Cost Allocation Accounting Methods Used in the Croatian Production Sector

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Abstract

Before conducting the research, two main hypotheses were proposed:

H1: The majority of Croatian production companies use traditional accounting methods for cost allocation.

H2: Direct production costs make up the largest portion within the production cost structure for the majority of Croatian production companies. Because of this production cost structure, modern cost allocation accounting methods would not contribute to more reliable company profitability evaluation and business decision-making.

The research is based on a specific sample including every important Croatian public production company. The process of cost allocation process is not easy. It is a difficult and complicated procedure that requires the application of appropriate accounting methods. The process of allocating costs to cost objects is realized through the application of certain accounting methods. These accounting methods often cannot provide fair and objective cost allocation because they have arbitrary bases that are not always appropriate.

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1. Introduction

Cost allocation is a serious problem in almost every company. Every company faces the problem of allocating costs to defined cost objects. The cost allocation process is not easy. It is a difficult and complicated procedure that requires the application of appropriate accounting methods. The process of allocating costs to cost objects is realized through the application of certain accounting methods. These accounting methods often cannot provide fair and objective cost allocation because they have arbitrary bases that are not always appropriate or reliable. Therefore, accounting theory and practice constantly try to improve upon existing methods and develop new ones that could provide fair and objective cost allocation.

Cost allocation is an important procedure not only in production companies, but also in service companies.

The basic purpose of cost allocation is to enable the determination of the cost of a product per unit in production companies and the cost of a provided service in service companies. Consequently, cost allocation methods directly affect the product or service profitability evaluation and, at the same time, influence segment and company profitability. The significant problem is the

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choice of the cost allocation accounting method. Certain accounting methods for cost allocation do not apply in the same way and in the same form to every company. These methods need to be adjusted to the company with regard to the company's basic characteristics, such as organizational structure, type of production, technology, accounting system, etc. Also, it is important to emphasise that certain accounting methods can be appropriate for cost allocation in one company, but cannot ensure reliable cost allocation in another.

One of the most important factors that affect the choice of accounting method is the production cost structure. The reliability of the accounting method for cost allocation significantly depends on the production cost structure. In order to determine which accounting methods for cost allocation are used in Croatian production companies, an empirical research has been conducted for the most significant Croatian production companies.

2. Purposes and Process of Cost Allocation

2.1. Purpose of Cost Allocation

Cost allocation is a process that every company must address. The procedure of allocating costs to defined cost objects is one of the most important procedures in every company. This procedure yields significant information for qualitative business decision-making processes. Cost allocation provides management with information regarding product or service profitability evaluation, segment evaluation and company profitability evaluation, all of which are necessary for both strategic and operational decisions. (Horngren, Datar, Foster 2003, p.482)

The basic purpose of the cost allocation process is to determine the cost of a product or service. Besides this basic purpose, cost allocation is performed in order to enable the following: (Horngren, Datar, Foster, 2003, p.483)

1. To provide information for economic decisions
2. To motivate managers and employees
3. To justify costs or compute reimbursement
4. To measure income and assets for reporting to external parties

The first purpose is the most important, because the cost allocation process is mostly implemented for enabling economic decisions on pricing, quantity of production, product mixes, the implementation of a new

product, the acceptance of a certain customer's order, etc. Cost allocation can motivate managers and employees to design products that are simpler to manufacture. Also, cost allocation can be used to justify costs or compute reimbursement when certain costs are not included in the cost of a product or service. Finally, cost allocation is necessary for income and assets measurement for external reporting. (Horngren, Datar, Foster, 2003, p. 482)

According to the existing IFRS, only production costs can be included in the value of work in progress and finished products.

2.2. Process of Cost Allocation

Since cost allocation is a difficult and complicated process, certain steps must be taken before the cost allocation process is possible. These include:

1. cost determination
2. cost classification
3. the choice of cost allocation accounting method

The cost accounting system has to be designed in a way that enables both cost determination and cost classification. While cost determination is a process that is also required for the purpose of external reporting, cost classification is a process that is extremely important for internal management reporting. Cost classification is essential to the cost allocation process in that it determines the cost of a particular product and thus enables product profitability evaluation.

2.2.1. Cost Classifications

Cost classifications directly enable cost allocation. For the purposes of cost allocation, costs need to be classified according to the following criteria:

1. management function
2. accounting treatment
3. traceability to product
4. cost behaviour
5. decision significance
6. managerial control (Cherington, Hubard, Luthy, 1985)

The abovementioned criteria of cost classifications are the most commonly used in accounting theory and

practice. The detailed review of cost classifications and its major sub classifications are presented in the following figure:

Cost Classification	Major Sub classifications
Time period	1) Historical costs 2) Budgeted costs
Management function	1) Manufacturing costs 2) Selling costs 3) Administrative costs
Accounting treatment	1) Product costs 2) Period costs 3) Capital costs
Traceability to product	1) Direct costs 2) Indirect costs
Cost behaviour	1) Variable costs 2) Fixed costs
Decision significance	1) Relevant costs 2) Irrelevant costs
Managerial control	1) Controllable costs 2) Uncontrollable costs

Figure 1. Cost Classifications Cherington, Hubbard, Luthy (1985)

It is important to emphasise that the same cost can be included in several or all cost classifications. However, all of the cost classifications mentioned above do not have the same significance for particular accounting purposes. For the purpose of cost allocation, the relevant cost classifications are:

- traceability to product
- management function
- accounting treatment

These cost classifications are needed to by the accounting system of a company in order to enable the cost allocation process. The most important cost classification for the cost allocation process and inventory evaluation is classification related to accounting treatment. In order to provide the cost allocation process, all costs of a particular accounting period must be divided into two main categories: (i) *product costs* or (ii) *period costs*. (Kaplan, Atkinson 1989, p. 9)

Generally, product costs are all the costs related to the manufacturing aspect of a company. These are manufacturing costs that are directly or indirectly involved in producing products. Product costs include direct material costs, direct labour costs and indirect manufacturing costs.

Direct costs are costs that can be identified with particular cost objects. Direct cost can be traced to the particular product. Indirect manufacturing costs, or overhead, are those costs that cannot be traced to the particular product. Because overhead cannot be identified with the particular product, it needs to be allocated to the product using the appropriate accounting methods.

Product costs are related to the finished product, and in this way affect future economic value. So, from an accounting point of view, these costs are capitalised as inventory and held as unexpired until the finished products are sold. Product costs are not charged as expenses within the period in which they are incurred, but in the period in which the finished products will be sold.

Period costs are costs that are charged as expenses within the period in which they are incurred. These costs have no future economic benefit because they are related to the non - manufacturing functions of the company. Period costs become expenses in the same period in which they are incurred and are matched to the revenues of the particular accounting period. That way, period costs have an immediate impact on financial results within the period of their appearance. Period costs include selling costs and administrative costs. These costs are not related to the production aspect of the company.

The complete accounting cost treatment is shown in the following figure:

Figure 2. Accounting Cost Treatment

Product costs are capitalised, first as work in progress and then, when products are fully completed, like finished products. During their capitalisation, product costs become an asset and are presented in the balance sheet as inventory. When finished products are sold, the capitalised product costs finally become expenses and are presented in an income statement to match with corresponding revenues. Period costs are expenses and are presented in an income statement within the period of their appearance. (Perčević, 2005)

2.2.2. Phases of the Cost Allocation Process

The cost allocation process is carried out through the following phases:

1. the assignment of direct costs to cost objects
2. the allocation of indirect costs from a support department to an operating division (manufacturing)
3. the allocation of indirect costs from an operating division to products (or services) that are defined as a cost objects
4. the determination of the cost of a product (by adding the allocated indirect costs to previously assigned direct costs of a particular product)

Before the cost allocation process is carried out, costs must be determined and appropriately classified in order to enable the cost allocation process. Costs must be first classified as product costs and period costs. Product costs are capable of being inventoried, while period costs are considered expenses of the accounting period. So, from an accounting point of view, product costs are relevant to the cost allocation process, because these costs create the value of particular products. Product costs must be properly allocated to the products that caused their appearance. In order to make the cost allocation process easier to realize, product costs are classified as direct and indirect costs. Direct product costs can be directly traced to the particular product, so the assignment of these costs to products is easy. Indirect product costs cannot be directly traced to the products, so these costs need to be allocated to products by the application of a certain accounting method. The whole cost allocation process is focused on indirect product costs, because only an objective allocation of indirect costs to products can lead to reliable product profitability evaluation and thus make a decision-making process more qualitative. Indirect product costs are first allocated from support departments to operating divisions (manufacturing), then from the operating division to particular products. Different accounting methods are used for indirect cost allocation from support departments to operating divisions and for allocation from operating divisions to products. After the indirect cost allocation to products is completed, the final cost allocation phase determines the cost of a particular product. In order to determine the cost of a product, allocated indirect costs are added to a product's previously assigned direct costs. When the total costs of a particular product are divided by the quantity of production, the cost of a product per unit is computed and the cost allocation process is completed.

One of the most important issues in the cost allocation process is the choice of the accounting methods that will be applied for the indirect cost allocation to operating divisions and to products.

3. Accounting Methods for Cost Allocation

Cost allocation is a complex process that is carried out through the application of certain accounting methods. The choices dictating the appropriate accounting method include:

- the choice of costs that need to be allocated
- the choice of cost pools
- the choice of appropriate cost allocation bases
- the calculation of cost allocation rate(s)

For the purpose of external financial reporting, only production costs need to be allocated to products, while period costs are recognized as expenses within the accounting period. Costs that need to be allocated are grouped into defined cost pools in the process of cost allocation. The cost pools are formed when the company uses more cost allocation bases. Costs are allocated from cost pools to products by identified cost allocation bases. A cost allocation base is the factor that links in a systematic way an indirect cost (or group of indirect costs) to a particular cost object (product or service). (Horngren, Datar, Foster, 2003, p. 96) On the basis of the cost allocation base, cost allocation rates are calculated. These rates are used to perform the cost allocation from cost pools to cost objects.

In the cost allocation process, two kinds of accounting methods are needed:

1. accounting methods for allocating indirect costs of a support department to operating divisions
2. accounting methods for allocating indirect costs from operating divisions to cost objects (products and services)

3.1. Accounting Methods for Allocating Indirect Costs from Support Departments to Operating Departments

Companies usually distinguish their operating departments from their support departments. An operating department is a production department in manufacturing companies in which the products are manufactured. A support department, also called a service department, provides the services that assist other internal departments in the company. (Horngren, Datar, Foster, 2003, p. 526) Direct production costs are directly allocated to operating departments and, within them, to particular products. Indirect production costs can be caused by both types of departments – operating and support departments. Indirect costs of support departments need to be allocated to operating departments and, after that, to products as cost objects. Indirect costs of operating departments must be allocated to particular products only.

Accounting theory and practice recognize three methods of allocating the indirect costs of support departments to operating departments:

1. *direct allocation method*
2. *step-down allocation method*
3. *reciprocal allocation method* (Horngren, Datar, Foster, 2003, p.526)

3.1.1. Direct Allocation Method

The *direct allocation method* is the most widely used method of allocating support department costs. This method allocates the costs of support department directly to the operating departments. The basic advantage of this method is its simplicity. This method doesn't require the prediction of the usage of support department services by other support departments. A main disadvantage of the direct method is its failure to recognize reciprocal services provided among support departments. (Horngren, Datar, Foster, 2003, p.96) Because of this disadvantage, the direct method is not considered an accurate and objective method of cost allocation.

3.1.2. Step-Down Allocation Method

The *step-down allocation method* is also called the sequential allocation method. This method allows for partial recognition of the services provided by support departments to other support departments. The application of the step-down allocation method requires the support departments to be sequenced in order for the step-down allocation to proceed. A popular step-down sequence begins with the support department that renders the highest percentage of its total services to other support departments. The sequence continues with the department that renders the next highest percentage, and so on, ending with the support department that renders the lowest percentage. Under the step-down method, once a support department's costs have been allocated, no subsequent support department costs are allocated back to it. (Horngren, Datar, Foster, 2003, p.529) While the step-down allocation method is considered more accurate and objective than the direct method, it does not recognize all of the reciprocal services provided among support departments.

3.1.3. Reciprocal Allocation Method

The *reciprocal allocation method* allocates costs by explicitly including the mutual services provided among all support departments. This method fully incorporates

interdepartmental relationships into support department cost allocations. (Horngren, Datar, Foster, 2003, p.529) By using this method, the costs of a support department are allocated to other support and operating departments according to the services provided to those departments. The reciprocal allocation method involves the following three steps:

1. expressing support department costs and support departments' reciprocal relationships in the form of linear equations
2. solving the set of linear equations to obtain the complete reciprocated costs of each support department
3. allocating the complete reciprocated costs of each support department to all other departments (both support departments and operating departments) on the basis of the usage percentages (based on total units of service provided to all departments) (Horngren, Datar, Foster, 2003, p.530)

The reciprocal allocation method is considered the most accurate and objective method. However, the basic disadvantage of this method is its complexity. The reciprocal method is very hard to implement and to apply.

3.2. Accounting Methods for Allocating Indirect Costs from Operating Departments to Cost Objects (Products)

When the indirect costs of support departments are allocated to operating departments, all indirect costs are then allocated from operating departments to particular products that are identified as cost objects. There are three basic accounting methods used in manufacturing companies in order to determine the cost of a particular product:

1. job order costing
2. process costing
3. activity based costing (Lucey, 1996 p. 175)

These accounting methods are also considered costing systems whose main purpose is to determine the cost of a product. The first two costing systems are known as traditional costing systems. While the application of traditional costing systems depends on the type of manufacturing process, activity-based costing systems can be applied regardless of the type of manufacturing process. The main issue for companies is: when is it convenient to use traditional costing systems, and when should activity-based costing system be applied? To answer this question the operating conditions and the manufacturing cost structure should be considered. (Perčević, 2006)

3.2.1. Traditional Costing Systems

The basic distinction between job costing and process costing systems is in the determination of the cost object. In job costing, the cost object is a job that consists of a unit or multiple units of distinct products or services. In process costing, the cost object is the mass of identical or similar units of a product or service. Therefore, job costing can be applied in manufacturing that is initiated by a customer's order, while process costing can be used in mass production that is continually performing and is not initiated by a customer's order.

Cost allocation is similar to job costing and process costing. In both costing systems, direct manufacturing costs are traced to products or services. These costs are directly assigned to particular products or services that cause their appearance. Direct manufacturing costs include direct material costs and direct labour costs. The main problem of every costing system is indirect manufacturing costs allocation. Because these costs cannot be directly identified with a particular product or service, indirect manufacturing costs need to be allocated to products or services on some reasonable basis that correctly presents the relationship between indirect manufacturing costs and a certain product. This relationship is often very difficult to express by a single allocation base. It is important to emphasise that there is no allocation base that can accurately provide indirect cost allocation to products. The chosen cost allocation base can be more or less objective, but it cannot be 100% accurate. Indirect manufacturing costs are usually assigned to products or services using the following cost allocation bases:

1. direct labour hours
2. machine hours
3. direct material costs
4. total direct costs
5. quantity of production (Engler, 1988, p. 427)

Indirect manufacturing costs are assigned to the cost object by an overhead allocation rate that is computed on the chosen cost allocation base. (Lucey, 1996, p. 88)

$$\text{OAR} = \frac{\text{total in direct manufacturing costs}}{\text{cost allocation base}}$$

Companies can use either one or more overhead allocation rates for assigning indirect manufacturing costs to products or services. It is widely held that the more overhead allocation rates are used the more accurate the cost per unit. In addition, the product profitability evaluation is more reliable and objective for the sake of decision-making.

Figure 3. Cost allocation in traditional costing systems

In traditional costing systems, the indirect manufacturing costs are allocated to cost objects on arbitrary bases that could affect product profitability evaluation. The impact of the application of traditional costing systems on product profitability evaluation depends on certain conditions, among which manufacturing cost structure is considered the most important. If indirect manufacturing costs are significant within the total manufacturing costs, the traditional costing system may give a distorted picture of product profitability evaluation. Otherwise, the traditional costing system can provide a relatively objective product profitability evaluation.

3.2.2. Activity-Based Costing System

ABC system was designed to correct the deficiencies of traditional costing systems. The primary purpose of the ABC system is to provide fair and accurate cost allocation, and thus an accurate product profitability evaluation as well. Accordingly, the ABC system focuses attention on indirect manufacturing costs. The aim is to define the most appropriate way for indirect manufacturing cost allocation to cost objects.

The main assumption of the ABC system is that products consume activities and activities consume resources. (Horngren, Datar, Foster, 2003, p.141)

The more activities are set up, the more complex the ABC system. An activity is defined as any event, action,

transaction or work sequence that incurs cost when producing a product or providing a service. (Horngren, Datar, Foster, 2003, p.141)

In the ABC system, direct manufacturing costs are also directly traced to products or services, so most attention is paid to the indirect manufacturing costs that are allocated to activities rather than departments or jobs (as in traditional systems). Basically, the application of the ABC system goes through two main phases. In the first phase, indirect manufacturing costs are allocated to activity cost pools. It is important to determine the correlation between a particular indirect manufacturing cost and an identified activity. Every indirect manufacturing cost must be assigned to the actual activity that incurs it. The second phase in ABC application is assigning indirect manufacturing costs from activity cost pools to products using defined cost drivers. A cost driver is any factor or activity that has a direct cause – effect relationship with the resources consumed. (Weygandt, Kieso, Kimmel, 2005, p. 144) The ABC system uses multiple cost allocation bases to assign indirect manufacturing costs to products or services. The usage of multiple allocation bases can provide a more accurate and objective product profitability evaluation.

Figure 4. Cost allocation in ABC system

Cost drivers should correctly show the relationship between certain activity and cost objects. Otherwise, even this costing system can lead to product cost distortion and unreliable product profitability evaluation. The ABC system is very complex and takes much more effort and resources to implement than

traditional systems. Its application is justified only if the benefits from the ABC system exceed the cost of its implementation. So, when the management of a company decide to implement the ABC system they must be sure that the ABC system will provide more useful cost information for business decision-making than traditional systems.

4. Accounting Methods for Cost Allocation and Production Cost Structure in Croatian Production Companies

The empirical survey conducted in the Croatian production sector attempted to determine production cost structure and accounting methods applied in Croatian production companies. The sample included the most significant Croatian public production companies that take the highest portion of total Croatian production.

4.1. Production Cost Structure Analysis

One of the most important factors that must be considered in choosing a costing system is the manufacturing cost structure. Manufacturing cost structure can be used as a technological development indicator of the national manufacturing sector. The most relevant technological development factor of the national manufacturing sector is the portion of indirect manufacturing costs (manufacturing overheads) in total manufacturing costs. According to the survey, in the majority of Croatian manufacturing companies, the portion of indirect manufacturing costs is below 30%. This indicates the technological underdevelopment of the Croatian manufacturing sector.

In the last five years indirect manufacturing costs have increased in 42,9% of the companies surveyed, yet the increase was not significant. Indirect manufacturing costs have remained at the same level in 31,4% of companies, while 25,7% of companies have recorded a reduction in indirect manufacturing costs. This indirect manufacturing costs movement in the last five years confirms the technological underdevelopment of the Croatian production sector.

The portion of direct labour costs within total production costs is below 20% in the majority of companies. This is in accordance with modern, technologically developed production sectors. However, the main reasons for such a low level of direct labour costs within total production costs are production reduction and hence direct labour reduction, not production process automation (as in developed production sectors). The survey also indicated that in the last five years, 42,9%

of the companies have seen their direct labour costs decrease, yet not significantly. Over the same period, direct labour costs remained at the same level in 28,6% of the companies, while 22,9% of the companies recorded an increase in direct labour costs. The trends in direct labour costs indicate that the Croatian production sector has not enhanced its automation within the last five years and is technologically underdeveloped.

Direct material costs are the most significant cost category in the Croatian production cost structure. The portion of direct material costs within total production costs is between 50 – 80 % in the majority of companies.

The production cost structure of the Croatian production sector is illustrated in this figure:

Figure 5. Production cost structure in Croatian production sector

Direct production costs are dominant within the total production costs in the Croatian production sector. The portion of indirect production costs is below 30%, while in the developed production sector this percentage is above 50%.

4.2. Accounting Methods for Cost Allocation in Croatian Production Companies

Accounting methods for cost allocation in Croatian production companies are connected to the production cost structure. The application of a certain accounting method mainly depends on the production cost structure.

According to the empirical research results, the majority of Croatian production companies (77%) apply a direct allocation method for allocating costs from support

departments to operating departments, while 2% use the step-down method. (Perčević, 2005)

Figure 6. Accounting Methods for Allocating Indirect Costs from Support Departments to Operating Departments

Due to the determined production cost structure, traditional costing systems, such as accounting methods for allocating indirect production costs from operating departments to products, are appropriate costing systems for product profitability evaluation in Croatian production companies. Since indirect production costs are not dominant within the total production costs in the majority of Croatian production companies, the application of traditional costing systems in these circumstances could obtain relatively accurate and objective product profitability evaluation. The empirical survey conducted in the Croatian production sector confirms that traditional costing systems are used in the majority of Croatian companies for product profitability evaluation. (Perčević, 2005)

Figure 7. Costing systems applied in the Croatian production sector

According to the empirical survey, only 5,7% of companies in Croatia apply the ABC system, while the other 94,3% of companies use traditional costing systems for product profitability evaluation. It was also determined that the process costing system is applied in 54,3% of those companies that apply traditional costing systems, while 31,4% of the companies used a job order costing system. The rest of the companies that apply traditional costing systems use both traditional costing systems. (Perčević, 2005)

These research results confirm the initial hypotheses. The majority of Croatian production companies use

traditional accounting methods for cost allocation because these methods are appropriate for the technologically underdeveloped production sectors that characterises the high level of direct production costs within the total production cost structure. The research results indicate that direct production costs comprise the highest portion in the production cost structures of the majority of Croatian production companies. Because of such production cost structures, modern cost allocation accounting methods would not give a more reliable company profitability evaluation, nor facilitate business decision-making processes.

5. Conclusion

The cost allocation process is a rather difficult and complicated procedure that requires the application of appropriate accounting methods. The process of allocating costs to cost objects is realized through the application of certain accounting methods. These accounting methods often cannot provide fair and objective cost allocation because they are based on certain cost allocation bases that are arbitrary and not always appropriate for reliable cost allocation. Therefore, accounting theory and practice constantly try to improve upon the existing methods and to develop new ones that could provide fair and objective cost allocation.

One of the most important factors that affect the choice of accounting method is the production cost structure. The reliability of the accounting method for cost allocation significantly depends on the production cost structure. In order to determine which accounting methods for cost allocation are used in Croatian production companies, empirical research was conducted on the most significant Croatian production companies.

The research results of an empirical survey conducted in the Croatian production sector indicate that direct production costs comprise the highest portion within total production costs in Croatian production companies. According to this finding, the Croatian production sector can be considered technologically underdeveloped. In these conditions, traditional accounting methods can provide objective and relatively accurate cost allocation and product profitability evaluation. The results of the empirical survey confirm that traditional accounting methods are used for cost allocation and product profitability evaluation in the majority of Croatian production companies. These research results confirm the initial hypotheses proposed at the beginning of this paper.

References:

- Cherington J.O., Hubbard E. D., Luthy D. H. (1985): Cost and Managerial Accounting, WCB Publishers, Dubuque, Iowa
- Engler C.(1988): Managerial Accounting, Irwin, Homewood, Illinois
- Horngren C. T., Datar S. M., Foster G. (2003): Cost Accounting – A Managerial Emphasis, Prentice Hall, New Jersey
- Kaplan R. S., Atkinson A. A. (1989): Advanced Management Accounting, Prentice Hall International, London
- Lucey T. (1996): Costing, DP Publications, London
- Lucey T. (1996): Management Accounting, Letts Educational, London
- Perčević H. (2005): Utjecaj računovodstvenih metoda alokacije troškova proizvodnje na ocjenu profitabilnosti proizvoda, magistarski rad, Ekonomski fakultet Zagreb
- Perčević H. (2006): The Impact of Costing Systems on Product Profitability Evaluation, microCAD 2006., International Scientific Conference, University of Miskolc, March 15 – 17, 2006., zbornik radova – section P Economic Challenges
- Perčević H. (2005): Accounting Policies on Inventories According to IAS 2 and Their Impact on Financial Results, Babes – Bolyai University of Cluj-Napoca, Faculty of Economics and Business Administration, International Conference "The Impact of European Integration on the National Economy," zbornik radova - Accounting Section, str. 315 – 324, October 2005, Cluj Napoca, Romania
- Weygandt J.J., Kieso D.E., Kimmel P.D.(2005): Managerial Accounting, John Wiley & Sons