1

Introduction: Financial Deregulation and Technological Change

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The techno-organizational ground

The derivatives revolution, and the exponential growth of the trading of complex financial instruments in exchanges and over-the-counter in the 1990s, have significantly altered the technological image of finance. Financial engineering, trading technologies and telecommunication backbones of electronic financial networks are now defining many people's perception of the use of information technologies in banks and in the wider financial sector (Bodie 1999). The former Chairman of the Federal Reserve, Alan Greenspan, one of the main figures of the modern capitalist era of rapid globalization and securitization, adopts a similar view. In his words, 'information technology has made possible the creation, valuation, and exchange of complex financial products on a global basis heretofore envisioned only in our textbooks. [...] Derivatives are obviously the most evident of the many products that technology has inspired. [...] Calculation capabilities has permitted [...] new ways to unbundle risk' (Greenspan 2000: 109). Yet this focus on 'building systems that model, value, and process financial products such as bonds, stocks, contracts, and money', as we can read in a textbook on financial technologies (Freedman 2006: 1), produces a one-sided perspective. Operational complexities, originating in the evolution of banking institutions offering utilities to a wide range of enterprises and households since the late nineteenth century, have shaped the technological landscape in the long term, and in a much stronger sense. The processing of private clients' transactions with pen and paper and then by mechanical means, which paved the way for unit record and then online systems, created a long evolutionary process that culminated in the computerization of financial intermediation (Horvitz and White
2 Financial Deregulation and Technological Change

2000; Bátiz-Lazo and Wood 2002). Accounting as the technical basis of asset-liability management and customers’ accounts management was a mover accelerating the introduction of digital computers in banks and insurance companies from the early 1960s. Electronic trading platforms for investors came later, when the liberalization of money markets started changing banking, creating the basis for the development of the trading rooms of today. Automated electronic trading, based on computer algorithms using real-time market data, was also made available through the adoption of sophisticated computational techniques and information and communication technologies.

But these processes had to do only with a surface behind which a plethora of technology-backed support mechanisms had to be developed. For instance, every trading act requires processing chains of back-office operations, which are often complex (Millo et al. 2005). The markets for financial products and services have created extremely rich fields of adoption and configuration of technologies. Many of these are visible but there are others which are hidden not only from the public eye but also from bankers accustomed to macro-managing their organizations, who typically have in mind predominantly accounting or risk models.¹

The multifaceted character of the development of the technological landscape at the beginning of the twenty-first century is thus primarily the result of the informational and operational requirements set by a great variety of financial products and services. This is also the result of the growing dependence upon many of the products and services addressed to the wider public, not only upon those addressed to institutional investors. Mutual funds, or other instruments of portfolio management – marketed, bundled with other products and services and sold through retail networks – are an example of this. But beyond trading from customers’ accounts, and beyond the securitization of risks from lending activities that led to business practices relying on the originate-to-distribute model, proprietary trading, that is, trading from the bank’s own accounts, became a central aspect of bank management. Both the utility banking side and the proprietary trading side have created their dynamically evolving techno-organizational platforms. We can also observe a complex interaction between these two sides with an impact on techno-organizational platforms, as in the case of financial services that are related to the hedging of enterprises’ and households’ investment risks with securities (Shiller 2008).

These shifts couldn’t have been set off without far-reaching economic, institutional and legal changes leading to the liberalization and globalization of financial markets. The regulatory framework created