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Article

Factor affecting the implementation of responsibility accounting on firm performance – Empirical analysis of listed textile firms

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MANAGEMENT | RESEARCH ARTICLE

Factor affecting the implementation of responsibility accounting on firm performance – Empirical analysis of listed textile firms

Van Tung Tran^{1*}, Phat Cuong Ly², Ngoc Nguyen Thao Ngo¹, Phuong Hai Tran¹ and Van Chien Nguyen³

Abstract: There are many researches on different aspects of responsibility accounting system, but none of those researches has focused on the impact of responsibility accounting system on the performance of textile enterprises. The aim of this paper is to identify factors affecting the implementation of responsibility accounting and its effect on the performance of Vietnamese listed textile companies. Using the qualitative and quantitative methodology, qualitative method was used to prepare the questionnaire, while quantitative method was used to measure the scale and analyze the level of impact of each factor. Further, the study employs the Structural equation modeling (SEM) with AMOS—SPSS, results show that factors in the research model aside from measurement technology and level of competition had certain impacts, including the ability of accounting staffs (TDKT), the awareness of managers at different level (NTQL), the decentralization (PQQL), the reward systems (HTKT), and the forecast for responsibility centers (DTTT). In addition, the structural management (CCTC), the competitive strategy (CLCT), the competitive advantages (YTCT) and the responsibility centers' reports (BCTT) that have greatly



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PUBLIC INTEREST STATEMENT

The aim of this paper is to identify factors affecting the implementation of responsibility accounting and its effect on the performance of Vietnamese-listed textile companies. Using the qualitative and quantitative methodology, and employing the Structural equation modeling (SEM) with AMOS—SPSS, results show that factors in the research model aside from measurement technology and level of competition had certain impacts, including the ability of accounting staffs, the awareness of managers at different level, the decentralization, the reward systems, and the forecast for responsibility centers. In addition, the structural management, the competitive strategy, the competitive advantages and the responsibility centers' reports that have greatly affected performance of listed firms. In addition, the implementation of responsibility accounting has the greatest effect on the performance of listed companies. In fact, the implementation of responsibility accounting changes by 1 point (level), it will increase/decrease the performance of listed companies by 0.409 points without considering the other factors

affected performance of listed firms. In addition, the implementation of responsibility accounting has the greatest effect on the performance of listed companies. In fact, the implementation of responsibility accounting changes by 1 point (level), it will increase/decrease the performance of listed companies by 0.409 points without considering the other factors

Subjects: Economics; Risk Management; Strategic Management

Keywords: Responsibility accounting; listed companies; performance; questionnaire; SEM

1. Introduction

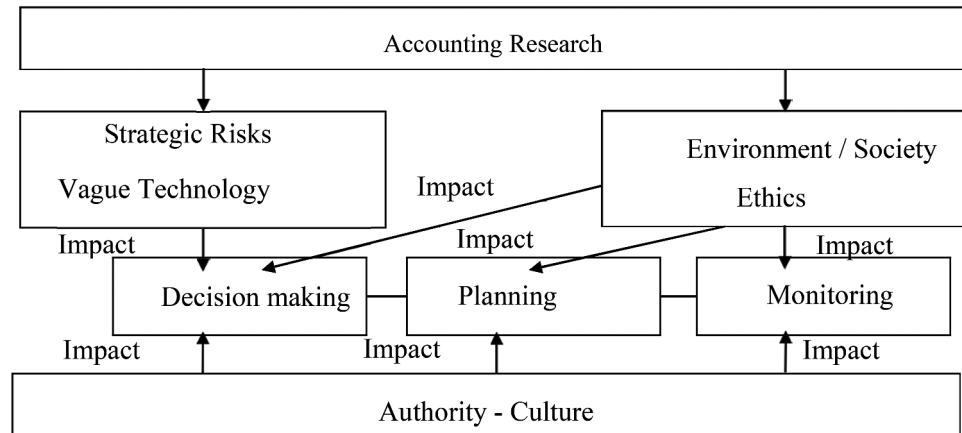
Economists stated that when Vietnam joined the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), textile industry is one of those industries that have many benefits along with downsides due to harsh competitions (MOIT, 2018). Therefore, the implementation of responsibility accounting plays a significant role in doing business, because responsibility accounting can provide managers with information that can help them make better business decisions. Additionally, responsibility accounting can also act as a tool to measure the efficiency and performance of departments in organizations. In order to grow and develop sustainably, managers need detailed information about costs and revenues from various departments, from which managers can construct and evaluate business plans, analyze errors and discrepancies to make long-term and short-term decisions.

Effective responsibility accounting systems should be able to clearly assign responsibilities to departments (Rugby, 2004). Delegation is the assignment of authority to managers based on their positions and responsibilities, which would allow managers to make decision within their departments, (Garrison et al., 2006) as well as measure actual results against plans (Horngren et al., 2005). Moreover, responsibility accounting is also an effective method to evaluate the performance of departments within an organization (Fowzia, 2011).

The target of responsibility accounting is to evaluate the relationship between managers' activities and their effects. In order to achieve this target, two main tasks need to be executed: Firstly, responsibility accounting system needs to be designed to reflect the performance of a single department, product, and service, so that responsibility centers can be established within an organization. Secondly, all costs and revenues must be allocated to those responsibility centers for management purposes.

There are few researches on different aspects of responsibility accounting system as suggested in of Al- Htaybat & Alberti-Alhtaybat's research (2013) emphasized the significant impact of education and skill ability of accounting staffs and managers on the accounting process. In addition, Han (2018) indicated that a firm should require its accounting to compete the transformation from the accounting to the management, therefore, the responsibility accounting is bound to boost the progress of the firm reform work. Another possibility, LE and BUI (2020) responsibility accounting was not comprehensive in the institutions that are not financially anonymous, especially in the public universities. Totally, none of those researches has focused on the impact of responsibility accounting system on the performance of textile enterprises and to analyze the implementation of responsibility accounting system on the performance in an emerging economy. This is the existing gap that will be discussed in this study. In addition, in order for those textile enterprises to develop in a stable and sustainable way, managers require detailed and accurate information regarding costs and revenues generated by departments within the organization. Based on such information, managers can

Figure 1. Management accounting theory. Source: Al-Htaybat & Alberti-Alhtaybat (2013)



design plans and measure actual results against those plans to identify discrepancies, which could help managers make better short-term and long-term plans. Therefore, the topic of “Factor affecting the implementation of responsibility accounting on firm performance—empirical analysis of listed textile firms” is necessary as it can help textile companies identify factors affecting the implementation of responsibility accounting systems.

The remainder of this study is organized as follows: Section 2 depicts theoretical framework while data collection and methodology in Section 3. We have Section 4, and Section 5 for empirical results, and discussions. The conclusions and recommendation will be shown in Section 6.

2. Theoretical framework and literature review

As a basis for building research models, this study used the following theories: Management accounting theory, Contingency theory, Agency theory, and Sociological theory.

2.1. Management accounting theory

Management accounting theory is affected by the environment, society, ethics, and authority, which affects three important aspects of management accounting: planning, monitoring, and decision making. Al-Htaybat and Alberti-Alhtaybat (2013) stated that management accounting theory was based on various other foundation theories regarding economic and social factors. According to this theory, the success of the implementation of management accounting system would depend on various factors, such as environment, technology, organizational size and structure, strategy, and national culture (Chenhall, 2003). Another important foundation theory is institutional theory, which reflects the interaction and changes in management accounting system under the influence of institutions and organizations. Such influence is compulsory, and necessary for organizations to reach their goals in many situations (Ma & Tayles, 2009). The foundation theory was also applied by Giddens’s structuration theory. This theory examines the structure, rules, and resources of the society, as well as the relationship between those factors (Coad & Herbert, 2009). In order for management accounting to work properly, organizations need to rely on three main factors, which are Capacity, Target, and Social standards (Coad & Herbert). Simultaneously, Bourdieu’s theory of practice analyzes the interaction between organizations and individuals based on rules and standards of organizational goals and individual characteristics. Education and training have a significant impact on the skill level and awareness of individuals. Besides, some other theories were also applied to construct Management Accounting Theory, including Actor-Network theory—which reflects the relationship between factors in the accounting system, Theory of Communicative Action—which reflects the relationship between the economy, legality, and motivation to implement management accounting system (Haldma & Laats, 2002).

Management Accounting Theory was able to present a complete model of management accounting system using results of some previous important researches related to management accounting. This model could examine and evaluate important aspects of management accounting, including Budget, Performance Assessment, Authority, Strategy, Culture, Education, and Technology. The model could be demonstrated using the below [Figure 1](#):

[Figure 1](#) indicates that management accounting has three main stages, including planning, monitoring, and decision making. Previous researches mainly focused on the technological aspect of management accounting while Al-Htaybat & Alberti-Alhtaybat (2013) focused on management aspect with interaction based on external factors (environment, regulation system, etc.) and internal factors (organizational characteristics, organizational size, skill ability of accounting staffs, managers' awareness, etc.). Further, planning is affected significantly by regulations and society factor. When managers of all level design budgeting plan, they need to consider all factors from internal factors, such as organizational targets, strategy, characteristics to external factors such as culture, society, environment, ethics, and economic conditions. Additionally, managers also need to pay attention to Risks, Technology, and Information system. These factors not only affect the Planning stage, but also Monitoring and Decision making. Adversely, the core value of Al-Htaybat & Alberti-Alhtaybat's research (2013) has been proposed, in which management accounting is examined based on technological, managerial, and social perspectives. Al-Htaybat & Alberti-Alhtaybat (2013) also emphasized a significant impact of education and skill ability of accounting staffs and managers on the accounting process.

In this paper, Management Accounting Theory reinforces views on the implementation of responsibility accounting system and the impact of planning and evaluation. Based on this foundation theory, several hypotheses were identified: (1) allocation of revenue and costs; (2) Forecasts for responsibility centers; (3) Responsibility centers' reports; (4) Assess forecasts and reality; (5) Managers' awareness; (6) Measurement technology; (7) Skill levels of accounting staffs that impact the implementation of responsibility accounting system. By utilizing this theory, the research can ensure both technological perspective and managerial perspective, from which managers can make decisions to establish and provide information on the organization's performance by evaluating the organization's results.

2.2. Contingency theory

Contingency theory was developed based on Organizational theory to define the best organizational structure for a certain situation (D.T. Otley, 1980; D. Otley, 2016). According to Elsayed and Hoque (2010), effective management should be adjusted in accordance with the situations. Initially, Contingency theory was solely applied in researches on behaviors and managements with Fiedler's model (Fiedler, 1964), which stated that managers' styles are permanent habits and it would be really difficult for managers to attempt to change their styles. Fiedler's model (Fiedler, 1964) was able to explain why managers may succeed in one particular situation but not in other situations. Managers may be successful when the situations suited their styles of management, or when the situations changed and fitted with their styles of management coincidentally.

Research conducted by Pennings (1975) has opened up ways to apply contingency theory to researches on accounting, in which many researches on accounting, especially management accounting, has been published since 1970 (D.T. Otley, 1980). In addition, Pennings (1975) suggested that authors could use contingency theory to identify factors affecting the efficiency of internal control systems depended on changes in the environment (both internal and external). According to D.T. Otley (1980), accounting systems should be designed in accordance with

the organization's characteristics, since there was no accounting system that could be implemented by all types of organizations under every situation.

One of the first researches on contingency theory based on organizational behavior, Hopwood (1976) evaluated the performance of low-level managers to top-level managers. However, results of those researches varied due to difference in sample size and geographical location. Another research that had gathered attentions of many researchers in management accounting field is environmental uncertainty because of several reasons: (1) organizational structures need to be flexible so that they can adapt to sudden changes in the environment due to the high level of uncertainty; (2) because of economic union, competition is becoming harsh, which leads to high level of uncertainty. This also suggests that small and medium enterprises are affected by the level of uncertainty. The next factor that needs to be considered is culture, including national culture and organizational culture. This factor would affect the behaviors of organizations, as well as employees within an organization. However, behaviors of top-level managers in an organization could be modified by training. Organizational culture is an indirect variable that shows certain degree of impact on organizational behaviors, and it could also control behaviors of employees in an organization (D. Otley, 2016). According to Rook and Fisher (1995), organizational culture includes social norms, ethics, values, beliefs, and it could affect the behaviors of employees. An organization with strong organizational culture would have less demand for internal control, which would in turn impact the design of the accounting system.

Based on several researches that had applied contingency theory from 1980 to 2014, D. Otley (2016) was able to identify factors affecting the implementation of accounting system: (1) independent variables include external and internal factors. Internal factors include organizational size, organizational structure, strategy, information system, rewards system, staffs, organizational culture, managers of all levels. Meanwhile, external factors include Technology, competition, national culture, level of uncertainty. (2) dependent variables include Accounting systems that ensure financial efficiency, Budget, Internal control, Effectiveness, Job satisfaction, Changes in operations, Organizational efficiency. Efficiency is the dependent variable of the implementation of accounting system in organization (D. Otley, 2016) and is the most widely used variable. Currently, the trend of many researchers is to study the relationship and interaction between factors to evaluate the effectiveness of the implementation of accounting systems instead of focusing on the relationship between a single independent variable and a dependent variable (D. Otley, 2016). According to D. Otley (2016), the understanding of the coherence between several independent variables would explain the dependent variables better in analysis.

Contingency theory helps identify external and internal factors affecting different aspects of the implementation of accounting system. Based on this foundation, several internal factors were identified, which are (1) Awareness; (2) organizational size; (3) Rewards system; (4) organizational structure. Meanwhile, external factors were also pointed out: (1) Competitiveness; (2) level of competition; (3) Strategy. Those factors affect the implementation of accounting system as well as the performance of organizations. By applying contingency theory, it is possible to investigate several independent and dependent variables in a research model, which would result in a better overview of the impact.

2.3. Agency theory

Agency Theory suggests that there would be conflicts between shareholders and managers when the amount of provided information is insufficient, and asymmetrical. Agency relationship (or authorized relationship) is when shareholders (owners) appoint managers (agents) to manage the organization with the authority to make business-related decisions that would affect owners' assets and properties (Jensen & Meckling, 1976). Agency theory is important as

it contributed to the development of organizational theory; agency theory focuses on the relationship between owners and agents (Eisenhardt, 1989).

Agency theory states that when managers want to maximize their benefits in the relationship between shareholders and managers, they would not act on shareholders' interests. In order to satisfy both sides, good reward systems could be employed to decrease the conflicts between shareholders and managers; internal control systems should also be established to limit unethical behaviors and decisions made by managers. Agency relationship is also shown in the relationship between top-level managers and low-level managers in the hierarchy, as well as between managers and individuals who employ the organizations' resources. According to Healy and Palepu (2001), in order to reduce the amount of conflicts between managers and shareholders, it would be wise to engage in contracts regarding remunerations and bonus for managers. Agency theory also explains the reasons to implement responsibility accounting in enterprises, and the type of information that listed companies should provide to ensure the benefits of shareholders and investors. Agency theory also acts as a foundation theory to construct internal reports and responsibility reports in accordance with the organizational hierarchy. Agency theory affects the establish and provision of information on organizational structure and hierarchy, which are important for the establishment of responsibility accounting system. From this, researchers can conduct in-depth study on several factors, such as organizational size and structure, level of management.

2.4. Sociological theory

Sociological Theory focuses on how organizations are established through the interaction between people, organizations, and society. According to Covaleski et al. (1996) behaviors that are in accordance with social norms would result in the optimum productivity. Sociological theorists examined management accounting system from a social perspective instead of technological perspective to make internal decision to improve organization's performance. Wildavsky and Caiden (2004) argued that the budget system could also be used to establish and maintain political relationship in the complexity of the society. Further, Hopper and Armstrong (1991), Oakes and Covaleski (1994) all argued that management accounting and cost information could be employed to maximized productivity.

Sociological theory suggested that management accounting systems were affected not only by internal factors but also by external factors, such as policies and labor regulations. Therefore, organizational goals should be in line with social benefits. For example, remuneration policies and reward systems should follow government policies. Sociological Theory also explains behaviors of the working class in the relationship between them and managers. This theory provides information related to factors affecting the behaviors of the working class in the organization's responsibility accounting system. Based on this, researchers who study the implementation of responsibility accounting system can focus on the Reward System factor.

2.5. Responsibility accounting

Responsibility accounting is a system that involves collecting results from individuals and departments to analyze and evaluate the efficiency of those individuals and departments. Responsibility accounting is a system that specializes in collecting, analyzing, and transferring information under the responsibility of managers. According to Higgins (1952), responsibility accounting is an accounting system designed to control costs associated to individuals who are in charge of management within an organization. Atkinson et al. (2001) stated that responsibility accounting is an accounting system that can collect, summarize, and report all accounting information related to associated tasks of each manager in one organization. The system can provide information regarding costs and revenues generated by each responsibility center to evaluate the responsibility and performance of managers.

2.6. Performance

The performance is one important aspect of management accounting in general, and, more specifically, responsibility accounting. According to Santos and Brito (2012), performance is measured using 3 main factors: profitability, growth rate, and market value of the enterprise. Barney (2011) stated that even though the performance of a company, which is shown through financial reports and figures, is really important to stakeholders, the available information is often insufficient, and untransparent to emphasize the role and needs of stakeholders. Therefore, it is necessary to measure and report the performance of companies using detailed financial ratios and information. Santos and Brito (2012) suggested some benchmarks to measure the performance of enterprises. Firstly, profitability, reflected by several ratios of financial performance as return on assets (ROA), return on equity (ROE), return on scale (ROS). Secondly, growth rate, reflected by several ratios: Asset growth, Equity growth, Gross Profit growth.

3. Data and methodology

3.1. Data

Data collection and analysis are important stages in qualitative researches (Marshall & Rossman, 1989; Merriam, 1988). According to Dao et al. (2021), sample is not selected using statistical approach; instead, it is selected to construct theory or theoretical approach. Candidates for the sample are experts in the field of management accounting or responsibility accounting, such as Professors, Associated Professors, Doctor of Philosophy, and managers such as Chief Accountants, General Accountants, Heads of departments, and accounting staffs. Opinions and perspectives of those experts can be used to explore factors affecting the implementation of responsibility accounting system in listed textile enterprises in Vietnam. In addition, candidates for In-depth Interviews are top-level managers, such as Chairman of the Board of Management, Members of the Board of Management, Presidents, Directors, Chief Accountants, General Accountants, Heads of departments, and staffs who have deep understanding about management accounting and responsibility accounting

According to Tabachnick and Fidell (2007), Tran and Foroudi (2020), and Tran (2020), sample size can be determined using the formula $n \geq 50 + 8k$, with k being the independent variables in the research model. In this research, the total of independent variables is between 15 and 59 observable variables. Therefore, minimum acceptable sample size would be $n = 50 + 8 \times 15 = 170$. From Feb 2019 to June 2019, the authors had distributed 500 questionnaire forms; among those, 385 were valid and 13 forms were invalid; therefore, the sample size was 385, which was larger than 170, and was deemed to be appropriate.

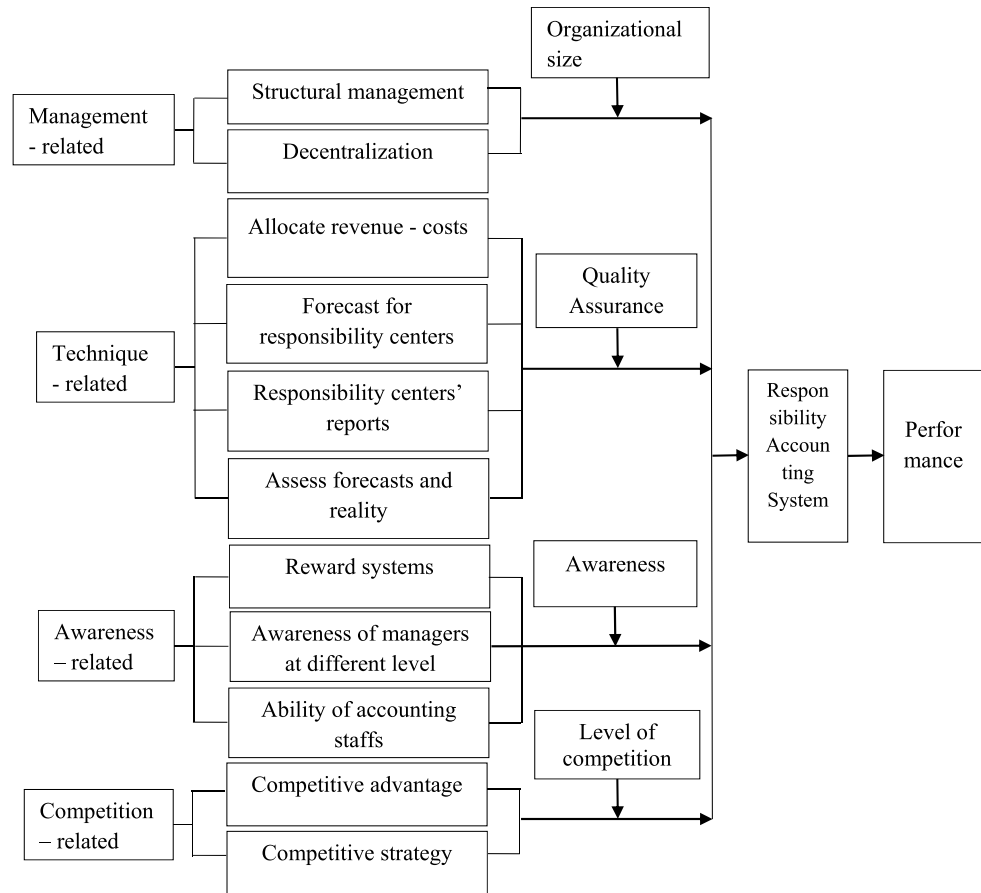
3.2. Methodology

For this research, the authors employed mixed methods, which combine both qualitative and quantitative methodology, to study and identify factors affecting the implementation of responsibility accounting system and its effect on the performance of listed textile enterprises in Vietnam. Mixed methods have been approved and widely applied in several researches on society and business.

Qualitative methodology is used to analyze and process qualitative data to explore and explain scientific subjects. Therefore, the authors employed qualitative methodology to explore new factors affecting the implementation of responsibility accounting system and its effect on listed textile enterprises in Vietnam, and identify new factors that cannot be tested using quantitative methodology.

Quantitative research, which is conducted based on available information and data set, is favored by researchers. This approach mainly relies on experiments, logical reasoning, and measuring. According to Dao et al. (2021) deductive approach is conducted by carrying out large-scale measuring and logical, realistic reasoning. In this study, we use Likert with 5 scales,

Figure 2. Research model.



including (1) Strongly Disagree, (2) Disagree, (3) Neither Disagree nor Agree, (4) Agree, and (5) Strongly Agree (Tran & Vu, 2019).

3.3. Research model

The authors have identified 15 factors with 59 observable variables that have certain impacts on the implementation of responsibility accounting to improve the performance of listed textile companies in Vietnam; those factors could be seen in the research model in Figure 2, in which independent variables are summarized in Table 1, and dependent variable is summarized in Table 2.

4. Empirical results

4.1. Descriptive statistics

The descriptive statistics will discuss the general information regarding survey, including gender, education level, age, working position, and working experience in the sample data. The results will be shown in Table as follows:

As suggested in Table 3, approximately 59% of respondents were male and the remaining 41% were female. Respondents who hold Master degrees accounted for 44.4% of the survey audience, and 48.6% of the target audience were people with Bachelor degrees; 45.5% of them had experience of 5 to 10 working years and 44.9% of them had experience of 10 to 20 years of working. Besides, 47.8% of respondents were in the age range of 30 to 40, while 33.5% of them were in the age range of 40 to 50. This suggested that the result of the preliminary

Table 1. Independent variables

Abbr.	Detail	Reference	Expected sign
QMDN	Organizational size	Hatibat (2005), Ahmad (2012), Tram-Nguyen et al. (2021)	+
CCTC	Structural management	Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019)	+
PQQL	Decentralization	Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019)	+
KTDL	Quality Assurance	Fowzia (2011), Islam et al. (2015)	+
DTCP	Allocate revenue—costs	Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019)	+
DTTT	Forecast for responsibility centers	Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019)	+
BCTT	Responsibility centers' reports	Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019)	+
DGDT	Assess forecasts and reality	Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019)	+
MDNT	Awareness	Le et al. (2018)	+
HTKT	Reward systems	Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019)	+
NTQL	Awareness of managers at different level	Mohammad et al. (2014), Ramadan (2016)	+
TDKT	Ability of accounting staffs	Mohammad et al. (2014), Tram-Nguyen et al. (2021)	+
YTCT	Competitive advantage	Doan (2012), Hoque and James (2000)	+
MDCT	Level of competition	Mia and Clarke (1999), Tram-Nguyen et al. (2021)	+
CLCT	Competitive strategy	Govindarajan and Fisher (1990), Tram-Nguyen et al. (2021)	+

Source: Authors' analysis

Table 2. Dependent variables

Abbr.	Detail	Reference
KTTN	Responsibility accounting system (RAS) and its efficiency	Doan (2012), Ahmad (2012), T.T. Nguyen et al. (2020), Hussain et al. (2021), Nguyen (2020)

Source: Authors' analysis

quantitative research was reliable because most of the respondents were above 30 years old with at least 5 years of working in the field, and all had bachelor's degrees.

Descriptive statistics is a method to analyze data, with the total of valid respondents of 385, which satisfied the minimum amount of 125. In order to have an overall view of collected data, the authors constructed the below table to present a statistical summary of respondents based on sample size, mean, standard deviation, minimum value, and maximum value.

Table 4 indicates that measured value of variables was mainly (1, 5) and (2, 5). Mean varied from 1.85 to 3.98. Standard deviation showed that all variables scattered evenly. For dependent variable, the measure of performance is shown by operating efficiency and responsibility accounting system in textile firms. Mean varied from 3.11 to 3.45 and quite stable among sub-variables.

Table 3. General information regarding survey targets

Statistics	Amount	Percentage
Gender		
Male	227	59.0%
Female	158	41.0%
Total	385	100.0%
Education level		
Master Degree	171	44.4%
Bachelor Degree	187	48.6%
Diploma	25	6.5%
Intermediate	2	0.5%
Total	385	100.0%
Age		
Under 30	72	18.7%
From 30 to 40	184	47.8%
From 40 to 50	129	33.5%
Above 50	0	0.0%
Total	385	100.0%
Position		
Accountants	188	48.8%
General Accountants/ Vice-Heads of Accounting Departments	164	42.6%
Chief Accountants/ Heads of Accounting Departments	28	7.3%
Financial Directors	5	1.3%
Total	385	100.0%
Experience		
Under 5 years	37	9.6%
From 5 years to 10 years	175	45.5%
From 10 years to 20 years	173	44.9%
Above 20 years	0	0.0%
Total	385	100.0%

Source: Authors' analysis

4.2. Cronbach's alpha test results

By using Cronbach's Alpha to test reliability shown in [Table 5](#), it can be stated that all observable variables are qualified, and all pass the test of reliability, since minimum item-total correlation of each factor is greater than 0.3 (Dao et al., 2021; Islam et al., 2015), and Cronbach's Alpha > 0.6. Therefore, all variables are used in the following EFA.

4.3. Exploratory factor analysis (EFA) analysis

[Table 6](#) shows that KMO = 0.840, which satisfied the condition of $0.5 < \text{KMO} = 0.840 < 1$, so EFA was deemed appropriate. Meanwhile, Bartlett's test with Sig. < 0.01 proves that all variables have linear correlation with the represented factors. In addition, [Table 7](#) with the total variance explained, indicates that At Eigenvalue = 1.384 > 1 extracted from 8 factors from 59 observed variables with a total variance extracted is 78.440% (>50%) and no new factors have been formed compared to the proposed research model. Thus, after EFA analysis, these 59 observed variables ensure the EFA analysis standard (satisfactory). No variables were excluded at this stage

Table 4. Statistical description of the measurement of variables

Variables	N	Mean	Standard Deviation
CCTC1	385	2.65	0.970
CCTC2	385	3.24	0.962
CCTC3	385	2.54	0.997
CCTC4	385	2.77	1.029
PQQL1	385	2.36	0.969
PQQL2	385	2.21	0.821
PQQL3	385	2.25	0.908
PQQL4	385	2.25	0.850
DTT1	385	2.77	0.855
DTT2	385	2.89	0.905
DTT3	385	2.76	0.904
DTT4	385	2.83	0.895
DTCP1	385	1.85	0.553
DTCP2	385	1.89	0.521
DTCP3	385	1.90	0.571
DTCP4	385	1.87	0.524
BCTT1	385	2.77	0.833
BCTT2	385	2.89	0.885
BC.TT3	385	2.76	0.884
BCTT4	385	2.83	0.876
DGDT1	385	3.25	0.847
DGDT2	385	3.12	0.899
DGDT3	385	3.25	0.890
DGDT4	385	3.19	0.891
NTQL1	385	3.95	0.826
NTQL2	385	3.90	0.817
NTQL3	385	3.90	0.822
NTQL4	385	3.90	0.819
HTKT1	385	3.83	0.795
HTKT2	385	3.83	0.803
HTKT3	385	3.75	0.767
HTKT4	385	3.74	0.800
TDKT1	385	3.46	0.927
TDKT2	385	3.49	0.927
TDKT3	385	3.55	0.903
TDKT4	385	3.72	0.829
YTCT1	385	2.73	0.829
YTCT2	385	2.85	0.870
YTCT3	385	2.72	0.877
YTCT4	385	2.79	0.866
CLCT1	385	3.24	0.844
CLCT2	385	3.12	0.861
CLCT3	385	3.25	0.891
KTTN1	385	2.73	0.826
KTTN2	385	2.85	0.887

(Continued)

Table 4. (Continued)

Variables	N	Mean	Standard Deviation
KTTN3	385	2.72	0.880
KTTN4	385	2.77	0.901
HQHD1	385	3.98	0.677
HQHD2	385	3.84	0.705
HQHD3	385	3.96	0.664
QMDN1	385	3.43	1.240
QMDN2	385	3.81	1.142
QMDN3	385	3.78	1.058
QMDN4	385	3.34	1.287
KTDL1	385	3.37	0.847
KTDL2	385	3.18	0.801
KTDL3	385	3.26	0.766
KTDL4	385	3.62	0.842
MDNT1	385	3.02	0.722
MDNT2	385	3.07	0.829
MDNT3	385	3.11	0.840
MDNT4	385	3.11	0.815
MDCT1	385	3.56	0.805
MDCT2	385	3.64	0.891
MDCT3	385	3.57	0.860
MDCT4	385	3.98	0.888
KTTN1	385	3.45	0.878
KTTN2	385	3.23	0.921
KTTN3	385	3.22	0.911
KTTN4	385	3.26	0.899
KTTN5	385	3.18	0.897
KTTN6	385	3.11	0.910
KTTN7	385	3.44	0.922

Source: Authors' analysis

After extracting Principal components and executing Varimax rotation, the authors constructed the below [Table 8](#) to show new factors.

4.4. Confirmatory factor analysis (CFA) analysis

By applying CFA, it could be stated that the Measurement Model is valid since Chi-square/df = $1.238 \leq 3$ p value = 0.000, which means that the value is statistically valid. Besides, with TLI = 0.978 and CFI = 0.980 > 0.9 (the closer this figure is close to 1, the more valid the model is present), RMSEA = 0.025 < 0.08, the model satisfied every condition and was deemed appropriate with practical data, and there was no correlation between measurement, so the unidimensionality of the model was confirmed (see Appendix A and [Table 9](#)).

4.5. Testing theoretical models with structural equation modeling (SEM)

Results of SEM confirmed the validity of the research model, with Chi-square/df = $1.356 \leq 3$ with p value = 0.000, which means that the value is statistically valid. Besides, with TLI = 0.967 and CFI = 0.970 > 0.9 (the vale is to close 1, the more valid the model is present),

Table 5. Summary of Cronbach's Alpha test results

No.	Variables	Amount	Cronbach's Alpha
1	Responsibility accounting system	4	0.898
2	Performance	3	0.852
3	Organizational size	4	0.845
4	Structural management	4	0.846
5	Decentralization	4	0.924
6	Quality Assurance	4	0.893
7	Allocate revenue—costs	4	0.913
8	Forecast for responsibility centers	4	0.905
9	Responsibility centers' reports	4	0.901
10	Assess forecasts and reality	4	0.903
11	Awareness	4	0.831
12	Reward systems	4	0.930
13	Awareness of managers at different level	4	0.917
14	Ability of accounting staffs	4	0.908
15	Competitive advantages	4	0.895
16	Level of competition	4	0.834
17	Competitive strategy	3	0.829

Source: Authors' analysis

Table 6. KMO analysis and Bartlett's Test

KMO		.840
Bartlett's Test	Approx. Chi—Square	11750.265
	Degree of Freedom	903
	Sig. (P-value)	0.000

Source: Authors' analysis

RMSEA = 0.030 < 0.08, the model satisfied every condition and was deemed appropriate with practical data (see Appendix B).

Table 10 shows the degree of impact, from the strongest to the weakest: Ability of accounting staffs (TDKT), Awareness of managers at different level (NTQL), Decentralization (PQQL), Reward systems (HTKT), Forecast for responsibility centers (DTT), Structural management (CCTC), Competitive strategy (CLCT), Allocate revenue—costs (DTCP), Assess forecasts and reality (DGDT), Competitive advantages (YTCT), Responsibility centers' reports (BCTT).

Multigroup Analysis was executed to identify discrepancies between relationship of hypotheses and relationship of variables in the model: organizational size, Measurement techniques, Level of Awareness, Level of Competition. Maximum Likelihood method was used in the Multigroup Analysis, while chi-square test of independence was used to compare the two models. If there is no difference between the constrained estimation and unconstrained estimation (p-value > 0.05), it could be stated that there would be no statistical meaning at reliability of 95%, or the model is not affected by the hypotheses. On the other hand, if p-value

Table 7. Total variance explained											
Factor	Eigenvalues			Extraction Sums			Rotation Sums				
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	Cumulative %
1	7.771	18.072	18.072	7.771	18.072	18.072	3.351	7.793	7.793	3.351	7.793
2	3.646	8.479	26.551	3.646	8.479	26.551	3.306	7.688	15.480	3.306	15.480
3	3.443	8.008	34.559	3.443	8.008	34.559	3.254	7.567	23.047	3.254	23.047
4	3.180	7.396	41.955	3.180	7.396	41.955	3.220	7.488	30.535	3.220	30.535
5	3.100	7.208	49.163	3.100	7.208	49.163	3.132	7.284	37.819	3.132	37.819
6	2.752	6.400	55.563	2.752	6.400	55.563	3.128	7.274	45.093	3.128	45.093
7	2.416	5.618	61.181	2.416	5.618	61.181	3.119	7.254	52.347	3.119	52.347
8	2.218	5.159	66.340	2.218	5.159	66.340	3.091	7.189	59.536	3.091	59.536
9	2.009	4.673	71.013	2.009	4.673	71.013	3.076	7.153	66.689	3.076	66.689
10	1.810	4.209	75.222	1.810	4.209	75.222	2.796	6.502	73.191	2.796	73.191
11	1.384	3.219	78.440	1.384	3.219	78.440	2.257	5.250	78.440	2.257	78.440
12	.597	1.388	79.828								

Source: Authors' analysis

Table 8. Summary of new factors

Benchmarks	Variables	Name of new factors
HTKT	HTKT1, HTKT2, HTKT3, HTKT4	Reward systems
PQQL	PQQL1, PQQL2, PQQL3, PQQL4	Decentralization
DTCP	DTCP1, DTCP2, DTCP3, DTCP4	Allocate revenue—costs
TDKT	TDKT1, TDKT2, TDKT3, TDKT4	Ability of accounting staffs
DTTT	DTTT1, DTTT2, DTTT3, DTTT4	Forecast for responsibility centers
DGDT	DGDT1, DGDT2, DGDT3, DGDT4	Assess forecasts and reality
BCTT	BCTT1, BCTT2, BCTT3, BCTT4	Responsibility centers' reports
NTQL	NTQL1, NTQL2, NTQL3, NTQL4	Awareness of managers at different level
YTCT	YTCT1, YTCT2, YTCT3, YTCT4	Competitive advantages
CCTC	CCTC1, CCTC2, CCTC3, CCTC4	Structural management
CLCT	CLCT1, CLCT2, CLCT3	Competitive strategy

Source: Authors' analysis

≤ 0.05 , there would be statistical meaning and the theoretical model is affected by the hypotheses (see Appendix C).

4.5.1. Hypothesis testing—organizational size

Result of SEM for the Unconstrained estimation was appropriate with practical data since Chi-square/df = $1.306 \leq 3$ with p value = 0.000, which means there is statistical meaning. Besides, TLI = 0.943 and CFI = 0.949 > 0.9 (the closer those figures are to 1, the more valid and appropriate they are); RMSEA = 0.028 < 0.08 (this figure is best kept as small as possible), which satisfy all requirements. So the theoretical model is appropriate and suitable with practical data. Result of SEM for the Constrained estimation was appropriate with practical data since Chi-square/df = $1.313 \leq 3$ with p value = 0.000 which means there is statistical meaning. Besides, TLI = 0.945 and CFI = 0.950 > 0.9 (the closer those figures are to 1, the more valid and appropriate they are); RMSEA = 0.029 < 0.08 (this figure is best kept as small as possible), which satisfy all requirements. So the theoretical model is appropriate and suitable with practical data (see Appendix D)

In order to test the impact of the hypothesis on the theoretical model, the authors carried out chi-square test of independence for Constrained and Unconstrained Estimation.

As shown in Table 11, there are discrepancies between Chi Square and Degrees of Freedom of the two models, and statistical meaning also exists (p-value ≤ 0.05). Therefore, the theoretical model is affected by Organizational size.

4.5.2. Hypothesis testing—Measurement techniques

Result of SEM for Unconstrained and Constrained Estimations was appropriate with practical data since Chi-square/df = $1.294 \leq 3$ with p value = 0.000, which means there is statistical meaning. Besides, TLI = 0.947 and CFI = 0.952 > 0.9 (the closer those figures are to 1, the more valid and appropriate they are); RMSEA = 0.028 < 0.08 (this figure is best kept as small as possible), which satisfy all requirements. So the theoretical models are appropriate and suitable with practical data (see Appendix E and F). In order to test the impact of the hypothesis on the theoretical model, the authors carried out Chi square test of independence for Constrained and Unconstrained Estimation.

Table 9. Summary of CFA results with standardized regression weights (Standardized Regression Weights)

HTKT4	<—	HTKT	0.928
HTKT2	<—	HTKT	0.884
HTKT1	<—	HTKT	0.873
HTKT3	<—	HTKT	0.829
DTCP4	<—	DTCP	0.947
DTCP2	<—	DTCP	0.866
DTCP3	<—	DTCP	0.8
DTCP1	<—	DTCP	0.802
NTQL4	<—	NTQL	0.891
NTQL1	<—	NTQL	0.821
NTQL2	<—	NTQL	0.885
NTQL3	<—	NTQL	0.828
PQQL2	<—	PQQL	0.908
PQQL3	<—	PQQL	0.875
PQQL4	<—	PQQL	0.862
PQQL1	<—	PQQL	0.84
TDKT2	<—	TDKT	0.875
TDKT4	<—	TDKT	0.888
TDKT3	<—	TDKT	0.863
TDKT1	<—	TDKT	0.76
YTCT4	<—	YTCT	0.941
YTCT2	<—	YTCT	0.832
YTCT3	<—	YTCT	0.779
YTCT1	<—	YTCT	0.757
BCTT4	<—	BCTT	0.941
BCTT2	<—	BCTT	0.837
BCTT3	<—	BCTT	0.802
BCTT1	<—	BCTT	0.76
KTTN4	<—	KTTN	0.939
KTTN2	<—	KTTN	0.844
KTTN1	<—	KTTN	0.772
KTTN3	<—	KTTN	0.776
DGDT4	<—	DGDT	0.947
DGDT2	<—	DGDT	0.84
DGDT3	<—	DGDT	0.795
DGDT1	<—	DGDT	0.769
DTT4	<—	DTT	0.943
DTT2	<—	DTT	0.843
DTT3	<—	DTT	0.805
DTT1	<—	DTT	0.772
CCTC4	<—	CCTC	0.835
CCTC3	<—	CCTC	0.737
CCTC2	<—	CCTC	0.742
CCTC1	<—	CCTC	0.731
CLCT2	<—	CLCT	0.879

(Continued)

CLCT3	<—	CLCT	0.784
CLCT1	<—	CLCT	0.701
HQHD2	<—	HQHD	0.855
HQHD3	<—	HQHD	0.797
HQHD1	<—	HQHD	0.785

Source: Authors' analysis

As shown in Table 12, there are discrepancies between Chi Square and Degrees of Freedom of the two models, and statistical meaning does not exist at reliability level of 95% ($p\text{-value} = 0.25 > 0.05$). Therefore, the theoretical model is not affected by Measurement Techniques.

4.5.3. Hypothesis testing—Level of Awareness

Result of SEM for Unconstrained and Constrained Estimations was appropriate with practical data since Unconstrained estimation showed Chi-square/df = $1.294 \leq 3$ with $p\text{ value} = 0.000$, and Constrained estimation also showed Chi-square/df = $1.294 \leq 3$ with $p\text{ value} = 0.000$, which means there is statistical meaning. Besides, for both Estimations, TLI = 0.937 and CFI = 0.943 > 0.9 (the closer those figures are to 1, the more valid and appropriate they are); RMSEA = 0.030 < 0.08 (this figure is best kept as small as possible), which satisfy all requirements. So the theoretical models are appropriate and suitable with practical data (see Appendix G, and H).

Table 13 shows that, there are discrepancies between Chi Square and Degrees of Freedom of the two models, and statistical meaning also exists ($p\text{-value} = 0.25 > 0.05$). Therefore, the theoretical models are affected by Level of Awareness.

4.5.4. Hypothesis testing—Level of competition

Result of SEM for Unconstrained and Constrained Estimations was appropriate with practical data since Chi-square/df = $1.315 \leq 3$ with $p\text{ value} = 0.000$, which means there is statistical meaning. Besides, TLI = 0.941 and CFI = 0.946 > 0.9 (the closer those figures are to 1, the more valid and appropriate they are); RMSEA = 0.029 < 0.08 (this figure is best kept as small as possible), which satisfy all requirements. So the theoretical models are appropriate and suitable with practical data (see Appendix I, and J).

Table 10. The causal relationship between concepts in the theoretical model

Relationship			Coefficient of Regression	%	No.
KTTN	<—	TDKT	0.269	26.90%	1
	<—	NTQL	0.185	18.50%	2
	<—	PQQL	0.143	14.30%	3
	<—	HTKT	0.138	13.80%	4
	<—	DTTT	0.126	12.60%	5
	<—	CCTC	0.125	12.50%	6
	<—	CLCT	0.110	11.00%	7
	<—	DTCP	0.104	10.40%	8
	<—	DGDT	0.102	10.20%	9
	<—	YTCT	0.096	9.60%	10
	<—	BCTT	0.091	9.10%	11
HQHD	<—	KTTN	0.409		

Source: Authors' analysis

Table 11. Chi-square test of Independence—Organizational size

Constrained	Unconstrained	Discrepancies	P-value	Result
Minimum was achieved	Minimum was achieved		0.000	Accepted
Chi-square = 2912.176	Chi-square = 2893.244	18.932		
Degrees of freedom = 2218	Degrees of freedom = 2216	2		
Probability level = .000	Probability level = .000			

Table 14 depicts that, there are discrepancies between Chi Square and Degrees of Freedom of the two models, and statistical meaning does not exist at reliability level of 95% ($p\text{-value} = 0.56 > 0.05$). Therefore, the theoretical models are not affected by Level of Competition.

4.5.5. Testing and estimating theoretical models with Bootstrap

The Bootstrap test is used to re-estimate the parameters in the theoretical model that are estimated by the optimal estimation method (Maximum Likelihood). The result is shown in Table 15 below:

In this study, we performed Bootstrap by repeated sampling with a sample size of $N = 500$. The value of CR is less than 2, so we can confirm the bias is very small and not statistically significant in reliability 95%. This proves that the estimates in the model are reliable.

4.6. Result of the evaluation of theoretical model

After EFA, CFA, and SEM analysis, Bootstrap test, and Multigroup Structural analysis, the authors were able to identify 11 independent variables and 4 moderating variables (2 of which were eliminated) affecting the implementation of responsibility accounting system and its impact on the performance of listed textile companies in Vietnam. Apparently, 11 independent variables were identified after SEM analysis, while the 4 moderating variables were identified after Multigroup structural analysis. Results were presented in Table 16 as follows:

5. Discussions

5.1. Management—related factors

5.1.1. Organizational size

Research result suggests that there is a relationship between organizational size and the implementation of responsibility accounting system, in which the bigger (in term of revenue, total departments, staffs, and years of operating) the organizational size is, the easier it would be to implement responsibility accounting system. This finding agrees with previous studies conducted by Hatibat (2005); Tram-Nguyen et al. (2021). This confirms the fact that listed textile companies with big organizational size, strong financial power, and complex management would find it easier to implement responsibility accounting system.

During the survey process, the authors were also able to realize the high demands for responsibility accounting systems in listed textile companies in Vietnam, because by

Table 12. Chi square test of Independence—Measurement Techniques

Constrained	Unconstrained	Discrepancies	P-value	Result
Minimum was achieved	Minimum was achieved		25%	Rejected
Chi-square = 2872.927	Chi-square = 2867.497	5.43		
Degrees of freedom = 2220	Degrees of freedom = 2216	4		
Probability level = .000	Probability level = .000			

Table 13. Chi square test of Independence—Level of Awareness

Constrained	Unconstrained	Discrepancies	P-value	Result
Minimum was achieved	Minimum was achieved		3%	Accepted
Chi-square = 2992.442	Chi-square = 2985.142	7.3		
Degrees of freedom = 2218	Degrees of freedom = 2216	2		
Probability level = .000	Probability level = .000			

Table 14. Chi square test of Independence—Level of Competition

Constrained	Unconstrained	Discrepancies	P-value	Result
Minimum was achieved	Minimum was achieved		56%	Rejected
Chi-square = 2915.585	Chi-square = 2914.435	1.15		
Degrees of freedom = 2218	Degrees of freedom = 2216	2		
Probability level = .000	Probability level = .000			

Source: Analysis conducted by AMOS

Table 15. Estimated results by Bootstrap with N = 500

Parameter			SE	SE-SE	Mean	Bias	SE-Bias	CR
KTTN	<—	CLCT	0.046	0.001	0.106	−0.004	0.002	−2.000
KTTN	<—	CCTC	0.052	0.002	0.128	0.003	0.002	1.500
KTTN	<—	DTTT	0.044	0.001	0.126	0	0.002	0.000
KTTN	<—	DGDT	0.048	0.002	0.1	−0.001	0.002	−0.500
KTTN	<—	BCTT	0.042	0.001	0.09	−0.001	0.002	−0.500
KTTN	<—	YTCT	0.044	0.001	0.094	−0.002	0.002	−1.000
KTTN	<—	TDKT	0.051	0.002	0.27	0.001	0.002	0.500
KTTN	<—	PQQL	0.052	0.002	0.14	−0.002	0.002	−1.000
KTTN	<—	NTQL	0.063	0.002	0.183	−0.002	0.003	−0.667
KTTN	<—	DTCP	0.048	0.002	0.108	0.004	0.002	2.000
KTTN	<—	HTKT	0.06	0.002	0.144	0.006	0.003	2.000
HQHD	<—	KTTN	0.05	0.002	0.406	−0.003	0.002	−1.500

Source: Authors' analysis

implementing responsibility accounting systems, organizations with big organizational size, good amount of clearly defined departments, strong financial power, stable and loyal work-force would be able to boost their performance. Besides, assessment and evaluation of departments could also be done accurately, which also helps motivate employees.

5.1.2. Organizational structure

Without a well-defined organizational structure, it would be impossible for any organization to implement responsibility accounting system. This is because one of the requirements to establish responsibility centers in a responsibility accounting system is the division of departments and branches with well-assigned tasks and responsibilities. Research result suggests that organizations with clearly defined hierarchies, good task assignments, detailed targets, and strong cooperation between departments would be more likely to succeed in establishing responsibility accounting systems. Previous researches conducted by Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019), and Le et al. (2018), have confirmed that organizational structure is one of the factors that have impact on the implementation of responsibility

Table 16. Overview of factors

Stt	Measurement	Expectations	Conclusion
1	Organizational size (QMDN)	+	Accepted
2	Organizational structure (CCTC)	+	Accepted
3	Degree of Delegation (PQQL)	+	Accepted
4	Measurement techniques (KTDL)	-	Rejected
5	Allocation of costs—revenue (DTCP)	+	Accepted
6	Forecasts for responsibility centers (DTT)	+	Accepted
7	Responsibility centers' reports (BCTT)	+	Accepted
8	Evaluation of planning and actual results (DGD)	+	Accepted
9	Level of awareness (MDNT)	+	Accepted
10	Reward systems (HTKT)	+	Accepted
11	Managers' awareness (NTQL)	+	Accepted
12	Ability of accounting staffs (TDKT)	+	Accepted
13	Competitive advantages (YTCT)	+	Accepted
14	Level of competition (MDCT)	-	Rejected
15	Competitive Strategy (CLCT)	+	Accepted

Source: Authors' analysis

accounting system. In other words, organizational structure could determine the success of the implementation.

5.1.3. Degree of delegation

Research result suggests that delegation is one of the factors affecting the implementation of responsibility accounting system in listed textile companies in Vietnam. Delegation happens when managers are assigned with tasks and specific targets; in their responsibility centers, managers are given authority to make all decisions. This result is similar with results of previous studies conducted by Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019), and Le et al. (2018). In prior to making any decisions, managers should seek advice from higher-management and take into account external factors, such as competitors. However, in each responsibility center, staffs should have appropriate expertise and experience, and they should be responsible for making detailed reports. In order to evaluate managers' performance in responsibility centers, managers should be given enough time to carry out their tasks and duties.

5.2. Technique—related factors

5.2.1. Measurement technique

Research result suggests that measurement technique does not affect the implementation of responsibility accounting system in listed textile companies in Vietnam, which contradicts with results of previous researches conducted by Fowzia (2011); Islam et al. (2015). This difference could be due to the data set. This result is appropriate with practical situations and conditions in Vietnam, since responsibility centers do not employ any measure technique to measure their performance; instead, many tools would be employed to measure the performance of each responsibility center.

5.2.2. Allocation of revenue—cost

Research result suggests that Allocation of revenue—costs is one of the factors affecting the implementation of responsibility accounting system in listed textile companies in Vietnam. In order to establish responsibility accounting system, each department would become a responsibility center with well-defined tasks and responsibilities. Each responsibility center would then be allocated revenue and costs based on its roles and duties. The records of those costs would require a good cost accounting system to define and assign direct as well as indirect costs to each responsibility center. Besides, revenue generated by each responsibility center needs to be recorded accurately. This would help top-level managers to compare, evaluate, and control the relationship between revenue and costs when they decide to implement responsibility accounting systems. This result is similar with results of previous studies conducted by Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019), and Le et al. (2018).

5.2.3. Forecasts for responsibility centers

Research result is similar with results of previous researches, which all confirmed that Forecasts for responsibility centers has an impact on the implementation of responsibility accounting system in listed textile companies in Vietnam, conducted by Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019), and Le et al. (2018). Apparently, responsibility centers are clearly assigned tasks and duties. Budgets and forecasts would be prepared by managers and staffs in the responsibility centers based on their tasks and duties. Staffs are encouraged to participate in the planning process, since they should know their responsibilities and targets well. Besides, staffs in each responsibility center would receive training and motivation to strive to achieve their targets in accordance with forecasts. Since forecasts are detailed plans for future activities, it'd be necessary for managers to make adjustments to them based on the targets and goals of the whole organizations as well as of each responsibility center.

5.2.4. Responsibility centers' reports

Research result suggests that Reports prepared by responsibility centers would have an impact on the implementation of responsibility accounting system in listed textile companies in Vietnam. This result agrees with results of previous researches conducted by Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019), and Le et al. (2018). Successful implementation of responsibility accounting system would require each responsibility center to make detailed reports and plans. Reports should reflect actual results and plans for the future made by each responsibility center. Additionally, reports can also be used to evaluate the performance of responsibility centers. Besides, managers can use those reports to identify discrepancies between actual results and plans to make necessary adjustments. For the purpose of evaluation, managers and staffs should be able to make reports whenever the Board of Directors requests.

5.2.5. Assess forecasts and reality

Evaluation of forecasts and reality is one of the factors affecting the implementation of responsibility accounting system in listed textile companies in Vietnam. Responsibility centers would make reports to evaluate forecasts and actual results periodically. In order to make accurate reports, various evaluation tools must be employed. Among those tools and ratios, efficiency is the most widely used due to its accuracy and effectiveness. Besides, Standard costs is also an effective tool to measure efficiency. Comparison method is also employed to compare staffs' achievements and performance based on actual results and forecasts. This method is used to help with control and monitoring, identifying discrepancies. Discrepancies which are discovered will be investigated to determine its importance and impact, from which adjustments can be made to prevent those from happening in the future. This result agrees with results of previous studies conducted by Al Hanini (2013), Ramadan (2016), N.T. Nguyen et al. (2019), and Le et al. (2018).

5.3. Awareness—related factors

5.3.1. Level of awareness

Awareness is one of the moderating factors affecting the implementation of responsibility accounting system in listed textile companies in Vietnam. Awareness includes managers' awareness of the efficiency of responsibility accounting system, awareness of a reward system in which rewards, bonus, and punishments are clearly defined using quantitative tools. Awareness also includes accountants' awareness of the implementation and effective use of responsibility accounting systems. Therefore, this factor could affect the reward systems, managers' awareness, and skills of accounting staffs in the process of implementing responsibility accounting systems in listed textile companies in Vietnam. This result agrees with results of previous researches conducted by Le et al. (2018).

5.3.2. Reward systems

Research result suggests that reward system is one of the factors affecting the implementation of responsibility accounting system in listed textile companies in Vietnam. Reward systems are designed by managers to encourage their employees to reach their targets. Incentives and bonus can actually boost the efficiency and performance of staffs since those staffs know that their efforts are recognized and contribute to the organizations' successes. Reward systems need to be reviewed periodically for managers to make necessary adjustments based on actual situations. Managers should make sure that the reward systems are transparent and take into account staffs' efforts. By doing this, staffs would feel satisfied and content with the reward systems in their organizations. This result agrees with results of previous researches conducted by Al Hanini (2013); Ramadan (2016).

5.3.3. Managers' awareness

Research result suggests that Managers' awareness is the factor with the second-biggest impact on the implementation of responsibility accounting system in listed textile companies in Vietnam. Managers should be aware of the decision to implement responsibility accounting system in the organization and in their departments, as well as the benefits this decision can bring to their departments and the whole organizations. Those benefits usually include: increase of managers' authority, profit, productivity, employee satisfaction, customers satisfaction, and cost reduction. Among those, the most important benefit is the increase of customer satisfaction (regarding quality of products, attitude of staffs, etc.) since the current trend in the business world is to maximize customers satisfaction, which could lead to customer loyalty and sustainable development of the organizations. This result re-confirms the results of previous researches conducted by Mohammad et al. (2014).

5.3.4. Skills of accounting staffs

Research result suggests that Skills of accounting staffs is the factor with the strongest impact on the implementation of responsibility accounting system in listed textile companies in Vietnam, because responsibility accounting systems would be established and operated mainly by accountants. Therefore, staffs who have good knowledge about the system and know how to utilize its tools would be able to generate accurate plans and reports. Besides, it is necessary for accountants to know their responsibilities and have a high level of ethics; without those characteristics, accountants can be a threat to the organization since they could leak confidential and strategical information. Additionally, accounting staffs should regularly enroll in training sessions to update their knowledge and skills to be able to operate responsibility accounting systems. This result actually agrees with results of previous researches conducted by Mohammad et al. (2014); Tram-Nguyen et al. (2021).

5.4. Competition—related factors

5.4.1. Competitive advantages

Research result suggest that Competitive advantages is one of the factors affecting the implementation of responsibility accounting system in listed textile companies in Vietnam. In

this era of globalization, competition is becoming harsh; therefore, competitive advantages (in term of resources, workforce, price, quality of products, etc.) must be taken into consideration when staffs prepare plans and reports. With this piece of information, managers can make decisions to reduce costs or improve revenue, which affects responsibility centers directly. This result is similar with results of previous researches conducted by Doan (2012); Hoque and James (2000).

5.4.2. Level of competition

Research result suggests that the Level of competition does not have any impact on the implementation of responsibility accounting system in listed textile companies in Vietnam, which contradicts with results of previous researches conducted by Mia and Clarke (1999); Tram-Nguyen et al. (2021). This difference could be due to the data set. This result is deemed to be appropriate with the current practical conditions, since textile companies are constantly competing with both domestic enterprises and foreign enterprises.

5.4.3. Competitive strategy

Research result suggests that Competitive strategy is one of the factors affecting the implementation of responsibility accounting system in listed textile companies in Vietnam. Currently, textile companies are always in need of competitive strategies regarding costs, product differentiation, target market penetration, etc. Based on the characteristics of markets, textile companies can have different competitive strategies to allow them to enter the markets. Responsibility accounting systems can help by developing plans and budgets to ensure optimum efficiency. This result is deemed to be appropriate in the current practical conditions and it also agrees with results of previous researches conducted by Govindarajan and Fisher (1990); Tram-Nguyen et al. (2021).

5.5. Causal relationship

After the overall structure model is analyzed and tested, the next step is to look at the estimated values to examine causal relationships shown in Table 9. Through the results, for instance, we see that all factors have a positive impact on the implementation of responsibility accounting. The ability of accounting staffs (TDKT) is the strongest factor (standardized weight is 0.269). The second most powerful factor is the Awareness of managers at different level (NTQL) (standardized weight is 0.185). The third most powerful factor is the Decentralization (PQQL) (standardized weight is 0.143). The fourth is the Reward systems (HTKT) level factor with a standardized weight of 0.138, the fifth is the Forecast for responsibility centers (DTTT) factor (standardized weight is 0.126), the sixth is the Structural management (CCTC) factor (standardized weight is 0.125), the seventh is the Competitive strategy (CLCT) factor (standardized weight is 0.110), the eighth is the Allocate revenue—costs (DTCP) factor (standardized weight is 0.104), the ninth is the Assess forecasts and reality (DGDT) factor (standardized weight is 0.102), the tenth is the Competitive advantages (YTCT) factor (standardized weight is 0.096). Finally, the Responsibility centers' reports (BCTT) (standardized weight is 0.091) have the lowest impact. There is a strong correlation between the implementation of responsibility accounting and the improvement of the performance of listed textile companies in Vietnam. Estimated results show that this hypothesis is accepted and achieved a standardized beta value of 0.409 with significance level $P = 0.000 < 0.05$. If the implementation of responsibility accounting changes by 1 point (level), it will increase the performance of listed textile companies in Vietnam (or decrease) by 0.409 points without considering the other factors.

6. Conclusions

The implementation of responsibility accounting plays a significant role in doing business, responsibility accounting can significantly provide managers with information that can help them make better business decisions. The aims of the study identify factors affecting the implementation of

responsibility accounting on the performance of Vietnamese listed textile companies. Using the qualitative methodology by employing the questionnaire, while quantitative methodology was used to measure the analysis, and also employing the Structural equation modeling (SEM) with AMOS—SPSS, results indicate that factors aside from measurement technology and level of competition had certain impacts, including the ability of accounting staffs (TDKT), the awareness of managers at different level (NTQL), the decentralization (PQQL), the reward systems (HTKT), and the forecast for responsibility centers (DTTT). Additionally, factors such as the structural management (CCTC), the competitive strategy (CLCT), the competitive advantages (YTCT) and the responsibility centers' reports (BCTT) that have significant effects on firm performance. In addition, the implementation of responsibility accounting is the most powerful effect on firm performance. In fact, a one-point increase of the implementation of responsibility accounting change will increase/decrease the performance of listed companies by 0.409 points without considering the other factors

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Correction

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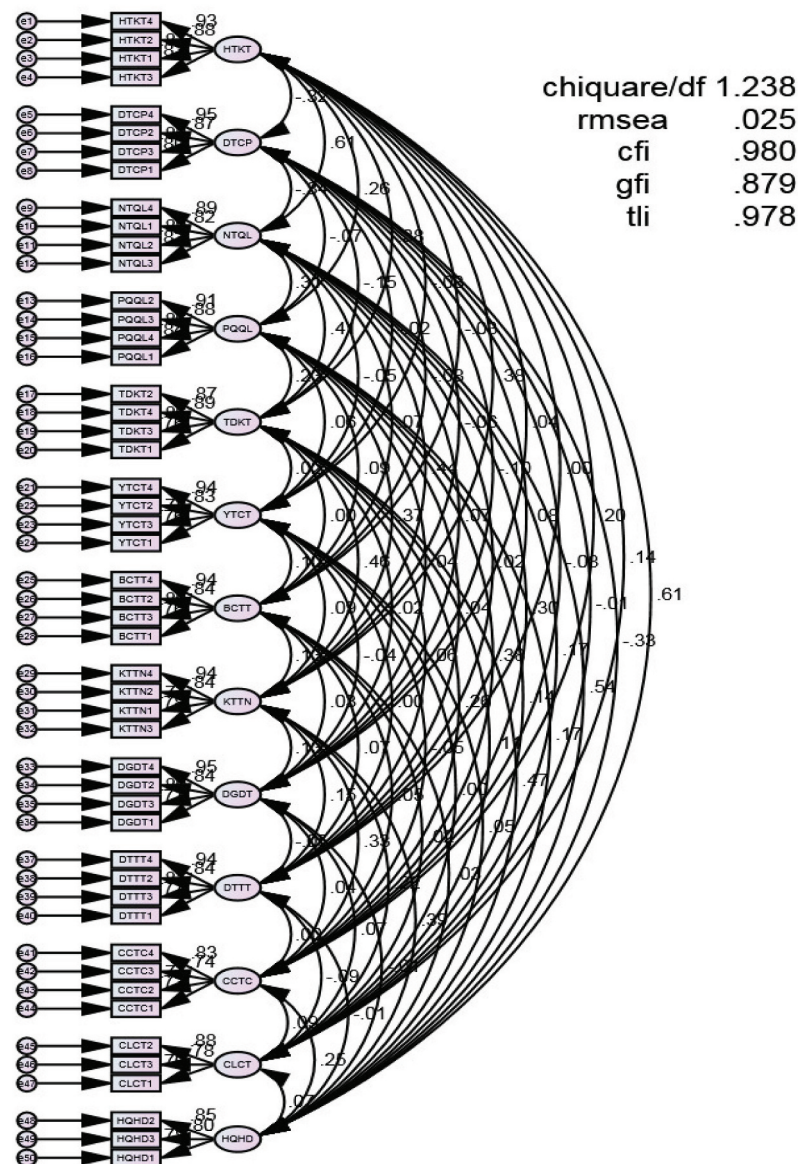
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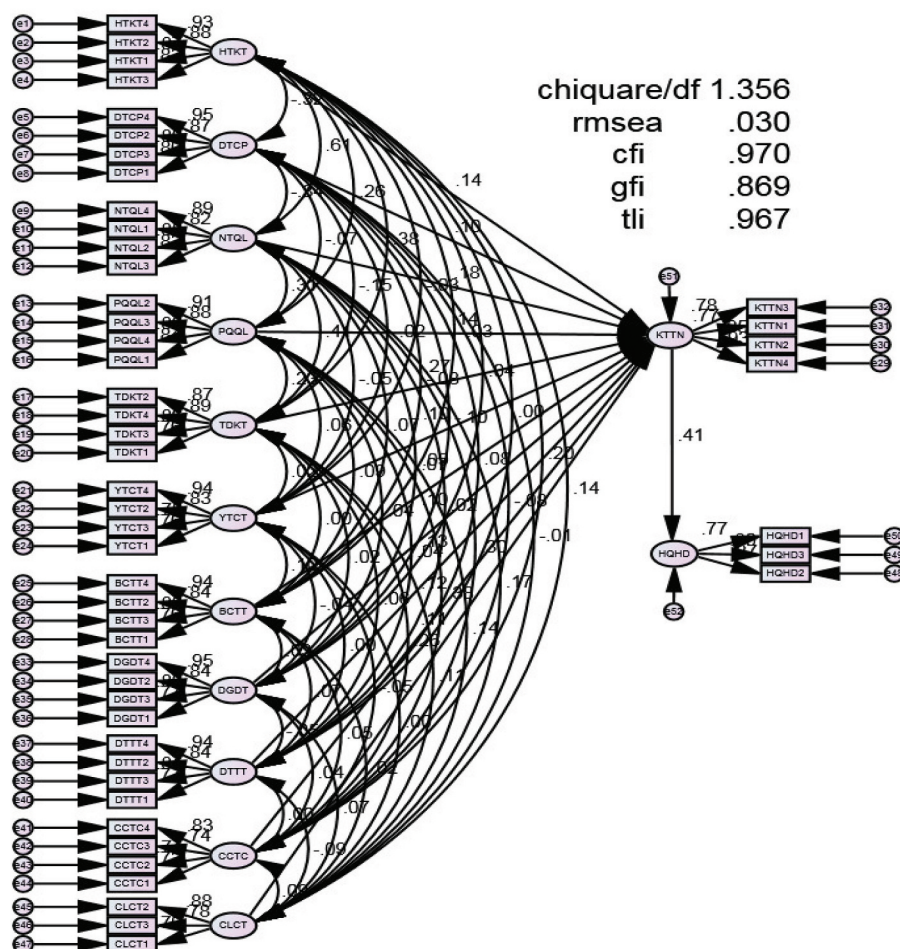
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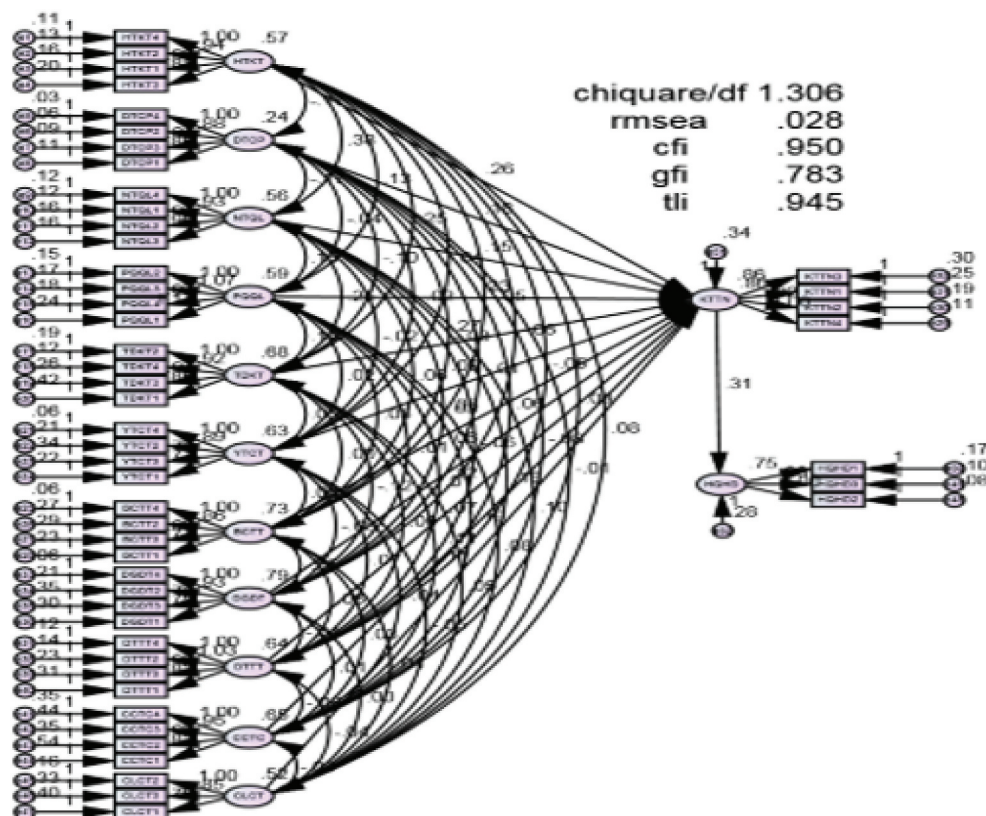
Appendix A. Standardized model.



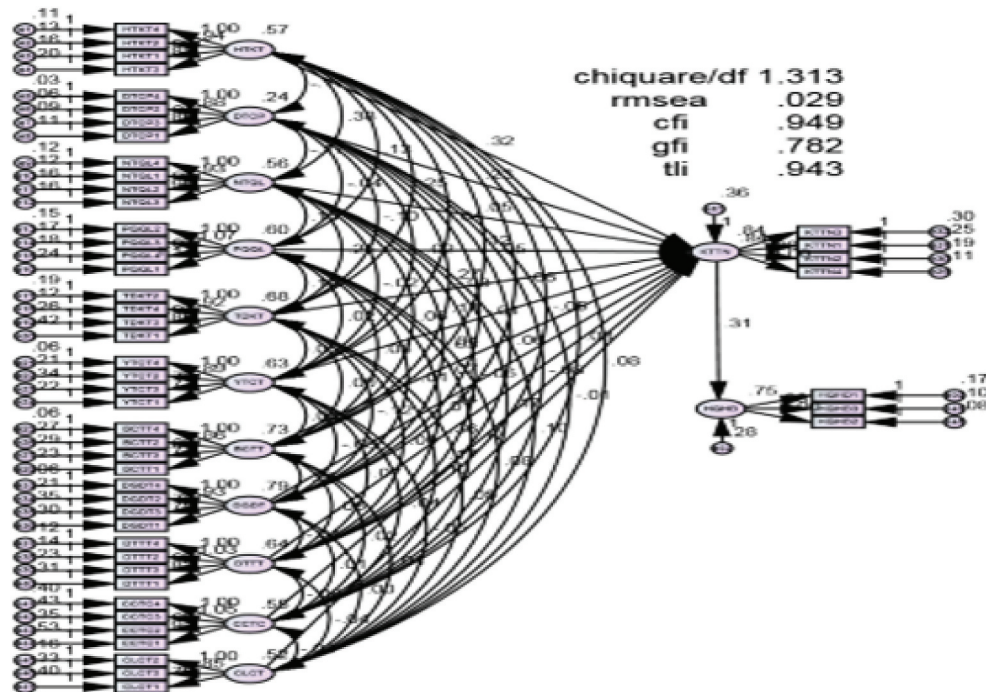
Appendix B. Standardized theoretical model.



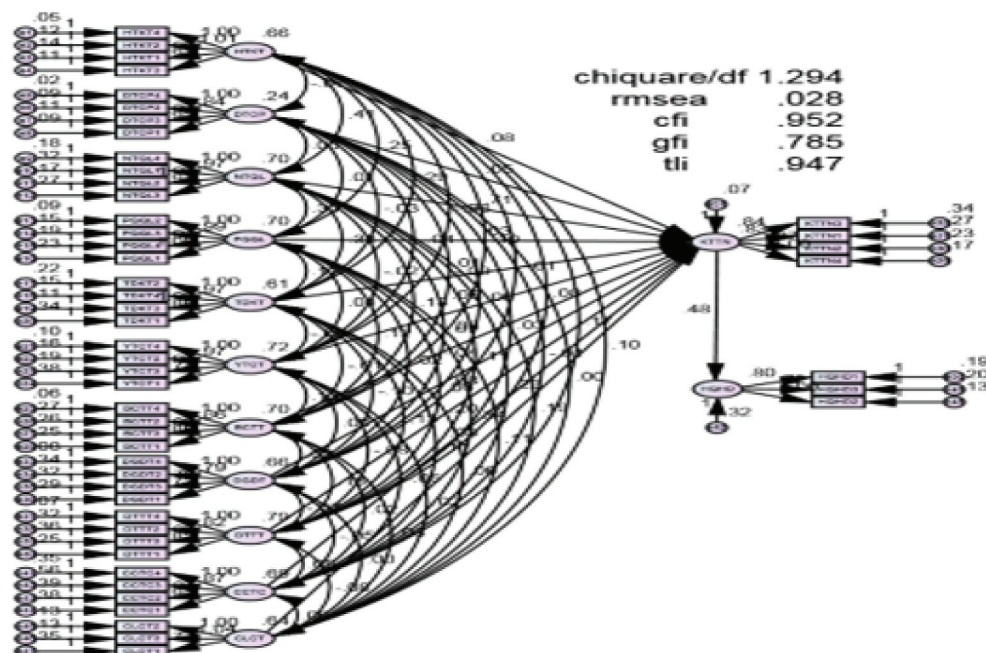
Appendix C. Unconstrained estimation of organizational size.



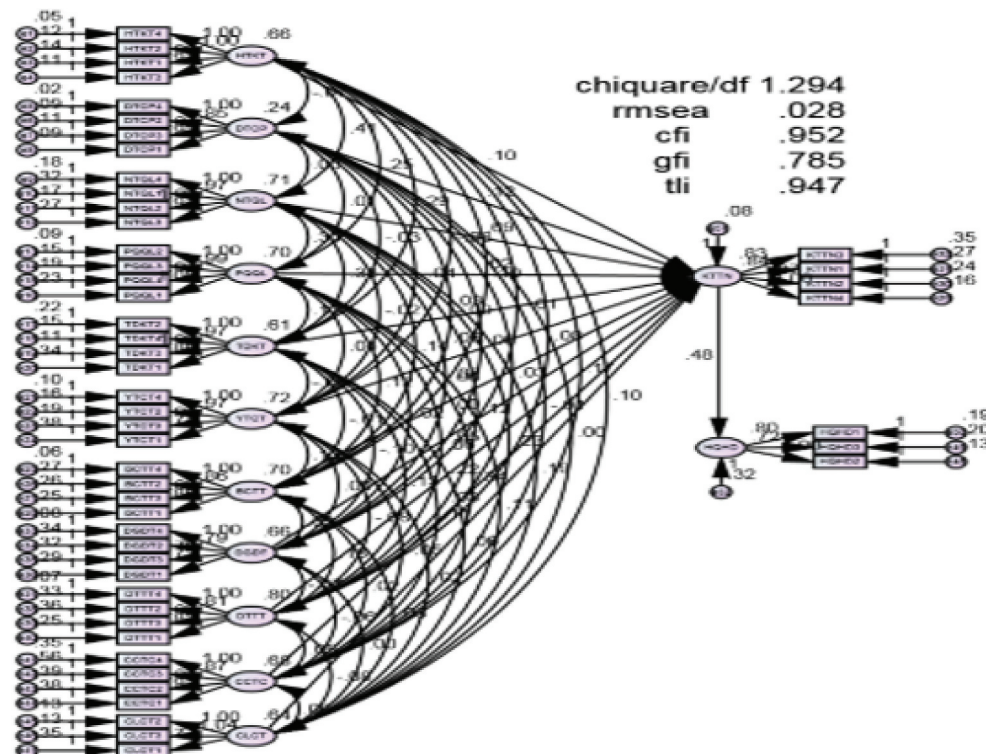
Appendix D. Constrained estimation of organizational size.



Appendix E. Unconstrained estimation of measurement techniques.



Appendix F. Constrained estimation of measurement techniques.





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