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Procedia Economics and Finance 25 (2015) 344 – 353

Procedia Economics and Finance

www.elsevier.com/locate/procedia

16th Annual Conference on Finance and Accounting, ACFA Prague 2015, 29th May 2015

Incentive Pricing of Shared Services with Normal Distribution of Order Flow

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Abstract

This paper presents simple yet efficient formula for apportionment of cost generated by the variability of flow of requirements (objects, inventory, money) through the shared service center (distribution center, internal bank, some service center) as well as formula for apportionment of the cost generated by the flow, if it were steady. The presented formula assures that shared service center cost are charged fairly and provide incentive for the shared services center counterparts to optimize timing and size of their requirements towards shared services center and minimize the total cost of handling them. Additionally we challenge the marginalist transfer pricing theory.

Peer-review under responsibility of University of Economics, Prague, Faculty of Finance and Accounting

Keywords: Transfer price; Shared service center; Distribution center; Cash pool

1. Introduction

The pricing of intra-company or intra-group deliveries is issue related to efficient resource allocation, managers' motivation, and ability to defend the chosen approach against objections of revenue authority. The cost-based approach doubtlessly plays significant role among the possible ways of determination of such prices (transfer prices, or hereinafter TP) outlined in OECD transfer pricing guidelines (OECD, 2010), despite the prominence of the comparable uncontrolled price method and availability of several other transfer pricing methods (ibid).

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Peer-review under responsibility of University of Economics, Prague, Faculty of Finance and Accounting
doi:10.1016/S2212-5671(15)00744-3

However, the cost-based methods are the primary selection, if the centralized management of multibusiness enterprise is present (cp. Miller a Buckman, 1987), and it is the only available choice, if negotiated or market-based transfer prices constitute the inferior option. Both reasons frequently hold in the case of shared services centres (hereinafter SSC). These centers, which are quite recent phenomenon in the multibusiness enterprises' innovation of the group management, are mostly not supposed to act as entrepreneurs within multibusiness enterprise (hereinafter MBE). SSCs provide vital services (accounting, logistics, marketing, IT support, distribution, treasury management, settlement, research) to their MBE's counterparts. However, the price for such services constitutes minor share of the total cost incurred by intra-group customers. That disparity between importance and pricing precludes the use of negotiated transfer price. Moreover, the SSC's primary objective is to decrease the unit cost of such services, which effectively precludes the use of market-derived transfer price. Both challenges (power struggle and efficiency requirement) are already recognized by the relevant literature (Knol and Janssen and Sol, 2014).

The inapplicability of market-derived or negotiated transfer prices however poses challenge to the MBC's management, since the activity based costing would obfuscate the SSC's primary objective, which is to improve efficiency by better utilization of resources. Let us present an example from the accounting field: Although the SSC's accounting services department workload may be steady, the deadlines for the tax filings (which is in the case of VAT mostly in the second half of each month) requires additional resources. If several companies in the group deliver necessary data at the last moment and/or have set the same deadline for the corporate income tax filing, the trouble is imminent. SSC's temptation is to prevent that trouble by abundant capacity and charge all the cost to its customers, contrary to its goal. That would induce the SSC to grow unnecessarily, and at the same time discourage the MBC members from SSC utilization, due to high price. MBC needs its members to utilize SSC's services to the utmost extent, yet efficiently. As far as I know, the literature (at least the English-written one) merely mentions the solution. Others (e.g. Strikwerda, 2008) propose unsustainable and organizationally extremely demanding solutions (especially in the multinational environment) like deployment of a corporate wide general ledger and centralized evidence of SSC's services utilization.

The problem of pricing of the services provided by SSC is on the border between operational research, taxation and financial management. Curiously, a little attention is paid to it as we have found no scholar paper that would directly deal with this problem, except for those dealing with capacity sizing and pricing in the IT industry (e.g. Maglaras and Zeevi, 2003) or airports (e.g. Zhang and Zhang, 2010).

This paper tries to provide simple general model of SSC's cost apportionment under the normal distribution of SSC's services. SSC's customers could be internal (in the case of accounting, IT support, marketing, etc.) as well as both internal and external (in the case of distribution centers, settlement centers). Requirements of both the internal and external customers portray a workflow portfolio. Hence, the subsequent model of SSC's services pricing draws on portfolio optimization models. The below model is for simplicity compiled for the case of normal distribution of the quantity of objects (be it cash, inventory or service) through the SSC. One could object that normal distribution is rather a rare case. However, the SSC serves usually several, sometimes many, clients, thus normal distribution could generally well describe the flow of objects (orders) through SSC, due to the central limit theorem. For there is plethora of optimization models for inventory, cash or work flow, this is not an attempt to introduce a new one. We intend to provide simple and practically applicable model.

The rest of this paper is organized as follows: description of shared services center costs genesis, model development, conclusions and discussion.

2. SSC's cost classification

SSC incurs generally two types of costs, which have to be reimbursed by its clients. Since peaks and bottoms of SSC capacity utilization emerge, and the sufficient capacity has to be maintained in order to prevent from larger losses by e.g. production disruption or customer dissatisfaction, the existence of SSC's capacity to handle its customers' requirements generates costs. Alongside, the other costs are generated by the utilization of the created capacity.