



# The Financial Accounting Model from a System Dynamics' Perspective

Melse, Eric

University of Maastricht -00(o)1(f)-00(Ma)1(a)1(stri)1(c)26(h)27(cc(ersotri



## **1 Objective of accounting**

Most textbooks draw a very distinct line between financial accounting and management accounting. Kieso and Weygandt (1995), for example, define financial accounting as '...the process that culminates in the preparation of financial reports on the enterprise as a whole for use by parties both internal and external to the enterprise.' Management accounting is defined by them as '...the process of identifying, measuring, analyzing, communicating financial information needed by management to plan evaluate and control an organization's operations.' Horngren (1995, 1996) on the other hand, defines management accounting from a broader perspective:

*Management accounting is ...the process of identifying, measuring, accumulating, analyzing, preparing, interpreting, and communicating information that helps managers fulfill organizational objectives.*

That definition comes very close to the definition of management accounting as '...the process of identifying, measuring, accumulating, analyzing, preparing, interpreting, and communicating information that helps managers fulfill organizational objectives.' Horngren (1995, 1996)

## **2 Accounting & System Dynamics**

The above comments concerning the different focus authors have on the role accounting has are

financial data. The relationship between cause and effect should be made tangible through rigid structural analysis adhering to the systems methodology (Legasto 1980, Randers 1980, Richardson

counting) model we can develop of how a business operates. The model of the business cycles is a depiction of the material and immaterial flows of goods, information and money that occur as a

1. *The source of capital*, or the mound of equity: *claims*.

Capital raised, in the past, is administered so that the past flows are known of stockholders' equity, reserves, liabilities (debt), as well as those that report for the company's operational result of a given accounting period.







Therefore, the accounting is formulated as a stock model with [E 8].

[ 6]                      use     $\equiv$     source  
 [ 7]                      real     $\equiv$     nominal  
 [ 8]                      stocks    $\equiv$      $\Sigma$  flows

*economic perspective*  
*accounts*  
*accounting function*





tion of double-entry bookkeeping indeed involves the recording of each business event with two accounts. But those refer to the two dimensions of the accounting system, assets and claims. This is usually done by means of two columns, for debit and credit entries. But this can be done just as well using one column only with *positive*, or debit, and *negative*, or credit, entries. Also Mattessich (1995, 96 note 11) disputes the accounting literature on this subject: 'For decades I have tried to





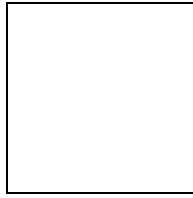
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input	output	mutation	input	output	mutation





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**Figure 8** The symmetry principle made manifest through a series of example transactions that cause a vector



accounting measurements is that they are all functions of time and are recorded and reported as

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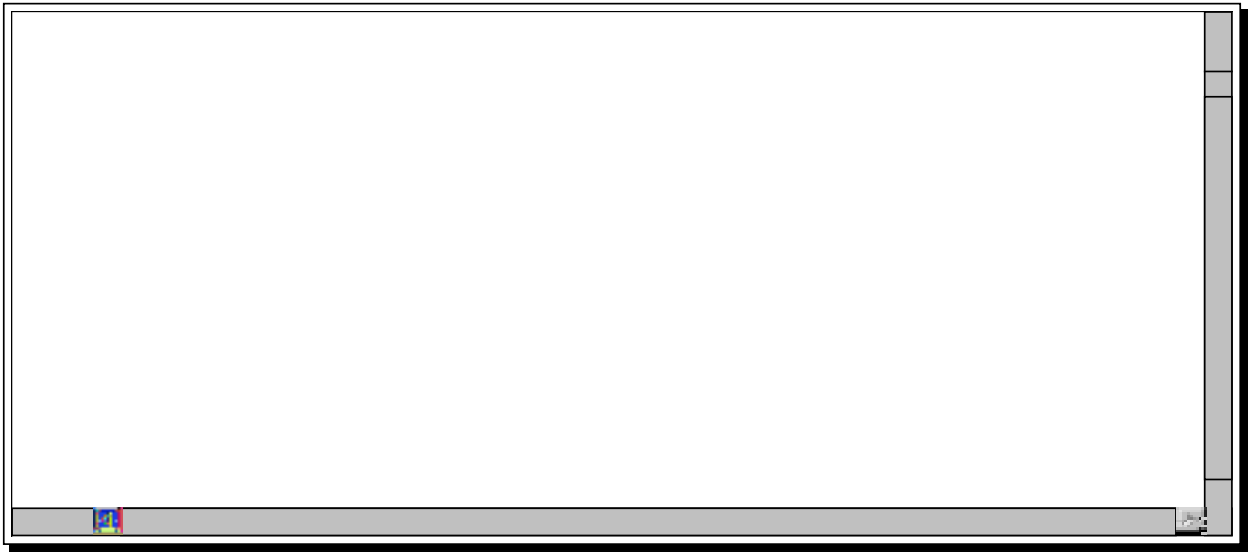




Figure 12 Result data of Figure 11



good idea. The first reason is that the financial accounting system is used and accepted globally. That is a remarkable feat and has great value because it is in itself a reference, a benchmark, for



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