




Introduction to Accounting and Finance Analytics

Acctg & Fin | BUS AN 500 | Class 01
Spring Qtr | 2026

FOSTER
SCHOOL OF BUSINESS

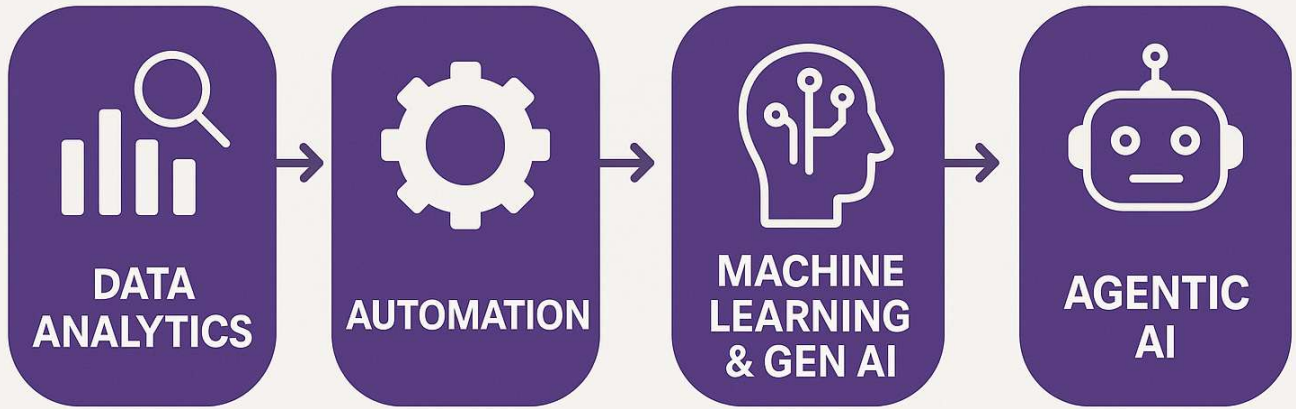
 UNIVERSITY of WASHINGTON

What will we do today?

- **Course Overview**
- Introduction to Accounting & Finance Analytics
 - Define the scope of the Accounting & Finance Function
 - Analyze Transaction Level Data
 - Analyze Public Disclosures
 - Provide a Solution to Disclosure Decision



Course Diagram



Course Overview

Accounting and Finance

Business analytics is transforming how organizations understand and execute accounting and finance processes. In this course, we examine how data, automation, and artificial intelligence come together to move from insight generation to intelligent, scalable workflows.

Business Analytics for Accounting and Finance examines the evolving role of data, automation, and artificial intelligence in modern financial and accounting environments. The course investigates how organizations transition from data-driven insight generation to fully integrated automation systems, where processes are increasingly executed, monitored, and adapted by intelligent technologies rather than human intervention alone.



Syllabus

Read me first! The course [Syllabus](#).



Course Overview

An overview of the classes in BUS AN 500.



Deliverables

Information on deliverables and links to the submission portals.



Key Terms

Definitions for Key Terms used in BUS AN 500.



FAQs

A repository of Frequently Asked Questions.



Video Materials

Additional video and other materials.

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Accounting & Finance Function

CFO

**Controller
(CAO)**

Financial
Reporting
Accounting
Payroll
External
payments

Treasurer

Cash Mngt.
Investment
Corporate
Finance
Debt Mngt.

**Director
FP&A**

Financial
Planning and
Analysis

Director IA

Internal Audit

**Director
GRC**

Governance
Risk and
Compliance

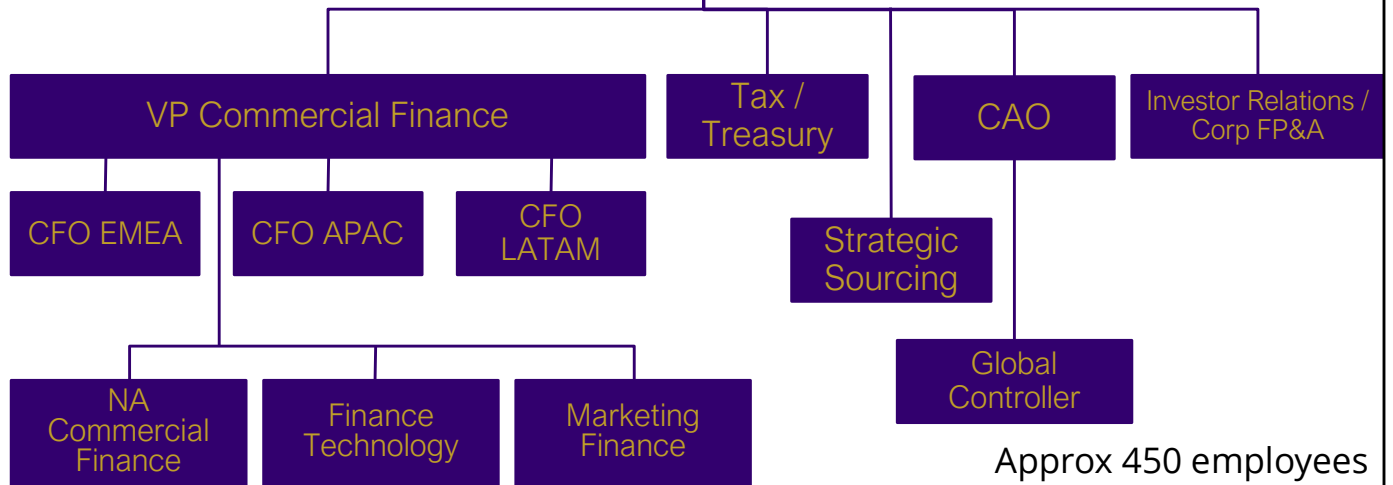
A now Public Company Example (pre-IPO)



Approx 120 employees

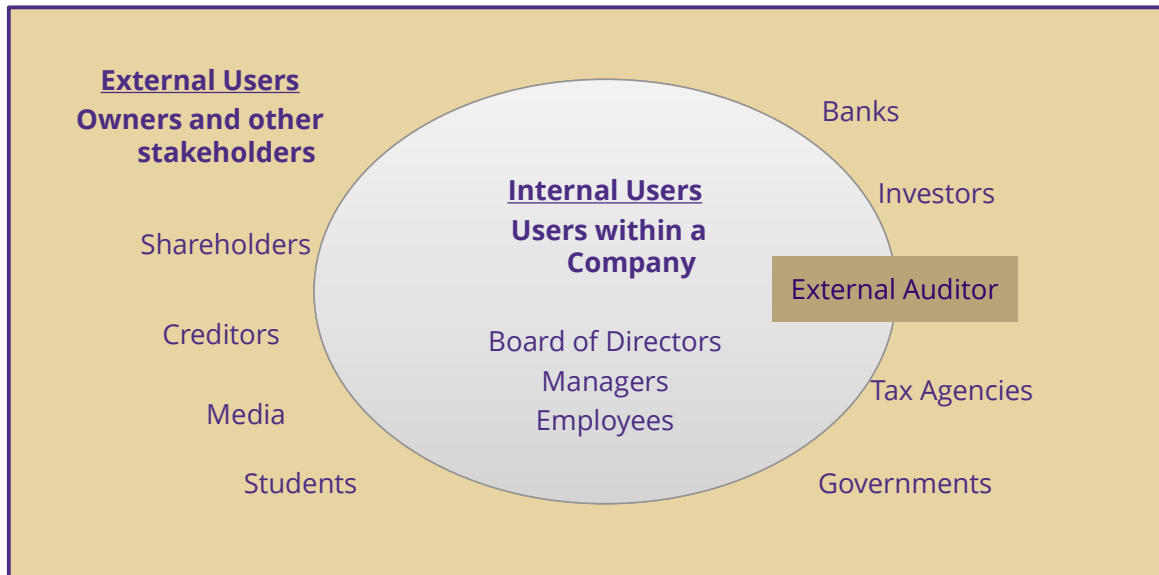
That same public company after IPO

CFO



Approx 450 employees

Accounting & Finance Function



Accounting & Finance Function

Data source for:

- Financial Reporting
- Accounting Systems
- FP&A
- Inventory management
- Supply Chain Mngt.
- And many more



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Transaction analysis

Transactions are events that affect the operations or finances of an organization.

- Accounting systems record transactions using a double-entry system using debits and credits.
- Transactions are recorded using the accounting equation:
 - **Assets = Liability + Equity**
- For example, increases to assets are debit entries, liabilities and equities increase with a credit entry.

Transaction analysis, high-level insight

Transactions record the *economic activities* of the firm so that firms can report meaningful economic aggregates measuring (for example):

- *Performance over a period*: Net Income, Revenue, Cost of Sales (margins), R&D & Salary Expenses, Interest & Tax Expenses.
- *What they have versus what they owe*: Cash, Inventory, What they owe (payables, debt), What they are owed (receivables, prepaid services).
- *Net Cash generated from their activities*: Cash paid, Operating Cash Flows, Investing and Financing cash-flows.

Transaction analysis, balance sheet

Assets		Liabilities		Equity	
DR	↑	CR	↓	DR	↓
				CR	↑

Balance sheet

Account Type	Account Class	Current year	Prior year	Change \$	Change %
Assets	Accounts Receivable	1,323	2,373	(1,049)	(44.2%)
	Cash	4,154,727	4,439,538	(284,811)	(6.4%)
	Inventory	893,928	193,964	699,964	360.9%
	Other ST Assets	398,272	398,272	0	0.0%
	Plant, Property and Equipment	13,045,903	11,106,826	1,939,077	17.5%
	Prepaid Expenses	550	550	0	0.0%
	Total	18,494,703	16,141,523	2,353,180	14.6%
Liabilities	Accounts Payable	1,951	(105,313)	107,264	(101.9%)
	Accrued Payroll	(11,759)	(12,350)	590	(4.8%)
	Other LT Liabilities	0	0	0	
	Other ST Liabilities	0	0	0	
		Total	(9,808)	(117,662)	107,854
Equity	Investments	(11,059,872)	(11,059,872)	0	0.0%
	Retained Earnings	(7,425,023)	(4,963,989)	(2,461,035)	49.6%
		Total	(18,484,895)	(16,023,860)	(2,461,035)

Transaction analysis, income statement

	↑ Assets >		↑ Liabilities =		↑ Equity	
	DR ↑					CR ↑
					Expenses <	Revenues
					Net Profit	

	↑ Assets <		↑ Liabilities =		↓ Equity	
				CR ↑	DR ↑	
					Expenses >	Revenues
					Net Loss	

Transaction analysis, income statement

Income statement

Account Type	Account Class	Current year	Prior year	Change \$	Change %
Revenue	Other Income	5,145	9,853	(4,708)	(47.8%)
	Sales-Dining	4,602,228	4,380,202	222,026	5.1%
	Sales-Hotel	4,601,518	4,909,465	(307,947)	(6.3%)
	Sales-Other	88,331	109,703	(21,373)	(19.5%)
	Total	9,297,222	9,409,224	(112,002)	(1.2%)
Expenses	COGS-Food	999,753	945,810	53,943	5.7%
	COGS-Hotel Pantry	22,469	19,836	2,634	13.3%
	Depreciation Expense	901,413	859,945	41,468	4.8%
	Other Expenses	306,864	277,698	29,166	10.5%
	Payroll Expense	2,827,392	2,638,122	189,270	7.2%
	Payroll Taxes	134,015	114,740	19,275	16.8%
	Retirement Benefits	223,445	179,068	44,377	24.8%
	SG&A	1,420,837	1,443,088	(22,252)	(1.5%)
	Total	6,836,187	6,478,306	357,882	5.5%

Net Income = Revenues – Expenses

Revenues – Expenses = Net Income

9,297,222 – 6,836,187 = 2,461,035

(a.k.a. a net profit)

Margins

Margins measure the efficiency of turning revenue into income:

Net Profit margin = Net Income / Revenue * 100

Operating Profit Margin = Operating Profit / Revenue * 100

Gross Margin = (Revenue - Cost of Sales) / Revenue * 100

Peach State University, Goal of the Activity

We will use the Peach State University Hotel Cases selectively to:

- View typical transaction data
- Understand how accounting amounts reflect the economics of the firm
- Consider how you would advise company to report their performance (after we analyze public disclosures)

Peach State University, set-up

We undertake an analysis of Peach State University Hotel (a real hotel's transactions with the name changed).

Three-part case with template (download the template from canvas).

Data analytics tool: Tableau

- Set-up in FSB remote labs using <https://fprod-hcs.foster.uw.edu/>
- In the u-drive use cmd to
- git clone <https://github.com/ashercurtis/datasets.io>

Peach State University, background docs

Part 1. Familiarity with the tool. Reference:

[Analytics_mindset_case_studies_PSU_Hotel_understanding_audit_analytics](#)

Part 2: Understanding sources of revenue. Reference:

[Analytics_mindset_case_studies_PSU_Hotel_Revenue](#)

Part 3: You will act as an advisor to identify events / transactions / transaction categories to craft the firm's non-GAAP earnings number. Reference:

[Analytics_mindset_case_studies_PSU_Hotel_background](#) (hint: search for events)

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Analyzing Public Disclosures: Market Response to Earnings

Key Take Away:

Accounting Income and market prices are positively associated (on average).

Source: Ball and Brown, *Journal of Accounting Research*, 1968

EMPIRICAL EVALUATION OF ACCOUNTING INCOME NUMBERS

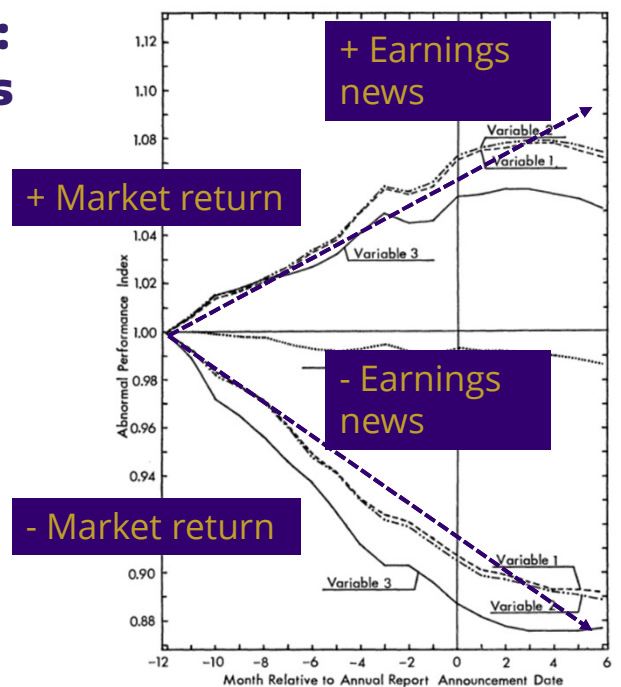
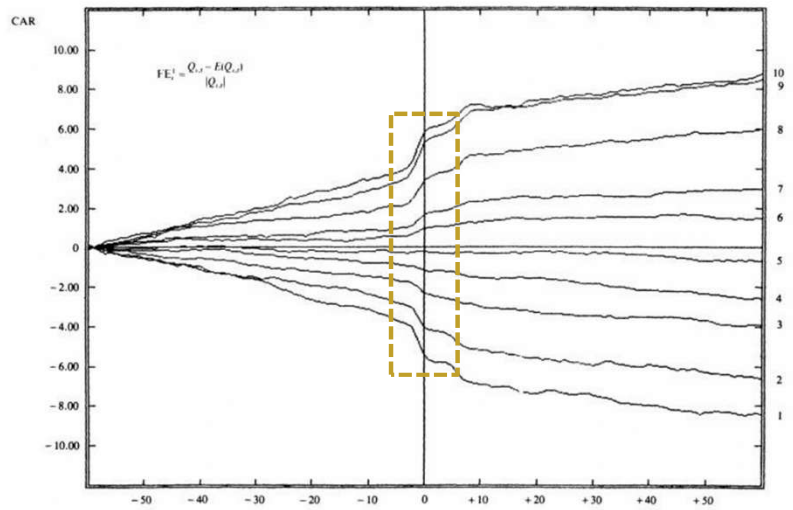


FIG. 1 Abnormal Performance Indexes for Various Portfolios

Market responsiveness to earnings news

Markets react to the news in accounting information as well as anticipate it.

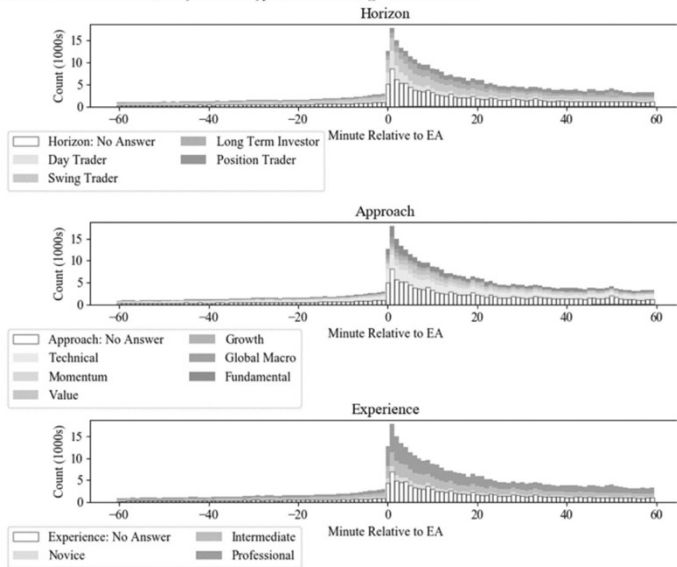


Market responses: Attention

On social media, investors of all types respond and discuss/post about firms more on earnings announcement days.

Source: Booker, Curtis, Richardson, *The Accounting Review* 2023.

Panel B: Minute Post Volume By Investor Type Around Earnings Announcements

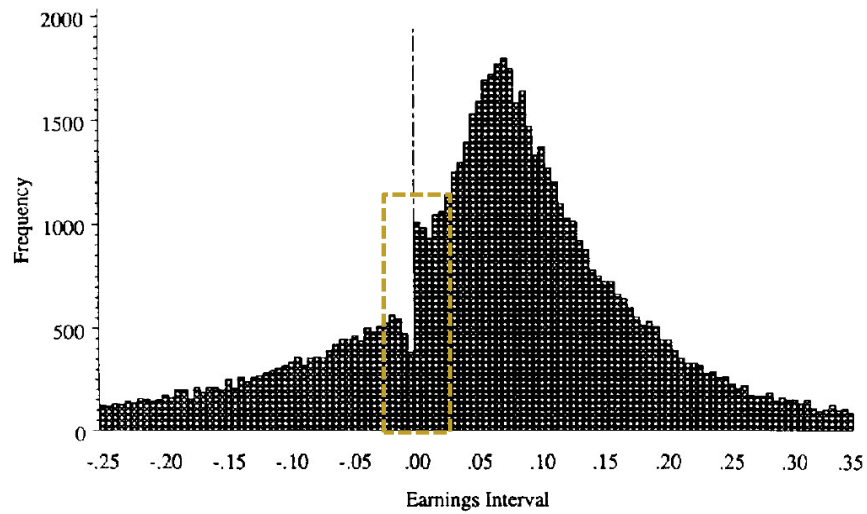


Revision: What is accounting income?

$$\text{Net Income} = \text{Revenues} - \text{Expenses}$$

For an accounting period (often reported quarterly, and annually)

Earnings Distributions



Source: Burgstahler and Dichev, 1997 *J. of Accounting & Economics*

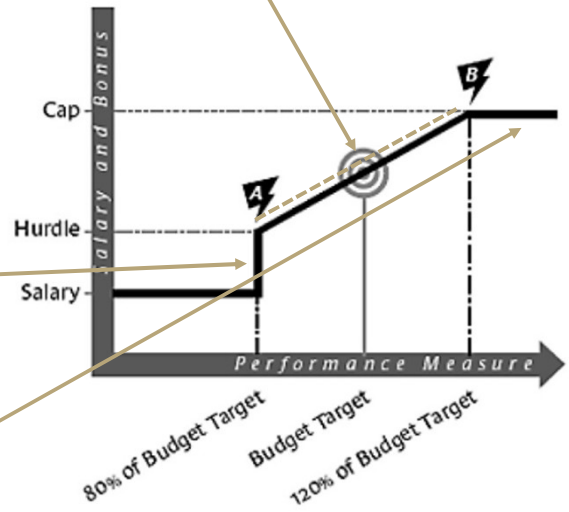
Earnings and Compensation

When compensation is tied to a performance measure, hurdle rates and caps can influence behavior.

Very significant increase for minor performance metric improvement

Versus:
No pay increase regardless of extra performance

"Pay for performance"



The Income Statement, revision

Displays financial performance derived from business operations over a specific accounting period by reporting:

- **Revenue:** inflows of economic benefits that increase shareholders equity.
 - e.g., sales revenue, service revenue, fees earned
- **Expenses:** Use or loss of economic benefits that decrease shareholders equity.
 - Incurred when you use resources to generate revenue, e.g., cost of goods sold, wages and salaries

If revenues are greater than expenses, a **net profit** is reported

If revenues are less than expenses, a **net loss** is reported

Understanding the Income statement

Core operating:
Sales, COGS, SG&A, Depreciation

Core Non-operating:
Interest, minority interests
Non-operating income, income tax

Non-core events/items:
-restructuring charges
-write-offs
-M&A costs

Discontinued operations, extraordinary items

Most likely to recur

Least likely to recur



GAAP and Non-GAAP

GAAP EPS

- ✓ Measured according to well established rules (GAAP)
- ✓ Often comparable across firms
- ✓ Includes transitory items, discontinued operations and extraordinary items

Pro-forma / Non-GAAP EPS

- ✓ Based on managers discretion
- ✓ Not often comparable across firms
- ✓ Highlighted by the SEC as a potential fraud risk
- ✓ Measures core earnings, / the firm's own measure of performance
- ✓ Often used in CEO compensation

Frequency of Items Excluded from compensation targets

Acquisitions	38%	Settlements	15%
Discontinued operations	15%	Stock compensation	16%
Effects of accounting changes	7%	Write-downs	17%
Extinguishment	8%	Amortization of acquired intangibles	10%
Foreign exchange gains and losses	9%	Capital charge	3%
Gains and losses	22%	Effects of regulation changes	2%
Impairment	16%	Mark-to-market	3%
In-process R&D	1%	Tax adjustments	15%
Other special items	6%	Unclassified	46%
Research and development	1%		
Restructuring	39%		

Source: "The Use of Adjusted Earnings in Performance Contracts"

Curtis, A., Li, V., and Patrick, P., (2021). *Review of Accounting Studies*, Vol. 26, pp. 1290-1322.

Analyzing Public Disclosures, Activity

Group Activity:

Part 1: Analysis of Marriott's Public Disclosures (as a class).

[Investor Relations | Marriott International](#)

Part 2: Analysis of other company filings (in small groups)

Marriott Earnings Report



4. Earnings Before Interest, Tax, Depreciation and Amortization: EBITDA (GAAP), adjusted EBITDA (Non-GAAP)

1. RevPAR: Revenue Per Available Room (Non-GAAP), Key Performance Indicator (KPI)

2. Reported EPS (GAAP), adjusted EPS (Non-GAAP)

3. Reported Net Income (GAAP), adjusted Net income (Non-GAAP)

5. Gross Room Additions (non-financial performance measure).

NEWS

Marriott International Reports Fourth Quarter and Full Year 2025 Results

- Fourth quarter 2025 RevPAR¹ increased 1.9 percent worldwide, with 6.1 percent growth in international markets and a 0.1 percent decline in U.S. & Canada. For full year 2025, RevPAR increased 2.0 percent worldwide, with 5.1 percent growth in international markets and 0.7 percent increase in U.S. & Canada
- Fourth quarter reported diluted EPS totaled \$1.65 and adjusted diluted EPS totaled \$2.58. For the full year, reported diluted EPS totaled \$9.51 and adjusted diluted EPS totaled \$10.02
- Fourth quarter reported net income totaled \$445 million and adjusted net income totaled \$695 million. For the full year, reported net income totaled \$2,601 million and adjusted net income totaled \$2,742 million
- Fourth quarter adjusted EBITDA totaled \$1,402 million. For the full year, adjusted EBITDA totaled \$5,383 million
- With gross rooms additions of nearly 100,000 rooms globally during 2025, net rooms grew over 4.3 percent from year-end 2024

Marriott

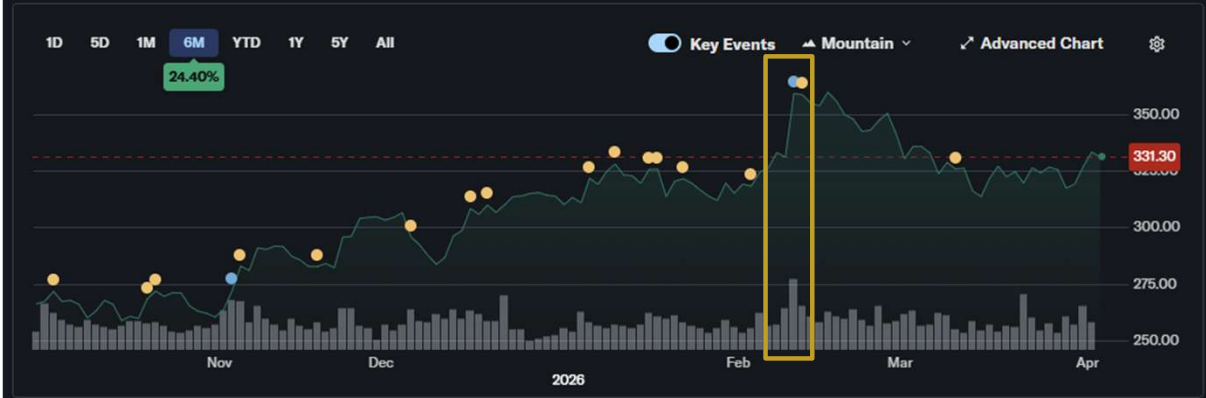
Marriott International, Inc. (MAR) ☆

331.30 -2.16 (-0.65%)

As of 3:27:36 PM EDT, Market Open.

Trade MAR on Coinbase

Trading disclosure ⓘ



Analyzing Public Disclosures

Team Activity:

Part 2: Analysis of other company filings (in teams)

- [Hilton – Investor Relations](#)
- [Hyatt Hotels Corporation - Investor Relations](#)
- [Investors - InterContinental Hotels Group PLC](#)
- [Wyndham Hotels & Resorts, Inc. \(WH\)](#)

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What will we do next?

The Accounting & Finance Function with Self-Service Analytics using Alteryx

- Explore some Compliance and Accounting & Finance Data Analytics from a production side.
- Use a self-service analytics tool (Alteryx) to produce working repeatable analytic end-to-end workflows for specific tasks.



Thank you

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