



# A Study on Linkages among Balanced Scorecard Perspectives: The Case of Publicly-Listed Service and Industrial Firms in the Philippines

Joy Rabo  
De La Salle University  
joy.rabo@dlsu.edu.ph

**Abstract:** Ever since Kaplan and Norton introduced the Balanced Scorecard (BSC) as a performance measurement tool more than two decades ago, scepticism regarding its applicability to organizations still surface. Up to the present, annual company reports of publicly-listed companies in the Philippines only include financial measures as key performance indicators. This study aims to validate the cause-and-effect relationships among the four perspectives of the BSC framework in service and industrial firms. In particular, it aims to test if customer, internal process, and learning and growth perspectives have a significant effect on the financial perspective of firms in the services and industrial sectors listed in the Philippine Stock Exchange. The ordinary least-squares regression is used in this study. This study finds that both customer and internal process perspectives have significant effects on financial perspective.

**Key Words:** Balanced Scorecard; cause-and-effect relationship; service firms; industrial firms

## 1. INTRODUCTION

### 1.1 *Balanced Scorecard*

Robert Kaplan and David Norton coined the term balanced scorecard (BSC) in their 1992 article, "The balanced scorecard – measures that drive performance" as a tool to complement financial measures with operational measures that drive future performance. Thus, the four BSC perspectives were established, namely: financial, customer, internal process/internal business, and learning and growth/innovation and learning.

The customer perspective asks, "How do customers see us?", and is concerned with time, quality, performance and service, and cost; the

internal process perspective is concerned with the question, "What must we excel at?", and focuses on manufacturing excellence and design productivity; the learning and growth perspective asks, "Can we continue to improve and create value?" and is commonly measured in terms of percentage of sales from new products; and the financial perspective, concerned with the question, "How do we look to shareholders?", is measured in terms of cash flow, sales growth, operating income, market share, and return on investment (Kaplan & Norton, 1992).

The main strength of the BSC is overcoming the weakness of traditional financial measures in failing to indicate how managers can improve future performance (Kaplan & Norton, 1993). When properly implemented, BSC can communicate vision and



strategy to subordinates, focus management meeting on other strategic issues, and aid in major organization change process (Kaplan & Norton, 2001).

Hoque and James (2000) found that BSC usage is associated with increased firm performance based on survey results from 66 Australian manufacturing companies. The BSC's utilization rate is 43.9% based on a 1999 survey to senior executives of firms in 15 countries in North America, Europe, Asia, and South America (Rigby, 2001). Malmi (2001) showed that all interviewees from 17 companies in Helsinki metropolitan area revealed positive attitudes towards BSC.

Davis and Albright, in their 2004 quasi-experimental study on 14 branches of one US bank, found that BSC implementers improved financial performance more than non-BSC implementers and concluded that BSC can be used to improve financial performance when compared to traditional performance measurement system.

Anand, Sahay, and Saha (2005) found that the BSC had been successful in identifying cost-reduction opportunities which led to improved financial performance based on survey results from 24 firms in India which had adopted BSC. A survey of managers in 76 European firms that have developed BSC during year 2000 revealed that BSC is perceived as effective and contributes positively to firm performance (De Geuser, Mooraj, & Oyon, 2009).

The BSC, despite its benefits, is not without criticisms. In a 1999 survey to 140 US financial services firms, Ittner, Larcker, and Randall (2003) found that 50.7% of the sample firms did not consider using BSC, while 1.4% has implemented but has abandoned it. BSC defection rate in 1999 is at 11.3% (Rigby, 2001). A 2000-2001 survey data from 201 firms from Germany, Austria, and Switzerland showed that only 42 firms are familiar with the BSC concept of which 60% had not gone beyond the first stage of BSC implementation (Speckbacher, Bischof, & Pfeiffer, 2003). In 2010, a survey among 168 Jordanian industrial firms showed that 33.3% did not consider implementing BSC, while 1.8% had adopted but abandoned it (Sawalqa, Holloway, & Alam, 2011).

Norrekliit (2000) pointed out invalid assumptions in the BSC model, one of which is on the ambiguous cause-and-effect relationship between BSC perspective measures. This is supported by the study of Pandey (2005) which suggested that the cause-and-effect relationship in BSC should be validated in terms of company experiences.

Smith (2005) also wrote about the lack of evidence regarding the cause-and-effect assumption and suggested a need for reappraisal of the BSC theoretical framework in order to match its practical usefulness through further research. Generic measures also need to be identified to elevate BSC model from an organizational- to an industry-level performance measurement tool useful for benchmarking (Varma & Deshmukh, 2009).

There is also no evidence that higher satisfaction levels on BSC usage translate into improved financial performance (Ittner et al., 2013).

### *1.2 Previous studies on BSC relationships in service and industrial firms*

A number of studies concerning linkages among BSC perspectives in service and industrial firms have been published.

In their 2000 study, Banker, Potter, and Srinivasan found that customer satisfaction in the customer perspective helps predict future financial performance in the financial perspective based on pooled time-series data for 72 months covering 18 hotels managed by one US firm.

Bryant, Jones, and Widener (2004) made use of publicly-available data over a five-year period from 125 large firms included in the American Society for Quality Customer Satisfaction Index and found positive relationships between financial and customer perspectives and financial and internal process perspectives.

In their 2006 article, Debusk and Crabtree observed the cause-and-effect linkage among BSC perspectives based on a survey to more than 1,000 members of Institute of Management Accountants. Fang and Lin (2006) utilized survey questionnaire on 85 listed Taiwan and over-the-counter firms of major ERP packages and found that financial perspective has close relationship with non-financial BSC perspectives. Liang and Hou (2006) used company documents and interviews with chief financial officer and staff of a hotel in Taiwan from years 1994 to 2003 and found that customer satisfaction in the customer perspective is significantly associated with financial performance.

Huang, Chu, and Wang (2007) surveyed 186 international tourist hotels in Mainland China and found that performance measures in each BSC perspective become the indicators of performance measures in the next perspective. Specifically,

learning and growth is positively associated with internal process perspective; internal process is positively associated with customer perspective; and customer perspective is positively associated with financial perspective.

In their 2010 study, Khan, Halabi, and Masud made use of financial data from annual reports and structured questionnaires data from 65 manufacturing and service companies listed in Dhaka Stock Exchange and showed the following results: (1) learning and growth and internal process perspectives have significant positive relationships with each other; (2) internal process and customer perspectives have significant positive relationships with each other; and (3) learning and growth and customer perspectives do not have significant positive relationships with each other.

Wu and Chen (2011) interviewed supervisors to examine the cause-and-effect relationships on BSC perspectives between 282 ISO-certified and 125 non-ISO certified manufacturing firms and had the following results: (1) learning and growth has a positive influence on internal process and financial perspectives; (2) internal process has a positive influence on customer and financial perspectives; and (3) customer has a positive influence on financial perspective.

The 2013 study of Wang, Li, Jan, and Chang found a significant positive relationship between BSC perspectives and firm performance based on 2004-2008 annual reports of seven firms under the tourism industry listed in the Taiwan Stock Exchange. Kairu, Wafula, Okaka, Odera, and Akerele (2013) found that improvement in one perspective led to improvement in the other perspectives through a survey of managers in 200 service providers operating within Kakamega municipality in Kenya. Bento, Bento, and White (2013) showed that all non-financial BSC perspectives have a direct effect on financial result based on 332 publicly-listed US firms with data from AICPA Performance Measurement Practices Survey.

### 1.3 Objective, Scope, and Hypothesis

Angel and Rampersad (2005) found that a large percentage of the estimated 65% to 70% of BSC adopters in Canada is sceptical if the BSC achieves sustained improvement in financial performance. Pangarkar and Kirkwood (2007) also noted scepticism among businesspeople regarding the BSC's utility and effectiveness after more than 15 years since its introduction.

Despite its limitations, the BSC is "still the management accounting innovation that has had the biggest impact on practice over the past decade" (Smith, 2005, p. 28). Thus, the main objective of this study is to test, using ordinary least squares (OLS) regression, whether non-financial BSC perspectives have an effect on financial perspective for both service and industrial firms listed in Philippine Stock Exchange (PSE) using data from annual reports. Particularly, this study's hypotheses are:

*Hypothesis 1: Customer perspective has a significant positive effect on financial perspective.*

*Hypothesis 2: Internal process perspective has a significant positive effect on financial perspective.*

*Hypothesis 3: Learning and growth perspective has a significant positive effect on financial perspective.*

## 2. METHODOLOGY

### 2.1 Sample

Table 1 shows 38 service and 49 industrial firms listed in PSE that are used in this study. The list excludes 12 firms with no available 2012 financial statements, seven firms with US-dollar-denominated financial statements, and 16 firms whose source of revenues is neither from sale of goods nor service.

Table 1. Sampled Firms using PSE stock code

Service Sector			Industrial Sector			
2GO	GLO	PAX	ACR	GSMI	PCKH	SFI
ABS	GMA7	PGOLD	ANI	H2O	PCOR	SMC
ACE	GPH	PHC	AP	HLCM	PF	SPC
ATI	IPO	PORT	BMM	JFC	PHN	SPH
BCOR	LIB	PRC	CA	LFM	PIP	SRDC
BHI	LOTO	SEVN	CAT	LRI	PMPC	STN
CAL	LR	STI	CIP	LTG	PNC	T
CEB	LSC	TBGI	DNL	MCP	PNX	TA
CEU	MAC	TEL	EDC	MER	PPC	URC
DFNN	MB	WEB	EEI	MVC	RCI	VITA
ECP	MBC	WPI	EMP	MWC	RFM	VMC
EG	MJC	YEHEY	EURO	MWIDE	ROX	VVT
FEU	PAL		FPH			

### 2.2 Definition of Variables



This study makes use of OLS regression to test hypotheses, similar to previous studies (Banker et al., 2000; Hoque & James, 2000; Iselin, Mia, & Sands, 2008; Wang et al., 2013). The four equations below represent the OLS models of this study:

$$CF_{it} = \beta_0 + \beta_1 RG_{it} + \beta_2 PT_{it} + \beta_3 CR_{it} + \beta_4 ER_{it} + \beta_4 EP_{it} + \varepsilon_{it} \quad (\text{Eq. 1})$$

$$Cur_{it} = \beta_0 + \beta_1 RG_{it} + \beta_2 PT_{it} + \beta_3 CR_{it} + \beta_4 ER_{it} + \beta_4 EP_{it} + \varepsilon_{it} \quad (\text{Eq. 2})$$

$$DE_{it} = \beta_0 + \beta_1 RG_{it} + \beta_2 PT_{it} + \beta_3 CR_{it} + \beta_4 ER_{it} + \beta_4 EP_{it} + \varepsilon_{it} \quad (\text{Eq. 3})$$

$$ROA_{it} = \beta_0 + \beta_1 RG_{it} + \beta_2 PT_{it} + \beta_3 CR_{it} + \beta_4 ER_{it} + \beta_4 EP_{it} + \varepsilon_{it} \quad (\text{Eq. 4})$$

where:

$CF_{it}$  = Net cash flow for firm (*i*) at time (*t*)

$RG$  = Revenue growth

$PT$  = Property, plant, and equipment turnover

$CR$  = Cost ratio

$ER$  = Retirement cost per employee

$EP$  = Net profit per employee

$\varepsilon$  = Error term

$Cur$  = Current ratio

$DE$  = Debt-to-equity ratio

$ROA$  = Return on assets

The dependent variables in this study are the financial perspective measures CF, Cur, DE, and ROA. CF or cash flow is the firm's net cash flow balance at end of fiscal year 2012 and is a measure of a firm's liquidity. It has been cited as a financial performance measure in previous studies (Kaplan & Norton, 1992; Gumbus & Lyons, 2002; Bauer, 2004; Iselin et al., 2008; Chiang & Lin, 2009). The other dependent variables are commonly-used key performance indicators included in financial reports.

Current ratio or Cur, also a measure of liquidity, is computed as total current assets divided by total current liabilities and is used to determine the firm's ability to pay short-term obligations. Debt-to-equity ratio or DE, a measure of solvency, measures the company's leverage and is computed by dividing total liabilities to equity. Return-on-assets or ROA is a measure of profitability which reflects the firm's ability to utilize its assets to create profits. It is calculated as net income divided by total average assets.

The independent variables represent the measures in the non-financial BSC perspectives. For the customer perspective, revenue growth (RG) or the

percentage increase in 2012 revenues compared to 2011 is used as a measure to proxy customer satisfaction (Wang et al., 2013). Two internal process perspective measures are used in this study. PT or property/fixed asset turnover measures efficiency in utilizing fixed assets to generate revenues (Chiang & Lin, 2009), while CR or cost ratio determines the percentage of cost of sales/services to revenues (Souissi & Itoh, 2006). Learning and growth perspective measures include ER or retirement cost per employee which proxy employee satisfaction (Bryant et al., 2004; Bento et al., 2013) and EP or net profit per employee, calculated as net income before tax divided by number of full-time employees, is a measure of employee productivity (Fang & Lin, 2006; Huang et al., 2007).

### 3. RESULTS AND DISCUSSION

Presented in Tables 2 to 4 are outputs from SPSS 17.0. Table 2 shows the minimum, maximum, mean, and standard deviation for all variables, both dependent (CF, Cur, DE, ROA) and independent (RG, PT, CR, ER, EP).

Table 2. Descriptive Statistics

Var	Minimum	Maximum	Mean	Standard Deviation
CF	3003970	1.E11	4.75E9	1.569E10
Cur	.10468	9.79399	2.0745714	1.80007907
DE	.02246	6.24666	.9537218	1.02143963
ROA	-.42345	.51971	.0592934	.11401441
RG	-.53709	1.00000	.0884585	.19902287
PT	.19634	21.21628	4.0952525	4.27270822
CR	.00000	2.14620	.6602589	.29240660
ER	-1.96602E5	2.77406E7	4.3320242E5	3.11819057E6
EP	-5.61919E7	1.62817E8	5.4600349E6	2.39753764E7

Table 3 shows Pearson's correlation coefficients for the variables used in this study. Pearson's analysis is done to test correlation between variables.

Table 3. Pearson's Correlation Analysis

Var	CF	Cur	DE	ROA	RG	PT	CR	ER	EP
CF	1								



Cur	-.088	1						
DE	.216	-.471**	1					
ROA	.038	.261*	-.296**	1				
RG	.097	-.096	.025	.078	1			
PT	-.087	.079	-.242*	.069	-.010	1		
CR	.040	-.201	.175	-.467**	.166	.220*	1	
ER	-.038	-.075	.016	-.027	-.053	-.095	.035	
EP	.012	.122	-.234*	.305**	-.032	-.085	-.234*	.443**

\*Correlation is significant at the 0.05 level (2-tailed).

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

Table 4. Regression Results

Var	Equation 1 CF	Equation 2 Cur	Equation 3 DE	Equation 4 ROA
RG	.159	-.135	.172	.257
PT	-.113	.232	-.270	.238
CR	.057	-.313	.158	-.603
ER	.050	-.150	.293	.052
EP	-.127	-.125	-.412	-.041

Table 4 shows standardized beta coefficients in each of the four equations using data from service and industrial firms. It shows that for every unit increase in customer perspective measure revenue growth (RG), financial perspective measures cash flow (CF), debt-to-equity ratio (DE), and return-on-assets (ROA) increase by 0.16, 0.17, and 0.25, respectively, holding all other variables constant. Current ratio (Cur), on the other hand, decreases by 0.14 for every unit increase in RG. CF, Cur, DE, and ROA show p-values of 0.305, 0.366, 0.253, and 0.038, respectively. This suggests that at 95% confidence level, RG has a significant positive effect on financial performance based on ROA. This implies that an increase in firm revenue impacts firm's profitability through resource utilization. Stated differently, customer perspective has a significant positive effect on financial perspective and therefore the first hypothesis on positive effect of customer perspective on financial perspective is accepted. This finding is consistent with results of previous studies (Wu & Chen, 2011; Bento et al., 2013; Kairu et al., 2013).

Property, plant, and equipment turnover (PT) and cost ratio (CR) are measures for internal process perspective. Table 4 shows that for every increase in PT, Cur and ROA increase by 0.23 and 0.24, respectively, while CF and DE decrease by 0.11 and 0.27, respectively. In terms of p-values, PT has a significant effect on DE (0.030) and ROA (0.020), but

not on CF (0.375) and Cur (0.061). This implies that an increased efficiency in fixed asset usage impacts the company's leverage negatively but positively on profitability from total average assets. The positive effect of internal process perspective on financial perspective has been noted in other studies (Wu & Chen, 2011; Bento et al., 2013; Kairu et al., 2013).

An increase in CR increases CF by 0.06 and DE by 0.16, while Cur and ROA decrease by 0.31 and 0.60, respectively. The p-values of CF, Cur, DE, and ROA are 0.652, 0.013, 0.197, and 0.000, respectively. At 95% confidence level, CR has a significant negative effect on DE and ROA. This implies that an increased percentage of related cost over revenues negatively impacts the firm's leverage and income from asset utilization. Combining the results of both internal process measures, it can be generalized that internal process perspective has a significant negative effect on financial perspective and therefore, the second hypothesis regarding positive impact of internal process on financial perspective is not accepted.

For the learning and growth perspective, retirement cost per employee (ER) and net profit per employee (EP) are used as measures. Referring to Table 4, a unit increase in ER increases CF, DE, and ROA by 0.050, 0.293, and 0.052, respectively, while Cur decreases by 0.150. Since p-values of CF (0.814), Cur (0.468), DE (0.112), and ROA (0.759) are greater than 0.05, then ER does not have any significant effect on any of the four financial measures.

All four financial measures CF, Cur, DE, and ROA react negatively to an increase in EP and show standardized beta coefficients of 0.13, 0.13, 0.41, and 0.04, respectively. Similar to ER, the p-values of CF, Cur, DE, and ROA which are 0.578, 0.570, 0.067, and 0.820, respectively are all greater than 0.05 which suggest that EP does not have any significant effect on any one of the financial measure. Taking the results of learning and growth measures ER and EP together, learning and growth perspective has no significant positive effect on financial perspective and therefore the third hypothesis is not accepted. Liang and Hou (2006) also showed an insignificant effect of learning and growth on financial perspective and noted that learning and growth perspective is indirectly related to financial perspective through customer perspective.

#### 4. CONCLUSIONS



This study makes use of publicly-available data of PSE-listed service and industrial firms to determine if non-financial perspectives in BSC framework are linked to financial perspective. This study finds that: (1) customer perspective has a significant positive effect on financial perspective; (2) internal process perspective has a significant negative effect on financial perspective; and (3) learning and growth perspective has no significant effect on financial perspective.

This study also provides evidence that the linkages among BSC perspectives can be determined using only publicly-available data thus the chosen measures are readily available from the financial reports and are proxies of questionnaire-related data. This study, however, includes a limited number of perspective measures and excludes firm-specific and industry-specific factors.

It is recommended for further research to make use of additional measures or come up with a different set of measures for dependent and independent variables. A different sector can be sampled. A different methodology to analyze data and test the hypothesis can also be utilized.

## 5. REFERENCES

- Anand, M., Sahay, B. S., & Saha, S. (2005). Balanced scorecard in Indian companies. *Vikalpa*, 30 (2), 11-25. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Angel, R., & Rampersad, H. (2005, May). Do scorecards add up? *CA Magazine*, 30-35. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Banker, R. D., Potter, G., & Srinivasan, D. (2000). An empirical investigation of an incentive plan that includes nonfinancial performance measures. *The Accounting Review*, 75 (1), 65-92. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Bauer, K. (2004, October). Key performance indicators: The multiple dimensions. *DM Review*, 62-63. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Bento, A., Bento, R., & White, L. F. (2013). Validating cause-and-effect relationships in the balanced scorecard. *Academy of Accounting and Financial Studies Journal*, 17(3), 45-55. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Bryant, L., Jones, D. A., & Widener, S. K. (2004). Managing value creation within the firm: An examination of multiple performance measures. *Journal of Management Accounting Research*, 16, 107-131. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Chiang, C. Y. & Lin, B. (2009). An integration of balanced scorecards and data envelopment analysis for firm's benchmarking management. *Total Quality Management*, 20 (11), 1153-1172. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Davis, S., & Albright, T. (2004). An investigation of the effect of balanced scorecard implementation on financial performance. *Management Accounting Research*, 15, 135-153. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- De Geuser, F., Mooraj, S., & Oyon, D. (2009). Does the balanced scorecard add value? Empirical. *European Accounting Review*, 18 (1), 93-122. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>



- Debusk, G., K., & Crabtree, A. D. (2006, Fall). Does the balanced scorecard improve performance? *Management Accounting Quarterly*, 8 (1), 44-48. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Fang, M. Y., & Lin, F. Y. (2006). Measuring the performance of ERP system – from the balanced scorecard perspectives. *The Journal of American Academy of Business, Cambridge*, 10 (1), 256-263. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Gumbus, A., & Lyons, B. (2002, November). The balanced scorecard at Philips Electronics. *Strategic Finance*, 45-49. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Hoque, Z., & James, W. (2000). Linking balanced scorecard measures to size and market factors: Impact on organizational performance. *Journal of Management Accounting Research*, 12, 1-17. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Huang, H. C., Chu, W. Y., & Wang, W. K. (2007). Strategic performance measurement and value drivers: Evidence from international tourist hotels in an emerging economy. *The Service Industries Journal*, 27 (8), 1111-1128. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Iselin, E., Mia, L., & Sands, J. (2008). The effects of the balanced scorecard on performance. *Journal of General Management*, 33 (4), 71-85. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Ittner, C. D., Larcker, D. F., & Randall, T. (2003). Performance implications of strategic performance measurement in financial services firms. *Accounting, Organizations and Society*, 28, 715-741. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Kairu, E., Wafula, M. O., Okaka, O., Odera, O., & Akerele, E. K. (2013). Effects of balanced scorecard on performance of firms in the service sector. *European Journal of Business and Management*, 5 (9), 81-88. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Kaplan, R. S., & Norton, D. P. (1992, January-February). The balanced scorecard – measures that drive performance. *Harvard Business Review*, 71-79. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Kaplan, R. S., & Norton, D. P. (1993, September-October). Putting the balanced scorecard to work. *Harvard Business Review*, 134-147. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Kaplan, R. S., & Norton, D. P. (2001, September). Leading change with the balanced scorecard. *Financial Executive*, 64-66. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Khan, M. H. U. Z., Halabi, A. K., & Masud, M. Z. (2010). Empirical study of the underlying theoretical hypotheses in the balanced scorecard



- (BSC) model: Further evidence from Bangladesh. *Asia-Pacific Management Accounting Journal*, 5 (2), 45-73. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Liang, C. J., & Hou, L. C. (2006). A dynamic connection of balanced scorecard applied for the hotel. *Journal of Services Research*, 6 (2), 91-118. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Malmi, T. (2001). Balanced scorecards in Finnish companies: A research note. *Management Accounting Research*, 12, 207-220. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Norreklit, H. (2000). The balance on the balanced scorecard – a critical analysis of some of its assumptions. *Management Accounting Research*, 11, 65-88. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Pandey, I. M. (2005). Balanced scorecard: Myth and reality *Vikalpa*, 30 (1), 51-66. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Pangarkar, A. M., & Kirkwood, T. (2007, July). Linking learning strategy to the balanced scorecard. *Chief Learning Officer*, 38-41, 52. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Rigby, D. (2001, Winter). Management tools and techniques: A survey. *California Management Review*, 43 (2), 139-160. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Sawalqa, F. A., Holloway, D., & Alam, M. (2011). Balanced scorecard implementation in Jordan: An initial analysis. *International Journal of Electronic Business Management*, 9 (3), 196-210. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Smith, M. (2005, February). The balanced scorecard. *Financial Management*, 27-28. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Souissi, M., & Itoh, K. (2006, March-April). Implementing the balanced scorecard. *The Journal of Corporate Accounting and Finance*, 57-61. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Speckbacher, G., Bischof, J., & Pfeiffer, T. (2003). A descriptive analysis on the implementation of balanced scorecard in German-speaking countries. *Management Accounting Research*, 14, 361-387. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Varma, S., & Deshmukh, S. G. (2009). Evaluating petroleum supply chain performance: Overcoming shortcomings of balanced scorecard. *Global Journal of Flexible Systems Management*, 10 (4), 11-22. Retrieved from Business Source Complete, EBSCO. Retrieved from <http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph>
- Wang, Y. G., Li, Y. M., Jan, C. L., & Chang, K. W. (2013). Evaluating firm performance with balanced scorecard and data envelopment analysis. *WSEAS Transactions on Business and*





Presented at the DLSU Research Congress 2014  
De La Salle University, Manila, Philippines  
March 6-8, 2014

*Economics*, 1 (10), 24-39. Retrieved from  
Business Source Complete, EBSCO. Retrieved  
from [http://0-  
web.b.ebscohost.com.lib1000.dlsu.edu.ph](http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph)

Wu, S. I., & Chen, J. H. (2011). Comparison between  
manufacturing companies that are ISO certified  
and those that are not certified using  
performance measurement model. *Total Quality  
Management*, 22 (8), 869-890. Retrieved from  
Business Source Complete, EBSCO. Retrieved  
from [http://0-  
web.b.ebscohost.com.lib1000.dlsu.edu.ph](http://0-web.b.ebscohost.com.lib1000.dlsu.edu.ph)