

## A REVIEW OF PERFORMANCE MEASUREMENT INDICATORS IN CO-OPERATIVES

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**Abstract:** *The performance measurement is important to assess the well-being of a co-operative. In addition, it provides evidence in supporting the principal-agent relationship. A co-operative with a good performance is asserted to pursue the interest of a principal rather than the agent own personal interest. A review of previous literature for the period of 2006-2017 inclusive reveals that financial measures are being employed in most of the studies, with financial ratios are found to be greatly preferred. As the establishment of a co-operative is two-prongs; namely to serve the members, and to maximise profit, a standardised performance measurement of a co-operative that addressed these objectives needs to be developed.*

**Keywords:** *performance, performance measurement, co-operative, financial measures, non-financial measures*

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### Introduction

Co-operatives are regarded as important business organisation for their significant economic and social contribution (Harun & Mahmood, 2012). A co-operative is its own right is regarded as a business establishment. This is because a co-operative needs to utilise the financial contribution from its members to subsequently generate its own income. This income will be used inter alia to provide services (Syrjä, Sjögrén, & Tuominen, 2012) and optimise the investment value of their members (Katz, 1998). A statistic released by the International Co-operatives Alliance<sup>1</sup> (ICA) revealed that the total worldwide memberships of a co-operative have surpassed 1 billion people (ICA, 2013). As for Malaysia, the total membership according to the Malaysian Co-operative Society Commission (MCSC), has surpassed 7 million people representing approximately 27% of the population (MCSC, 2013;

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<sup>1</sup> The International Co-operative Alliance the International Co-operative Alliance is the Apex organisation for co-operatives worldwide.

Zainol, Awang, Rahman, Abdullah, & Dzulkifli, 2015). This indirectly signifies the importance of a co-operative to a society.

A co-operative is defined by the ICA as “...an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise” (ICA, 2014). Related to this, Othman & Kari (2008) underlined three main characteristics of a co-operative. Firstly, a co-operative has to be a self-governing non-government organization. Secondly, a co-operative need to be owned and controlled by the members themselves; and lastly, its objectives are to improve economic and social development of its members. This characteristics are respectively referred to by Katz (1998) as user-control and democratic principle; user-owner principle and user-benefit principle. The user-control and democratic principle stresses on the equal rights and eligibility of members to take part in the co-operatives’ self-autonomy. The user-owner principle emphasize on the members responsibility to provide equity to co-operatives while being the co-operatives’ suppliers or customers at the same time. Meanwhile, the user-benefit principle requires co-operatives to sustain economic efficiency and profitability or the social interests of the members.

A co-operative, albeit regarded as a business establishment, differs from investor-owned firms (IOFs) in two aspects. The first different is in term of the structure. Co-operatives advocate democratic governance, ownership and control by their members whom at the same time are the customers (Altman, 2015; Mellor, 2009), whereas, the IOFs are controlled by the board of directors that are appointed by the largest shareholders. Related to this, the board members of a co-operative are elected in the annual general meeting while for the IOFs, they are appointed and determined by the largest shareholders. The voting power for the co-operative is one for each and every member whereas for IOFs, it is based on the number of shares owned. The second different is in terms of business objective. The objective for the IOFs is to generate profit for their shareholders, whereas the objective of a co-operative is to provide services for their members (Syrjä et al., 2012).

Co-operative performance measurement is an important element that provides information on performance level of a co-operative. It is used to measure and monitor the co-operative whether or not it is performing and achieving its objectives (Harif, Hoe, & Ahmad, 2013). A good performance of a co-operative is crucial for it would ensure their business survival in the competitive era of globalization. In so doing, the co-operative would compare the performance of the current period against the one of the base period to identify whether or not they are better-off. Generally, a comparison of performance is made between the current year and the previous year. By knowing their current level of performance, the co-operative would be then able to formulate a suitable performance improvement strategy (see Sharma, Bhagwat, & Dangayach, 2005).

Theoretically, the organisational performance measurement provides an indication as to how well the agent is acting on behalf of the principal. This principal, namely all members of a co-operative will appoint a specified number of members to act on their behalf in managing as well as to make decision for the co-operative. This performance measurement to a certain extent will indirectly demonstrate whether the agent is acting on their own self-interest or for the interest of all members vis-à-vis the principal. Indeed, the agent is view to have been pursuing the interest of the principal should the economic and social development of the latter is viewed as improved.

We are aware of one particular study that reviewed the theoretical and empirical economic literature on issue of co-operatives performance by Soboh, Lansink, Giesen, and van Dijk (2009). Alas, the period of their review papers is only up to 2007 inclusive. Despite the importance of a co-operative to the society, we are not aware of any updated version of a review of such an important issue. This paper aims to fill that gap. Unlike Soboh et al. (2009) of which their review studies is focusing specifically on the agriculture marketing co-operative, this paper extended the scope of businesses of co-operative to include banking, consumer, credit, housing, construction, transportation and services. The period that this paper covers namely 2006 to 2014 inclusive, would enriches the literature on performance measurement, particularly on a co-operative. This paper is significant to the academicians, management and members of co-operatives. Generally, this paper reveals to all parties involved the various measurement indicators that have been used to measure the performance of a co-operative around the globe. This paper is structured as follows. Methodology and results of the review on performance measurement used in co-operatives is presented next; followed by a discussion and conclusion that ends this paper.

## **Methodology**

We select previous studies on performance measurement of co-operatives, focusing on empirical literatures published between 2006 and 2017. Those selected studies were published in online databases including EBSCO, Emerald, ERIC, JStor, Proquest Direct, SciVerse, Web of Knowledge and Google Scholar. A key word search was conducted in these databases. Examples of the words include terms such as “co-operative performance measurement”, “cooperative”, “co-operative performance measure”, “performance measure” and “co-operative performance indicator”. All in all, thirty one (31) studies have been selected.

## **Results of the Review**

### ***General Assessment of the Reviewed Studies***

Obviously, all thirty one papers discussed about the performance measurement of a co-operative in different parts of the globe. Nine papers (29%) involved co-operatives in the developed countries whereas 22 papers (71%) involved those in the developing countries. 26 papers (84%) used financial measures to assess the performance while another 4 papers (13%) employed non-financial measures. In the meantime one paper (3%) used both financial and non-financial measures. Of all the sectors, agriculture and banking appear to be ranked first and second respectively in the ranking of sectors of a co-operative mostly investigated. Those papers include Gweyi and Karanja (2014); D. Mathuva (2016); D. M. Mathuva, Muthuma and Kiweu (2016); Sathyamoorthi, Mbekomize, Radikoko and Wally-Dima (2016); Ndungo, Tobias and Florence (2017); Tandon, Sharma and Bhulal (2017); and Wathanga, K’Aol and Ngugi (2017) to name a few. Table 1 summarises these thirty one (31) empirical studies reviewed in this paper. It provides details of each and every study in terms of the type of performance measures; country; business sector; and performance indicators.

As earlier stated, the type of performance measures used in these previous studies can be classified into two categories, financial and non-financial measures. When it concerns the former, the studies used the financial data provided in the business financial statement or other related reports to calculate the ratios. Financial ratios such as profitability, liquidity,

solvency and efficiency for example, provide a quick indication of the firm's position in several dimensions (Soboh et al., 2009). As for the latter, the data used for measurement in these studies are from surveys, which is subjective in nature and based on respondents' perception.

**Table 1: List of studies on performance measurement of co-operatives reviewed**

Type of measure	Country	Sector	Performance indicators	Source
Financial	India	Bank	profitability cost of management	Singh (2006)
	Philippines	Utility	DEA	Posadas and Cabanda (2007)
	China	Bank	DEA	Chen, Chen and Peng (2008)
	USA	Credit	balance scorecard asset growth membership growth	Goddard, McKillop and Wilson, 2008)
	USA	Agriculture	liquidity profitability efficiency	Bond (2009)
	USA	Agriculture	liquidity solvency profitability	Mckee, Shaik and Boland (2009)
	Italy	Bank	Stochastic Frontier Analysis (SFA)	Battaglia, Farina, Fiordelisi and Ricci (2010)
	Portugal	Agriculture	member patronage capital structure	Rebelo et al. (2010)
	India	Banking	profitability liquidity efficiency solvency risk analysis	Chander and Chandel (2011)
	Italy	Agriculture	sales productivity	Couderc and Marchini (2011)
	Europe	Agriculture	profitability	Heyder, Makus and Theuvsen (2011)
	Malaysia	Various <sup>2</sup>	profitability	Noordin, Rajaratnam, Said, Hanif and Juhan, (2012)
	Ethiopia	Agriculture	access to finance production	Ruben and Heras (2012)
	Finland	Consumer	solvency profitability	Syrjä et al. (2012)
	China	Agriculture	DEA	Wang et al. (2012)
	Netherland	Agriculture	profitability solvency managerial performance	Kalogeras et al. (2013)
	Kenya	Banking and Credit	return on equity return on assets profitability income growth	Gweyi and Karanja (2014)
	Indonesia	Not disclosed	revenue profit	Hartikayanti and Permadhy (2015)
Malaysia	Various <sup>3</sup>	profit growth	Khan, Yaacob, Abdullah	

<sup>2</sup> The sector includes Credit, Agriculture, Housing, Consumer, Construction, Transportation and Services

<sup>3</sup> The sector includes Services, Credit, Consumer, Agriculture, Transport, Construction, and Others

sales growth  
ROA  
return on sales

and Ah (2015)

(continued)

Type of measure	Country	Sector	Performance indicators	Source
	Indonesia	Finance	economic performances social performances	Susanti and Arief (2015)
	Kenya	Banking and Credit	return on assets return on equity	D. Mathuva (2016)
	Kenya	Banking	return on assets operating profit margin	D. M. Mathuva, Muthuma and Kiweu (2016)
	Malaysia Botswana	Various <sup>4</sup> Banking and Credit	net profit profitability ratios efficiency ratios financial leverage ratios liquidity ratios market prospect ratios	R. Othman et al. (2016) Sathyamoorthi, Mbekomize, Radikoko and Wally-Dima (2016)
	India	Banking	share capital growth shareholder funds growth deposits growth outstanding advances growth borrowing growth profitability	Tandon, Sharma and Bhulal (2017)
	Kenya	Agriculture	revenue per customer return on assets product innovation	Wathanga, K'Aol and Ngugi (2017)
Non-financial	Basque Country	Industrial	management capabilities innovation capabilities actual competitiveness future competitiveness	Basterretxea and Martinez (2012)
	Malaysia	Various <sup>5</sup>	efficiency growth profit size liquidity	Harun and Mahmood (2012)
	China	Agriculture	behavioral indicator productive indicator	Changjian, Xinhong and Chenzhong (2011)
	Kenya	Banking and Credit	productive indicator	Ndungo, Tobias and Florence (2017)
	UK	Not disclosed	social component economic sustainability environment	Duguid (2017)
Both financial and non-financial	Malaysia	Religion-based	satisfaction and governance socioeconomic performance growth and contribution financial	Sallehuddin et al. (2017)

<sup>4</sup> The sector includes Credit, Agriculture, Services, Banking, Transportation, Housing, Consumer, Construction, Farming and Health

<sup>5</sup> The sector includes Banking, Credit/Finance, Agriculture, Housing, Industrial, Consumer and Transportation

### ***Financial Measures***

The overview in Table 1 shows that the highest number of empirical studies employs the financial measures (84%). When it concerns the financial measures, the profitability ratio appears to be frequently used. As an example, Noordin, Rajaratnam, Said, Hanif, & Juhan (2012) employed the profitability ratios namely return on equity (ROE), net profit margin (NPM) and return on assets (ROA) to investigate the dividend pay-out and profit allocation practices of performing co-operatives in Malaysia. They argued that a combined measure using revenue, profit and other variables would be appropriate to assess performance. Similarly, Kalogeras *et al.* (2013) employed the profitability ratios (i.e. NPM, ROA, ROE and gross profit margin (GPM)) to assess the financial performance of agribusiness co-operative models with different ownership characteristics, member–investor, and publicly listed co-operatives in the Netherland. Furthermore Singh (2006) contended that the profitability ratios are reliable measures for evaluating the efficiency and effectiveness of an organization. Other financial ratios that are also employed in these studies are efficiency, liquidity and leverage.

### ***Non-Financial Measures***

Basterretxea and Martinez (2012) used subjective measures such as management capabilities, innovation capabilities, actual competitiveness and future competitiveness to evaluate whether management and innovation capabilities differ between co-operatives and IOFs. They reasoned that the subjective indicators are recommended when inter-sector samples are being used or samples formed mostly of SMEs. Likewise, Changjian *et al.* (2011) surveyed thirteen (13) agriculture co-operatives in China to evaluate the performance using behavioral indicators (i.e. organization operation and operation activities) and productive indicators (i.e. membership benefits, organization development and social impact). In addition Harun and Mahmood (2012) used a mailed survey to examine the relationship between task and social cohesion and performance in 371 co-operatives in Malaysia. The measures that are employed in the study were efficiency, growth, size liquidity and profit. They reasoned that it is an advantage when adapting multiple indicators that incorporates financial and non-financial performance in the assessment. Meanwhile, Ruben and Heras (2012) conducted an empirical study to examine the differences in cooperative organization, internal governance regimes and economic performance among five (5) coffee cooperatives in Ethiopia.

Changjian *et al.* (2011) and Ruben and Heras (2012) are among those studies that were found to have additional dimension in measuring the performance of a co-operative. Apart of using the non-financial measures, both studies also take into consideration the objective of co-operatives in providing benefit to its members as an additional measurement dimension. For example, Ruben and Heras (2012) employed access to finance as one of the performance dimension. In this regard, they specifically focus on the opportunities for providing trading capital (i.e. pre-finance funding) to guarantee timely payments to the cooperative members upon delivery of the harvest. Meanwhile, Changjian *et al.* (2011) included members' benefit as one of the performance measurement dimension. The aspects evaluated are per capita annual net income of members, per capita annual net income of members above the local average income and volume of trade between members and their cooperative.

## ***Economic Efficiency Tools***

It is worth to highlight a quantitative tool, known as Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA), which also being used to measure performance of co-operatives. DEA is basically a quantitative tool that explains the value of one output using the value of many different inputs. This tool was employed by Posadas and Cabanda (2007) to examine the productivity performance of 15 private electric co-operatives in the Philippines. Likewise, Chen *et al.* (2008) uses a case study of a co-operative bank to show the effect of using performance indices on performance result and the evaluation of a firm's performance. They employ a DEA framework using four types of performance indices selection, balance scorecard indices, balanced scorecard with risk management, and traditional financial indices, to evaluate banking operations. In a recent study, Wang *et al.* (2012) used similar tool to investigate the operating efficiency of agricultural co-operatives in China. As for SFA, Battaglia *et al.* (2010) utilized this approach to evaluate the cost and profit efficiency of co-operative bank in Italy.

## **Discussion and Conclusion**

This paper discusses the characteristics of co-operatives and reviews the measures used in previous studies to evaluate their performance within the period of 2006 – 2017 inclusive. Indeed, the performance of co-operatives is more complicated to measure as compared to the IOFs (Mellor, 2009). This is because, the co-operative also take into account the benefit that it offers to the members, in addition to maximising its profit. Generally, financial and non-financial measures are found to have been employed in measuring the performance of a co-operative, both in developed and developing countries. Financial measures however, are found to be used in 84% of the paper been reviewed. Of all the financial measures, the financial ratio analysis is found to be frequently used. As for the ratios, the profitability ratios are mostly employed. In this regard, we argue that the measurement used is focusing more on profit maximisation rather than the benefit to its members. Partly, this is contrary with the objective of the co-operatives which is to give benefits to its members. We contended that ratio analysis may be biased and lack a solid foundation in economic theory when applied to co-operatives. This is because the financial ratio analysis fails to consider that a co-operative is part of a vertically integrated entity that includes the membership and their businesses. We believe that success ought to be measured in terms of the benefits that members received from the co-operative as opposed to the performance of co-operative alone. Our argument is consistent with Sexton and Iskow (1993), and Soboh *et al.* (2009). Although Ruben and Heras (2012) and Changjian *et al.* (2011) take into account the benefit to members as one of the performance measurement dimension, their result cannot be rationally generalised due to small sample size (thirty one).

This paper, although provide a review on performance measurement of a co-operative, manage to highlight the importance of a dimension other than profit maximisation that requires consideration, vis-a-vis benefit to members. In so doing, the review of literature related to performance measurement of a cooperative is duly updated up to 2017. Cooperatives are business entities with a dual purpose that have to deal with both the competitive market atmosphere and have to fulfil the objectives of the members (Soboh et al., 2009). Thus, there is a need to establish standard performance measures of a co-operative that could address both objectives. Only then, the performance comparison between co-operatives

which are useful in promoting the benefits of co-operatives to new members and the general public can be realised.

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