Effect of mandatory adoption of international financial reporting standard (IFRS) on supply chain management: A case of Indonesian dairy industry

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\textbf{ABSTRACT}

The purpose of this study was to examine the role of International Financial Reporting Standards (IFRS) in supply chain management. To achieve this purpose, quantitative research approach was used, and the study preferred cross-sectional research design rather than longitudinal research design. Based on literature, six hypotheses were proposed concerning the relationship between international financial reporting and supply chain management. Data were collected from the employees of the dairy companies in Indonesia through area cluster sampling technique. Only those employees were selected having direct relationship with supply chain and accounting activities. Structural equation modelling was sued to test the hypotheses. The results of the study reveal that international financial reporting had significant association with supply chain management. The elements of supply chain accounting quality, namely; value relevance, earnings management and timely loss recognition had significant positive relationship with supply chain management. A better implementation of international financial reporting is the key to enhance the supply chain management.

\textbf{Keywords}: Financial reporting standard, Supply chain management, Value relevance, Earning management, Timely loss recognition, IFRS

1. Introduction

In recent decade, supply chain analysis, growth and development has grown rapidly. Supply chain management (SCM) is a quickly developing sector which has considerable impact on academicians and business management experts (Subbaiah et al., 2009; Ogundana et al., 2017). Planning the external and internal exercises of a firm is the fundamental rationality of supply chain management. It is about handling the whole process in a collective as well as unified fashion. Supply chain is important in various services and manufacturing industries, particularly in the dairy industry. As the product lines of dairy industry increases day by day, the logistics of milk, cheese and yoghurt items has significant importance. The dairy business is described by hyper competition with normal margins of 1–2 % of sales, and it additionally manages highly perishable items that likewise have a tendency to be delicate and have a low an incentive to size ratio (Ayağ et al., 2013). Moreover, the industry must fight with broadly fluctuating shopper tastes and a buyer fixation related to price. This confusing business
environment requests an investigation of supply chain needs in the dairy business to encourage the detailing of the business’ calculated prerequisites and along these lines empower the advancement of more effective supply chain management methodologies (Ayag et al., 2013; Azmi et al., 2018; Do et al., 2018). Therefore, dairy industry requires effective supply chain management. This industry has reasonable contribution in gross-domestic product, however, the Indonesian dairy industry is presently facing various challenges. Consumption of milk has significant relationship with dairy products production and supply chain management. Increases in the consumption of dairy product increases the pressure on dairy industry. As the supply chain is heavily based on products delivery to the customers (Gunasekaran et al., 2001). Fig. 1 shows the milk consumption per capita of various countries in 2015. Brunei has the highest milk consumption followed by the Malaysia. However, Indonesia has low milk consumption as compared to Brunei, Malaysia, Myanmar, Thailand, Philippines and Vietnam.

Fig. 1. Asian Countries Milk Consumption Per Capita (year 2015) Source: The Food and Agriculture Organization Corporate Statistical Database

Fig. 2. Indonesian Dairy Imports Source: Central Bureau of Statistics, 212-2015

Fig. 1 demonstrates that the dairy product consumption of Indonesia is low as compared to the other countries. However, Fig. 2 shows that Indonesian dairy industry is unable to provide minimum dairy products quantity to fulfil the consumers’ needs. It shows the imports of 2015. It is evident from the figure that the imports of Indonesia related to dairy products is much higher which has negative effect on gross-domestic product (GDP). It indicates that the Indonesian dairy industry is unable to meet the market demand. Therefore, it requires strategies to resolve this issue. Therefore, the current study is one of the attempts to draw a model to enhance the supply chain performance of dairy industry. For this purpose, the current study examined the impact of IFRS on supply chain management. As international reporting standards has significant relationship with firm’s operation (Nobes, 2014; Arora et al., 2017), thus, the purpose of this study is to examine the role of IFRS in supply chain management. Fig. 3 demonstrates the theoretical framework of the current study, which shows how IFRS support supply chain management.

Fig. 3. Theoretical framework of the current study showing that how IFRS support supply chain management
2. Literature Review

2.1 Financial Reporting

International Accounting Standard framework demonstrates that “financial reporting are means to communicate on the results of stewardship of the management, or the accountability of management for the resources entrusted to it by the owners of such resources.” (Maigoshi, 2014). Financial report concept comprises of statement of profit or loss; however, it is not limited to only profit and loss. It also includes statement of financial position of company, statement of cash flows and shareholders’ equity statement.

These standard alludes to financial reporting as an organized financial portrayal of the financial position and the transactions attempted by a venture and expand that the target of broadly useful financial statements is to give financial data about entity’s financial position, its execution and cash flow which is then used by wide range of end clients in settling on monetary requirements (Subramanyam, 2014; Nze, et al. 2016; Kimengsi & Gwan, 2017). Subramanyam (2014) communicated that financial reports are set up to communicate critical data with clients both inside and outside the entity. They are intended to communicate entity’s execution, financial position and cash flow contribution and financing exercises. Financial statements are utilized in reporting financing and putting exercises at a point in time, and summarised working exercises for the former time frame (Subramanyam, 2014; Solomon, et al. 2014; Jaya & Verawaty 2015; Angbre, 2016; Tanoos, 2017; Chowdhury, et al. 2018).

2.2 International Financial Reporting Standard

International Financial Reporting Standards (IFRS) are set of rules issued by London based free and non-profit making association called International Accounting Standard Board (IASB). They are market orientated and based arrangement of standard that requires broad declarations which ought to be connected in making financial reporting totally by public organizations over the world (Ball & Shivakumar, 2006; Adibah Wan Ismail et al., 2013; Purnama, 2014; Ahmad et al., 2016; Nazal, 2017; Taqi et al., 2018). International accounting standards were issued between 1973 and 2000 by the predecessor association. The predecessor association belongs to International Accounting Standard Committee (IASC) which was built up by the expert bodies in France, Netherland, Japan, Canada, Mexico, United States, Australia, United Kingdom and Ireland. These rules and regulations have significant impacts on supply chain companies.

The primary standard which was called International Accounting Standard (AIS) was distributed in 1975 by the IASC, and from that point forward the way toward setting international accounting standard have experienced through various changes and reproductions that bring forth 2001 rebuild into the present International Accounting Standard Board (IASB). New standards are substantially more superior to the predecessor as far as sorting and financing and accounting standards to be issued by the IASB ought to be called IFRS (Srivastava & Bhutani, 2012). While the main IFRS was issued in 2003. A year after the foundation of IASB, European Union coordinated all organizations that are cited in the capital market of its part states to get ready and present their financial statements utilizing IFRS by 2005. What's more, at this point, in excess of 12,000 corporation in right around 113 nations have embraced IFRS as their reporting standard and numerous more will receive or unite to IFRS soon (Ramanna & Sletten, 2009; Chen & Rezaee, 2012; Castorena, et al., 2014; Dim & Ezebasili, 2015; Wang & Lu, 2016; Adusei, 2018).

2.3 IFRS and Accounting Quality

The primary objective of IASB is to build up a worldwide adequate arrangement of top accounting standard. Keeping in mind the end goal to accomplish this target, IASB has issued accounting standards that wiped out many accounting techniques with a view to expand likeness of financial reports, confine administrative discretions on acquiring smoothing or overstatements. The standards require broad exposures in the substance of financial answer in order to furnish speculators with relevant data that
will help venture basic leadership process (Barth et al., 2008). Accounting quality can be increment by either changing to better financial reporting standard or through increment/tight authorization of existing standard (Ahmed et al., 2013). For a country that receives IFRS as reporting standard, in general accounting quality will be high if IFRS is of higher quality than existing local standard, holding the implementation level steady and the turnaround will be where local standards are of preferred quality over IFRS (Christensen et al., 2013).

The effect of compulsory appropriation of IFRS on accounting quality relies on whether IFRS is in higher quality or settle for the easiest option. Higher quality standards are those that can restrict administrative discretions over decision of accounting strategies and dispose of salary smoothing or overstatement there by making financial reports to monitor the firm genuine monetary position (Barth et al., 2008; Dimitropoulos et al., 2013). Fig. 4 shows how the IFRS works for users.

**Fig. 4. IFRS Dashboard for Business Users**

### 2.4 IFRS, Value Relevance and Supply Chain

Since the foundation of IABS, a few studies have examined the effect of IFRS appropriation on value relevance of financial statements (Alali & Foote, 2012; Kargin, 2013; Palea, 2014; Zéghal et al., 2011) in view of the way that value relevance considers information keeping and end goal to assess whether data reveal in financial statements can fill as a fundamental source of data to speculators in deciding value of the firm (Barth et al., 2008). A few analysts have received value relevance as one of the measurements of accounting quality (Ahmed et al., 2013; Dimitropoulos et al., 2013) and explained that it has significant effect on supply chain activities. In accounting literature, amount is a term as value significant and has an anticipated relationship with cost or return (Barth et al., 2008). Accounting quality brings the accuracy in supply chain operations. Supply chain performance has significant relationship with quality standards (Fynes et al., 2005). As the value relevance can be characterized as the capacity of financial reports to disclose all the vital data that can show the real value of the firms (Kargin, 2013). It may be estimated using statistical devices to decide the statistical connection between data disclose in financial reports and offer cost or return of the reporting entity. Barth et al. (2008) utilized 21 nations that embraced IAS over the period 1994-2003 and found a higher relationship between accounting numbers and securities exchange cost and return. Financial reporting has prompts audit activities, which facilitates enterprise risk management in supply chain companies. Experimental confirmations demonstrated that the utilization of IFRS has expanded the value relevance of financial reports in a developing market such as Indonesia (Alali & Foote, 2012). Therefore, the following hypotheses are proposed;

**H1:** There is a significant relationship between IFRS and value relevance.

**H2:** There is a significant relationship between value relevance and supply chain management.
2.5 IFRS, Earning Management and Supply Chain

Earning management has major role in supply chain companies. It provides the true and faire view of earning through supply chain and investment in supply chain activities. Earning management can be characterized as activities by the management inside the limits of accounting guidelines to accomplish a predetermined announced earnings (Adibah Wan Ismail et al., 2013). Healy and Wahlen (1999) discoursed that earning management occurs when administrator utilizes the individual judgment in financial reporting and rebuilding transactions to control financial reports to either misdirect speculators and value holders on the genuine execution of the organization or to impact the result of authoritative courses of action that depend on the revealed earnings. This is predictable with a few investigations that view earnings quality announced that are free from earnings management. However, political influence and investor’s investment decision making may influence the earning management of companies. Earning components of the listed firms in Athens Stock Exchange after the adoption of IFRS and document were decreased in terms of earning component as a result of the failure of IFRS measurement and reporting guidelines in improving them. Therefore, earning management in supply chain is also important to enhance performance. It is also evident that mandatory adoption of IFRS had no significant effect on real or accrual-based earnings, but firms earning management incentives had a dominance role in shaping financial reporting quality (Doukakis, 2010) which leads towards the better supply chain accuracy.

H3: There is a significant relationship between IFRS and earning management.

H4: There is a significant relationship between earning management and supply chain management.

2.6 IFRS, Timely Loss Recognition and Supply Chain

Timely recognition of loss has significant association with any organization (Ball & Shivakumar, 2006), particularly in supply chain companies. Timely loss or gain recognition must occur before the genuine income, so it requires accounting collections, which infers timely amendment of book value and value of benefit and obligation in the statement of financial position. Given the idea of salary, the less timely accounting framework is in monetary wage recognition, the more disorders in wage statement and statement of financial position figures, in this way, the financial reporting quality is also diminished (Ball & Shivakumar, 2006) which ultimately decreases the supply chain management quality. Ball and Shivakumar (2006) described that timely loss or gain recognition builds the accessibility of financial reporting, despite the fact that, it might add up to earnings smoothness which is usually supposed to be an index of poor earnings quality since it will be infrequent to identify large loss in a single year. Loss recognition in supply chain is the assurance of smoothness. It is believed that irregularity in information recognition can lead to better outcomes (Ball et al., 2000). Timely recognition of loss prevents supply chain to resolve the issue and increases the accuracy. Jayaraman (2012) looked at the impact of insider exchanging laws on timely loss recognition in sixteen nations as first-time implementation recommended that more prominent requirement builds the helpfulness of accounting data, first-time authorization of insider exchanging laws has a solid positive association with timely loss recognition since no such increment is apparent in other non-upholding nations which has significant relationship with supply chain management.

H5: There is a significant relationship between IFRS and timely loss recognition.

H6: There is a significant relationship between timely loss recognition and supply chain management.

3. Research Methodology

3.1 Research Design

According to by Burns and Grove (1993), Quantitative data “can be transposed into numbers, in a formal, objective, systematic process to obtain information and describe variables and their
relationships.” It is one of the crucial step, therefore, by considering the research problem, objectives and natures of study quantitative research approach was selected. It is one of the suitable approaches to accept or reject the hypotheses. Moreover, the cross-sectional design was adopted.

3.2 Sampling

Area cluster sampling was used to collect the data. Data were collected from the employees of dairy companies in Indonesia through area cluster sampling technique. This is one of the suitable techniques when the population is spread on a wide range. Only those employees were selected having direct relationship with supply chain and accounting activities.

3.3 Sample Size

Sample size was selected based on the Comrey and Lee (1992) recommendations. According to him, “sample having less than 50 participants will observed to be a weaker sample; sample of 100 size will be weak; 200 will be adequate; sample of 300 will be considered as good; 500 very good whereas 1000 will be excellent.” Therefore, 300 sample size was selected to proceed the study.

3.4 Sampling Procedure

By collecting data through area cluster sampling, first of all the population was divided into 10 clusters. From these 10 clusters, 6 were selected, randomly. From these clusters, list of employees in Indonesian dairy companies were gathered and respondents were selected randomly. The purpose of the study was explained to respondents before data collection and it was insured that all the responses will remain confidential.

4. Results

4.1 Preliminary Analysis

Data screening is critical in light of the fact that it ensures that the data collected within the field survey is sufficient to finish through different analyses and tests expected to answer the hypothesis created for the examination. It would have no significance if it proposes ambiguous arrangements. Data screening will go through the accompanying stages: missing value analysis, outlier’s examination and normality test. Therefore, missing value was examined and found that supply chain management has 07 missing values, timely recognition of loss has 05 missing values and earning management has 06 missing values. Multiple imputation as a statistical technique was used to resolve this issue. However, it was found that data has no outlier.

4.2 Confirmatory Factor Analysis

Fig. 5 shows the confirmatory factor analysis and Table 1 shows the results of confirmatory factor analysis. It is performed through Smart PLS 3. It fulfils the requirement of factor loadings and composite reliability. Validity includes, convergent validity and discriminant validity. Values of factor loadings value, composite reliability and average variance extracted (AVE) should be above 0.5, 0.7 and 0.7, respectively (Hair et al., 2010; Hair Jr & Lukas, 2014; Henseler et al., 2009).

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Confirmatory Factor Analysis (Results)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s Alpha</td>
<td>rho A</td>
</tr>
<tr>
<td>EM</td>
<td>0.961</td>
</tr>
<tr>
<td>IFRS</td>
<td>0.965</td>
</tr>
<tr>
<td>SCM</td>
<td>0.963</td>
</tr>
<tr>
<td>TLR</td>
<td>0.958</td>
</tr>
<tr>
<td>VR</td>
<td>0.97</td>
</tr>
</tbody>
</table>

EM = Earning Management, IFRS = International Financial Reporting Standards, SCM = Supply Chain Management, TLR = Timely Loss Re ignition, VR = Value Relevance
Table 2 and Table 3 show the discriminant validity. It was achieved through square root of average variance extracted (AVE) through Fornell and Larcker criterion. It was also examined through Heterotrait-Monotrait criterion.

4.3 Structural Model Assessment

PLS bootstrapping was used to test the hypotheses. According to the literature, 1.96 level of t-value should be the cut off value for hypotheses testing. Below t-value 1.96 is insignificant and leads to the rejection of hypotheses. However, t-value above 1.96 leads to the acceptance of hypotheses. The PLS bootstrapping process is shown in Fig. 6 and results are presented in Table 4.

Table 4
Hypotheses Testing Results

<table>
<thead>
<tr>
<th></th>
<th>(O)</th>
<th>(M)</th>
<th>(STDEV)</th>
<th>T Statistics</th>
<th>P Values</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM → SCM</td>
<td>0.098</td>
<td>0.092</td>
<td>0.02</td>
<td>4.88</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>IFRS → EM</td>
<td>0.15</td>
<td>0.15</td>
<td>0.012</td>
<td>12.5</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>IFRS → TLR</td>
<td>0.67</td>
<td>0.665</td>
<td>0.088</td>
<td>7.56</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>IFRS → VR</td>
<td>0.396</td>
<td>0.397</td>
<td>0.027</td>
<td>14.61</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>TLR → SCM</td>
<td>0.197</td>
<td>0.195</td>
<td>0.048</td>
<td>4.10</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>VR → SCM</td>
<td>0.031</td>
<td>0.043</td>
<td>0.069</td>
<td>0.445</td>
<td>0.657</td>
<td>Not Supported</td>
</tr>
</tbody>
</table>

It is evident from the results that the hypotheses (H1, H3, H4, H5, H6) are accepted. However, H2 is rejected. There is an insignificant relationship between value relevance and supply chain management. Moreover, the R² value is 0.897 which is substantial (Chin, 1998). It illustrates that all the variables have the tendency to explain 89.7% variance in dependent variable, namely; supply chain management. Additionally, the effect size is shown in Table 5. Effect size shows the effect of each independent variable on dependent variable. According to the results, IFRS and earning management has strong effect, however, time loss recognition has small effect and value relevance has none effect size.

Table 5
Effect Size (f²)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
<th>f²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value Relevance</td>
<td>0.002</td>
<td>None</td>
</tr>
<tr>
<td>IFRS</td>
<td>0.560</td>
<td>Strong</td>
</tr>
<tr>
<td>Timely Loss Recognition</td>
<td>0.028</td>
<td>Small</td>
</tr>
<tr>
<td>Earning Management</td>
<td>0.421</td>
<td>Strong</td>
</tr>
</tbody>
</table>
5. Study Findings

This study has examined the influence of International Financial Reporting Standards (IFRS) on supply chain management in dairy companies of Indonesia as one of the attempts to resolve various issues of supply chain. Results of the study have shown that IFRS had significant role in supply chain management. IFRS has maintained the key contribution to boost up supply chain management practices in Indonesian dairy firms. As it is discussed in the literature, this study has investigated the effect of IFRS on accounting quality measures. Supply chain accounting quality includes; value relevance, earning management and timely recognition of loss. It has found that IFRS had significant positive relationship with value relevance having t-value 14.61 and positive beta value. Moreover, it has revealed that IFRS also had significant positive relationship with earning management and timely loss recognition having t-value 12.5 and 7.56, respectively and positive beta value. Moreover, it was found that earning management and timely loss recognition had significant positive relationship with supply chain management with t-value 4.88 and 4.10, respectively and beta value 0.098 and 0.197, respectively. However, the relationship between value relevance supply chain management found insignificant with t-value 0.445. Hence, it was found that IFRS could increase the accounting quality by supporting value relevance, earning management and timely loss recognition. A better earning management and timely loss recognition enhances the supply chain management practices, particularly in Indonesian dairy companies. Thus, IFRS has significant contribution to enhance supply chain management practices. Moreover, the use of external and internal knowledge to adopt open-innovation may also resolve various supply chain issues.

6. Conclusion

This study has investigated the role of International Financial Reporting Standards (IFRS) in supply chain management among Indonesian supply chain companies. IFRS can be used as a strategic tool to enhance supply chain practices, particularly in dairy firms. Better implementation of IFRS has the ability to resolve various issues in dairy industry of Indonesia. IFRS is linked with three major elements of accounting quality which includes; value relevance, earning management and timely recognition of loss. According to the findings of the current study, IFRS enhances the value relevance, earning management and timely recognition of loss in organizations which has positive linkage with supply chain management. Earning management and timely recognition of loss increases the accuracy of supply chain operation which ultimately increases the overall firm performance particularly in supply chain sector. Therefore, Indonesian supply chain companies must implement effective IFRS to boost up the supply chain management.

References


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