# Accounting for unprofitable construction contracts: a teaching note

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ABSTRACT

Accounting textbooks develop separate frameworks to compute the gross profit for profitable and unprofitable contracts under the percentage completion method. The reason for this is the necessity to recognize the future losses as part of the costs of construction. This paper proposes a method that captures the economic consequences of the contract and uses the same framework for the calculation of the gross profit regardless of the financial outcome. This is achieved by disclosing the actual costs incurred as the costs of construction and then recognizing separately the provision for future losses after the gross profit. It is argued that any provision for future losses should be separately disclosed as this is viewed as important information regarding management's performance.

Keywords: teaching, unprofitable contracts, percentage completion method, SOP 81-1
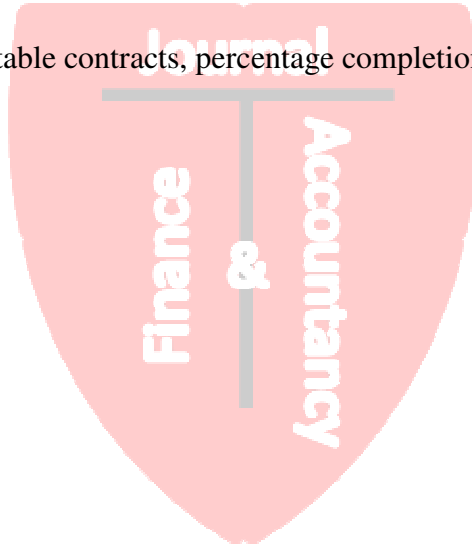
INTRODUCTION

Accounting educators are sometimes confronted with situations where they disagree with the current persuasive teaching methodology that is used in textbooks. When this occurs instructors must evaluate the trade-offs of introducing what they believe is the conceptually superior approach into the classroom as it is confusing for students to have to learn a methodology that is not consistent with what is given in their textbook.

Such a situation currently exists with the calculation of the gross profit under the percentage completion method. Intermediate accounting textbooks develop separate frameworks to compute the gross profit for profitable and unprofitable contracts. (See, for example, Nikolai, Bazley, & Jones, 2010; Warfield, Weygandt, & Kieso, 2008; Spiceland, Sepe, Nelson, & Tomassini, 2011; and Stice, Stice, & Skousen, 2010). This paper proposes a method that captures the economic consequences of the contract and uses the same framework developed for profitable contracts. The paper proceeds as follows. The next section describes the current teaching approach for construction contracts when using the percentage completion method. The third section introduces and explains the proposed methodology. The fourth section addresses the justification for this approach. The last section is the conclusion.

CURRENT TEACHING METHODOLOGY

Table 1 illustrates how textbooks compute and disclose the revenue, costs of construction and gross profit for a profitable contract. In this example Moreira Construction Company receives a fixed-price contract to build an office building for six million dollars at the beginning of 2010. The project takes three years to complete and results in the following income statement disclosure:

	2010	2011	2012	Total
Revenues	2,520	1,680	1,800	6,000
Cost of construction	1,995	1,645	1,460	5,100
Gross profit	525	35	340	900

In this case, the cost of construction shown on the income statement comes from line 1 of the computations section in Table 1. This reflects amount of the actual costs of construction incurred during the period.

If, during the second year, it is estimated that the contract will result in an overall loss because of cost overruns and time delays then the calculations for the disclosure of the revenue, costs of construction and gross profit are given in Table 2. The income statement disclosure is (see, for example, Spiceland et al., 2011):

	2010	2011	2012	2013	Total
Revenues	2,520	780	1,500	1,200	6,000
Cost of construction	1,995	1,405	1,600	1,350	6,350
Gross profit	525	(625)	(100)	(150)	(350)

At the end of the first year the contract was still expected to be profitable and thus the methodology is the same as shown for the profitable scenario. However, in the second year when

it is estimated that the contract will be unprofitable, the costs of construction disclosed in the income statement no longer represent the actual costs of construction incurred during the year as shown on line 1 of Table 2. For example, in 2013 the actual costs of construction incurred were $1,390,000 (from line 1of Table 2) and yet the amount disclosed on the income statement is $1,350,000. In this situation the costs of construction becomes the balancing figure since the revenue, which is a computation, and the gross profit (from line 12 of Table 2) are known. The difference between the reported and actual costs of construction under this method results from the provision or reversal of future losses.

From a teaching perspective, this method of instruction is cumbersome. It does not capture the economic consequences of the contract since the actual costs of construction are not disclosed. Thus there is no consistency between the two methods in determining the costs of construction. The computation of the gross profit recognized to date, or total loss, and the determination of the costs of construction in the income statement differ depending on whether the contract is profitable or unprofitable. Conceptually the cost of construction should only include the actual costs incurred during the period. It should not include the provision for future losses.

PROPOSED TEACHING METHODOLOGY FOR UNPROFITABLE CONTRACTS

This paper proposes a method which captures the economic consequences of the contract and which uses the same framework regardless of the profitability of the contract. This is achieved by disclosing in the income statement the actual costs incurred as the costs of construction and then separately recognizing a provision for future losses. Using the previous example of an unprofitable contract, the proposed methodology will result in the following income statement disclosure from the workings given in Table 3:

	2010	2011	2012	2013	Total
Revenues	2,520	780	1,500	1,200	6,000
Cost of construction	1,995	1,360	1,605	1,390	6,350
Gross profit	525	(580)	(105)	(190)	(350)
Provision for future losses		(45)			(45)
Reversal of the previously recorded provision			5	40	45
	525	(625)	(100)	(150)	(350)

The advantages of this method are twofold. First it captures and reports the economic consequences of the contract. The costs of construction represent the actual costs incurred during the year and the provision for future losses is separately disclosed. Second, regardless of whether a contract is estimated to make a profit or a loss, the teaching methodology is the same.

JUSTIFICATION FOR THE PROPOSED METHODOLOGY

The American Institute of Certified Public Accountants (Statement of Position No. 81-1, 1981) requires that the amount of the expected loss be included with the cost of construction unless the amount is material, unusual, or infrequent in which case it must be reported separately. Although this justifies the approach adopted in textbooks, conceptually the cost of construction should only include the actual costs incurred during the period with the provision for future

losses being separately disclosed. The rationale for this argument is warranted for a number reasons.

The stewardship function of financial reporting means that investors are entitled to information about the capital that they have invested in the entity (Dobler, 2008). A key management objective in a for-profit organization is to create shareholder wealth. Since unprofitable contracts result in wealth dilution, this is critical and material information for shareholders regardless of the dollar amount involved. Wüstemann and Kierzek (2005) contend that the objective of the income statement should be to provide information about the performance of the entity. Thus, it is argued, all provisions for losses stemming from construction contracts should be separately disclosed since this is important and material information about management's performance.

Fairfield, Sweeney, and Yohn (1996) found that the use of income statement components improves the predictive ability of future net income. This is consistent with the findings of Lipe (1986) and Swaminathan and Weintrop (1991). The latter study found that the information content of separate elements of revenues and expenses exceeds that of net income. Trotman and Zimmer (1986) also show that loan officers do try and assess the reliability of financial statements. Cearns (1999) argues that financial reports should make a better effort at disclosing financial performance so that users can understand the underlying performance of the entity. This line of research justifies the separate disclosure of the provision for construction losses since it increases the information content and predictive ability of the income statement.

Barker (2004) proposes a unique matrix income statement framework which separately discloses remeasurements, such as impairments, which are revisions to the carrying values of the underlying assets or liabilities. Clearly the provision for future losses is a remeasurement under this model. Glover, Ijiri, Levine, and Laing (2005) propose a model which clarifies the role of estimates and forecasts in the financial statements by showing these separately. Current practice should follow the recommendations of these two proposed frameworks and separately disclose the provision for future losses to avoid the concern expressed by Cheah, Garvin, and Miller (2004) that "… managers often manipulate financial reports to hide losses and to present a favorable, albeit incorrect, picture to external investors" (p. 810).

The framework suggested in this paper can also be justified from a cognitive learning perspective. Simon and Hayes (1976) found that change problems were nearly twice as difficult as transfer problems for students. Since the proposed method utilizes the same framework that is used for profitable contracts it falls into the realm of a transfer problem whilst the methodology used in textbooks uses a change problem approach.

CONCLUSION

Nikolai et al. (2010) is one of the few texts that discusses the components of the cost of construction for unprofitable contacts. However they do not develop a teaching framework. This study introduces such a framework. Regardless of whether a contract is profitable or unprofitable, the methodology is the same. This method is conceptually consistent in that the costs of construction under both scenarios include only the costs actually incurred during the period thus capturing the economic consequences of what has happened.

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Table 1
Computations for a profitable contract

(All amounts are in thousands of dollars)	2010	2011	2012
1. Computations			
1. Contract costs incurred during the year	1,995	1,645	1,460
2. Contract costs incurred in prior years	-	1,995	3,640
3. Cumulative contract costs	1,995	3,640	5,100
4. Estimated costs to complete	2,755	1,560	-
5. Total cost	4,750	5,200	5,100
6. Percentage complete (3/5)	42%	70%	100%
7. Contract price	6,000	6,000	6,000
8. Less: Total estimated costs (5)	4,750	5,200	5,100
9. Estimated total gross profit	1,250	800	900
10. Total gross profit recognized to date (6*9)	525	560	900
11. Less: Previously recognized	-	(525)	(560)
12. Gross profit to be recognized	525	35	340
2. Income statement disclosure calculations			
Revenues (6*7 less previously recognized)	2,520	1,680	1,800
Cost of construction (1)	1,995	1,645	1,460
Gross profit (12)	525	35	340

Table 2
Computations for an unprofitable contract based on current practice

(All amounts are in thousands of dollars)	2010	2011	2012	2013
1. Computations				
1. Contract costs incurred during the year	1,995	1,360	1,605	1,390
2. Contract costs incurred in prior years	-	1,995	3,355	4,960
3. Cumulative contract costs	1,995	3,355	4,960	6,350
4. Estimated costs to complete	2,755	2,745	1,240	-
5. Total cost	4,750	6,100	6,200	6,350
6. Percentage complete (3/5)	42%	55%	80%	100%
7. Contract price	6,000	6,000	6,000	6,000
8. Less: Total estimated costs (5)	4,750	6,100	6,200	6,350
9. Estimated total gross profit/(loss)	1,250	(100)	(200)	(350)
10. Total gross profit recognized to date or total loss	525	(100)	(200)	(350)
11. Less: Previously recognized	-	(525)	100	200
12. Gross profit/(loss) to be recognized	525	(625)	(100)	(150)
2. Income statement disclosure calculations				
Revenues (6*7 less previously recognized)	2,520	780	1,500	1,200
Cost of construction (1 or balancing figure)	1,995	1,405	1,600	1,350
Gross profit/(loss) (12)	525	(625)	(100)	(150)

Table 3
Computations for an unprofitable contract using the proposed methodology

	(All amounts are in thousands of dollars)	2010	2011	2012	2013
	1. Computations				
1.	Contract costs incurred during the year	1,995	1,360	1,605	1,390
2.	Contract costs incurred in prior years	-	1,995	3,355	4,960
3.	Cumulative contract costs	1,995	3,355	4,960	6,350
4.	Estimated costs to complete	2,755	2,745	1,240	-
5.	Total cost	4,750	6,100	6,200	6,350
6.	Percentage complete (3/5)	42%	55%	80%	100%
7.	Contract price	6,000	6,000	6,000	6,000
8.	Less: Total estimated costs (5)	4,750	6,100	6,200	6,350
9.	Estimated total gross profit/(loss)	1,250	(100)	(200)	(350)
10.	Total gross profit/(loss) recognized to date (6*9)	525	(55)	(160)	(350)
11.	Less: Previously recognized	-	(525)	55	160
12.	Gross profit to be recognized in the current year	525	(580)	(105)	(190)
	2. Income statement disclosure calculations				
	Revenues (6*7 less previously recognized)	2,520	780	1,500	1,200
	Cost of construction (1)	1,995	1,360	1,605	1,390
	Gross profit (12)	525	(580)	(105)	(190)
	Provision for future losses	-	(45)	(40)	-
	(If 9 is negative, then 9 - 10)				
	Reversal of the previously recorded provision	-	-	45	40
		525	(625)	(100)	(150)