703}{(\$3,915,498) / 365}$	= 18.6 days	$\frac{\$252,118}{(\$5,408,988) / 365}$	= 17 days
Asset Turnover	$\frac{\text{Sales (net)}}{\text{Average total assets}}$	$\frac{\$5,847,407}{(\$1,784,358 + 1,965,109) / 2}$	= 3.12	$\frac{\$7,280,893}{(\$1,965,109 + \$2,237,556) / 2}$	= 3.46
Operating Cycle	Days sales in A/R + Days in Inventory	45.00 + 17.34	= 62.34 days	41.48 + 15.24	= 56.73 days
Days of Payable Outstanding	$\frac{\text{Ending A/P}}{(\text{COGS} / 365)}$	$\frac{\$615,294}{(\$3,915,498 / 365)}$	= 57.36 days	$\frac{\$848,733}{(\$5,408,988 / 365)}$	= 57.27 days
Cash Conversion Cycle	Operating cycle − Days payables outstanding	62.34 − 57.36	= 4.98 days	56.73 − 57.27 days	= (0.55) days

For both years, the number of days that payables are outstanding is slightly less than 60 days. This correlates with StickU's largest vendor's 60-day payment terms. Receivable collection days have improved (ie, decreased), and inventory turnover has increased, resulting in shortened operating and cash-conversion cycles from Year 2 to Year 3.

This shows that StickU is becoming more efficient with cash and inventory to manage operations.

Coverage: How protected are StickU's creditors?

Ratio	Formula	Year 2	Year 3
Debt to Equity	Total liabilities / Total equity	$2,105,480 / ($140,371) = (15.00)	$2,001,849 / $235,707 = 8.49
Debt to Total Assets	Total debt / Total assets	$2,105,480 / $1,965,109 = 1.07	$2,001,849 / $2,237,556 = 0.89
Times Interest Earned*	Earnings before interest and taxes / Interest expense	$467,026 + 101,532 / $101,532 = 5.60	$376,079 + $64,549 / $64,549 = 6.83
Current Cash Debt Coverage Ratio	Cash provided by operating activities / Average current liabilities	$271,798 / ($872,634 + 931,665) / 2 = 0.30	$220,289 / ($931,665 + $952,647) / 2 = 0.23

** Note: Interest expense is added back to net income for this ratio, because net income includes a reduction for interest expense.*

StickU's debt to total assets is high. In Year 3, this ratio was 0.89, down from 1.07 in Year 2, indicating that most of the assets are financed by creditors. This confirms that StickU uses leverage in the business.

Equity has improved from Year 2 to Year 3. While StickU's debt is concerning, the business seems to be improving operationally.

Profitability: How successful are StickU's operations?

Ratio	Formula	Year 2	Year 3
Profit Margin	Net income / Sales (net)	$467,026 / $5,847,407 = 7.99%	$376,079 / $7,280,893 = 5.17%
Gross Profit Margin	(Sales (net) − COGS) / Sales (net)	$1,931,909 / $5,847,407 = 33.04%	$1,871,905 / $7,280,893 = 25.71%
Return on Assets	Net income / Average total assets	$467,026 / ($1,784,358 + $1,965,109) / 2 = 24.91%	$376,079 / ($1,965,109 + $2,237,556) / 2 = 17.90%
Return on Total Assets	Net income + Interest expense / Average total assets	$467,026 + $101,532 / ($1,784,358 + $1,965,109) / 2 = 30.33%	$376,079 + $64,549 / ($1,965,109 + $2,237,556) / 2 = 20.97%

Gross profit, profit margin, and return on assets are all down in Year 3. In Year 3, COGS increased more than the increase in sales, leading to reduced profitability. StickU uses LIFO to account for inventory. When prices increase, this reduces profitability, because COGS is higher (ie, most recent units purchased and sold are the most expensive) than with other inventory methods. The balance in inventory increased in Year 3. The cost of inventory may be rising with StickU's main supplier, or health care costs in general are rising.

Management should investigate how overall health care costs are impacting the business. As sales and related inventory increase, StickU should explore options to diversify suppliers or renegotiate volume discounts with the current supplier to reduce costs.

If the $131,421 in other income reported in Year 2 is removed from net income, the resulting profit margin is 5.74%, which is similar to the profit margin in Year 3.

StickU's financial ratios provide a more complete picture of its financial results. As a young business, it makes sense that StickU is using debt to grow the business. StickU could compare its financial results to industry or competitor information, if available, to provide more context.

Data Reports and Visualizations to Explain an Entity's Results

Representative Task (Analysis): Use outputs (e.g., reports, visualizations) from data analytic techniques to identify patterns, trends, and correlations to explain an entity's results.

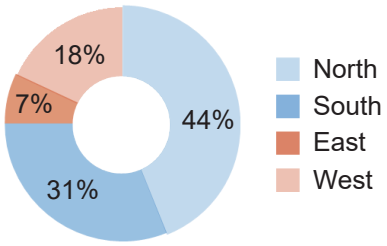
An entity's financial results can be represented in many ways to generate meaningful insights and make business decisions. As discussed earlier in the chapter, there are several different types of data analytic techniques that StickU can use to interpret its financial results and attempt to learn more about the drivers of the business. Let's look at how StickU uses these techniques to improve decision-making.

Sorting: StickU divides the business into four segments, North, South, East, and West. Sorting can be used to report StickU's Year 3 revenues in descending order by segment:

Year 3 Revenue by Segment

North	$3,208,593
South	2,257,077
West	1,310,561
East	509,662
Total	$7,280,893

Revenue by Segment

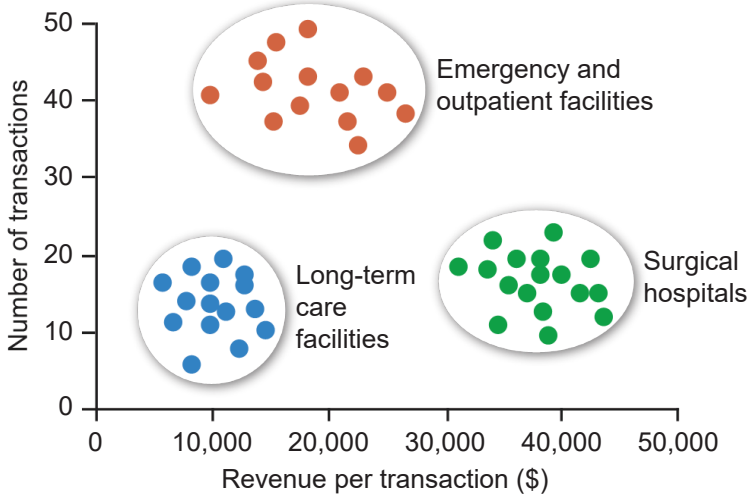


Another way to view StickU's Year 3 sorted revenue by segment is by using a data visualization. The donut chart represents the same data but is much easier to understand quickly.

Cluster analysis: StickU wants to understand its customer base and target its marketing strategy for the sales team. Hospitals are StickU's typical customer. However, there are several different kinds of hospitals (eg, long-term care facilities, emergency and outpatient hospitals, and surgical hospitals).

StickU performed a **cluster analysis** for revenue over the past year to see how **specific types** of hospitals **made up its sales**. StickU looked at the number of transactions and the revenue per transaction grouped by long-term care facilities, emergency and outpatient facilities, and surgical hospitals.

Revenue Cluster Analysis



The cluster analysis shows that surgical hospitals have a low volume of transactions that yield a higher amount of revenue per transaction.

The results help the sales team focus sales efforts on surgical hospitals (low-volume and high-revenue) and away from long-term care facilities (low volume and low revenue).

Matching: StickU is concerned that it might have duplicate customer records in its database. New customers are added by the call center. The accounting department sends out invoices based on those records but has found instances when customer information entered with a slightly different name creates a new customer record. The accounts receivable reports show each customer's balance separately.

StickU has the following customer balances reported on the accounts receivable aging report at the end of Year 2:

Customer	1–30 Days	31–60 Days
Capetown Hospital	23,720	
Cape Town Hospital		12,327

StickU uses data matching to identify duplicate records and merge customer data. The analysis results in several customer records requiring corrections.

In this instance, the only difference between the two customers is the spacing in the name. StickU will confirm the correct name and merge the two customer records. After the data is corrected, StickU puts a process in place that requires the call center to check existing customer records before adding a new customer.

Process mining: StickU's management has noticed that it takes approximately two weeks for a customer to be invoiced for orders. StickU would like to reduce this time by at least one week as a way to speed up customer payments and improve cash flow.

StickU uses process mining to **identify all the activities** involved from when the customer places an order until the invoice is generated, on the basis of the **activity logs** from each step of the process. From there, StickU creates a **process model** for optimized results.

When implementing the new process, StickU discovered there was a bottleneck in the accounting department. The orders are manually matched to shipping confirmations before an invoice is generated. The analysis allowed StickU to adjust its process, resulting in faster invoicing and increased cash flow.

Comparative and trend analysis: A simple report from the accounting system can be used to show balances, changes from period to period, and trends. The financial data can also be reported using horizontal and vertical analysis.

- **Horizontal analysis** measures the dollar and percentage **change over a period of time**. This is useful in discovering trends and material changes in the business
- **Vertical analysis** (ie, common sizing) reports financial **data** expressed as a **percentage of a common number** (eg, income statement items as a percentage of revenue, balance sheet items as a percentage of total assets). Vertical analysis helps with comparisons against other companies using percentages instead of actual dollar amounts

StickU's balance sheet can be reported using horizontal and vertical analysis to provide more insight into the results.

The *vertical analysis* displays StickU's results as a percentage of total assets each year. This quickly shows the composition of assets and liabilities as well as how they changed from year to year.

The *horizontal analysis* reports StickU's dollar and percentage change of financial results from Year 2 to Year 3. This analysis quickly shows increases in total assets, PP&E, and A/P as well as decreases in cash and net income, reinforcing the ratio analysis done previously.