

Accounting for science: Financial ratios as a tool for science research

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Though perspectives may vary, money will always find itself intertwined with science. For good or ill, money influences how we scientists find jobs (Fiske 2018), receive grants (Resnik 2014), conduct studies (Resnik 2013), and commercialize our discoveries (Fletcher and Bourne 2012). As money is in science; harmoniously there is also a science in money. Money is an expedient variable that lends itself in various analyses in different fields. Tools used in analyzing money and tradeoff such as incremental cost-effectiveness ratio, cost minimization analysis, social return of investments, and the like are rampantly employed in different fields in science including psychology, animal behavior, and chemistry to name a few. However, one approach not fully utilized in science research is that of analyzing financial performance by way of ratio analysis (Burkhardt and Wheeler 2013).

KEYWORDS

Finance, financial ratios, accounting, health, Philippines

Methods in conducting financial ratios, which usually involves computing for a firm's liquidity, profitability, leverage, and operations with financial statements, have been published voluminously and is frequently conducted by institutions for internal valuations. Despite the body of literature, the application of ratio analysis in fields of science (e.g. health) is scarce (Suarez et al., 2011).

In the Philippines, the use of financial ratios as a tool in health research, for example, has not been extensively promulgated. A search of database, MEDLINE and HEREDIN, each from inception through April 22, 2019 using the search terms "Philippines", "accounting", "financials", and "health", with no binding search filter, found 207 unique studies. However, after an initial title and abstract exclusion of 192 studies, and a full

review of the remaining 15 studies, no locally published study used financial ratios in any of their analyses.

Probing in other database and grey literature yield only a few studies conducted in the Philippines wherein financial ratios are used in health research. One study by Professor Frank Avestruz (1995) sought to understand the nature of management of Philippine hospitals under different circumstances and settings and the role of management in the success of these hospitals (Avestruz 1995). The study conducted a financial performance analysis (liquidity ratios, efficiency ratios, leverage ratios, and profitability ratios), exposing differences in conservatism and liquidity between small and large hospitals, gaps due to insurance reimbursement dependency of smaller hospitals, and the relationship between budget constraints of government hospitals and the ability provide medication.

Another study by Miguel and colleagues (2018), presented a financial investigation, analyzing return on equity, net profit margins, and financial ratios on four child restraints companies in the Philippines (Miguel et al., 2018). The results of the financial analysis were then used to forecast the sustainability of a new entrant into the market. The study concluded that new companies providing child restraints could penetrate the Philippine market, and expectantly lower the shelf prices of child restraints. The study funded by the World Health Organization, transpired during a time when naysayers bannered anti-poor sentiments against a pending child restraints law. In descending opinion, the study suggests that with a law that protects the entry of new companies, prices could potentially be lowered on child restraints. This is of substantial importance considering child restraints have been shown to lower risk of death to infants by 71% (Durbin 2011).

The above examples outline how financial ratios can benefit Filipino researchers in understanding areas of health policy. The uses of financial performance analysis, however, are not limited to health policy research. For example, a study by Wiechers et al., (2013) uses financial data to investigate trends in genomic firms from the era of the Human Genome Project through a market bubble. The study found, among others, a strong rise in genomic sector activities despite losses in an era of financial difficulties. In turn, the implications of these findings permit planning for

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future studies, allocation of funding, and development of suitable technology transfers.

Advantages in using financial ratios rest on its ability to organize financial data into standardized measures. Consequently, comparisons can be made in two dimensions with financial ratios. First, ratios may be used to compare financial performance of an entity through time by evaluating improvements alongside historical information or against future projections. Additionally, unfastening ratios by departments, functions, or financial compartments further augments one's exploration. Second, financial ratios can be used to compare companies against each other as a way of benchmarking. Together, both methods of comparison allow an analysis capable of appraising interventions and evaluating trends; ultimately offering possible solutions to problems unearthed.

It is with these examples and brief enumeration of advantages that I urge fellow researchers to look at applying financial ratios in their fields as a stand-alone study or as a supplement to their endeavors. It is inevitable that our discoveries and breakthroughs entangle with the world of business and finance. For this reason, understanding how our findings impact the greater market gives us a glimpse into the finding's sustainability and its worth to the economy. Further applications of financial performance evaluations include understanding the agencies that we frequently work with (e.g. companies that use our products, organizations that benefit from our research, and agencies that govern our fields). By understanding the operation, performance, and growth of these firms we better recognize our field and the direction it is headed. Other researchers in our area of specialty can therefore benefit from this knowledge by preparing for upcoming trends or diversions.

Financial performance analysis is no longer only a tool for accountants and managers. Through time and with an emerging body of literature in other countries, financial performance evaluations through financial ratios are proving to be a valuable method for scientists too. The time is right to apply financial ratios in different fields of science in the Philippines.

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