Validation of Financial Credibility in the Questionnaire in the Field of Intellectual Capital Disclosure Practices of the Public Listed Companies in Sri Lanka

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Abstract

Intellectual Capital is one of the key areas which is a part the intangible assets of the companies. According to the main objective of this study, it is wanted to find out the existing intellectual capital practices in public limited in Sri Lanka and study how they affect the financial credibility of the company. Without recording the intellectual capital figures in the balance sheet, it shows that the financial credibility of the balance sheet has been understated. Therefore,a questionnaire was developed to get the opinions from the accountants specially covering all the sectors of public limited companies and only 35 questionnaires were distributed. The dimensions and the variables were identified through a rigorous literature survey and based on that the conceptualization and operationalization have been done. To check the reliability, internal reliability, spilt half reliability and test retest reliability have been tested. To check the validity, face validity, content validity, construct validity (with factor analysis), convergent validity and discriminant validity have been tested. The dependent variable (Financial Credibility) has been taken as the main constructto test the reliability and validity. Finally, it is clear that the reliability and the validity have been ensured of the questionnaire.

Keywords: Intellectual Capital Disclosures, Financial Credibility, Validity, Reliability

Background of the Study

According to the money measurement concept of the Accounting, the things which cannot be measured in monitory terms are not recorded in the financial statements. Only the physical resources and financial resources are recorded in the balance sheet. But, the human work force, customer base and organizational design have a huge value even they are not included in the balance sheet. Those human capital, organizational capital and customer capital are called as "Intellectual Capital".

At the present time there is still room for experimentation in quantifying and reporting on the intellectual capital of an organization. (Dzinkowski, 2000) since there is presently no universally acceptable definition of intellectual capital, although it would appear that practitioners, business journalists and academicians have the same board set of practices in mind. More recent descriptions of intellectual capital are consistent with the following model definition: "*That part of total organizational wealth represented by its intellectual assets: codified organizational recourses of knowledge that can enhance organizational performance and increment organizational wealth, though their skillful and continuous transformation.*"

In Sri Lankan companies there are no any proper practices of intellectual capital and proper valuation for the intellectual capital. Therefore, in this study the researcher aims to find out the existing intellectual capital practices in public limited in Sri Lanka and study how they affect the financial credibility of the company.

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Because the intellectual capital represents a considerable portion of the total capital of companies. Otherwise the financial statements of the companies do not show the real picture on asset base and wealth of the companies. That means the financial credibility will be understated since the lacking part of intellectual capital in the balance sheet. Therefore the research question was developed as follows.

- Does the existing format of the balance sheet represent the financial credibility of the companies without the disclosing of intellectual capital?

This study will be benefited to all the stake holders who are interested in the activities of the business organizations, specially when they make decisions. Scope of this research will be limited to the disclosure and value practices of intellectual capital that are being carried out by listed public quoted companies in Sri Lanka.Every industry which is listed in Colombo Stock Exchange has been considered when selecting the sample.

2. Literature survey

There is no any organized research related to this topic which carried out in Sri Lanka. But there were few specific studies done by the foreign countries that can be seen in the Intellectual Capital (IC) journal. Other than that IC journal there are another several articles that can be seen in various journals.

According to the article of Maria L and Draghici A (2013), it was presented to a model to evaluate the intellectual capital considering the aspects of intellectual capital. But that has not been covered to get the intellectual capital into account. Only the indicators for disclosing have been identified to make so model structure to disclose them in the accounting reports instead of reporting them in the financial statements.

Campbell, D and Rahman, M, R, A (2010) have suggested that the common categories and dimensions for reporting the intellectual capital covering the major three areas as human capital, customer capital and organizational capital.

Striukova, L, Unerman, U and Guthrie, J (2008) has done a research on the topic "Corporate reporting of intellectual capital: Evidence from UK companies". It stated that the disclosure part of the intellectual capital using a content analysis. That is also not covered the valuation and measurement of them.

Gopika Kannan (2008) has done a broad literature survey. The literature surveyed included financial and accounting measurement techniques, perceptual measures, process and systems measures, social networks analysis techniques, and econometric techniques for intangibles measurement. It is discussed in detail about the seminal studies and popular frameworks for intellectual capital measurement. But that was also not finalized till the values get in to account.

Niamh Brennan and Brenda Connell (2007) have done a prior research analysis on intellectual capital. According to that much research, both theoretical and empirical, has been undertaken on intellectual capital in recent years, Early research focused on defining intellectual capital and on methods of classification (e.g. Brooking, 1996; Edvinsson and Malone, 1997; Sveiby, 1997; Roos et al., 1997). Kaplan and Norton (1992), Sveiby (1997) and Edvinsson and Malone (1997) proposed different frameworks for classifying intellectual capital. These frameworks are broadly similar, but show different interrelationships among the elements of intellectual capital.

Richard Petty and James Guthrie (2008) have written an article on intellectual capital and they have mentioned there the evolution of intellectual capital. It is really important to understand continues evolution of intellectual capital from 1980 to 2000.**And also they have introduced the common indicators to measure the intellectual capital.**

Stephen Chen (2008) has written an article on intellectual capital. His aim was to find the application of intellectual capital using the game theory. He mentioned that how game theory may be used to better assess the strategic value of intellectual capital.

According to the common findings of articles, human capital theory traditionally does not account for the great potential embedded in the more unique characteristics dealt with here, they have extended the theory to include the notion of intellectual capital, and as such, placed the theory within a broader framework of value creation. What remains, however, is to develop and validate objective operational measures and artifacts for the dimensions discussed.

They suggest that future research should attempt to assess the relationship of these assessment methods with organizational performance. Moreover, it appears to be worthwhile to investigate into the multiplicative effects and interdependencies of intellectual capital items.

Han, D and Han, I (2004) has introduced the common indicators for measuring the financial aspects of intellectual capital by focusing on five dimensions as relevance, reliability, comparability, representational quality and the risk.

According to Ian Caddy (2000) intellectual liabilities have to be taken in to considerations when disclosing and valuing of intellectual capital. As a further area of research, if categories of intellectual liabilities can be elucidated, then attention should be devoted in the first instance towards assessing if these categories can be ranked in terms of size of impact, possible duration, level of organization response required, even if direct measurement and valuation cannot be performed.

The understanding of intellectual capital and the current knowledge of intellectual capital have been mentioned. Therefore according to all the literature it is stated that the neediness and importance of a common procedure to value of intellectual capital. Specially there is no any considerable study report on intellectual capital in Sri Lankan companies. Therefore researcher realized that it is needed to do a research study on valuing the IC of the companies specially based on Sri Lankan context. Otherwise the financial credibility of the companies will be understated and will not show the real picture of the company.

3. Conceptualization and Operationalization

Conceptual framework has been designed based on the dependent and independent variables. The dependent variable is the financial credibility of the company and the independent variable isthe disclosure practices of intellectual capital. The framework can be shown as follows.

Conceptual Framework
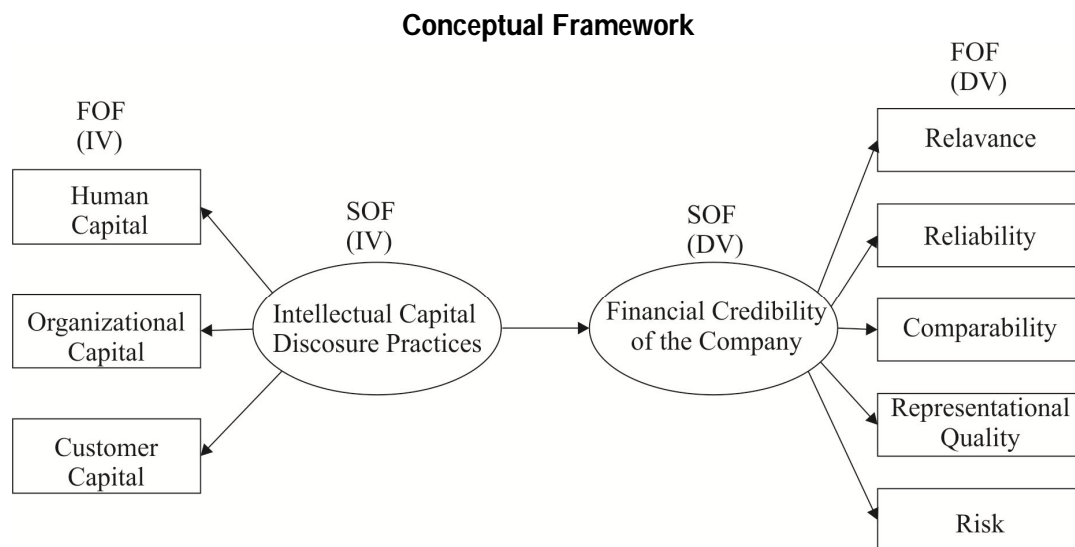
FOF (IV) – First Order Factor (Specific Aspects of Independent Variables)
SOF (IV) – Second Order Factor (Independent Variable) - Construct
SOF (DV) – Second Order Factor (Dependent Variable) - Construct
FOF (DV) – First Order Factor (Specific Aspects of Dependent Variables)

Under the *Intellectual Capital Disclosure Practices (Independent Variable)*, there are three dimensions as human capital, customer capital and organizational capital. Under the *Financial Credibility (Dependent Variable)*, there are five dimensions as relevance, reliability, comparability, representational quality and risk. Under those five dimensions, the indicators and the items have been developed based on the relevant literature as mentioned in the following table. Scale type questions have been used to measure the indicators. The scale has been five levels starting from strongly agree to strongly disagree.

Operationalization

Variable/ Dimensions	Indicators / Items
Dependent Variable	
1. Financial Credibility - Relevance	Feedback Predictive value Internal management implications
2. Financial Credibility - Reliability	Verifiability Neutrality Representational faithfulness
3. Financial Credibility - Comparability	Time serial comparability Interfirm comparability
4. Financial Credibility – RepresentationalQuality	Concise Representation Ease of understanding
5. Financial Credibility - Risk	Exploitation by competitors Market overreaction Government policy change

4. Reliability of the measures

The researched has distributed 35 questionnaires for the survey. To check the reliability of the questionnaire the dependent variable has taken as the main construct. The following instruments of measuring the reliability have been used to check whether the responses of respondents on the dependent variable are reliable. That means the consistency should be there in the responses of respondents. Babbie (1990) said that the reliability is a matter of whether a particular technique applied repeatedly to the same object would yield the same result. The reliability has been checked of the independent variable as follows.

4.1 Internal reliability –Homogeneity- Cronbach'sCoefficient alpha

This is very common in psychological research to collect multiple measures of the same construct. The type of reliability we will be examining here is called internal consistency reliability.

The Cronbach's Alpha of the dependent variable of the distributed 35 questionnaires is 0.902 which is greater than 0.7. Thereforethese questions had the internal reliability as in the expected level. The separate Cronbach's Alpha of all 25 items wasgreater than 0.7 and there was no any need to remove any question from the questionnaire.

Reliability Statistics

Cronbach's Alpha	N of Items
.902	25

4.2 Spilt half reliability – Equivalence of instruments

The two tests are given to participants at the same time and the scores should be similar. This is usually done when researchers are testing to see if a tried and true instrument can be used in a different order.

Reliability Statistics			
Cronbach's Alpha	Part 1	Value	.879
		N of Items	13[a]
	Part 2	Value	.749
		N of Items	12[b]
	Total N of Items		25
Correlation Between Forms			.740
Guttman Split-Half Coefficient			.784
a. The items are: Relavance1, Relavance2, Relavance3, Relavance4, Relavance5, Relia1, Relia2, Relia3, Relia4, Relia5, Com1, Com2, Com3.			
b. The items are: Com3, Com4, Com5, RQ1, RQ2, RQ3, RQ4, RQ5, Risk1, Risk2, Risk3, Risk4, Risk5.			

Here the spilt half reliability for first part is 0.879 and the second part is 0.749. And the Guttman Split-Half Coefficient also is 0.784. Therefore it is clear that the equivalence of the instruments is more reliable.

4.3 Test retest reliability - Stability

The same test is administered to the same individuals on two separate occasions. The trick is to administer the two tests close enough together so that we are not really detecting a change over time (maturation or history), but not so close together that people remember what response they chose the first time.

The 35 questionnaires were distributed again within one week and the test re test was done to check the stability of the questions. The result can be mentioned as follows.

Correlations

		Total1	Total2
Total1	Pearson Correlation	1	.874**
	Sig. (2-tailed)		.000
	N	35	35

**. Correlation is significant at the 0.01 level (2-tailed).

After collection the second questionnaires list the totals was calculated of each and every respondent. Then the correlation was done by comparing with two responses before one week and after one week. Then the calculated PearsonCorrelation is 0.874. The correlation is very close to 1 and this is a very good value. Therefore it is clear that the stability of the questions which covered all the indicators and dimensions of dependent variable are at the standard level.

5. Validity of the measures

The following instruments of measuring the validity have been used to check whether the responses of respondents on the dependent variable are valuable. That means the accuracyshould be there in the responses of respondents. Validity refers to the extent to which a test measures what it is supposed to measure. Reliability can be there without validity. But validity cannot be there without reliability. Therefore, it is a must to ensure the reliability before ensuring the validity. Therefore the reliability has already been done and then the validity has been checked of the dependent variable as follows.

5.1 Face validity

This is often used to indicate whether the instrument, on the face of it, appears to measure what it claims to measure. Face validity is only considered to be a superficial measure of validity, because is not really about what the measurement procedure actually measures, but what it appears to measure. This appearance is only superficial. Face validity is an estimate of the degree to which a measure is clearly and unambiguously tapping the construct it purports to assess. Therefore, the dimensions of the dependent variable (construct) were taken from the literature specially based on the article "prioritization and selection of intellectual capital measurement indicators.., written by Dongwook Han and Ingoo Han in 2004. It shows that the operationalized variables as mentioned in the above are most suitable dimensions for testing the financial credibility of intellectual capital. Just by seen the variable dimensions and the indictors, it is proved that the face validity is assured here.

5.2 Content validity

This is concerned with how well the content of the instrument samples the kinds of things about which conclusions are to be drawn. Content validity refers to how accurately an assessment or measurement tool taps into the various aspects of the specific construct in question. In other words, do the questions really assess the construct in question, or are the responses by the person answering the questions influenced by other factors.Content validity is most often measured by relying on the knowledge of people who are familiar with the construct being measured.

These subject-matter experts are usually provided with access to the measurement tool and are asked to provide feedback on how well each question measure the construct in question. Their feedback is then analyzed and informed decisions can be made about the effectiveness of each question.

Therefore, here the developed questionnaire was given to 10 subjects experts in the field of accounting by covering senior chartered accountants to check whether the questions have been covered the each and every dimension clearly. Finally they check that the content of all the indicators whether they are capable enough to cover the total context of the major construct. 9 experts said the content is essential. Therefore, Content Validity Ratio was 80% ((9-(10/2))/(10/2)). According to their opinions few changes have been done and most of the indicators were taken from the literature. Finally the content validity is also ensured.

5.3 Construct validity

This involves the extent to which certain explanatory concepts or qualities account for performance.Nunnally (1978) reported that "construct validity has been spoken of as'factorial validity' ". Bryman and Cramer (1990) noted that "factor analysis enables us to assess the factorial validity of the questions which make up our scales by telling us the extent to which they seem to be measuring the same concepts or variables"

Factor Analysis

It is analyzed the structure of the interrelationships among a large number of variables to determine a set of common underline dimensions.The correlation matrix of all variable is computed (With the Kaiser – Meyer – Olkin (KMO) of sampling adequacy). Therefore KMO is as follows.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.571**
Bartlett's Test of Sphericity	Approx. Chi-Square	666.800
	df	300
	Sig.	**.000**

The elements like the KMO measure should be greater than 0.5 at a bare minimum if the sample is adequate for a given pair of variables. Therefore here the KMO is 0.571 and it is greater than 0.5. And aslo Bartlett's Test of Sphericity is also significant. That is less than 0.05. Therefore, it can be said that the construct validity is also guaranteed.

5.4 Convergent validity

This demonstrates that an instrument has high correlations with measures of similar variables.That means it is needed to show that measures that should be related are in reality related.For that that the factor extraction (Principle Component Analysis) and factor rotation (Promax rotations with Kaizer normalization) have been done.

First the communalities were checked and most of the indicators' represented a figure more than 0.7. Then the Patten matrix has been loaded with seven factor loadings with lots of overlapping. The method was used Promax rotation and Kaiser normalization. Due to the overlapping and negative loadings some of the indicators remove from the list to improve the value of the average loadings. Then 8 indicators were removed out of 25 questions. Then the factor loadings come with 5 components with higher values and less overlapping.

To check the convergent validity of this, then the average loadings have been calculated. The average loading calculations were calculated as follows.

Components	1	2	3	4	5
Average Loading	0.731	0.733	0.756	0.819	0.790

All the average loadings should be more than 0.7 to ensure the convergent validity. Here, all the factor loadings under each and every component is greater than 0.7. Therefore the convergent validity is established.

5.5 Discriminant validity

This means an instrument has low correlations with measures of different variables.Discriminant validity tests whether concepts or measurements that are supposed to be unrelated are, in fact, unrelated. Therefore the calculation has been done by using few steps.First the variance extracted calculated by getting the squared of the average factor loadings.

Components	1	2	3	4	5
Variance Extracted (Squared of loading)	0.534	0.537	0.572	0.670	0.624

Then using the variance extracted the Average variance Extracted has been calculated for each and every correlation. The table can be mentioned as this.

Average Variance Extracted					
Component	1	2	3	4	5
1	1				
2	0.536	1.000			
3	0.553	0.555	1.000		
4	0.602	0.603	0.621	1.000	
5	0.579	0.580	0.598	0.647	1

Then the component correlation square was calculated by using the Component Correlation Matrix.

Component Correlation Squared					
Component	1	2	3	4	5
1	1				
2	0.302	1.000			
3	0.004	0.024	1.000		
4	0.087	0.124	0.012	1.000	
5	0.004	0.000	0.002	0.010	1

The discriminant validity can be measured by using two methods here. One method is the each and every component correlations should be less than 0.7. In this test, all these figures are less than 0.7. The other method is Average Variance Extracted (AVE) should be greater than Component Correlation Squared (CCS). Here all the AVE's are greater than the CCS's. Therefore, based on the findings of both these two methods, the discriminant validity of the Dependent variable (construct) was also established.

6. Conclusion

The main objective of this study was the examination of reliability and validity of a construct through a questionnaire. The conceptualization and the operationalization were done based on a rigorousliteraturesurvey and all the questions of the questionnaire were developed based on that. To check the reliability and validity of the questionnaire the dependent variable was taken as the main construct. The dependent variable was the financial credibility of the companies. Under the dependent variable the five specific aspects were taken as dimensions. Those were relevance, reliability, comparability, representational quality and the risk.

Then the reliability was done under internal reliability, spilt half reliability and test retest reliability. Validity was tested under, face validity, content validity, construct validity (with factor analysis), convergent validity and discriminant validity Therefore the reliability and validity test have been done according the objective of the assignment by taking the dependent variable as the main construct. Most of the calculations were done using SPSS software. Based on the calculated figures it is clear that the reliability and the validity of the response of the respondents on the dependent variable have been ensured and established.

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