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Systemic risk and financial consolidation: Are they related?

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Abstract

The creation of a number of very large and sometimes increasingly complex financial institutions, resulting in part from the on-going consolidation of the financial system, has raised concerns that the degree of systemic risk in the financial system may have increased. We argue that firm inter-dependencies, as measured by correlations of stock returns, provide an indicator of systemic risk potential. We analyze the dynamics of the stock return correlations of a sample of US large and complex banking organizations (LCBOs) over 1988–1999, and find a significant positive trend in stock return correlations. This finding is consistent with the view that the systemic risk potential in the financial sector appears to have increased over the last decade. In addition, we relate firms' return correlations to their consolidation activity by estimating measures of the consolidation elasticity of correlation. Consolidation at the sample LCBOs appears to have contributed to LCBOs inter-dependencies. However, consolidation elasticities of correlation exhibit substantial time variation, and likely declined in the latter part of the decade. Thus, factors other than consolidation have also been responsible for the upward trend in return correlations. © 2002 Elsevier Science B.V. All rights reserved.

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[1] International Monetary Fund and Board of Governors of the Federal Reserve System, respectively. The views expressed are those of the authors and do not necessarily reflect those of the IMF, the Board of Governors, or their staffs.

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1. Introduction

The on-going consolidation of the financial system is one of the most notable features of the contemporary financial landscape. The resulting creation of a number of very large and in some cases increasingly complex financial institutions has raised concerns that the degree of systemic risk in the financial system may have increased. For example, although consolidation may have increased the extent of diversification at individual institutions, and thus lowered individual firm's risk, consolidated firms may have become more similar, and thus raised the vulnerability of the aggregated financial system. In addition, greater concentration of certain activities, such as inter-bank loans and large dollar payment activities, may have augmented systemic risks. [2] However, as noted in the recent survey by DeBandt and Hartmann (2000), research aimed at specifying empirical models of systemic risk is quite limited. In addition, no previous work has examined the relationship between systemic risk and financial consolidation. This paper attempts to contribute toward filling both gaps.

Guided by a general definition of systemic risk, we argue that firm inter-dependencies provide an indicator of systemic risk potential, and measure inter-dependencies with correlations of stock returns. Our analysis proceeds in two steps. First, we analyze the dynamics of such correlations during the 1988–1999 period for a sample of US large and complex banking organizations (LCBOs). With the exception of Campbell et al. (2001), no prior study has focused on the dynamics of inter-dependencies at the firm level. Second, we relate firms' return correlations to their consolidation activity by estimating measures of the consolidation elasticity of correlation both cross-sectionally and through time. This is a novel contribution that builds on our previous efforts. [3]

We find that there was a significant positive trend in stock return correlations among the sample LCBOs during the 1990s. This finding is consistent with the view that the potential for economic shocks to become agents of systemic risk in the financial sector appears to have increased over the last decade. In addition, consolidation at the sample LCBOs appears to have contributed to LCBO inter-dependencies during the sample period. However, consolidation elasticities of correlation exhibit substantial time variation, and likely declined in the latter part of the decade. Thus, factors other than consolidation have also been responsible for the upward trend in return correlations.

The paper proceeds as follows: Section 2 defines systemic risk, focusing on the critical need for inter-dependencies between firms and the central role of the largest and most complex banking organizations. Section 3 presents our measure of total inter-dependency, and describes and interprets trends in this measure over the 1990s. Section 4 describes our measure of consolidation. Section 5 presents estimates of the consolidation elasticity of correlation, and the final section concludes.

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[2] See Group of Ten (2001, Chapter IV).

[3] Group of Ten (2001, Chapter IV).

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