



Guess what: It's the settlements! Vertical integration as a barrier to efficient exchange consolidation

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Abstract

Exchanges and other trading platforms are often vertically integrated to carry out trading and settlement as one operation. We show that these vertical silos can prevent the full realization of efficiency gains from horizontal consolidation of trading and settlement platforms. When costs of settlement are private information, a merger of vertical silos cannot be designed to always ensure efficient trading and settlement after the merger. We also show, however, that efficiency can be guaranteed either by merging the trading platforms and delegating the operation of settlement platforms to independent agents or by forcing competition across vertical silos through cross-listings.

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1. Introduction

Lately, clearing and settlement systems have received a lot of attention in the context of financial integration of the Euro-area. These systems lie at the core of financial markets

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infrastructure and typically show a complex organization especially for enabling trades across borders and different systems. The *Giovannini Reports* (2001,2003) discovered sizeable transaction costs and risks in the current infrastructure for clearing and settlement that prevent efficient cross-border trading within Europe.

Using data on fees and price schedules, *Malkamäki et al. (2006)* report that settlement of domestic securities transactions in Europe is 33% more costly than in the US. The average fee per transaction settled is \$3.9 in Europe compared to only \$2.9 in the US. This difference is partly explained by the segmentation of the European market, where each country uses a domestic Central Security Depository. For cross-border transactions within Europe, settlement is carried out either by intermediaries or international Central Security Depositories with charges averaging approximately \$40 per transaction. Furthermore, looking at economies of scale in Europe and the US, *Malkamäki et al. (2006)* present compelling evidence that clearing and settlement in the latter area takes place at a much more efficient level. This leads to the conclusion that Europe can gain immensely from further consolidation of this infrastructure.

Based on the two *Giovannini* reports, a policy debate developed emphasizing that “the process of consolidation of . . . [the] clearing infrastructure should be driven by the private sector, unless there are clear signs of market failures” (*European Central Bank, 2001, p. 4*). In particular, the strategy for achieving efficiency gains is mainly based on mediating horizontal consolidation among national, private providers of clearing and settlement. While competitive pressures are deemed important, co-operation is seen as essential for attaining efficient solutions through horizontal consolidation.

In this paper, we point out that there are limits for providers of financial infrastructure in Europe to co-operate in order to achieve efficiency, even though consolidation is socially desirable. In particular, we find that it is impossible to reap the full gains of horizontal consolidation whenever trading, clearing and settlement take place in segmented, vertically integrated exchanges and their costs are private information.

Our model departs from the situation in Europe when financial markets were characterized by a high degree of segmentation. Each country had its own clearing and settlement infrastructure, and most national corporations had little choice but to list on their national exchange. Consequently, national exchanges could capture national markets with all trades carried out at the exchange and channeled through a national clearing and settlement system. Technology for clearing and settlement was not homogeneous across countries, and systems often applied specialized solutions which lead to costs being non-transparent and difficult to compare.

More formally, we consider two players each operating a vertically integrated exchange. These exchanges offer trading as well as clearing and settlement of trades in two completely separated markets. They contemplate a consolidation of their trading and settlement activities, according to which they would pool their technology. We call such consolidation a merger. A merger between the firms is beneficial, since the costs for settling trades can be different across firms.¹ Hence, a merged firm can settle trades at the lower cost of the two firms which increases overall profits. The costs for settling trades are, however, private information of the players. Furthermore, we assume that the captive nature

¹ In addition, we could also allow for the merger to directly increase the total value for the firms when merged (e.g. through network effects or through lower prices for users that stem from avoiding the duplication of fixed costs). This case is analyzed in detail in *Koepl and Monnet (2004)*.

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