

Financial Analysis Ratios Utilized in Community Pharmacies

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ABSTRACT. A survey was conducted to determine the prevalence of independent and chain community pharmacies in Nebraska that perform ratio analysis on financial statements. Surveys were returned by 154 of 273 (56.4%) randomly selected community pharmacies throughout Nebraska. Findings indicate that community pharmacies do perform ratio analysis on financial statements although to varying degrees. The ratio most frequently used by community pharmacies was the Gross Margin Percentage (70.9%). Independent community pharmacies reported average ratio usage of 47.7% whereas chain community pharmacies reported average ratio usage of 32.0%. Adjustments in operations (based on ratio analysis) generally provided positive results for the majority of respondents.

INTRODUCTION

Today's community pharmacist must not only be an expert in the "health and pharmaceutical areas," but must also be a sound finan-

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cial manager. Continual changes in health care, rising inflation and increased competition have made it more difficult for pharmacists to maintain a competitive edge in the market place.

To meet this challenge, community pharmacists must be aware of the changing needs and desires of their customers. They must continually evaluate whether these needs and desires are being met, while maintaining a profitable pharmacy. A thorough review and analysis of Financial Statements (Profit and Loss Statement and Balance Sheet) provides the needed data to determine not only profitability but also liquidity, solvency, and efficiency.

The purpose, application, and actual calculations for financial ratio analysis are discussed in textbooks such as *Principles and Methods of Pharmacy Management* (1), *Retail Pharmacy Practice Management* (2), *Effective Pharmacy Management* (3), and *Financial Management for Pharmacists* (4). In addition, Smith, Garner, and LeFever have reviewed the utilization of financial ratio analysis in community pharmacies (5, 6, 7, 8). Finally, Boyd and Hospodka have presented a case study on financial management in community pharmacy practice (9).

Eli Lilly and Company provides a free personal and confidential financial analysis service to independent community pharmacies. A summary of the operations of participants is published annually as the *Lilly Digest* and serves as an industry standard for comparison. For the 1991 operational year, 1,294 independent pharmacies voluntarily submitted data for analysis (10). Although other sources exist that provide financial analysis services (11, 12, 13), nothing could be found that discussed the prevalence of community pharmacies that actually perform ratio analysis.

The American Association of Colleges of Pharmacy (AACP) and the AACP Section of Teachers of Pharmacy Administration suggest that financial analysis is an important part of overall pharmacy curriculum content (14, 15). It is also an important part of the Doctor of Pharmacy curriculum, where emphasis is placed on the effective and efficient delivery of pharmaceutical care (16).

In Nebraska, community pharmacy management courses offered at both the University of Nebraska Medical Center College of Pharmacy and Creighton University School of Pharmacy include ratio analysis of financial statements. To determine whether the financial

management principles taught at these universities are applied in actual practice, a survey was sent to a random sample of Nebraska community pharmacies. The purpose of the survey was to evaluate and compare the financial analysis practices of independent and chain community pharmacies; a chain was defined as a group of four or more pharmacies. The survey was conducted to determine the prevalence of pharmacies that perform ratio analysis on financial statements, which ratios are used most frequently, and to what extent adjustments in operations (based on ratio analysis) have provided beneficial results. This was a collaborative effort of both universities.

METHODS

To assess the financial analysis practices of independent and chain community pharmacies, a survey was designed to determine financial ratio usage in independent and chain community pharmacies (see Appendix A for definitions of selected financial ratios). Several open-ended questions on other methods used to analyze financial statements were also included. Each survey was given an identification number to track non-respondents.

A sample survey was pilot-tested by 13 Nebraska independent and chain community pharmacists—either a manager, owner, or pharmacist-in-charge—to determine its content validity, clarity, and organization. The survey was refined based on their comments.

A mailing list for all licensed Nebraska pharmacies (March, 1992) was obtained from the Nebraska Pharmacists Association. This list is compiled annually in July and is updated monthly by the Nebraska Department of Health Bureau of Examining Boards. Of the 630 Nebraska pharmacies, 427 were either independent or chain community pharmacies. Within this group, 68.0% were independent community pharmacies and 32.0% were chain community pharmacies. On May 19, 1992, surveys were mailed to 291 (291 of 427, or 68.1%) randomly selected pharmacies. Three weeks later, a postcard reminder was mailed to non-respondents. A second survey was mailed to non-respondents at five weeks.

According to the cover letter and survey instructions, the survey was to be completed by the owner, manager, or pharmacist-in-

charge. If they were unable to complete this survey, they were requested to return the uncompleted survey. The survey's first question also asked pharmacy type. If they were not an independent community pharmacy or a chain community pharmacy, they were asked to return the uncompleted survey in the envelope provided.

All data were entered into a SAS Database reference version by using the IBM mainframe at the University of Nebraska Medical Center (17). Responses to open-ended questions were analyzed for pertinent main concepts and themes.

RESULTS

Of the 291 surveys mailed, 172 (59.1%) were returned. Three pharmacies had closed, six claimed to be other than an independent or chain pharmacy, and nine surveys were returned unanswered. These responses were removed for a final sample of 154 (154 of 273, 56.4%) usable responses. Of the final sample, 108 (70.1%) were independent pharmacies and 46 (29.9%) were chain pharmacies.

Sociodemographic Characteristics

Classified by location, 54 respondents (54 of 154, 35.1%) were located in a metropolitan setting, while 100 (100 of 154, 64.9%) were rural. The majority of independent pharmacies (84 of 108, 77.8%) were in a rural location, whereas the majority of chain pharmacies (30 of 46, 65.2%) were located in a metropolitan community. Twenty-seven (27) of 45 chain pharmacy respondents, or 60%, were located in a shopping center. Sixty-seven (67) of 107 independent pharmacy respondents, or 62.6%, were categorized as traditional. Surveys received from independent pharmacies were completed mainly by the owners (91 of 108, 84.3%), whereas managers were the main respondents for the chain pharmacies (27 of 46, 58.7%).

Financial Ratios

Both independent and chain pharmacies reported using financial ratios to analyze financial statements (Profit and Loss Statement

and Balance Sheet), although to varying degrees (Table 1). Overall, independent pharmacies reported a higher average percentage usage of ratios (47.7%) as compared to chain pharmacies (32.0%).

The ratio most frequently used was the Gross Margin Percentage. Of the 141 respondents, 100 community pharmacies or 70.9% reported using the Gross Margin Percentage. Sixty-nine (69) of the 98 independent pharmacies (70.4%) and 31 of the 43 chain pharmacies (72.1%), responded positively. Another frequently used ratio was the Net Income Percentage (72 of 138, 52.2%). Ratios or calculations not consistently utilized include the Current Ratio (72 of 146, 49.3%), Inventory Turnover (65 of 140, 46.4%), Return on Investment Ratio (52 of 134, 38.8%), Gross Margin Return on Average Inventory (47 of 137, 34.3%), the Quick Ratio (46 of 137,

TABLE 1. Comparison of Independent vs. Chain Usage of Financial Ratios.

Financial Ratio	(% Respondents)		
	Community ¹	Independent	Chain
Gross Margin Percentage	70.9	70.4	72.1
Net Income Percentage	52.2	57.7	39.0
Current Ratio	49.3	59.6	23.8
Inventory Turnover	46.4	49.5	39.0
Return on Investment	38.8	46.2	22.0
Gross Margin Return on Average Inventory	34.3	35.4	31.8
Quick Ratio	33.5	41.7	14.6
Accounts Receivable Collection Period	32.4	35.8	24.4
Cost of Dispensing a Single Prescription	29.4	32.7	21.4

¹Includes both independent and chain pharmacies.

33.6%), Accounts Receivable Collection Period (44 of 136, 32.4%) and the Cost of Dispensing a Single Prescription (42 of 143, 29.4%).

Financial Ratio Comparisons and Adjustments in Operations

As reported in Table 2, 58.1% of respondents compared their financial ratios to the prior year. Forty-seven (47 of 102, 46.1%) independent pharmacies and only three (3 of 46, 6.5%) chain pharmacies compared their ratios to the *Lilly Digest*.

As a result of ratio analysis, 56.1% of respondents (74 of 132) reported making adjustments in operations. In the majority of responses, 58.9% stated that adjustments in operations provided generally positive results, while 40% provided mixed results.

TABLE 2. Financial Ratio Comparisons and Adjustments in Operations.

Variable	No. (%) Respondents		
	Community ¹	Independent	Chain
Compare Financial Ratios to Prior Year	86 (58.1)	60 (58.8)	26 (56.5)
Compare Financial Ratios to <i>Lilly Digest</i>	50 (33.8)	47 (46.1)	3 (6.5)
Adjustments in Operations Based on Ratio Analysis	74 (56.1)	51 (52.6)	23 (65.7)
Results of Adjustments in Operations			
Positive Results	53 (58.9)	30 (50.0)	23 (76.7)
Negative Results	1 (1.1)	1 (1.7)	—
Mixed Results	36 (40.0)	29 (48.3)	7 (23.3)

¹Includes both independent and chain pharmacies.

Net Sales Percentages and Comparisons

This survey also asked participants if they calculate for each item on their annual Profit and Loss Statement, its percentage of Net Sales. Fifty-seven (57) of 106 independent pharmacies, or 53.8%, and 23 of 44 chain pharmacies, or 52.3%, calculate a percentage of Net Sales. The majority of respondents, 90.8%, compare their percentages to the prior year, while 60.7% of independents and 3.6% of chains compare their percentages to the *Lilly Digest* (Table 3).

Financial Analysis Services

Of 116 responses, 67 (57.8%) community pharmacies stated that an accountant calculated the actual ratios. An accountant was also cited by 70.8% of pharmacies as the main preparer of financial statements (Table 4).

Although the majority of respondents, 125 of 146, or 85.6%, were aware that Eli Lilly and Company offers a free personal and confidential financial analysis service to community pharmacies, only 17 of 101 (16.8%) independent pharmacies submitted 1990 financial data. None of the 31 chain respondents submitted 1990 financial data to the *Lilly Digest*. Twenty-five (25) of 87 independent pharmacies, or 28.7%, plan to submit 1991 financial data to the *Lilly Digest* while no chain respondents plan to do so (Table 4).

TABLE 3. Net Sales Percentages and Comparisons.

Variable	No. (%) Respondents		
	Community ¹	Independent	Chain
Calculate % of Net Sales	80 (53.3)	57 (53.8)	23 (52.3)
Compare % to prior Year	79 (90.8)	54 (91.5)	25 (89.3)
Compare % to <i>Lilly Digest</i>	38 (42.7)	37 (60.7)	1 (3.6)

¹Includes both independent and chain pharmacies.

TABLE 4. Financial Analysis Services.

Variable	No. (%) Respondents		
	Community ¹	Independent	Chain
Calculates Financial Ratios			
Accountant	67 (57.8)	49 (61.3)	18 (50.0)
Banker	—	—	—
Bookkeeper	9 (7.9)	4 (5.0)	5 (13.9)
<i>Lilly Digest</i>	7 (6.0)	7 (8.7)	—
Manager	2 (1.7)	—	2 (5.6)
Owner	21 (18.1)	19 (23.8)	2 (5.6)
Pharmacist-in-charge	1 (0.8)	—	1 (2.7)
Other	9 (7.8)	1 (1.2)	8 (22.2)
Total N (%)	116 (100.0)	80 (100.0)	36 (100.0)
Prepares Financial Statements			
Accountant	109 (70.8)	88 (81.5)	21 (45.7)
Bookkeeper	14 (9.1)	5 (4.6)	9 (19.6)
Manager	1 (0.6)	—	1 (2.1)
Owner	14 (9.1)	12 (11.1)	2 (4.3)
Pharmacist-in-charge	1 (0.6)	1 (0.9)	—
Other	15 (9.8)	2 (1.9)	13 (28.3)
Total N (%)	154 (100.0)	108 (100.0)	46 (100.0)
Aware of Eli Lilly and Company Free Financial Analysis Service	125 (85.6)	97 (93.3)	28 (66.7)
Submitted 1990 Data to the <i>Lilly Digest</i>	17 (12.9)	17 (16.8)	—
Plan to Submit 1991 Data to the <i>Lilly Digest</i>	25 (22.1)	25 (28.7)	—

¹Includes both independent and chain pharmacies.

DISCUSSION AND CONCLUSION

In analyzing financial statements, decisions should not be made on the basis of a single ratio by itself. Ratios should be compared to prior year records and to various industry standards, such as the

Lilly Digest (10), *RMA Annual Statement Studies* (11), *Industry Norms and Key Business Ratios* (12), and the *Almanac of Business and Industrial Financial Ratios* (13). Ratios should serve as guides to understanding operations and are most useful as trend indicators.

The Gross Margin Percentage Ratio used by the majority of respondents is perhaps the best understood ratio and perhaps the easiest to calculate. It has also been shown to have a significant impact on the profitability of a community pharmacy (18,19).

Chain pharmacies reported lower average percentage usage of ratios (32.0%). Based on several comments received, the pharmacist was either unaware of the home office procedure or not allowed to report such information. A concern of the investigators was whether the appropriate person within chain pharmacies completed the survey. To address this concern, several precautions were taken in the cover letter and survey instructions to insure that the owner, manager, or pharmacist-in-charge completed the survey. At many chains, however, the pharmacy manager has little to do with financial management of the pharmacy. Thus, the data for chain drug stores should be interpreted with discretion since financial management is commonly performed at the corporate level.

Chain pharmacies also generally do not compare data to the *Lilly Digest*, nor do they submit data to them. The *Lilly Digest* is written preferentially for independent pharmacies. In the past, the *NACDS-Lilly Digest* was written preferentially for chain pharmacies and was also published annually (20). However, it was discontinued after 1986. Industry standards for chain pharmacies may include the *RMA Annual Statement Studies* and the *Almanac of Business and Industrial Financial Ratios* (11,13).

One limitation to this study was that respondents were not asked whether they had taken a course that included financial management and ratio analysis of financial statements. However, comments received from respondents, especially independent community pharmacies, stressed the importance of such a course. Since respondents were asked to report usage of certain defined ratios, other pertinent ratios may not have been included and this limitation should be recognized.

Another shortcoming of this study was that respondents may have under-reported or over-reported usage of financial ratios due

to time limitations, lack of knowledge or company policy. On several surveys, chain pharmacy respondents stated that it was against company policy to divulge such information. This was also evidenced by a higher percentage of "Don't Know" responses received from chain pharmacies.

Because this survey was limited to the State of Nebraska, these findings cannot be extrapolated to other states. Further research is needed to obtain data on the national financial analysis practices of community pharmacies so that universities and professional associations can effectively plan to meet the needs in this area.

This study indicates that ratio analysis of financial statements is used by both independent and chain community pharmacies in Nebraska and has proven beneficial as a tool for financial management. Ratio analysis should continue to be included in community pharmacy management courses taught at the two Nebraska universities, as well as at schools and colleges of pharmacy throughout the nation. Ratios receiving the greatest majority of usage in the practical setting should be emphasized. However, ratios that are not currently used by community pharmacies but have practical applications, should be taught in pharmacy courses, continuing education classes, and/or published in pharmacy journals.

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APPENDIX A. Financial Ratios.

CURRENT RATIO

$$\frac{\text{Current Assets}}{\text{Current Liabilities}}$$

QUICK RATIO

$$\frac{\text{Cash} + \text{Accounts Receivable}}{\text{Current Liabilities}}$$

GROSS MARGIN PERCENTAGE

$$\frac{\text{Net Sales} - \text{Cost of Goods Sold}}{\text{Net Sales}} \times 100$$

GROSS MARGIN RETURN ON AVERAGE INVENTORY

$$\frac{\text{Net Sales} - \text{Cost of Goods Sold}}{\text{Average Inventory}} \times 100$$

INVENTORY TURNOVER

$$\frac{\text{Cost of Goods Sold}}{\text{*Average Inventory}}$$

NET INCOME PERCENTAGE

$$\frac{\text{Net Profit}}{\text{Net Sales}} \times 100$$

ACCOUNTS RECEIVABLE COLLECTION PERIOD

$$\frac{\text{Accounts Receivable Balance}}{\text{Annual Credit Sales}/365}$$

RETURN ON INVESTMENT

$$\frac{\text{Net Profit}}{\text{Net Worth}} \times 100$$

COST OF DISPENSING A SINGLE PRESCRIPTION

Please briefly describe your method of calculation.

*Average Inventory = Beginning Inventory + Ending Inventory/2