Contents lists available at GrowingScience

Uncertain Supply Chain Management

homepage: www.GrowingScience.com/uscm

The role of supply chain management on improvement of financial reports

Saeed Khodayar Yeganeh[*] and Maryam Yokhaneh Alghyani

Sama technical and Vocational Training College, Islamic Azad University, Urmiah branch, Urmia, Iran

C H R O N I C L E	A B S T R A C T
	Management teams are always expected to provide transparent financial reports for public. Different characteristics such as honesty, conservatism as well as management capability may play essential role for the success of businesses in supply chain. The proposed study of this paper considers the effects of three factors; namely management capability, management honesty and management conservatism on quality of financial statements. The proposed study collects the information of 92 firms from Tehran Stock Exchange over a nine-year period from 2004 to 2012. Using some statistical tests, the study has concluded that only management honesty could influence on quality of financial reports. In our study, conservatism did not have any impact on the quality of financial reports and it seems that managers have to take more risk in order to reach financial objectives.

1. Introduction

One of the primary concerns in most production units is to have faith on financial reports (Rutherford, 2013; Chardine-Baumann & Botta-Genoulaz, 2014). There are many evidences that when a firm could always beat market expectations, the supply chain start getting more attracted on gaining more contracts with the firm (Wallace, 2004; Power, 2005). Dehning et al. (2007) examined the financial advantages of information technology investments around newly adopted IT-based supply chain management (SCM) systems. They formed different hypotheses using the value chain to determine the expected financial effect of SCM systems. By investigating the change in financial performance pre- and post-adoption controlling for industry median changes in performance, they determined that SCM systems could increase gross margin, inventory turnover, market share, return on sales, and reduce selling, general, and administrative expenses. They also provided a model indicating how process improvements around supply chain initiatives integrate to improve overall performance. In addition, they explained that contextual impacts such as companies in the high-tech industry and the scope of the supply chain implementation have dramatic impacts on the overall financial performance

* Corresponding author
E-mail address: saeedyeganeh@yahoo.com (S. Khodayar Yeganeh)

resulting from supply chain implementations. According to Farris II and Hutchison (2002), supply chain management has grown in importance because of the proliferation of improved information flows, outsourcing practices, strategic alliances and partnerships, and the reshaping of the organizational concentration from functional silos toward integrated activities. Walker et al. (2008) investigated drivers and barriers to environmental supply chain management practices. They explored different factors that drive or hinder organizations to apply green supply chain management initiatives. They study identified the main categories of internal and external drivers of green supply chain management practices, including organizational factors, regulation, customers, competitors and society, but there is little indication of suppliers as drivers for green supply chain management.

Eksoz et al. (2014) developed a conceptual framework for factors involved in collaborative predicting in food supply chains. They identified trends, gaps and areas for future research involving partners′ integration, information sharing and predicting process in the supply chain. Their survey disclosed that partners' integration was the key requirement for collaborative prediction while type and quality of information shared were critical for forecasts. In addition, forecasting strategies of manufacturers and retailers played essential role for consensus forecasts.

2. The proposed study

The proposed study of this paper considers the effects of three factors; namely management capability, management honesty and management conservatism on quality of financial statements. Therefore, there are three hypotheses as follows,

1. Management capability influences positively on quality of financial statements.
2. Management honesty influences positively on quality of financial statements.
3. Management conservatism influences positively on quality of financial statements.

The proposed study collects the information of 92 firms from Tehran Stock Exchange over a nine year period from 2004 to 2012. In this survey, management capability is measured using data envelopment analysis developed by Demerjian et al. (2012). In this survey, the cost of goods sold (COGS), administration expenses (SG&A), fixed assets (PPE), net operational leases (OpsLease), net research and development (R&D) and other intangible assets (OtherIntan) are considered as input for data envelopment analysis while net sales (Sales) is considered as the only output for the proposed study (Singhvi, 1968; Singhvi & Desai, 1971). The study uses the following to measure the efficiency of firms,

$$max_\vartheta \; \theta = \frac{Sales}{\vartheta_1 COGS + \vartheta_2 SG\&A + \vartheta_3 PPE + \vartheta_4 OpsLease + \vartheta_5 R\&D + \vartheta_6 OtherIntan} \tag{1}$$

Eq. (1) is a comprehensive measure for computing the relative efficiency of a particular firm. However, the proposed study uses the following relationship for measuring efficiency of firm for the quality of financial reports.

Firm Efficiency = α_0 + α_1Ln(Total Assets) + α_2Market Share + α_3Positive Free Cash Flow (2)
+α_4Ln(Age) + α_5Foreign Currency Indicator + ϵ

where dependent variable represents the firm efficiency and independent variables are logarithm of total assets, market share, positive free cash flow, firm age and foreign currency indicator, respectively. In Eq. (2), α_i, i=0,…, 5 represent the coefficients and ϵ states the residuals. In this model, market share is calculated as a ratio of the amount of sales divided by total amount of sold goods on the market. In addition, Positive Free Cash Flow is dummy variable, which is one if the cash flow is positive and zero, otherwise. Moreover, Foreign Currency Indicator is a dummy variable, which is one if the firm

has export and zero, otherwise. In this survey, the quality of financial reports is measured by the method developed by Barth et al. (2001) as follows,

$$CFO_{i,t+1} = \alpha_0 + \beta_1\,CFO_{i,t} + \beta_2\Delta AR_{i,t} + \beta_3\Delta INV_{i,t} + \beta_4\Delta AP_{i,t} + \beta_5 DEPR_{i,t} + \beta_6 OTHER_{i,t} + \varepsilon_{i,t+1} \qquad (3)$$

where $CFO_{i,t}$ and $CFO_{i,t+1}$ represents the operating cash flow of firms i at time t and $t+1$, respectively. In addition, $\Delta AR_{i,t}$ and $\Delta AP_{i,t}$ represent the changes on receivable and payable accounts, respectively. Moreover, $\Delta INV_{i,t}$ and $DEPR_{i,t}$ and $OTHER_{i,t}$ are change in inventory, depreciation and other accruals, respectively and the last item is calculated as follows,

$$OTHER = OP-(CFO+\Delta AR+\Delta INV-\Delta AP- DEPR), \qquad (4)$$

where OP represents operating profit and quality of financial reports is measured from the absolute value of residuals of Eq. (3) and smaller values of residuals represent better quality of financial reporting. In this survey, to measure the conservatism management we use the following equations to calculate total accruals (ACC_{it}), operating accruals ($OACC_{it}$) and non operating accruals ($NOACC_{it}$),

$$ACC_{it} = (NI_{it}+DEP_{it}) - CFO_{it} \qquad (5)$$

$$OACC_{it} = \Delta\,(AR_{it}+ I_{it} +P_{it}) - \Delta\,(AP_{it} + TP_{it}) \qquad (6)$$

$$NOACC_{it} = ACC_{it} - OACC_{it} \qquad (7)$$

where I_{it} and NI_{it} represent total inventory and net income, respectively. In Eq. (7), smaller values for $NOACC_{it}$ represent more conservatism activities. To measure, management's honesty, the proposed study uses the following,

$$TA_{i,t} = \beta_1(1/A_{i,t-1}) + \beta_2(\Delta REV_{i,t} - \Delta REC_{i,t}) + \beta_3\,PPE_{i,t} + \varepsilon_{i,t} \qquad (8)$$

where Total accrual ($TA_{i,t}$) is measured based on total assets ($A_{i,t-1}$), change in revenue ($\Delta REV_{i,t}$) and total equipment ($PPE_{i,t}$) and β_i, i=1, 2, 3 are coefficients to be estimated and $\varepsilon_{i,t}$ is the residuals. In this survey, financial leverage (FL_{it}) is calculated as a ratio of total liabilities (TL_{it}) divided by total assets (TA_{it}). In addition, the size of a firm is calculated by taking logarithm of total assets, capital investment ($CAIN_{it}$) is calculated as the ratio of net fixed assets (NFA_{it}) divided by total assets (TA_{it}). Moreover, growth opportunities is calculated as the ratio of Price of trading share ($Price_{it}$) divided by earnings per share (EPS). Finally profit margin ($PROF_{it}$) is calculated as follows,

$$PROF_{i,t} = (SALE_{i,t} - COGS_{i,t}) / SALE_{i,t} \qquad (9)$$

where $SALE_{it}$ and $COGS_{i,t}$ are total sales and cost of goods, respectively. Table 1 demonstrates the results of our investigation on whether there is any autocorrelation or not.

Table 1
The summary of F-statistics for three hypotheses for validating heteroscedasticity

Hypothesis	Statistics	Value	P-value
1	F- Statistic	18.07132	0.000
2	F- Statistic	46.09760	0.000
3	F- Statistic	19.05893	0.000

The results of F-statistics indicate that all measures are meaningful when the level of significance is five percent. Therefore, we have to use generalized least square technique to perform the estimation in there are some heteroscedasticity. In addition, Table 2 demonstrates the results of autocorrelation.

Table 2
The summary of F-statistics for verifying autocorrelation

Hypothesis	Statistics	Value	P-value
1	F- Statistic	66.31874	0.000
2	F- Statistic	18.83279	0.000
3	F- Statistic	89.82717	0.000

Again, the results of P-value show that we need to use autocorrelations AR(1) and AR(2), etc. to adjust the data whenever the final model is used as fixed effect. We have also looked at the correlations among all pairs of independent variables and have not found strong correlations between any pairs of data. In addition, the results of t-value for ADF model is t-value = 2.603439 with P-value = 0.0046, which means the data maintain long-term stability. In order to use Pooled or Panel method we use Limer test and Table 3 demonstrates the results of our survey.

Table 3
The summary of Limmer test

Hypothesis	Effect Test	Limer test results	
		Statistics	P(Value)
1	Cross-Section F	6.831487	0.000
	Cross-Section Chi- Square	510.087845	0.000
2	Cross-Section F	2.630277	0.000
	Cross-Section Chi- Square	234.609682	0.000
3	Cross-Section F	8.609714	0.000
	Cross-Section Chi- Square	603.715528	0.000

Based on the results of Table 3, we can conclude that we may use Panel method to do the regression model. Next, we need to use fixed/random effect and this is accomplished by using Hausman test, which is summarized in Table 4 as follows,

Table 4
The results of Hausman test

Hypothesis	Effect Test	Hausman test	
		Statistics	P(Value)
1	Cross-Section Random	25.375750	0.003
2	Cross-Section Random	160.790447	0.000
3	Cross-Section Random	70.809759	0.000

Based on the results of Table 4, we understand that we could use fixed effect to perform the regression model.

3. The results

In this section, we present details of our findings on testing three hypotheses of the survey. Table 5 shows the results of our findings.

Table 5
The summary of regression analysis

Variable	Coefficient	t-Statistic	Prob
ABILITY	-0.003895	-1.369365	0.1714
Honesty	0.183727	5.695301	0.000
NOACC	6.25697	0.260084	0.7949
FS	0.006211	1.216470	0.2243
FL	-0.028328	-2.233501	0.0259
CAIN	0.069037	2.921402	0.0036
GROP	-4.99	-0.559805	0.5758
PROF	-0.066243	-3.503988	0.0005
C	0.230373	3.303338	0.0010
AR(1)	-0.192063	-4.656163	0.0000
R-squared	0.422412	F-statistic	4.643992
Adjusted R-squared	0.331453	Prob(F-statistic)	0.000000
Durbin-Watson stat	2.112247		

Based on the results of Table 5, only management honesty influences on quality of financial reports, statistically and other variables including management ability and management conservatism do not have any meaningful effects on quality of financial reports.

4. Conclusion

In this paper, we have presented an empirical investigation to study the effects of management ability, honesty and conservatism on quality of financial reports on selected firms listed on Tehran Stock Exchange. Using some statistical tests, the study has concluded that only management honesty could influence on quality of financial reports. Our survey results may confirm previous evidences that when a firm's profit increases management team may increase investors' expectations and in case of failure in reaching projected sales figures, management may manipulate the financial statements (Wolk et al., 2007).

The results of this survey are consistent with Ahmed and Courtis (1999), Bartram et al. (2009), Bamber et al. (2010) and Habib et al. (2011). In our study, conservatism did not have any impact on the quality of financial reports and it seems that managers have to take more risk in order to reach financial objectives. Investors are also suggested to focus more on financial leverage rather than profit margin for managerial decisions. The results of this study confirm that to build a long term relationship with vendors based on trust and honesty.

Acknowledgement

References

Ahmed, K., & Courtis, J. K. (1999). Associations between corporate characteristics and disclosure levels in annual reports: a meta-analysis. *The British Accounting Review*, *31*(1), 35-61.

Bamber, L. S., Jiang, J., & Wang, I. Y. (2010). What's my style? The influence of top managers on voluntary corporate financial disclosure. *The Accounting Review*, *85*(4), 1131-1162.

Barth, M. E., Cram, D. P., & Nelson, K. K. (2001). Accruals and the prediction of future cash flows. *The Accounting Review*, *76*(1), 27-58.

Bartram, S. M., Brown, G., & Stulz, R. M. (2009). *Why do foreign firms have less idiosyncratic risk than US firms?* (No. w14931). National Bureau of Economic Research.

Chardine-Baumann, E., & Botta-Genoulaz, V. (2014). A framework for sustainable performance assessment of supply chain management practices. *Computers & Industrial Engineering*, 76, 138-147.

Dehning, B., Richardson, V. J., & Zmud, R. W. (2007). The financial performance effects of IT-based supply chain management systems in manufacturing firms. *Journal of Operations Management*, *25*(4), 806-824.

Demerjian, P. R., Lev, B., Lewis, M. F., & McVay, S. E. (2012). Managerial ability and earnings quality. *The Accounting Review*, *88*(2), 463-498.

Eksoz, C., Mansouri, S. A., & Bourlakis, M. (2014). Collaborative Forecasting in the Food Supply Chain: A Conceptual Framework. *International Journal of Production Economics*, 158, 120-135.

Farris II, M. T., & Hutchison, P. D. (2002). Cash-to-cash: the new supply chain management metric. *International Journal of Physical Distribution & Logistics Management*, *32*(4), 288-298.

Habib, A., Hossain, M., & Jiang, H. (2011). Environmental uncertainty and the market pricing of earnings smoothness. *Advances in Accounting*, *27*(2), 256-265.

Power, D. (2005). Supply chain management integration and implementation: a literature review. *Supply chain management: an International journal*, *10*(4), 252-263.

Rutherford, B. A. (2013). A genre-theoretic approach to financial reporting research. *The British Accounting Review*, *45*(4), 297-310.

Singhvi, S. S. (1968). Characteristics and implications of inadequate disclosure: a case study of India. *the international Journal of Accounting*, *3*(2), 29-43.

Singhvi, S. S., & Desai, H. B. (1971). An empirical analysis of the quality of corporate financial disclosure. *Accounting review*, 46(1), 129-138.

Wallace, W. A. (2004). The economic role of the audit in free and regulated markets: A look back and a look forward. *Research in Accounting Regulation*,*17*, 267-298.

Walker, H., Di Sisto, L., & McBain, D. (2008). Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors. *Journal of purchasing and supply management*, *14*(1), 69-85.

Wolk, H. I., Tearney, M. G., & Dodd, J. L. (1997). *Accounting theory: A conceptual and institutional approach*. South-Western Publication.