Case Study

Financial Ratios of the U.S. Grocery Sector in a Changing Industry Landscape

Carlos J.O. Trejo-Pech[a] and Susan White[b]
[a]University of Tennessee, [b]University of Maryland

JEL Codes: G30, G34, Q13, Q14, M21, A22, A23
Keywords: Agribusiness finance, financial ratios, food retail, grocery firms, managerial finance

Abstract
The U.S. grocery sector is one of the few sectors that benefited economically from the coronavirus pandemic. This was due to a combination of supply and demand shocks, including increasing food-at-home related purchases when restaurants were in lockdown to curb the spread of the coronavirus, supply disruptions across diverse food supply chains, and customer panic-buying behavior and hoarding products. As a result, more innovations have occurred recently compared to changes in the past. This case study discusses the changing landscape in the grocery sector, including mergers, new kinds of competitors, and how firms react to those changes. This discussion allows for conducting a systematic analysis of the U.S. grocery sector. Motivated by the potential acquisition of Albertsons by Kroger, announced on October 14, 2022, the case study focuses on these companies. The article models a financial analysis of Kroger. Students using this case study are expected to replicate the financial analysis for Albertsons. The case study's learning objectives are to (1) calculate and interpret financial ratios by category for a traditional grocer, (2) compare and contrast the financial ratios of two companies in the same industry, and (3) perform an industry analysis of U.S. grocery firms using Porter's Five Forces.

1 Introduction

The U.S. grocery sector, encompassing traditional and non-traditional grocery stores and multiple segments, is one of the few sectors that benefited economically from the coronavirus pandemic (CFRA 2022; U.S. Census Bureau 2023).[1] This was due to a combination of supply and demand shocks, including increasing food-at-home related purchases when restaurants were in lockdown to curb the spread of the coronavirus, supply disruptions across diverse food supply chains, and customer panic-buying behavior and hoarding products, all of which contributed to price increases (Hobbs 2021).

The U.S. grocery sector has traditionally been characterized as a low-growth, low-margin, and mature group of firms where grocery stores compete primarily with price discounts. The pandemic changed this a little, causing this sector to grow faster in recent years. As a result, more innovations have occurred recently compared to changes in the past. For example, the entrance of Amazon into groceries, with the acquisition of Whole Foods Market Inc. (Whole Foods) in 2017, significantly increased the visibility and convenience of online grocery and food sales. The pandemic lockdowns accelerated online sales growth across many grocery firms. Specifically, e-grocery represented 3.4 percent of all grocery sales in 2019, and this share increased to 11.1 percent in 2022 (Acosta 2021). In addition, Amazon has opened Amazon Fresh stores, where shoppers scan their items to their Amazon accounts and do not deal with checkout lines. Another example of how food retailing is changing is the acquisition of Fresh Market

[1] Revenue from U.S. retail food and beverage stores grew on average 2.9 percent per year during the five years before the pandemic and 9.7 percent in 2020, 3.5 percent in 2021, and 7.6 percent in 2022 (U.S. Census Bureau 2023). In addition, U.S. publicly traded grocery and food retailers' equity value increased significantly more than the entire U.S. market (CFRA 2022).

Inc.—a close competitor to Whole Foods—in July 2022 by Cencosud S.A., a prominent South American retail and supermarket conglomerate.

Technology and changing consumer habits have led to industry disruptions that will likely continue. Conventional supermarkets have responded by acquiring smaller regional chains to remain competitive, leading to a more significant industry concentration. Most prominently, on October 14, 2022, The Kroger Company (Kroger) announced plans to purchase Albertsons Companies Inc. (Albertsons). According to a Wall Street Journal article, the announcement received much attention from the business community because it would be one of the biggest deals, with a $24.6 billion value, in the history of the U.S. grocery industry (Kang 2022). For context, the highly publicized acquisition of Twitter in 2022 was valued at $44 billion.

This case study discusses the changing landscape in the grocery sector, including mergers and new kinds of competitors, and how firms react to those changes. This discussion allows for conducting a systematic analysis of the U.S. grocery sector. Motivated by the potential acquisition of Albertsons by Kroger, the case study focuses on these companies. After describing the grocery sector in the next section and presenting the two firms in section three, the authors model a financial analysis of Kroger in section four. Students using this case study are expected to replicate the financial analysis for Albertsons. The case study's learning objectives are to (1) calculate and interpret financial ratios by category for a traditional grocer (Albertsons), (2) compare and contrast the financial ratios of two companies in the same industry (Kroger and Albertsons), and (3) perform an industry analysis of U.S. grocery firms using Porter's Five Forces.

Our proposed framework to conduct the financial analysis is curated to provide insightful schemes for analysis. Specifically, we select a manageable yet informative set of financial ratios to study based on prior research. In addition, we define a categorization of financial ratios that is comprehensive because it covers accrual accounting (income statement and balance sheet), cash accounting (statement of cash flow), and market data (stock prices). Furthermore, we propose a template with instructions evaluating trends and comparisons, which is particularly important for teaching purposes.

2 The U.S. Grocery Sector

2.1 Grocery Business Segments and Firms

In the early 1900s, urban Americans still primarily bought food from peddlers, public markets, and local grocers (Deutsch 2012). It was during the Great Depression when supermarkets became popular and the "norm" in U.S. food retailing because cost efficiencies and large scale allowed these businesses to offer lower grocery prices when people most needed them. Business historians attribute the origins and popularity of supermarkets to their efficiency and low prices (Savitt 1989; Howard 2011).

Grocery retailing has changed since the first self-service grocery store, Piggly Wiggly, opened in Memphis, Tennessee, in 1916.[2] Some grocery stores have significantly departed from the original concept, making classifying and analyzing grocery stores into sub-groups—industries and segments—challenging. In addition, grocery stores compete in different store formats, with groceries sold in department stores Walmart and Target and in dollar stores. However, identifying business segments within a broad sector is relevant for an economic analysis of industries.

According to the Food Marketing Institute (FMI), grocery retailing can be broadly categorized into traditional and non-traditional grocery stores (Food Processing 2016). This document refers to these sub-sectors as industries of the grocery sector. Furthermore, the traditional grocery industry includes the following segments: (1) conventional supermarkets, (2) natural or fresh grocers, (3) limited

[2] https://tnmuseum.org/junior-curators/posts/the-story-of-piggly-wiggly-the-first-supermarket?locale=en#:~:text=Then%2C%20on%20September%2011%2C%201916,would%20pick%20their%20own%20items.

assortment grocers, (4) super warehouses, and (5) others. Non-traditional grocery stores include (1) wholesale clubs, (2) supercenters, (3) mass merchandisers, (4) dollar stores, (5) drug stores, and (6) others. This case study focuses on conventional supermarkets, one segment of traditional grocers. However, competition among grocery firms occurs among all participants in the grocery sector. Therefore, an understanding of the entire sector contributes to the analysis of firms in a particular segment. Table 1 lists selected grocery stores in the United States classified by industries and business segments.

Table 1: Selected Grocery Stores in the U.S. Grocery Sector

Firm	Industry	Segment
Kroger	Traditional grocery	Conventional supermarkets
Publix	Traditional grocery	Conventional supermarkets
Safeway	Traditional grocery	Conventional supermarkets
Albertsons	Traditional grocery	Conventional supermarkets
HE Butt Grocery Co.	Traditional grocery	Conventional supermarkets
Wegmans Food Markets Inc.	Traditional grocery	Conventional supermarkets
WinCo Foods Inc. (Waremart)	Traditional grocery	Conventional supermarkets
Whole Foods	Traditional grocery	Natural grocer[1]
Sprouts Farmers Market	Traditional grocery	Natural grocer[1]
The Fresh Market	Traditional grocery	Natural grocer[1]
Trader Joe's	Traditional grocery	Limited assortment grocery stores[2]
Aldi	Traditional grocery	Limited assortment grocery stores[2]
Save-a-Lot Food Stores	Traditional grocery	Limited assortment grocery stores[2]
Smart & Final Stores Inc.	Traditional grocery	Super warehouse
Food4Less	Traditional grocery	Super warehouse
Walmart Supercenter	Non-traditional grocery	Supercenter
Target Supercenter	Non-traditional grocery	Supercenter
Meijer Inc.	Non-traditional grocery	Supercenter
Costco	Non-traditional grocery	Wholesale club
Sam's Club	Non-traditional grocery	Wholesale club
BJ's Wholesale Club Inc.	Non-traditional grocery	Wholesale club
Dollar General	Non-traditional grocery	Dollar stores
Dollar Tree	Non-traditional grocery	Dollar stores
Walmart	Non-traditional grocery	Mass merchandiser
Target	Non-traditional grocery	Mass merchandiser
Walgreens	Non-traditional grocery	Drug stores
CVS	Non-traditional grocery	Drug stores

Source: Prepared by authors based on classifications from different sources, including Food Processing (2016), Blankenship and Schill (2017), Danzinger (2020), and Sundaram (2022).
[1] Also known as fresh format stores.
[2] Also known as discount grocery stores.

2.1.1 The Traditional Grocery Industry

The business market research firm IBISWorld refers to traditional grocers as "supermarkets and grocery stores." This case study mainly uses the term "traditional grocers" following the FMI's classification. (Bold type is used in this and the following section to indicate the name of segments in the grocery sector.) **Conventional supermarkets** are traditional grocers that closely keep the format of the original supermarkets created at the beginning of the twentieth century but are updated to modern needs. Like other grocers, these stores sell food products, including bakery goods and prepared food, beverages, dairy and egg products, fresh and frozen meat, frozen foods, fruit and vegetables, other foods, and other nonfood products (IBISWorld 2023). What distinguishes **conventional supermarkets** from other segments, according to the FMI, is that they generate up to 15 percent of their revenue from general merchandise, health, and beauty care products. Some conventional supermarkets also offer pharmacy and gas station services.

Kroger, Albertsons, Publix Supermarkets Inc. (Publix), H-E-B Grocery Co. LP (H-E-B), and Koninklijke Ahold Delhaize N.V. (Delhaize) are the largest conventional supermarket firms in the United States. In March 2023, IBISWorld estimated the market share of these firms in the traditional grocery industry to be 14.4 percent for Kroger, 8.3 percent for Albertsons, 6.4 percent for Publix, 3.9 percent for H-E-B, and 3.0 percent for Delhaize. Whole Foods, a **natural or fresh grocer** owned by Amazon.com Inc., ranked sixth, with a 2.2 percent market share, in the traditional grocery industry (IBISWorld 2023).

As shown in Table 1, in addition to **conventional supermarkets**, traditional retail grocery stores include **natural or fresh grocers** such as Whole Foods, Sprouts Farmers Market, and The Fresh Market; **limited assortment grocers** such as Trader Joe's, Aldi, and Save-a-Lot; and **super warehouses** such as Smart and Final Stores Inc. **Natural or fresh grocers** specialize in perishable, with an emphasis in natural, organic, or ethnic foods. **Limited assortment grocers** are also known as discount stores because they base their business strategy on offering low prices for a limited assortment of groceries. Finally, **super warehouses** are a hybrid between **conventional supermarkets** and **wholesale clubs**.

2.1.2 The Non-Traditional Grocery Industry

Traditional grocers compete with non-traditional grocers, such as **mass merchandisers** and **supercenters**, typically represented by Walmart and Target stores. **Mass merchandisers** sell appliances, clothing, electronics, sporting goods, and groceries. In addition, mass merchandisers have larger store formats known as **supercenters** (e.g., Walmart Supercenter and Super Target), considered a hybrid between conventional supermarkets and mass merchandiser stores. **Supercenters** typically have at most 40 percent of their space dedicated to grocery products (Minnesota Growers Association 2023).

Walmart entered relatively late in the grocery business by opening its first supercenter in Washington, Missouri, in 1988, combining a supermarket with general merchandise to provide one-stop shopping convenience.[3] As a result, Walmart became the country's largest grocer within a decade (White 2020). The company is still the largest grocery firm in the whole grocery sector, capturing about a quarter of the U.S. grocery sector. (Table 2 provides estimated market shares in this sector, including traditional and non-traditional grocery industries.) Walmart's annual revenue from groceries, at $247.3 billion, represented 59 percent of the company's total revenue during the 2023 fiscal year ending January 31, 2023 (Walmart Inc. 2023).

Other non-traditional grocers are **discount wholesale** or **warehouse clubs** like Sam's Club[4] and Costco Wholesale Corporation (Costco). These club formats, created in the United States during the 1970s and 1980s, offer discounts through a paid membership in a warehouse-type environment. Typically, between 30 and 40 percent of products in these stores are groceries provided in large sizes and bulk sales, and the rest are general merchandise and health and beauty care products (Minnesota Growers Association 2023).

Dollar stores and **drug stores** are other non-traditional grocers. **Dollar stores**, including firms Dollar General and Dollar Tree, are small store formats that previously offered knickknacks and staples, and currently offer food and consumable products at price discounts. **Drug stores**, such as Walgreens and CVS, also offer groceries.

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[3] https://corporate.walmart.com/about/history.

[4] As of 2022, Sam's Club was a division of Walmart Inc.

Table 2: Estimated Market Shares in the U.S. Grocery Sector (Average of 2021 and 2022)

Company name	Business segment	Market Share (%)
Walmart Inc.	Supercenter	25.7
Kroger Co.	Conventional supermarkets	7.0
Costco Wholesale Corp.	Wholesale club	6.5
Target Corp.	Supercenter	5.4
Albertsons Inc.	Conventional supermarkets	4.1
Koninklijke Ahold Delhaize NV	Conventional supermarkets	3.2
Publix Super Markets Inc.	Conventional supermarkets	3.2
HE Butt Grocery Co.	Conventional supermarkets	2.1
Seven & I Holdings Co. Ltd.	Limited assortment grocery	1.4
Aldi Group	Limited assortment grocery	1.4
Meijer Inc	Supercenter	1.3
Wakefern Food Corp.	Conventional supermarkets	1.1
Trader Joe's Co.	Limited assortment grocery	1.1
Amazon.com Inc.	Natural grocers	1.0
Hy-Vee Inc.	Conventional supermarkets	0.8
BJ's Wholesale Club Inc.	Wholesale club	0.7
Wegmans Food Markets Inc.	Conventional supermarkets	0.7
WinCo Foods Inc (Waremart)	Conventional supermarkets	0.6
Giant Eagle Inc.	Conventional supermarkets	0.6
Southeastern Grocers LLC	Conventional supermarkets	0.6
Alimentation Couche-Tard Inc.	Limited assortment grocery	0.6
Northeast Grocery Inc.	Conventional supermarkets	0.5
Other		30.8

Source: Market shares estimates by Euromonitor International (2023). Grocers with less than 0.5 market shares were added to "Other." The business segment classification was based on information in Table 1 and according to Capital IQ's description of firms (S&P Net Advantage 2023).

2.2 Revenue, Growth, Competition, Trends, and Profitability

Despite many changes in the grocery sector, almost a century after the first supermarket was created, conventional supermarkets remained the primary destination of grocery shoppers in the United States (Blankenship and Schill 2017; Winsight Grocery Business 2019; FMI 2023). However, competition from other traditional and non-traditional store formats has recently been and is expected to continue to be fierce, focused mainly on price discounts. This intense price competition has traditionally defined grocery as a low-margin sector. However, recent research shows that this sector is highly profitable in terms of returns on assets, equity, and investment (Trejo-Pech 2023), which suggests that the traditional low-margin stylized fact to describe this sector might be misleading. Indeed, as shown in section four, Kroger's return on investment is relatively high.

Traditional grocery[5] revenues have grown an average of 2.6 percent annually during 2018–2022. Except for 2020 and 2022, retail food and beverage sales growth has been low and steady during the last three decades (U.S. Census Bureau 2023). Traditional grocery store sales were estimated at $811 billion in 2022 (Diment 2023). Of this revenue, $677.6 billion (83.5 percent) corresponded to food and

[5] As noted above, IBISWorld uses the term "supermarkets and grocery stores," and the FMI uses "traditional grocery stores" when classifying industries in the grocery sector.

beverages. This included 2020 revenue growth of about 9.0 percent, an industry-atypical high increase driven by more people staying and cooking at home, restaurant closures, less travel, and more caution during the pandemic. Other factors that increased revenues included greater disposable income—federal economic stimulus—greater popularity of more expensive organic food options, and continuation of pandemic habits: less dining out and more work-from-home.[6] All this benefited traditional grocery stores, primarily conventional supermarkets and supercenters like Walmart and Target, because those companies have the most significant market shares.

However, the picture is not entirely rosy for conventional supermarkets and supercenters. As the effects of the pandemic faded and inflation rates—particularly for food items—increased in 2022, some consumers also have turned to less expensive warehouse stores and simpler store formats. Simpler format stores carry fewer products and fewer branded products, emphasizing their own store or private brands. Examples are Aldi, Lidl, and Trader Joe's, whose private brands are often organic and non-GMO. Private-label brands tend to have higher profit margins than national brands of the same item. While offering store brands is an extended business practice among different segments in the grocery sector, discount stores Aldi and Trader Joe's had the highest share of store brands in their portfolio in 2022 (Progressive Grocer 2022).

Large retail grocery firms have become even more prominent through mergers and acquisitions and have offered discounts to loyalty rewards members to face the competition of those and other grocery segments. These trends increased revenues but not necessarily profits in the traditional grocery industry during 2018–2022. IBISWorld expects future profits to be stable and revenues to grow more slowly. Specifically, industry growth through 2027 will likely be under 1 percent per year, with total industry revenues reaching $846 billion by 2027, including non-food-related revenues.

Considering the entire grocery sector, sales in some alternative retail grocery stores grew more quickly than in conventional supermarkets like Kroger and Albertson during 2018–2022. For instance, organic sales in discount grocers (Aldi, Lidl, and Trader Joe's), warehouse clubs (BJ's, Costco, and Sam's Club), and groceries sold in department stores (Walmart and Target) grew faster than in conventional supermarkets. Conventional supermarkets have responded by acquiring smaller regional chains, leading to a greater concentration in that industry's segment. However, the traditional grocery business is not yet highly concentrated despite merger and acquisition activity. The top four traditional grocery chains—Kroger, Albertsons, Publix, and H-E-B in order of market shares (IBISWorld 2023)—account for about 33 percent of the total revenue of the traditional grocery industry (refer to section 2.1). In contrast, concentration in the non-traditional grocery industry is very high, with the top four companies, led by Walmart and Costco, having more than 90 percent of this industry (Petridis 2022).

Digital revenues from grocery sales are also substantial. Traditional groceries have recently faced more competition from online grocery retailers like Amazon. Until recently, few grocery purchases were made online. However, Amazon's acquisition of Whole Foods in 2017 significantly increased the visibility and convenience of online sales, with the firm moving from paper goods and cleaning supplies to boxed staples (cereal, crackers, etc.) to fresh perishables. In addition, COVID-19 pandemic lockdowns accelerated online sales growth across many grocery firms. For instance, Acosta (2021) estimated that U.S. pre-pandemic e-grocery represented 3.4 percent of all grocery sales in 2019, and this share

[6] Household disposable income is considered the most important driver of retail grocery sales. Disposable income rose during the pandemic and is expected to decline slightly in the future. Regarding organic and more natural food in general, millennials (born 1981–1996), the largest demographic group, tend to be more health-conscious. Whole Foods, for example, reacted by stocking more premium private label items, more organic choices, and a food bar where busy shoppers can pick up a healthy meal. Some grocers also have in-store dining areas, all trends that traditional grocery chains could copy.

increased to 8.1 percent in 2020, then 11.1 percent of revenues in 2022. Post-pandemic, online grocery sales are expected to increase to around 20 percent in 2026 (Acosta 2021) as more people become more comfortable with online grocery shopping and grocery firms consolidate their investments in this technology. In addition, the use of online delivery services such as Instacart increased during the pandemic and is likely to continue growing.

Technology and innovation disruptions may play a role in the future of the grocery sector. Amazon, for instance, has opened Amazon Fresh stores, where shoppers scan their items to their Amazon accounts and do not deal with checkout lines. While technology in grocery stores has been increasing, historically, the sector has had a meager innovation rate. Historically, labor has been more critical in stocking shelves and helping customers. On the other hand, innovation has been crucial in the delivery process, with newcomers like DoorDash, Instacart, Uber Eats, and HelloFresh delivering directly to consumers.

For various reasons, including supply chain issues and pandemic stimulus money, inflation for many food products increased during the pandemic. Since it is challenging to differentiate food items (e.g., a box of Cheerios is the same at every grocery store), consumers tend to be very price-conscious and price-sensitive and buy at the store with the lowest prices. This causes price competition in the grocery industry to be significant and margins to be low but highly stable. Precisely, net profit in the traditional grocery industry was estimated at 1.9 percent during the last five years—reaching a peak of 2.2 percent in 2020—and 1.8 percent in 2022 (Diment 2023). In contrast, non-traditional groceries, particularly wholesale clubs and supercenters, had a higher net profit, estimated at 3.9 percent during the last five years, with the same 3.9 percent net profit in 2022 (Petridis 2022). Profitability in the wholesale clubs and supercenters segments was driven mainly by Walmart. One 2023 study calculated financial ratios across U.S. industries, finding that retail food and grocery was the fourteenth least attractive industry in terms of margins among 94 industries, with 2 percent net profit margin. The median net profit margin for all 94 industries was 7.3 percent (Damodaran 2023).

As of early 2023, the grocery sector faced moderate entry barriers, mainly due to high initial investment costs. Not only would newcomers need capital for buildings and inventory, but the technology was also becoming a more increased investment. For example, many stores have "point of sale" systems, a technology that allows stores to track inventory, determine trends, and gather marketing data. However, once the initial capital expenditures are made, grocery firms have relatively low additional capital expenditures, with about nine cents spent on capital expenses for every dollar spent on wages.

3 The Kroger Company and Albertsons Companies Inc.

Kroger, whose beginnings can be traced back around a hundred years (Kang 2023), is a publicly traded firm trading on the New York Stock Exchange (NYSE). In addition to Kroger grocery stores, Kroger owns other brands, including Harris Teeter, Smith's, Food4Less, Dillon's, Roundy's supermarkets, Ruler Foods, and others. The firm is headquartered in Ohio and employs about 420,000 people.

Kroger is classified as a conventional supermarket, according to the FMI, and is the largest traditional grocery store in the United States. The firm captured a 14.4 percent market share, according to estimations by IBISWorld as of March 2023. This scale gives Kroger the potential to achieve savings from economies of scale. Its stores are full-service operations, generally including a bakery, pharmacy, gas, and household products. The firm has about 2,700 stores in 35 states in the United States, without a presence in other countries. In addition, Kroger ranks second in the entire U.S. grocery sector, with about 7 percent market share (considering both traditional and non-traditional grocers), with this sector led by

Walmart, with around 25 percent market share (Table 2). Appendix 1 gives Kroger's financial statements from 2019 to 2022. (The financial analysis is conducted for the 2020–2022 period, and 2019 data are provided to calculate 2020 year-to-year growth rates.)

Albertsons started as a single store in Idaho in 1939 (Kang 2023). It is currently a publicly traded firm trading its stocks on the NYSE. The firm's initial public offering (IPO) occurred recently, during the COVID-19 pandemic, on June 26, 2020. By the end of 2022, the company operated about 2,300 supermarkets in 34 states and the District of Columbia (Kang 2022; Graja 2023). In addition to Albertsons stores, the firm owned Safeway, Vons chains, Shaw's, Jewel-Osco, and Acme markets. Appendix 1 provides financial statements for Albertsons from 2019 to 2022.

Kroger and Albertsons have a relevant presence in the online grocery market. 2022 shares of total grocery e-commerce sales of leading online grocery stores were estimated as follows: Walmart 27.6 percent, Amazon 21 percent, Kroger 9.9 percent, Target 5.1 percent, and Albertsons 3.6 percent (Insider Intelligence 2022). The Kroger and Albertsons brands are also well-recognized by customers, particularly Kroger. The grocery stores ranked by brand awareness in 2022 were, in order of higher rank: Walmart, Target, Sam's Club, Costco, Kroger, Aldi, Whole Foods Market, Trader Joe's, Safeway, Publix, Albertsons, BJ's, Food Lion, Fred Meyer, Hy-Vee, and Lidl (Statista 2022). Due to its strong brand name recognition, Kroger ranked #21 in the 2022 Fortune 500 list.

4 Financial Analysis of Kroger

Ratio analysis has a wide variety of uses in business. For example, based on recent historical financial data and ratios, lenders want to know if a company is sound enough to repay their loan. Shareholders want to know the firm's future cash flows and financial health to decide whether to invest in that firm. A firm acquiring another company wants to know whether the target firm will fit the acquirer well. In general, financial ratio analysis is often the starting point for cases involving financing and investment decisions. In this case study, the motivation for the analysis is the potential acquisition of Albertsons by Kroger.

One significant challenge when conducting financial ratio analysis is selecting a manageable yet informative and helpful set of financial ratios to study. This is because many financial ratios are used in practice; no consensus exists regarding the most important ones, and financial ratios contain overlapping information. The ratios used in this case were selected based on prior research on this topic. (Trejo-Pech (2023) discusses this issue and summarizes findings in this literature. Trejo-Pech, Noguera, and White (2016) investigated the financial ratios preferred by equity analysts.)

In addition, defining a systematic approach to follow is helpful. For this analysis, we define a framework that categorizes financial ratios into four groups: (1) income statement-based ratios, (2) ratios combining balance sheet and income statement data, (3) statement of cash flow ratios, and (4) stock price-related ratios. This framework is more comprehensive than others, such as the DuPont model—which focuses on drivers of firm profitability—or group of ratios that typically cover income statement and balance sheet-related ratios only. This framework also allows students to recognize what type of relevant information each of the three financial statements brings to the analysis.

Finally, providing a template with instructions on calculating and evaluating the financial ratios is particularly important for teaching purposes. The authors have already filled in the template for Kroger to model a financial analysis (Table 3)—discussed next. Students are expected to replicate this analysis for Albertsons using this template (Appendix 2).

4.1 Income Statement-Based Ratios

Margins (i.e., any income statement item divided by revenue) are relevant for financial analysis. Operating or EBIT (earnings before interest and taxes) margin is relevant for analysis because it captures revenue, cost of sales, and operating expenses, that are under management control, unlike financial expenses and taxes that escape management control. The net margin relates net income, the bottom line, to revenue. In addition, given the prominence of revenue in generating profits and cash, the year-to-year revenue growth is closely scrutinized by investors. Investors are also concerned about the amount of profits generated by the firm on a per share basis (earnings per share, EPS).

Table 3 shows that (1) Kroger operates with very low margins (below 2 cents of net profit, on average, for every dollar sold), (2) EBIT margin is increasing every year, and (3) the other metrics (net margin, revenue growth, and EPS) are volatile but with an upward curve in the three year period, meaning that in 2022, the most recent year, these metrics increased. Overall, Kroger's income statement appears healthy, particularly in 2020 and 2022.

Table 3: Financial Ratios for Kroger

	2020 KR	**2021 KR**	**2022 KR**	**KR Avg.**	**Trend**
Margins:					
EBIT margin	2.4%	2.7%	3.1%	2.7%	Increasing (+)
Net margin	2.0%	1.2%	1.5%	1.6%	Volatile (upward)
Other income statement:					
YtoY revenue growth	8.4%	4.1%	7.5%	6.6%	Vol. upward
EPS	$3.3	$2.2	$3.1	$2.9	Vol. upward
Asset mgt efficiency:					
Assets turnover	2.7x	2.8x	3.0x	2.8x	Increasing (+)
Profitability					
ROI	8.1%	10.1%	11.5%	9.9%	Increasing (+)
Lev. & Debt Mgt:					
Debt to assets	42%	42%	41%	42%	Stable (=)
Debt to EBITDA	3.5x	3.1x	2.7x	3.1x	Decreasing (+)
EBIT to interest	5.8x	6.5x	8.5x	6.9x	Increasing (+)
Liquidity:					
Current ratio	0.8x	0.7x	0.7x	0.8x	Stable (=)
Cash flow:					
CFO to CAPEX	2.4x	2.4x	1.5x	2.1x	Vol. downward (-)
CAPEX to D&A	1.0x	0.9x	1.0x	1.0x	Stable
Market value-related:					
Price to Earnings (PE)	10.3x	19.6x	14.3x	14.7x	Vol. downward

Note: The **intra-firm trends** were determined according to these rules:
Increasing: If financial ratios grow every year.
Decreasing: If financial ratios decline every year.
Stable: If financial ratios move within a range of +/– 0.5%, 0.5x, $0.5, or 5.0 percentual points (the latter for leverage).
Volatile: If financial ratios move out of a range of +/– 0.5%, 0.5x, $0.5, or 5.0 percentual points (the latter is for leverage). For a volatile curve, the curve is identified as upward or downward.
The positive (+), negative (–), or equal (=) signs after the trend indicate whether the trend benefits, hurts, or is neutral for the financial health of the firm.
Formulas to calculate the financial ratios are in Appendix 3.

4.2 Ratios Combining Income Statement and Balance Sheet Data

This group of ratios includes four subcategories, with ratios proxying (a) asset efficiency, (b) profitability, (c) leverage and debt management, and (d) liquidity.

Table 3 shows that according to the asset turnover ratio, Kroger is selling more relative to resources or assets used, becoming more efficient yearly. On average, Kroger sells $2.8 for each dollar invested in total assets. The firm is also growing its profitability, measured by the return on investment.[7] During the three years, Kroger's operating income after taxes (but before interest expenses) represents, on average, 9.9 cents for every dollar of financing capital (i.e., debt plus equity) it uses to operate.

Table 3 also gives leverage and debt management ratios. Here, three ratios are provided because they convey different information related to firm leverage and payment capacity. Debt to assets measures leverage level, which at 42 percent has been stable during the three years. While stability is in general desirable in financial analysis, this level of debt seems relatively high. A recent benchmarking analysis shows, for instance, that the median value debt to assets for the aggregate U.S. market during the last twenty years is 17 percent, with this ratio varying between 9 to 36 percent across 16 economic sectors (Trejo-Pech 2023). Furthermore, debt to assets for Walmart, the leading firm in the whole grocery sector, was 25 percent on average during 2020–2022.

Debt to Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) measures total debt relative to EBITDA, a proxy of firm cash flow. Table 3 shows that this ratio is consistently decreasing yearly, which is positive for Kroger given that even though debt is stable relative to total assets, debt is decreasing relative to the amount of cash the firm generates. In addition, EBIT to interest payments is increasing, meaning Kroger generates more operating income (which potentially converts into cash) relative to short-term debt-related obligations. Overall, while Kroger's level of debt may be concerning, the company is improving its payment capacity. Finally, for the second group of financial ratios in our categorization, Table 3 provides the liquidity ratio, which is stable for Kroger, with about 80 percent of current assets relative to current liabilities.

4.3 Statement of Cash Flow Ratios

The cash flow from operations (CFO) and capital expenditures (CAPEX) are critical cash flow items when evaluating the statement of cash flows (Hertenstein and Bruns 1998). Mature, healthy firms are expected to generate CFO (i.e., buying, manufacturing, managing, and selling) at least as high to cover CAPEX or long-term investments. The CFO to CAPEX measures this behavior, with a 2.1 average ratio in 2020–2022, indicating that Kroger's CFO covers twice the amount invested in CAPEX. A minor concern in this regard is the downward trend of this ratio (Table 3). In addition, the CAPEX to depreciation (D&A) ratio measures how much a firm invests (e.g., CAPEX) relative to worn-out or depreciated assets (e.g., D&A). Financially healthy firms are expected to invest at least the assets used to avoid obsolescence. Table 3 shows that Kroger has a CAPEX to D&A stable ratio of 1.0, indicating that this firm re-invests the same amount of assets used or depreciated.

4.4 Stock Price-Related Ratios

Stock prices are, in theory, supposed to reflect accruals and cash flow-based historical performance. Furthermore, stock prices should reflect the firm's expected performance according to investors' perceptions. The price to earnings (PE) and firm value to EBITDA are two commonly used ratios (called market multiples) relating stock prices with financial statement data. Table 3 shows that, on average, Kroger's PE is 14.7x in the last three years, indicating that it would take about 15 years for an investor to recover the price of a purchased Kroger share fully, assuming a similar level of profits in the future. The

[7] The return on assets (ROA) and the return on equity (ROE) are other profitability measures commonly used in practice. However, ROA, ROE, and ROI are highly correlated. Trejo-Pech (2023) documents that the correlation coefficients between these ratios are between 0.65 and 0.81 for the U.S. market categorized into sixteen economic sectors.

downward trend of this ratio shows that a Kroger share was more attractive (i.e., cheaper) to investors in 2020 and 2022, the years this firm reported higher net income margins. Whether this PE multiple is cheap or expensive for investors can be assessed in relation to benchmarks.

As conducted above, trend analysis of financial ratios helps understand where a firm may be heading and detect intra-firm financial strengths and weaknesses. Comparing financial ratios to leading competitors or industry standards gives additional insights into the analysis. In this case study, students are asked to replicate the analysis for Albertsons and compare Albertsons's performance to Kroger's. Appendix 2 can be used to conduct this comparison. Students need to identify why Albertsons was economically attractive for Kroger. Students also needed to evaluate whether Kroger was financially strong enough, according to its recent history, to successfully implement the merger if authorized by antitrust regulators.

5 Discussion Questions

Below, we suggest questions to achieve the case study learning objectives.

1. Perform Porter's Five Forces analysis for the U.S. grocery sector.

2. Conduct a financial analysis of Albertsons based on financial ratios. In particular, answer the questions below. Use the template provided in Appendix 2 to answer 2.1 and 2.2. For 2.3, prepare a brief report.
   (2.1) Calculate the financial ratios for Albertsons from 2020 to 2022 and the 2020/2022 averages using data from Appendix 1.
   (2.2) Evaluate the trend for each financial ratio by filling in the appropriate column in the template.
   (2.3) Evaluate Albertsons's financial performance to Kroger's (benchmark). You can compare the firms' financial ratios averages during 2020–2022 or their trends over time. For this evaluation, provide a brief conclusion for each ratio category discussed in this article and an overall conclusion of the Kroger vs. Albertsons financial comparison. Your conclusion may emphasize strengths and weaknesses that potentially facilitate or make the proposed merger more difficult for the potentially combined Kroger company. You can strengthen your analysis using information from this case study.

About the Author: Carlos J.O. Trejo-Pech is an Associate Professor at the University of Tennessee, Knoxville (Corresponding Author Email: ctrejope@utk.edu). Susan White is a Clinical Professor Emerita at the University of Maryland.

Acknowledgments: Carlos Trejo-Pech acknowledges that this work was partially supported by the USDA National Institute of Food and Agriculture, Hatch Multi-State project 1020537. In addition, funding for open access to this research was provided by the University of Tennessee's Open Publishing Support Fund.

Appendix 1: Financial Data as of the End of Fiscal Years for Kroger and Albertsons ($ Millions, Unless Otherwise Specified)

Table A1: Financial Data as of the End of Fiscal Years for Kroger and Albertsons ($ Millions, Unless Otherwise Specified)

	Kroger				Albertsons			
	2019	2020	2021	2022	2019	2020	2021	2022
Cash and ST Investments	399.0	1,687.0	1,821.0	1,015.0	484.2	1,728.9	2,916.4	455.8
Accounts receivable	1,706.0	1,781.0	1,828.0	2,234.0	502.8	526.3	540.1	687.6
Inventories	7,084.0	7,063.0	6,783.0	7,560.0	4,352.5	4,301.3	4,500.8	4,782.0
Other current assets	1,701.0	1,972.0	1,742.0	1,861.0	391.8	431.5	409.1	345.0
Net PP&E	28,685.0	29,182.0	30,484.0	31,388.0	15,079.3	15,428.3	15,258.0	15,237.8
Financial investments	1,078.0	2,247.0	1,578.0	995.0	296.3	445.0	481.2	0.0
Other non-current assets	4,603.0	4,730.0	4,850.0	4,570.0	3,628.2	3,736.7	4,017.4	4,660.0
Total assets	45,256.0	48,662.0	49,086.0	49,623.0	24,735.1	26,598.0	28,123.0	26,168.2
Accounts payable	6,349.0	6,679.0	7,117.0	7,119.0	2,891.1	3,487.3	4,236.8	4,173.1
Notes payable (short-term debt)	2,562.0	1,578.0	1,205.0	2,037.0	850.9	857.7	1,479.8	1,740.5
Other current liabilities	5,332.0	7,109.0	8,001.0	8,082.0	2,162.3	2,487.2	2,631.9	2,515.2
Long-term debt	18,635.0	19,009.0	19,235.0	18,440.0	13,896.1	13,649.2	12,556.2	13,220.6
Other long-term liabilities	3,805.0	4,737.0	4,099.0	3,931.0	2,656.6	3,193.2	2,915.2	2,862.4
Total liabilities	36,683.0	39,112.0	39,657.0	39,609.0	22,457.0	23,674.6	23,819.9	24,511.8
Preferred stock convertible					0.0	1,599.1	1,278.5	45.7
Common stock	5,255.0	5,379.0	5,575.0	5,723.0	1,830.1	1,904.8	2,038.1	2,078.6
Retained earnings	20,978.0	23,018.0	24,066.0	25,601.0	592.3	1,263.0	2,564.9	-185.0
Other equity items	-17,660.0	-18,847.0	-20,212.0	-21,310.0	-144.3	-1,843.5	-1,578.4	-282.9
Total equity	8,573.0	9,550.0	9,429.0	10,014.0	2,278.1	2,923.4	4,303.1	1,656.4
Shares data:								
Number of shares outstanding	799.0	773.0	744.0	718.0	579.40	500.30	469.60	529.00
Price per share ($)	26.86	34.50	43.59	44.63	NA	16.2	29.2	19.9

Table A1 continued.

	Kroger				Albertsons			
	2019	2020	2021	2022	2019	2020	2021	2022
Revenue	122,286.0	132,498.0	137,888.0	148,258.0	62,455.1	69,690.4	71,887.0	77,649.7
Cost of sales (except D&A)	94,440.0	100,709.0	106,555.0	115,450.0	44,455.9	48,906.0	50,762.4	55,894.1
Operating expenses (except D&A)	22,525.0	25,863.0	24,800.0	25,297.0	15,431.0	17,569.3	16,986.5	17,705.3
EBITDA	5,321.0	5,926.0	6,533.0	7,511.0	2,568.2	3,215.1	4,138.1	4,050.3
Depreciation and amortization	2,649.0	2,747.0	2,824.0	2,965.0	1,519.8	1,364.3	1,516.6	1,644.4
EBIT or operating income	2,672.0	3,179.0	3,709.0	4,546.0	1,048.4	1,850.8	2,621.5	2,405.9
Interest expense (financial gain)	603.0	544.0	571.0	535.0	725.3	558.3	475.3	404.6
Other expenses (income)	-59.0	-732.0	1,098.0	1,114.0	-276.1	163.8	46.7	65.8
Earnings before taxes	2,128.0	3,367.0	2,040.0	2,897.0	599.2	1,128.7	2,099.5	1,935.5
Income taxes	469.0	782.0	385.0	653.0	132.8	278.5	479.9	422.0
Net income	1,659.0	2,585.0	1,655.0	2,244.0	466.4	850.2	1,619.6	1,513.5
Statement of cash flow data								
Cash flow from operations	4,664.0	6,815.0	6,190.0	4,498.0	1,903.9	3,902.5	3,513.4	2,853.9
Cash flow from investing	-2,611.0	-2,814.0	-2,611.0	-3,015.0	-378.5	-1,572.0	-1,538.9	-1,977.3
Capital expenditures	-3,128.0	-2,865.0	-2,614.0	-3,078.0	-1,475.1	-1,630.2	-1,606.5	-2,153.9
Other investing	517.0	51.0	3.0	63.0	1,096.6	58.2	67.6	176.6
Cash flow from financing	-2,083.0	-2,713.0	-3,445.0	-2,289.0	-2,014.2	-1,041.8	-789.5	-3,365.4
Debt issued	1,163.0	1,049.0	56.0	-	3,874.0	4,094.0	-	2,150.0
Debt repaid	-2,304.0	-1,897.0	-1,442.0	-552.0	-5,785.9	-4,526.6	-408.9	-1,222.4
Common stock	-410.0	-1,197.0	-1,475.0	-859.0	-18.8	-215.3	-29.4	-44.0
Dividends paid	-486.0	-534.0	-589.0	-682.0	0.0	-159.7	-322.0	-4,237.3
Other financing	-46.0	-134.0	5.0	-196.0	-83.5	-234.2	-29.2	-11.7
Foreign exchange rate and other adj.					23.8	-44.0	2.5	28.2
Net change in cash	-30.0	1,288.0	134.0	-806.0	-465.0	1,244.7	1,187.5	-2,460.6

Source: Assembled and adjusted by authors from financial statements in S&P's Net Advantage (2023).

Notes: Shares outstanding in millions. Price per share as of the end of the fourth quarter in each fiscal year, obtained from CRSP (Wharton Research Data Services 2023). 2018 data: Revenue (Kroger: $121,852 million and Albertsons: $60,534.5 million) and net profit (Kroger: $3,111 million and Albertsons: $131.1 million).

Appendix 2: Template for the Analysis of Albertsons

Table A2: Template for Analysis of Albertsons (ALB).

	20 ALB	21 ALB	22 ALB	Avg. ALB	Trend ALB	Avg. KR	Trend KR	ALB vs. KR?
Margins:								
EBIT margin						2.7%	Inc. (+)	
Net margin						1.6%	Vol. (up)	
Other IS:								
YtoY revenue growth						6.6%	Vol. (up)	
EPS						$2.9	Vol. (up)	
Asset mgt efficiency:								
Assets turnover						2.8x	Inc. (+)	
Profitability								
ROI						9.9%	Inc. (+)	
Lev. & Debt Mgt:								
Debt to assets						42%	Stable (=)	
Debt to EBITDA						3.1x	Dec. (+)	
EBIT to interest						6.9x	Inc. (+)	
Liquidity:								
Current ratio						0.8x	Stable (=)	
Cash flow:								
CFO to CAPEX						2.1x	Vol. (down)	
CAPEX to D&A						1.0x	Stable	
Market value-related:								
Price to Earnings (PE)						14.7x	Vol. (down)	

Notes: KR stands for Kroger.
1. Determine the **intra-firm trends** (in column "Trend ALB") according to these rules:
Increasing: If financial ratios grow every year. **Decreasing:** If financial ratios decline every year. **Stable:** If financial ratios move within a range of +/– 0.5%, 0.5x, $0.5, or 5.0 percentual points (the latter for leverage). **Volatile**: If financial ratios move out of a range of +/– 0.5%, 0.5x, $0.5, or 5.0 percentual points (this latter is for leverage). For a volatile curve, identify the curve as upward or downward.
In addition, indicate with a positive (+), negative (–), or equal (=) sign after the trend whether the trend benefits, hurts, or is neutral for the financial health of the firm.
2. To compare Albertsons's average performance to the **benchmark (Kroger),** mark, in the last column, as "Similar" if the difference between financial ratios is within +/– 0.5%, 0.5x, $0.5, or 5.0 percentual points (the latter for leverage). Otherwise, define it as superior or inferior.

Appendix 3: Formulas of Selected Financial Ratios

(I) Income statement related ratios

Margins

Operating or EBIT margin (%) $\frac{EBIT}{Revenue} \times 100$

Net margin (%) $\frac{Net\ income}{Revenue} \times 100$

Other income statement-related ratios

Year-to-year sales growth (%) $\left(\left(\frac{Revenue\ year\ t}{Revenue\ year\ t-1}\right) - 1\right) \times 100$

Earnings per share (EPS) ($) $\frac{Net\ income}{\#\ of\ shares\ outstanding}$

(II) Financial ratios combining income statement and the balance sheet data

Assets management or efficiency

Assets turnover (x) $\frac{Revenue}{Assets}$

Profitability

Return on Investment (ROI) (%) $\frac{NOPAT}{Capital} \times 100 = \frac{EBIT(1-Tax\ rate)}{Debt+equity} \times 100$

NOPAT stands for Net Operating Profits After Taxes.

Leverage and debt management

Debt to assets (%) $\frac{Debt}{Assets} \times 100$

Debt to EBITDA (x) $\frac{Debt}{EBITDA}$

EBIT to interest expenses (x) $\frac{EBIT}{Net\ interest\ exp.}$

Liquidity

Current ratio (x) $\frac{Current\ assets}{Current\ liabilities}$

(III) Cash flow statement-related financial ratios

CFO to CAPEX (x) $\frac{Cash\ flow\ from\ operations}{Capital\ expenditures}$

CAPEX to D&A (x) $\frac{Capital\ expenditures}{D\&A\ expenses}$

(IV) Stock prices or market value-related

Price to Earnings (PE) (x) $\frac{Stock\ price}{Earnings\ per\ share} = \frac{Market\ capitalization}{Net\ income}$

Market capitalization = Equity in market value (no book/balance sheet value) = stock price × # of shares

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6(2) DOI: 10.22004/ag.econ.343483