INDUSTRY CHANGE THROUGH VERTICAL DISINTEGRATION: HOW AND WHY MARKETS EMERGED IN MORTGAGE BANKING

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This paper provides an inductive theoretical framework that explains how and why vertical disintegration happens, showing that transaction costs are an incidental feature of industry evolution. I find that gains from intrafirm specialization set off a process of intraorganizational partitioning, which simplifies coordination along parts of the value chain. Likewise, latent gains from trade foster interfirm cospecialization, which leads to information standardization. Given standardized information and simplified coordination, new intermediate markets emerge, breaking up the value chain, allowing new types of vertically specialized firms to participate in an industry, and changing the industry’s competitive landscape.

Industry evolution has long been a central concern to management scholars and managers alike. Scholars have studied such facets as the life cycle of an industry’s product and process technology (Abernathy & Utterback, 1978; Klepper, 1997), changes in technology and their impacts on firms’ success (Henderson & Clark, 1990; Tushman & Anderson, 1987), and adaptation to changing demands (Burgelman, 1991; Winter, 1984). Yet one aspect of industry evolution that has been relatively neglected by management scholars, despite its great importance, is vertical disintegration: the emergence of new intermediate markets that divide a previously integrated production process between two sets of specialized firms in the same industry.

What is particularly interesting about vertical disintegration is that it often happens even when the underlying products, services, and core technologies remain the same. Thus, while it may be a relatively invisible part of industry evolution, it can radically transform the sectors in which it occurs. The automobile sector, once the textbook example of integration, has been on a steady trajectory of vertical disintegration, with automotive companies giving up parts of the value chain to new specialists and new intermediate markets emerging (Fine, 1998; Fine & Whitney, 1996). Similar trends are evident in semiconductor manufacturing, with the emergence of “fab-less” (non-manufacturing) chip design companies and the cor-

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1 A value chain, as defined in this paper, consists of the set of value-adding activities that need to be undertaken for a product to be made or a service rendered. The concept of the value chain was originally used to denote the set of activities that take place within the boundaries of any given firm or business unit, including inbound logistics, production, outbound logistics, marketing, and service and support functions (see Porter, 1985); its meaning has, however, been enlarged and altered recently. My definition is consistent with the general use (e.g., Evans & Wurster, 1999; Grant, 2004: Ch. 13) of the term to mean the structured set of activities that take place in an industry, regardless of whether they take place within the boundaries of one integrated or many cospecialized firms. Focusing on activities—the tasks that need to be taken care of—provides an efficient way of examining how firm and industry boundaries change and how these changes create different types of “institutional packages” along some or all of the activities (or “steps”) of the value chain that are undertaken in a sector.
THEORETICAL BACKGROUND

Existing Research on Vertical Disintegration

Several research strands have indirectly addressed vertical disintegration, although none has really directly focused on it. An exception may be the work of Stigler (1951), who suggested that the size of a market limits the extent of specialization (which disintegration represents). But although most industrialized countries and most sectors have the requisite scale to support vertical specialization outside firms, it doesn’t always occur. Thus, scale is generally not considered to be a good explanation for disintegration (see Langlois & Robert-son, 1995). There are almost no systematic studies of the emergence of vertical disintegration, despite substantial research on the social and institutional dynamics of product-category creation (Carruthers & Babb, 2000; Porac, Thomas, Wilson, Paton, & Kanfer, 1995; White, 1981); substantial research on the social institutions of market exchange in general (Carruthers, 1996; Fligstein, 2001); and new research on vertical scope—that is, the amount of value-adding steps in the production process that a firm is active in (Jacobides & Winter, 2005).

The main reason for the relative dearth of knowledge is that the literature, particularly transaction cost economics (Williamson, 1985, 1999), has largely focused on a firms’ decisions to “make versus buy” in given transactions. Such analysis is conducted at a subfirm level, in that the units of analysis are particular choices made “on the margin” by individual firms. It does not look at entire industries by examining, for example, how markets emerge to create vertical disintegration. Nevertheless, transaction cost economics may be a useful starting point for understanding vertical disintegration.

Transaction cost economics focuses on the choices an existing firm makes in deciding whether to make or buy a particular input (Williamson, 2000). If transaction costs—that is, the costs of using markets rather than producing in-house—are high, then firms choose to make a particular input, thus bypassing the markets by integrating. If transaction costs are low, firms rely on markets and buy. Transaction costs largely depend on the risk of opportunistic renegotiation (Williamson, 1975, 1985).

2 Note that the literature also does not address how particular firms’ choices in terms of making or buying different products and services are intertwined; that is, it does not directly address the question of how the boundaries of one particular firm are set, and how they evolve over time. For an analysis of the logic underpinning the design of a particular firm’s vertical structure, see Jacobides and Billinger (2005).
1985, 1999). The risk of opportunism emerges when a potential party to a transaction, such as a supplier, needs to make dedicated, long-lasting investments to make the relationship work, investments that will be valuable in that relationship but not in other contexts. The party undertaking such “asset-specific” (i.e., relationship-specific) investment may be “held up” by the other party (here, the buyer), who might have promised to compensate for the investment but will be tempted to break that promise. The supplier, knowing this, is not likely to make such a valuable but risky investment (Hart, 1995). As a result, it is impossible for the buyer to get the benefits of such a specialized investment, unless the buyer gives an ironclad guarantee of no opportunism, which, in a dynamic and unpredictable environment, is not economically feasible. So the main way to achieve specialized investments is vertical integration (Williamson, 1985). Thus, according to this theory, when asset specificity is high, and hence transaction costs owing to opportunism are significant, firms will be integrated. When asset specificity is low, firms will not be integrated.

The question of integration on the industry level, however, is not examined in transaction cost economics, nor is the option of using markets. Instead, the theory is informed “by the presumption that ‘in the beginning, there were markets’ ” (Williamson, 1985: 87). It begins with the presumption that the choice of relying on a market exists and explains why firms integrate, bypassing the market. It does not extend to the development of new markets. Transaction costs theory does not address how industries or value chain structures evolve and does not ask the question of whether firms can choose whether to make or buy. To use a schematic illustration from the computer industry, transaction cost economics can explain why a computer manufacturer decides to procure a component from the market, or make it in-house, but it cannot explain the fundamental industry change from a structure of integrated entities, active throughout the value chain, to a structure with a distinct market for components that firms can either make or buy (cf. Baldwin & Clark, 2000, 2003). So, given that researchers know that many industries start off integrated before breaking up into cospecialized pieces linked through a market (cf. Christensen, Verlinde, and Westerman, 2002; Jacobides & Winter, 2005; Langlois & Robertson, 1995; Stigler, 1951), the lack of a consistent theory and a corresponding body of empirical evidence on vertical disintegration leaves both empirical and theoretical gaps.

Some related research pertinent to the analysis of changes in industry scope exists. In their work on the historical dimension of transaction costs, for instance, Argyres and Liebeskind (1999) and Madhok (2002) suggested that scholars should consider the specificities of firms’ histories to understand what drives their choices of scope. These authors too, however, focused on the individual choices of specific firms that can either make or buy. Silver (1984) and then Langlois (1992, 2003; Langlois & Robertson, 1989, 1995) have argued that transaction costs are dynamic or even transient and hence that they decline over time as potential suppliers and buyers learn to work together. Christensen and co-authors (2002) argued that disintegrated structures are “worse” than integrated ones, but that they become “good enough” after a while, without, however, explaining why this is so, and, more to the point, without explaining how or why vertical disintegration emerges in the first place. So, while all this research has correctly pointed out the need for a historically informed analysis of vertical scope, it has not offered a framework that explains how an industry’s scope evolves—in particular, how vertical disintegration happens—not has it explained why rapid disintegration happens in some settings but not in others.

Theoretical Gaps and the Contribution of this Paper

The discussion above raises an interesting set of opportunities. On the empirical side, it is desirable to better document and explain vertical disintegration and market creation, as this process has significant implications for industries and the firms within them. On the theoretical side, the need to do so becomes particularly important inasmuch as current theory is ill suited to explaining disintegration. This is the case for three reasons:

First, existing literature has focused on the individual transaction, as opposed to the changes in an industry that enable a market to appear, but factors that operate on the industry level of analysis are unlikely to be fully reducible to those operating on the level of the individual transaction.

Second, most of the arguments in transaction cost economics are designed to explain why firms abandon markets and opt to integrate instead. One might simply argue that to understand why markets emerge, all one has to do is construct the inverse of the story, using the same factors to explain disintegration. Yet organizational processes and, in particular, processes of institutional change are rarely symmetric. To wit, a theory of organizational growth cannot be the mirror inverse of a theory of
organizational decline (cf. McKinley, 1993), because the factors that explain why and how firms grow are qualitatively different from the factors that explain why and how firms decline. The causal logic relevant to explaining the processes and motivations of growth and decline may differ in itself, so that one cannot use theories of growth to fully explain decline, and vice versa. Likewise, the processes that bring about vertical disintegration are likely to differ from those that bring about integration. To explain disintegration, a theory must account for what allows a market to be set up in the first place. Existing theory has not done this, nor is it safe to assume that existing theory could be extended to account for the initial appearance of markets.

Third, most of the existing literature cannot explain how and why transaction costs can be reduced, as it does not focus on the dynamics of the evolution of an industry. Moreover, even in the limited research on “dynamic” transaction costs (Langlois, 1992, 2003), there is not much that can help explain why transaction costs decrease in some settings and not others. For all these reasons, it seems that scholars may well obtain new theoretical insights by studying the process of vertical disintegration without being entirely bound by existing theory.

It follows from these observations that the best way to understand the emergence of vertical disintegration is to undertake an inductive analysis that, while building on existing literature, allows new analytical insights on how the intermediate markets resulting from disintegration emerge. To glean such insights, I examined an industry that underwent significant vertical disintegration: mortgage banking in the United States. Whereas until the late 1970s mortgage loans were originated, funded, and serviced by integrated financial institutions (banks or savings and loan associations), by the end of the century, the industry had become a collection of vertically cospecialized entities. To understand what drove this vertical disintegration, I examined the history of the entire industry as it evolved and focused on the emergence of three new markets—three episodes of vertical disintegration—over a 20-year period. Finally, in addition to studying how these new markets emerged, I also examined what drove and motivated this process of vertical disintegration.

The contribution of this study, then, is twofold. First, it provides an analysis of the market emergence process that goes beyond the traditional purview of transaction cost economics and examines the factors that enable the initial vertical break-up in an industry. Second, it explores the drivers of this process: it analyzes when and why such disintegration and new market creation come about. By shifting the level of analysis from the transaction to the industry and the firms within it, this study provides a template that can explain when and why vertical disintegration happens.

As this is an inductive study, I first describe the mortgage banking industry and introduce the methods. I then present the induced theoretical framework and discuss how it relates to existing theory. I conclude by considering the insights offered by this new framing and theoretical approach on the organizational drivers of vertical scope as they affect research and practice alike.

METHODS

Analysis and Procedures

This paper presents an inductive theory based on an in-depth, qualitative study of the evolution of the mortgage banking industry. The level of analysis in the study was the entire value chain of one industry. I chose this approach in order to portray both the process and the context of change along with their interconnections over time (Mohr, 1982; Pettigrew, 1990). As process research, this study focused on understanding the causal dynamics of a particular setting (Mohr, 1982). The central assumption was that “causation is neither linear nor singular... [hence] explanations of change are bound to be holistic and multifaceted” (Pettigrew, 1990: 269). The causal relations derived here are explained in detail in the main body of the paper and are closely linked to the evidence, so as to allow their internal validity to be assessed (Yin, 1994: 33).

This setting was chosen on conceptual grounds, rather than for representativeness (Miles & Huberman, 1994: 27). The aim was to select a setting that would allow isolation of the central concepts pertaining to the research questions. Mortgage banking was thus selected because it underwent a process of disintegration and market creation, and in particular because it witnessed several episodes of vertical specialization. Furthermore, the decision was influenced by the fact that the product/service offered, mortgages, had not changed substantially in the period of this study. In other settings that I evaluated (e.g., semiconductors, pharmaceuticals, auto manufacturing), the process of value chain and industry change was often entangled with significant changes in the product provided. Avoiding these complications enabled me to identify the ma-
This study is based on multiple sources of evidence: archival data, industry publications and manuals, interviews, and direct observation. Although it covers a 20-year period of vertical disintegration, my direct observation in the field lasted about 38 months. My primary objective was to create an accurate depiction of the evolution of the industry’s value chain, something that did not exist when I went to the field. To do so, I used many sources of evidence: archival data, qualitative evidence, and corroborating quantitative evidence; the latter was used to create a synthetic map of the industry structure as it evolved.

In terms of data reliability, the study conforms with Yin’s (1994: 32) focus on developing construct validity and with Guba and Lincoln’s (1982) emphasis on confirmability. The theory is built upon representations of phenomena. It is essential for such representations to be accurate and meaningful; that is, they must reflect the shared views of industry participants and observers. I used multiple sources of evidence to ensure an accurate representation of the industry’s evolution. The archival data were particularly useful in reconciling the diverse views I obtained through my interviews, which are described below. Thus, whenever I encountered a new idea or view, I would test it against the archival data and reports of the time. If data did not exist, and I had discrepant information, I tried to determine if different constituencies in the mortgage sector accepted a particular view or argument. If there was disagreement, I would modify the argument until a reasonable amount of agreement could be reached and, failing that, would consider the argument as unsupported. Methodologically, my objective was to ensure I had an accurate depiction of the industry—of what had happened—and to provide an interpretation, through inductive theorizing, of what brought about disintegration.

In keeping with Pettigrew’s (1990) directives for inductive, case-based research, while I did approach the organizational field of interest with theoretical constructs in mind, I did not impose them. Instead, I considered how the detailed evidence gathered in the field might inform existing theory or constructs, such as transaction costs. To do so, I examined how the data informed my understanding of (1) the vertical disintegration and market creation process and (2) what motivates and drives it. Then, working within the emerging theoretical framework, I reconsidered the data and clarified particular issues, which led me to refine the developing theory, and so on. As my theory developed, I would communicate it to key industry participants, and in particular the chief economist of the Mortgage Bankers Association of America, with whom I worked closely in the project. Thus, I used an iterative process of theory development and data analysis (cf. Eisenhardt, 1989, 1991) that led to the framework proposed in this paper. (The next main section of this article, “The Setting: Mortgage Banking and the Genesis of Three Sets of Intermediate Markets,” describes the process of discovery and then validation of my framework.) As the evidence was historical, archival evidence was given due attention. The archival data I used included industry manuals, each issue of the monthly publication Mortgage Banking from 1968 onwards, the manuals for the School of Mortgage Banking (see Lederman, 1985, 1995), all mortgage-related bulletins of the Federal Reserve, earlier studies of the industry (e.g., Tuchman, 1986), annual reports of major institutions, regulations and congressional acts related to the sector, all academic research on the sector that I could locate, analysts’ reports (especially from Morgan Stanley, which covers the sector extensively), and other material described below. I also gathered industry statistics and demographics, especially from the Housing Mortgage Disclosure Act (HMDA) database of the Department of Housing and Urban Development, the industry reports of the Mortgage Bankers Association (including its annual cost and servicing studies), and data from private consultancies, such as Inside Mortgage Finance and Wholesale Access, as well as confidential data assembled by two consultancies.

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3 This kind of purposive choice may raise questions about the external validity of the theory (Yin, 1994), or the extent to which the insights from this study are transferable to other settings (Guba & Lincoln, 1982). However, the usefulness of generalization from this type of data is analytical rather than statistical (Firestone, 1993). While claiming no statistical significance for these findings, I suggest that choosing a setting that allowed isolation of key theoretical constructs makes the theoretical findings applicable to other industry settings and provides a grounded theoretical framework that can be tested in other settings in subsequent research.

4 As there was no existing theory, either in the industry or in academe, on the drivers or even the nature of disintegration, my investigation required an intensive involvement so that the basic value chain layout could be derived. I thus had to become familiar with the technical detail of the industry, so as to “speak the language” of the participants in the various bits of the value chain. The questions that I would then ask would not be couched in my “native” terminology, but rather in that of industry participants.
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a The MBAA is the Mortgage Bankers Association of America. HUD is the U.S. office of Housing and Urban Development. The OFHEO is the Office of Federal Housing Enterprise Oversight.
Data Collection

The study was underwritten by the Mortgage Bankers Association of America (MBAA) and the Wharton Financial Institutions Center, a research center sponsored by the Sloan Foundation. It lasted 38 months and proceeded in three stages; Table 1 summarizes the evidence examined, analyzed, and used in these three stages.

The first stage of the research took place between August and December 1998 and focused on identifying the key industry participants and getting a good idea of the industry and its evolving structure. I conducted 18 interviews with industry regulators and oversight agencies (such as the Department of Housing and Urban Development and the Office of Federal Housing Enterprise Oversight), as well as the major government-sponsored “securitizers” (Fannie Mae, Freddie Mac, and Ginnie Mae). These regulator interviews were followed by 32 semi-structured interviews with executives who had been in the field for a long time and who were able to provide an overview of the sector and its evolution. The evidence was complemented with documents from secondary sources, including the few existing historical studies and descriptions of the sector, and trade publications. During this stage I also participated in the 1998 MBAA National Convention.

The second stage of the fieldwork and archival research was conducted between January 1999 and April 2000. During this period, I delved more deeply into the history of the sector to explore the specifics of its evolution in more detail, looking at its products, technology, players, and industry structure. The ongoing support of the MBAA proved particularly helpful at this stage, as it provided me with critical contacts and in-house data. I first attended a two-week course for mortgage executives who were either from outside of the United States or new to the sector; this course further familiarized me with the way the industry is organized in the U.S. and abroad. I then conducted 84 semi-structured interviews with industry participants and consulted a large number of articles and manuals, as well as all the published historical accounts of the sector. In this stage, I attended the 1999 MBAA National Convention and two more industry meetings, where I interacted formally and informally with industry participants. I was also allowed to sit in on three industry roundtables organized by the MBAA. From the evidence collected during the first two stages, I created a preliminary map of the industry and its evolution, which was checked by the chief economist of the MBAA.

The third stage of the research project, conducted between May 2000 and November 2001, focused on solidifying the view of the industry and its evolution, as well as resolving any remaining discrepancies and complementing the field evidence. I conducted 27 interviews with MBAA senior executives and mortgage bankers. I also conducted follow-up interviews with many informants and had numerous phone calls and short discussions to confirm information and fill in gaps. I also communicated the basic findings of the research and received extensive feedback on the validity and accuracy of my description. This stage culminated in an industry publication (Jacobides, 2001), which I circulated to several executives ahead of time to solicit their input.

Throughout the study, I selected interviewees so as to maximize the variety of profiles and heterogeneity of perspectives in the industry. I chose respondents from different-sized firms, from firms with vastly different strategies and scope, and from firms with various roles (technology, origination, servicing, and so forth). I selected several participants who were not mortgage bankers but were service or technology providers, analysts, regulators, or consultants. The level of seniority also varied, although few interviewees had less than five years of experience in the industry; Figures 1 and 2 provide summary statistics of the interviewees for all three stages. The focus of the discussion depended on the profile of the individual, and I concentrated on the respondents’ fields of expertise.

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5 To “securitize” mortgage loans means to take a set of relatively homogeneous loans, bundle them together, and then create a “security,” which is an instrument that can be sold (much like a bond) though the capital market. The “securitizer” is the entity buying loans (from companies that have issued them to individuals); then creating the infrastructure for making the security; and then selling the bundled loans to the capital market. See Fabozzi and Modigliani (1992) or Nadler et al. (1992).
and activity, except when they volunteered to provide their broader assessment. Major issues and threads that emerged in the interviews were incorporated in subsequent interviews. I undertook all of the interviews. Some, but not all, were taped, as the interviewees were often uncomfortable with tape recordings. For interviews that were not recorded and transcribed, I kept notes, which I consulted again after the interviews and as I was preparing the account of industry evolution. Finally, because interviewees were concerned about maintaining anonymity, I sometimes use published sources for quotations, rather than primary evidence, to support my conclusions.

The Setting: Mortgage Banking and the Genesis of Three Sets of Intermediate Markets

A mortgage is a loan collateralized by real estate. To make such a loan possible, a lender, as a conduit for those with excess funds, must be able to find a borrower who needs a mortgage. Roughly speaking, to make a mortgage possible, either one integrated firm or a series of vertically cospecialized firms linked through the market must ensure that the following happens: (1) lenders with excess funds are found; (2) borrowers willing to take a loan are found and steered to the appropriate loan type; (3) borrowers are analyzed for creditworthiness, the value of their collateral, etc., and are guided through the paperwork and procedures required to insure titles and deeds and meet all other legal requirements; (4) the loan is closed, and the transaction consummated and recorded; (5) the loan is serviced for the duration of its length, which means receiving payments from the borrower and managing the account until it is paid off or, alternatively, foreclosing if payments are not received; and (6) payments are made to the lenders or other providers of capital.

These six different functions were originally performed in integrated institutions, in particular, in retail banks, which maintained some mortgage loans, or in savings and loan associations (S&Ls), which were primarily focused on mortgage loans. The short-term deposits of retail customers and lending from the capital market provided liquidity for both of these integrated types of firms, allowing them to fund their loans (Fabozzi & Modigliani, 1992; Lederman, 1985). Banks and S&Ls sought out mortgage loan applicants, prepared and processed applications, and serviced the loans until they expired.

6 The four main question areas were (1) How has your segment evolved? What have been the main differences that you observed? Why did these changes occur at the time that they did? (2) Was there any change in the types of activities that your segment performs? (3) Has there been any change in the scope of activities in your part of the mortgage industry? Why did any such changes occur at the time they did? and (4) (if the participants identified the trend toward disintegration), Can you identify why there has been such a tendency? What factors led to this breakup? Why did it not happen before?

7 This study focuses on the evolution of residential mortgages. The commercial mortgage industry’s structure and evolution is broadly similar, although vertical disintegration has been less pronounced. The difference is largely a result of the comparative difficulty of standardizing information (one of the issues I focus on in my inductive framework).
Mortgage banking started vertically disintegrating, creating new markets, in the early 1970s. Specialized institutions, each with a narrow vertical scope, began to perform the functions noted above. While the functions and the basic steps in the production of a loan did not change, the vertical structure of the industry did. With it, the types of industry participants and the nature of competition also changed. By the mid-1990s, each function could be performed by a vertical specialist. Mortgage brokers found mortgage borrowers and steered them to the appropriate loans. Mortgage banks focused on closing (finalizing) loans, funding them, and then servicing them. They held no deposits, nor did they seek funding for the loans through the capital markets. Instead, a mortgage bank would “warehouse” a loan until it could sell the loan to new specialists, the securitizers, who would then find the lenders to fund it over the long term. To fund loans temporarily, mortgage banks would use lines of credit, working capital obtained from commercial banks to enable loan warehousing. Then, securitizers, having purchased individual loans from several different mortgage banks, would bundle loans together and then turn them into securities (unbeknownst to the borrowers whose loans were being securitized) and sell these mortgage-backed securities to the capital markets, earning fees on the securities they produced (Fabozzi & Modigliani, 1992). Later, some specialized mortgage banks began to focus more on servicing, while others focused more on originating loans. This stunning vertical specialization, depicted in Figure 3, meant that new intermediate markets had arisen to accommodate interfirm trade: Mortgage brokers would sell their loan leads to mortgage banks; mortgage banks would sell the assets (the funded loans) to the securitizers, while retaining the right to service the loans; and later, some mortgage banks would even trade the rights to service particular loans.

More specifically, between 1970 and 1990, there were three major, distinct episodes of vertical disintegration. The first one was the creation of the mortgage securitization sector; the second one was the creation of the mortgage broker segment; and the third one was the creation of the market for mortgage servicing. Each of these episodes consists of the creation of an entirely different market, in a different part of the value chain, each with its own set of vertically cospecialized buyers and sellers; thus, the analysis of this industry rests on three instances of vertical disintegration, rather than one, as Figure 1 indicates. A brief explanation of each episode follows.

**Episode 1: Loan ownership and loan origination and servicing are separated.** The first episode of disintegration in the industry was securitization, which enabled the growth of mortgage banks (i.e., nondepository financial institutions.) Although mortgage banks existed prior to securitization, their role was different, their scope limited, and their market share very small. They were used to generate and service mortgage loans that were held on the books of insurance companies or the federal government (which wanted to subsidize particular needy groups). The big change in the housing finance industry happened at the end of the 1960s and the early 1970s. Because of shortages in housing finance, especially in the quickly developing Sunbelt (Florida, Texas, and California), the government sought additional means of providing housing finance. Limits in the federal budget made it attractive to rely on capital markets, as opposed to government funds, to support the availability of housing finance (Lederman, 1985; Tuchman, 1986). Thus, by 1970, the United States had created three government-sponsored enterprises, Fannie Mae, Freddie Mac, and Ginnie Mae, to facilitate the provision of mortgage finance. Mortgage bankers issued and serviced loans according to particular criteria on behalf of these enterprises. In 1972, Ginnie Mae created the “mortgage-backed security”: it created a pool of loans, sold shares in these pools, and insured the pool against default (a default would be treated as a prepayment). Henceforth, as securitizers the three government agencies would specify in broad terms what loan bundles they wanted; they would then buy them from mortgage bankers; and then they would package the loans they had bought into new bundles and sell these to the capital markets. Thus, an alternative to the integrated S&Ls and banks came about; this new mode relied on capital markets for funds, on securitizers for access to funds and relationships with lenders, and on mortgage bankers for the origination of loans, their servicing, and the payment to securitizers (Baldwin & Esty, 1993; Fabozzi & Modigliani, 1992).

The government, having set up the government-sponsored enterprises, soon reduced its involvement, providing them with public company charters. (Fannie Mae was listed on the New York Stock Exchange between 1970 and 1972; Freddie Mac was listed in 1989). Although the initial loans the three agencies securitized were government-sponsored loans of the Federal Housing and Veteran Authorities, from 1972 onwards they focused on loans made by mortgage banks, which were not part of any government initiative (Fannie Mae, 1992). The market had taken off, with the government-
FIGURE 3
The Empirical Context: The Disintegrating Mortgage Banking Sector

Original Structure: Integrated Housing Finance Provision

Brokerage  Warehousing  Originating  Holding the Loan  Prepayment and Credit Risk  Servicing

Integrated Banks and Savings & Loans


Market for loan bundles  Securitizing and payment processing  Holding loan Prepayment risk  Servicing

Mortgage Banks  GSEs and Securitizers  Wall Street Players  Mortgage Banks


Market for closed loans  Market for loan bundles  Secondary loan market

Mortgage Brokers  Mortgage Banks  GSEs and Securitizers  Wall Street Players  Mortgage Banks


Market for Mortgage Servicing Rights

Mortgage Brokers  Mortgage Banks  GSEs and Securitizers  Wall Street Players  (Other) Mortgage Banks
sponsored enterprises competing with other securitizers (especially Salomon Brothers, Lehman Brothers, and First Boston). It is important to note that the government’s intervention was limited and largely focused on the creation of the template that enabled the market to emerge (Department of Housing and Urban Development, 1996; Tuchman, 1986). Once that template was set, this disintegrated “ecosystem” took off, as shown in Figure 4, which shows the growth of the mortgage-bank-cum-securitizer model through the growth of securitized loans. In this particular episode, then, the U.S. government was market-augmenting, to use Olson’s (2000) term. Its initiative and resulting regulatory framework enabled a new market between private firms to take off, and as such prompted the emergence of a new mode of organizing.

**Episode 2: Loan origination is separated into brokerage and warehousing.** The next instance of vertical disintegration happened within mortgage banks themselves, with no intervention from government. Whereas until the 1980s, mortgage banks always generated their own loans, this soon changed. A new, vertically specialized segment emerged—mortgage brokers, who would seek, qualify, and educate customers and prepare mortgage loans. They would then sell the mortgage loan applications to the mortgage banks; mortgage banks could stop worrying about seeking customers and focus on selecting loans, which they would keep temporarily (warehouse), sell to the securitizers, and service.

The new mortgage broker segment (and the corresponding intermediate market) emerged partly as a result of the recession of 1979–81, when banks laid off loan origination staff but maintained some flexible arrangements with former employees. When the business cycle improved, in 1982, these arrangements became more permanent (Garrett, 1989). A newly independent segment of brokers, generally former loan officers who would identify a loan customer and prepare the “loan lead,” started formally transacting with banks. As this segment grew, a number of mortgage banks began reducing their in-house origination staff and using the market to procure the loans, restricting themselves to the wholesale side of the business. By 1997, the share of this market-based arrangement between mortgage bankers and the new species of brokers had reached 63 percent of the total volume of loans produced (LaMalfa, 1990), as Figure 5 shows.

**Episode 3: Loan servicing is separated from origination.** In the final episode of market creation, servicing was separated from origination, through the market for mortgage-servicing rights. Until the late 1980s, a mortgage bank would originate a loan, sell it to securitizers, but retain its servicing, which brought in valuable fees. There were only a few sporadic purchases of mortgage loan portfolios and no real specialization in servicing or origination. The step-change toward the creation of the market began in 1989, when the Resolution Trust Corporation started selling both the loans and the servicing rights of S&Ls that had failed due to adverse economic conditions (Baldwin & Esty, 1993). To do so, the Resolution Trust had to find a way of pricing servicing rights, which it did. After these emergency sales were finished, however, the sales of mortgage-servicing rights did not stop: as the template for a market exchange had been set up, firms that wanted to specialize vertically and become mostly originators or mostly servicers used that market to do so.

In the first episode of market creation, mortgage banks, or nondepository institutions that relied on securitizers to generate loans, managed to chal-
lenge the vertically integrated banks and S&Ls. In the second and third episodes of market creation, even mortgage banks themselves disintegrated. These three episodes transformed mortgage banking. To put it in the words of a seasoned industry executive, in a feature article in the main industry publication:

The question begs to be asked: “Are there any real mortgage bankers left?” The term “mortgage banker” has, until recent years, referred to . . . a fully integrated loan origination company. . . . This scenario sounds like ancient history today. . . . Loan origination has shifted to the small mortgage company or loan brokerage. . . . [Servicing also became separated from origination and thus] CEOs look at servicing growth as just a “make or buy” decision. (Jacobs, 1993: 23–24)

Despite disintegration of the value chain in mortgage banking, however, the product remained roughly the same, and the sequence of activities needing to be done did not change dramatically. This stability ensured the possibility of isolating the theoretical issue at hand—that is, the changes in the division of labor within a given industry, for a given sequence, between different institutional arrangements—without the possibly confounding effects of product innovation or other structural change. Also, the appearance of intermediate markets does not mean that all of the activities that used to be coordinated through integrated firms were now coordinated through markets, though some were. In the mortgage banking industry, the battle between different ecosystems (that is, the cospecialized, market-mediated mortgage-banking-cum-securitizers’ world and the integrated, traditional world of S&Ls and lending banks) has gone on for a long time. The remainder of this paper focuses on what enabled the new, vertically specialized ecosystem to come about in the first place.

RESULTS: AN INDUCTIVE THEORY OF MARKET EMERGENCE

In analyzing the case evidence during stage 2 of the project, I considered whether some of the established theoretical constructs at hand, such as opportunism and asset specificity, were useful predictors of market creation. The evidence did not point to a significant reduction in asset specificity, however, at least not to an extent that could justify the extensive creation of markets. Consider, for instance, the first market creation, securitization. No real issues of hold-up or cospecialization were resolved over time. If anything, the mortgage banks currently face huge risks, as their entire operations depend on only two major players (and a handful of smaller ones) who “set the rules” and can in theory opportunistically renegotiate, leaving the vertically codependent mortgage banks with few alternatives. What is even more puzzling from a transaction cost economics perspective is that most of the mortgage banking firms usually work with only one of these securitizers, thus creating real dependencies. So the new, securitized system appears to create more, not less, potential for transaction costs along the same value chain, and this makes the emergence of markets harder to explain.

A second puzzle is that, as Eccles and White (1986) noted, integration does not always resolve the problems of opportunism. For instance, when asked about the dangers of using the market (brokers as opposed to in-house retail branches), a senior vice president of a mortgage bank said:

I don’t think this is a major issue. Don’t get me wrong—you do get these lemons you talked about everywhere. But I don’t think you would choose how to procure your loans on the basis of default risk or fraud. You could have bad apples in your own retail branches—loan officers who make a killing and then go—as you could have greedy brokers or untrustworthy correspondents. I guess that if you trust fly-by-night brokers you can get in trouble, but you can monitor these things.

This statement might be interpreted as a result of all problems of hold-up having been mitigated in across-firm relationships. Yet I did not find much direct or indirect evidence for reductions in asset specificity or opportunistic behavior. This absence of evidence did not prompt me to discard transaction cost theory, but it did prompt a wider reach for other related explanations, especially in view of potential asymmetries between the drivers of integration (given the existence of a market) and the drivers of disintegration, when a market does not exist and needs to emerge.

Through the iteration of data and theory described in the previous section, I developed my model, summarized in Figure 6, which concerns how markets emerge and what motivates this process. Specifically, I argue that two motivating factors ultimately drive disintegration: The first is gains from specialization, which result when there are differences in the requisite managerial styles or knowledge bases along the value chain (for instance, retail loan production versus loan warehousing). The second is latent gains from trade, which emerge whenever there are capability differences between specific firms in an industry, or when firms can expand only one part of the value chain, making reliance on the market desirable.
These motivators in turn put in motion two respective enabling processes: Inasmuch as there are gains from specialization, firms engage in intraorganizational partitioning; that is, they create clear administrative separations along the value chain. Likewise, inasmuch as there are gains from trade, firms engage in a process of vertical cospecialization; that is, they try to find ways to reduce transaction costs and seek templates for exchange across firm boundaries. As a result of these two processes,
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a “Bankers” are mortgage bankers; “brokers” are mortgage brokers; and “analysts” are investment bank analysts. MBAA is the Mortgage Bankers Association of America; HUD is the U.S. Department of Housing and Urban Development, which includes the Office of Federal Housing Enterprise Oversight (OFHEO). Interviews were with employees of these various agencies.

b The stage of the research in which initial evidence was found is noted, and the stage at which validation was obtained. Stage 1 was a 5-month period of exploring mortgage banking, and stage 2 was a 15-month period of mapping the processes of interest. Finally, stage 3 entailed presenting the results to industry participants and finalizing the study after receiving feedback.
Necessary Conditions: Coordination
Simplification and Information Standardization

Coordination simplification: Evidence. In all three episodes, the market only emerged after co-
ordination was simplified via substantial reduction in task interdependence between the different
stages of the production of mortgage loans (cf. Thompson, 1967). First, securitization became pos-
sible when holding a loan did not have to interfere with originating or servicing that loan. Second, the
creation of a separate segment of originating bro-
ers became possible when the production and
warehousing of loans became sequentially—rather
than reciprocally—interdependent. Third, the mar-
et for servicing rights, which enabled servicing
and origination to be separated, arose when origi-
nation and servicing ceased to have tight
connections.

Securitization, or the separation of the owner-
ship of an asset from its origination and servicing,
would not have been possible without the arrange-
ments that enabled each of the parts to operate in
isolation from the others. The key to making secu-
ritization work was to create a structure in which
mortgagors would not know who really owned
their loans; they would be dealing with the mort-
gage banks that originated them. Indeed, many of
the readers of this paper may not know that their
mortgages are really held by a smattering of finan-
cial institutions around the globe. Likewise, own-
ers of the assets do not have any idea of the specific
details of the loans they own. More important, the
securitizers do not have to coordinate with the
mortgage banks on anything more than receiving
the payments from the loans at the prespecified
intervals; the obligations, in case of foreclosure, are
well defined ex ante; there is no need for any com-
munication about the loans among the originator/servicer, securitizer, and owner (Follain & Zorn,
1990). Consider loan foreclosure: Securitization
only became possible when an effective arrange-
ment was made that gave mortgage banks an incen-
tive to execute unsupervised, effective foreclo-
sures, and the holders of the assets (the ultimate
loan holders who had the securitized loans) did not
have to worry about when or how foreclosure
would actually occur.8 Such an effective arrange-
ment was formalized in the U.S. Universal Com-
mercial Code, Article 9. Without a structure to min-
imize the requisite coordination among all these
parties, vertical disintegration would have been
very difficult.

In the creation of the banker-broker market, sim-
plication of coordination was also evident. Before
the mid-1970s, the processes of seeking out cus-
tomers and warehousing loans (i.e., preparing them
for sale to the secondary market) were tightly inte-
grated, as mortgage banks were keen to originate
only the loans they knew they could sell at a profit
to securitizers. From the late 1970s on, however,
securitizers introduced optional delivery schemes.
These were intended to get business for the securi-
tizers offering them, yet they also changed the pro-
duction process, as industry handbooks suggest
(Lederman, 1985, 1995). As an executive I inter-
viewed explained:

What you had to avoid [in the old days] was to be
stuck with product the market would not want, be-
cause you would have to kill it [incur a loss when
selling or use valuable and scarce capital if holding
it on your books]. On the other hand, if you had an
agreed delivery [of closed loans, to an investor], you
had to procure all these loans. . . . The result was
that you were on the heels of your production guys
to fill your quotas. It would distort your pricing, and

8 If a loan was called within its first year and docu-
mentation was not foolproof, the securitizer had the right
to force the mortgage bank to buy the loan back. Also,
parties further up the value chain evaluated mortgage
banks on the quality of the loans they sold: the prices
they obtained depended on the overall performance of
their portfolios over time. Finally, mortgage banks bore
the costs of foreclosure, which were fairly high, so they
wanted to avoid bad loans.
you’d have to ensure they were delivering what you wanted or had agreed to. . . Now with flexible delivery, you could set your sales guys loose, provided they knew what were the limits they had. It was easier to manage, and you could also use leads coming from outside. It made your life easier as you could focus separately on each piece of the business without worrying about the other.

Such innovations decreased the coupling between origination and warehousing by reducing interactions between the two tasks. If a mortgage banker produced more loans than anticipated, the company need not worry about not being able to sell them to an investor; the flexible arrangements alleviated this concern. Thus, a part of the company could just focus on origination without having to worry about the next step in the value chain—in other words, interdependence became sequential (Thompson, 1967). The availability of larger and more flexible lines of credit from commercial banks had similar effects: it enabled mortgage bankers to construct a buffer between origination and warehousing, reducing task interdependence.

The reduction in coordination difficulties was facilitated by changes in information and communication technology (Schneider, 1994). Cheaply faxing interest rate sheets en masse every morning to the broker network made real-time loan procurement effective; and enterprise information systems (i.e., electronic systems linking banks with outside agents, brokers, etc.) made it easier for bankers to coordinate effectively with brokers (Morgan Stanley Dean Witter, 2000), especially with the advent of automated underwriting (Foster, 1997), whereby a fixed set of criteria allowed brokers to ensure that they could close loans on the behalf of mortgage bankers, and also allowed mortgage bankers to know that they could sell these loans to securitizers. Managing brokers became only marginally more complicated than managing the in-house retail production network (Lebowitz, 1995). As an executive from a mortgage bank put it:

Nowadays you can buy the product as easily from any source. . . it used to be easier to rely on your in-house people. . . but nowadays the systems make managing the brokers just as easy, so you look to all your potential channels.

A similar pattern underlay the development of the market for servicing rights. In the early days of the industry, the activity of servicing a loan was part and parcel of an integrated process, but in the 1980s, the idea of integration started fading away (Garrett, 1993). One reason was that servicing became more dependent on computerized systems that stored information than on the unarticulated knowledge of a loan officer in a branch bank that originated a loan (Thinakal, 2001), thus obviating the need for integration. As a senior bank vice president noted:

Sure, you have these local shops, and they wax lyrical about their being integrated and all. But I really don’t see why you should bundle servicing with origination anymore. I mean, what’s the point? The only value I can see is the emotional link between the customer and the originating bank, in terms of cross-selling, and that ain’t high. Perhaps it was different before, when you didn’t have computer systems and the rest of it, but things changed in the 1990s.

Coordination simplification: Theory. The first condition that needs to be satisfied for a market to emerge, then, is for the coordination between the adjoining stages of a value chain to be simplified; if this does not occur, then it remains impossible for those completing one stage to turn to an outside party to complete the next stage. In the presence of reciprocal or pooled interdependence (Thompson, 1967), it is comparatively hard to enable an activity to be located outside the boundaries of a firm. As Van de Ven, Delbecq, and Koenig (1976), Nadler, and Tushman (1978), Gulati and Singh (1998), and Puranam and Singh (2000) have demonstrated, activities that require tight coordination demand the use of mechanisms that a firm can deploy: committees, meetings, or other authority or coordination devices that market-based relations lack, in comparative terms (Kogut & Zander, 1996; Langlois, 2003). Coordination difficulties, then, may be why Richardson (1972), Teece (1976: 13), and Langlois and Robertson (1989, 1995) argued that integration is needed to manage a tightly coupled system. So for a market to be feasible, interactions along a value chain must be minimized; production must become modularized (Baldwin & Clark, 2003).

Standardization of information: Evidence. For disintegration to occur, however, one more necessary condition must be met: Information must become standardized—that is, it must become universally understandable and easily specified. Information standardization happened in all three of the market creation episodes.

In the case of securitization, what enabled the securitizers to sell loan bundles to the capital markets, and what enabled buyers to raise the capital to buy them, was that the securitizers standardized the information on these loans (Passmore & Sparks, 1996). Standardization made it possible for the buyers to understand what the securitizers were selling. “Market value was small, that’s where Salomon Brothers came in. They standardized the
loans and made them fungible” (an executive of E. F. Hutton, quoted in Tuchman [1986: 34]).

The information standardization that helped make securitization possible had two elements:

The first was standardization of loan characteristics; types of loans and their documentation and support became homogeneous. The second element was standardization of underlying customer creditworthiness information: the advent of universally understandable and assessable attributes describing loan applicants and securities (i.e., the mortgage-backed debentures sold through the capital market), and the advent of a language to describe the risk that loans entailed both to the primary market (the market for the mortgage loans that mortgage banks buy from mortgage brokers) and to the secondary market (the market for securitized mortgage loans, sold by the mortgage banks to the securitizers and from the securitizers to the capital market). Further details on these two elements of standardization follow.

First, loan types were standardized. A key ingredient of the success in the initial development of the market was that “residential mortgages were quite homogeneous in terms of their design, terms, and underwriting standards” (Vandell, 2000: 1). So a driver for the vertical disintegration process in this industry was the substantial share of loans with simpler and more tractable characteristics than had been seen in the past—initially, relatively standardized 15- and 30-year fixed-rate mortgages (Lederman, 1985).

Such product standardization also helped vertical disintegration both within the origination process (addressing the broker-banker split) and between origination and servicing, through the market for servicing rights. Earlier mortgages had idiosyncrasies and differing term structures, so moving them from one financial institution to another as brokered loans to be warehoused, or transferring their servicing rights, was simply too complicated. However, given fixed-rate mortgages with set 15- or 30-year terms, with broadly similar characteristics, and given the homogenization within adjustable-rate mortgages, many of these problems disappeared, and specialization became more plausible (Aldrich, Greenberg, & Payner, 2001).

The role of standardization in disintegration can also be inferred from the fact that even today, integrated institutions specialize in the more complicated adjustable-rate mortgages or other loans with unusual clauses or structures. Because these loans are harder for any financial institution to procure from outside brokers, they are produced in-house; their servicing rights are harder to sell to another party, so they are serviced in-house; and finally, they are harder to securitize, so integrated firms such as S&Ls focus comparatively more on these unusual loans (Garrett, 1993).

Standardization of the product was also important because it meant that the information needed for any potential transaction could be standardized. First, in order for securitizers to be able to sell their loans, uniform production standards (such as common underwriting procedures) had to be devised. Second, along with product standardization came process standardization, in the form of standard procedures for the interface between buyer and seller. So the initial involvement of securitizers in the industry helped by providing a template of loan origination:

Each thrift [had] evolved its own mortgage contract forms, documentation and record-keeping systems. When the cost of raw computation came down in the 1960s and 1970s with the advent of computers, lack of standardization remained a barrier to the transfer and pooling of mortgage assets. By offering to buy [and then sell to the secondary market] mortgages that conformed to certain standards, the [securities] played an important role in providing incentives for the fragmented thrift industry to standardize contracts on single family loans. (Baldwin & Esty, 1993: 40)

Notably, private securitizers such as Lehman and Salomon Brothers used the same criteria and descriptions as the government-sponsored enterprises in buying mortgage loans to sell to the secondary market. For the sake of simplicity, they maintained the market “language” that had been created for loan specifications (Passmore & Sparks, 1996; Slessinger, 1994) and pushed standardization further.

The next step in standardizing information was to standardize the certification of loan applicants’ creditworthiness. By the early 1980s, consumer credit assessment agencies such as Equifax had developed reliable data on customers, and specialist companies, in particular Fair Isaac, developed predictive scores for individual customers. “Fico,” Fair Isaac’s main predictive score, became the de facto standard for underwriting decisions (Bennett, Peach, & Peristiani, 2001; Mara, 1989). With the institution of Fico and other scores, the underlying customer loans became more easily describable.

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9 The particularity of the U.S. in terms of the dominance of these simple loans is also one of the main reasons that vertical specialization (and securitization in particular) was quick to develop (Coles, 1999). In other countries, such as the U.K., despite efforts to promote securitization, it has been slow to catch on. British loans have a huge variety of product attributes, making a vertically specialized chain hard to orchestrate.
The firm-specific communication shorthands (Arrow, 1974; Pelikan, 1969) that had been useful in the past as the means of describing the types of loan applicants a company wanted to retain were reduced to a set of scores. As a mortgage broker observed:

> With the Fico’s and the automated underwriting anyone could do the job. I mean, why should I be sitting in First National’s crappy offices originating the loans, rather than just do the job myself? All they [bankers] want is a pile of loans which is healthy and meets their criteria. And believe you me, this commoditization of information is putting them in a rough spot. I can now go around and sell my loan if I really want to.

With information standardization came the ability to specify, both inside and outside the boundaries of a firm, the data needed on applications for loans to be warehoused, or on loans to be purchased, or on portfolios of servicing rights (Aldrich et al., 2001; Bennett et al., 2001).

**Standardization of information: Theory.** In terms of theory, it appears that the second necessary condition for a market to appear consists of information standardization and the increasing ease of information transfer. These features help create and support an intermediate market, as it becomes possible to certify information. Information asymmetries diminish, and thus the risk of “lemons” that might go through the market also diminishes (Akerlof, 1970; Passmore & Sparks, 1996).

Yet over and beyond that, it seems that much of what drove the emergence of markets was the ability to specify what would be transacted across firm boundaries, even regardless of the presence of any lemons or transactional hazards (cf. Argyres, 1999; Monteverde, 1995). As has been pointed out in the engineering literature, **specification**—the creation of standard templates for product or process definition—is viewed as indispensable for market procurement (Baldwin & Clark, 2003; Fine & Whitney, 1996) because it replaces each organization’s own shorthand and particular ways of describing things (Arrow, 1974; Pelikan, 1969; Winter, 1987). A standard informational “syntax and grammar” must arise for communication to happen (Argyres, 1999).

If information on what is desired is unclear or difficult to articulate, outside procurement arrangements cannot be set up, as desired items can’t be identified ex ante (Barzel, 1982; Boisot & Child, 1988; Jacobides & Croson, 2001).

Summing up, the field evidence suggests that the costs that keep a market from emerging do not primarily relate to asset specificity. Specifically, the two necessary conditions that need to be met for a market to arise are the simplification of coordination and the standardization of information. The next step, though, is to consider what exactly allows these two conditions to be met. The data in this industry revealed that two processes enabled the simplification of coordination and the standardization of information: intraorganizational partitioning, whereby parts of the value chain become separated in a single organization, and vertical cospecialization.

**Enabling Processes: Intraorganizational Partitioning and Vertical Cospecialization**

**Intraorganizational partitioning: Evidence.** The first process is intraorganizational autonomy and partitioning, which is separation of the production process within the boundaries of organizations, through, for example, the creation of different divisions for each part of a value chain. Separation creates clearly identifiable internal boundaries, which can then lead to market procurement inasmuch as one division chooses not to transact with another division, but with another firm instead. So intraorganizational boundaries pave the way for the use of a market.

This process happened both in the market between bankers and brokers and in the market for servicing rights. During the late 1970s, private securitizers and the government-sponsored enterprises instituted “optional” and “forward” loan commitments. These were provisions allowing mortgage banks to agree ex ante on the prices of loans that would be delivered on a particular date, rather than produce loans without knowing exactly what price they would fetch when sold. These innovations meant that the various processes in-

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10 A conceptual question emerges as to the relationship between the two necessary conditions, which, while related, are analytically distinct: Simplification of coordination concerns the extent of interactions between activities or decisions, exerted from one part of a value chain to the next, regardless of the information flow, whereas standardization of information relates to the type of information to be transmitted along the value chain. If coordination becomes simplified, the requisite information may become simpler or more reduced, yet it will not necessarily become standardized. Conversely, if information becomes standardized, the interactions along the value chain may well remain, as a number of outsourcers are painfully finding out in failed efforts to cut across firm boundaries. If information becomes standardized and coordination simplified, and if there is a modicum of gains from trade, vertical disintegration takes place.
volved in loan production could become more separable, as banks did not need to worry about the price a loan they produced could fetch; they were hedged by the optional commitments, and thus could separate warehousing from retail origination. This separation led to and was, in turn, further enhanced by the creation of separate units for the warehousing and retail production of loans and an increase in the autonomy of the loan agents who originated the loans. Part of what enabled that autonomy was, of course, the fact that their performance could be assessed, and the requirements specified, in clearer terms; that measurement improved, which led to intraorganizational separation. The intraorganizational separation changed the way in which mortgage banks were run. This change was noted with disdain by an old-time CEO:

It is no secret that the strategies for loan origination have changed. Any number of companies have turned the corner from retail to wholesale origination or purchased servicing. [A reason for this is that] many of today’s major industry participants did not grow up in the industry. Most are “Johnny-come-lately” entrants [and not part of the tightly integrated firms mortgage banks used to be]. Many CEOs of major mortgage banking firms have never originated, marketed or serviced a loan in their mortgage banking career [and thus do not understand why mortgage banks should be integrated]. (Jacobs, 1993: 24)

The structure of the industry had changed, because the structure of the firms had changed. According to my interviews, the reason why the newer generation of CEOs did not believe in integration was that decentralized organizations were more efficient. The change of internal structure and the partitioning within organizations had paved the way for disintegration.

The link between organizational partitioning and vertical disintegration was more pronounced in the separation of origination and servicing. Until the late 1970s, mortgage banks were small firms that did not have separate divisions for servicing and origination. However, as they grew, the desire to manage their scope better, and a sense that there might be some benefits from specialist departments, led to an increasing separation of the origination and servicing components. In the 1980s, several firms adopted separate units, with profit-and-loss reporting responsibilities for each of these two major activities. The diffusion of this organizational innovation made it more obvious to managers in mortgage banks that there were important differences between these stages of the value chain, as they could both measure their own value-adding processes better, and compare benchmarks with other banks. That was made evident to me in a series of “peer review roundtables” for mortgage banks that I was allowed to observe.

Furthermore, the separation made it clearer that there were managerial differences along these two parts of the value chain. Servicing is a business in which operational efficiencies determine profit margins, and money is made by earning servicing fees. In origination, however, effectiveness (customer orientation), warehousing, and short-run interest-rate management capabilities matter (Garrett, 1993). Furthermore, intraorganizational transparency made firms identify their strength and led efficient servicers to try expanding their servicing volume by the occasional purchase of the loan portfolio of a competitor. So the organizational separation facilitated both coordination simplification and the comparison of performance across firms.

Finally, this process also happened in the first episode, securitization. The only difference was that, in this context, the process did not relate to the growth of a set of firms but, rather, to the “social engineering” of governmental and legislative agencies, which tried to facilitate vertical disintegration (Passmore & Sparks, 1996; U.S. Department of Housing and Urban Development, 1996). The institution of Article 9 of the U.S. Universal Commercial Code enabled creation of a blueprint, which was further refined by the operation of the government-sponsored agencies and the investment banks Salomon Brothers and Lehman Brothers (Lewis, 1989). This framework was effective because it supported a structure whereby one player could work independently of another; in that regard, this episode of disintegration in mortgages resembles the disintegration of the PC sector “designed” by IBM (Baldwin & Clark, 2000).

**Intraorganizational partitioning: Theory.** In general, intraorganizational partitioning appears to lead to the creation of autonomous subunits and, ultimately, to market-mediated exchange. Gains from specialization motivate part of this process, as explained below, but another part of the process is simply time-varying: as firms grow, administrative divisions become solidified (DiMaggio & Powell, 1983). As firms restructure into multiple profit-and-loss (as opposed to cost) centers, decision makers come to see each division’s operation as more autonomous than it was originally, and they contemplate alternative profit opportunities. Internal “shadow prices” and true intraorganizational autonomy invariably push units to consider the make-or-buy decision more actively and seek ways to make it happen. There is also a feedback loop: As coordination becomes simpler, administrative partitions are more likely to occur. This process, while
Vertical cospecialization: Evidence. As firms start considering their strengths and weaknesses more explicitly, going outside their old boundaries becomes attractive. The second process, vertical cospecialization, emerges as firms come up with mutually complementary roles in market-based transactions. The accompanying learning process enables information standardization to come about and creates the institutional background for market transactions (Fligstein, 2001; North, 1986). The fact that it took about six years for the broker-banker arrangements to emerge and solidify suggests that there needs to be a period of trial-and-error learning across firm boundaries for a market to fully develop, as described in the following published account of the market for mortgage brokers:

In 1981 the first rumblings of change began, . . . the unraveling and unbundling of the housing finance delivery system. . . . With no money [given a financial crisis] with which to make mortgages [banks] started round after massive round of layoffs in their loan origination staffs. . . . But as loan officers cleaned out their desks and headed for the door, they were often told something like the following: “Listen, Bob, you know we can’t afford to keep you, you know that there’s almost no business and that we have almost no money to lend. But we’ve always thought you put together high quality loans and we’d like to stay in touch. You have good contacts with Realtors, so if you can go out on your own and put together some loans, bring them to us and we’ll fund them. And we’ll figure out some way to split the loan fee.”

Now things were different. A new kind of mortgage borrower who had access to institutional money appeared. The fellow who had been working at First Federal Savings was now an independent contractor working on his own—but he could place a borrower’s loan with First Federal Savings. Initially, those originators who went out on their own would only broker to the institution they had previously worked for. But rates plummeted in August of 1982, and institutional lenders were flush with cash and needed mortgage product. Our broker who had been placing loans with First Federal Savings was now brokering to other institutions. In need of loans, Second Federal Savings approached him with a conversation that went something like this: “We know you worked for and placed loans with First Federal Savings. But if you bring us some loans, maybe we can offer better programs, and perhaps we can offer you a better split on the fees. . . .” Before long, our broker was approved to place loans with a great many lenders. Calling themselves wholesalers, lending institutions set up whole departments not to originate loans at the borrower level, but to take them in from originating brokers. (Garrett, 1989: 30–32)

The effects of this gradual process of vertical cospecialization, which led industry participants to learn from each other how to work with the independent brokers, are evident in the industry’s demographic traits, which reflect the gradual change from integrated production within firms to production of loans through independent brokers, in addition to in-house production. As Figure 4 shows, the amount of brokered production increased over that period, as S&Ls were reducing their own workforces (cf. Mara, 1989; O’Donnel & Divney, 1994). The material from Garrett just quoted suggests that over time, parties that stand to benefit from a potential transaction find a way around managing across the boundaries of a firm that might have once housed them. The gradual adjustment between brokers and bankers that Garrett alludes to in the last paragraph above entails the diffusion of institutional innovations that enable firms to cross their own boundaries and the creation of mutually accommodating (i.e., cospecialized) vertical roles.

In mortgage banking, as in other settings, a growing menu of choices emerged over time in the marketplace. Whereas brokers initially only provided leads or qualified applicants, in the late 1990s a greater variety of arrangements became available (LaMalfa, 1998). Brokers could provide leads only or could also close the resulting loans; they could even initially fund them, too, through a practice called “table funding.” As time went by, finer separations in the market appeared, offering more choice of vertical scope, with different compensation and quality criteria set for each stage of the value chain.

Finally, this cospecialization and learning both resulted in the standardization of information and were enabled by it. As a broker remarked:

As soon as people saw they could do business in this [vertically specialized] way, and as soon as they were able to iron out the details, they were up and running—and driving business away from the integrated guys. You know, little details—faxing the rate information, getting to a code of conduct—helped a lot.

The same pattern happened in the first episode of market creation (Passmore & Sparks, 1996). Securitization started with the standard 15- to 30-year low-risk loans and then moved into loans with higher risk, as measured by loan-to-value ratio and their underlying customers’ credit (over time, both the loan-to-value ratio and credit assessment be-
Gains from specialization: Evidence. The benefits of vertically specialized production are a major driver of disintegration. In my first episode, the evolution of the secondary loan market, disintegration happened because many financial institutions were itching to hold mortgage loans (that is, hold fixed-income assets that were collateralized with real estate) but couldn’t do so as they lacked capabilities in the origination and servicing that had to precede and follow the “capital claim” of the mortgage loan. Hence, once the securitizers found a way to create marketable securities, finding willing financial institutions or investors to buy the loans without the hassle of producing or servicing them was easy (Follain & Zorn, 1990). The securitizers also found mortgage banks and S&Ls that were happy to sell their loans, as these institutions were efficient in origination and servicing yet had little desire, funding, or stomach for managing capital risk. Were it not for these gains from specialization, the primary and secondary markets would not have taken off.

In the development of the mortgage broker market, the pattern was similar. Firms that were more adept in warehousing loans than in origination pushed for the development of an intermediate market for brokered loans, to increase the pool of loans they could warehouse, which is where they made money. As a consultant commented, 

It only made sense for production to fall into the hands of brokers. An independent guy is successful because he can focus on what he can do best—keep in touch with the local community, have a good network, and be an expert salesman who takes customers, holds their hand, and explains the process. . . Sure, it [vertical specialization] should have happened earlier, but I guess that finding a way to deal with brokers took some time.

So while mortgage banks continued in-house production of mortgages, they increasingly relied on the independent agents because of advantages in terms of gains from specialization (Mara, 1989). This quotation from an experienced broker portrays these advantages well:

Why be a broker and not work in a mortgage bank? Well, first of all, you are in control of your own destiny. I mean, brokers are better at figuring out what the clients need and where the market is going. And letting the brokers loose made this a better industry. Second, it’s also about money—while you can be on commission even in a bank, you still make more money when you’re on your own or in a brokerage. Anyway, it’s a different mentality, different style, different priorities—it just works better.

Gains from specialization: Theory. This evidence from mortgage banking, then, is consistent
with Smith’s (1776/1874) work, which suggests that the propensity to trade and barter, in order to take advantage of one’s capabilities, can be a major driver of vertical specialization (Demsetz, 1988; Richardson, 1972). And there must be some latent, unrealized gains if a market is to appear.

First, gains from specialization exist because unified up- and downstream governance reduces the effectiveness of production, even while it decreases transactional risks. For example, in the broker-banker relation, the very same agent, if employed in a bank as part of an in-house production unit, will be less effective than if he or she is an outside contractor (a mortgage broker selling loans through the market). As an outside contractor, he or she will have a much freer hand, without administrative constraints; the management style of the upstream business can be quite different from the style of the downstream one. The heterogeneity of the knowledge bases and managerial structures along the value chain (Ghemawat & Ricart i Costa, 1993) thus determine the gains from specialization. So in a real sense, “managerial diseconomies of scope” result from differences in the requisite capabilities and styles of each vertical segment (Richardson, 1972). These managerial diseconomies drive the latent gains from specialization, which, in turn, create the need for an intermediate market to emerge as well as determine the extent of intermediate trade, given a market (Jacobides & Hill, 2005).

Second, in economic terms specialized production is incentive-intensive: an outside or free agent is closer to the market of interest and hence may be more effective (Milgrom & Roberts, 1992; Williamson, 1985: Ch. 6; Zenger & Marshall, 2000). Brokers who moved from banks to form their own firms did so in order to profit more from their abilities. To the extent that integrated structures restrict incentives, perhaps for equity reasons within an integrated firm, specialization will be preferred.

Third, firms may also specialize to reap the benefits of demand smoothing and aggregation—that is, an outside agent sells all possible loans, not only those in which an employing mortgage bank specializes.\(^\text{11}\)

Latent gains from trade: Evidence. Gains from specialization, while related to gains from trade, are analytically distinct. Our evidence suggests that pure gains from trade played a significant role in the push towards vertical disintegration.

In our first episode, a factor driving securitization was that, compared to their competition, S&Ls had a very poor set of funding activities. To wit, one of the two main government-sponsored enterprises, Freddie Mac, was initially set up by an association of S&Ls, the Federal Home Loan Banks Association, which owned Freddie Mac from its inception in 1970 to its public listing in 1989. Freddie Mac was put together to enable the S&Ls to get rid of the part of the home loan business they knew they were bad at—finding the capital to fund the loans. The idea was that Freddie Mac would help keep this part out of the value chains of the S&Ls so that they could focus on their strength, generating and servicing loans. So the gains that would result from such vertical disintegration (S&Ls originating and servicing loans, and Freddie Mac outsourcing part of the capital provision to buyers of mortgage-backed securities) motivated the S&Ls to put in the time, effort, lobbying, and funds to support Freddie Mac (U.S. Department of Housing and Urban Development, 1996).

In the second episode, a major motivation for the disintegration between bankers and brokers was that the banks that were strong in warehousing could not grow their origination segment (in-house brokerage) as quickly and efficiently as they could grow their warehousing functions. They needed increasingly more brokered business to cross their firm boundaries. The reason was that origination requires local links with consumers in a specific geographical area. An industry consultant noted:

You saw some of the warehousing-focused firms growing aggressively... and they were able to fuel the growth using mortgage brokers. You can’t grow your own retail production that quickly—so brokers were the obvious solution.

Potential gains from trade also propelled the disintegration in servicing and the creation of the market for servicing rights (Aldrich et al., 2001). According to industry association studies (Duncan, 1998), accounts of technology providers (Thinakal, 2001), and confidential evidence provided for this study, the difference between what good loan servicers and mediocre ones could charge grew significantly between 1988 and 2001. Firms that were good at loan servicing sought to focus vertically in order to reap high potential gains from specialization. As a mortgage banker noted:

Effective servicers decided that, even with the high purchase prices asked for servicing portfolios, they could still make money—because they were more effective at servicing and they were looking at cross-selling revenues—and so they kept buying [servicing rights].

As the efficient servicers managed to scale up their operations quickly, they soon sought to create

\(^{11}\) See Jacobides and Billinger (2005) on how the use of intermediate markets can increase operational effectiveness and efficiency.
and support a market for servicing rights to leverage their scalable superior capability; as a result, disintegration between origination and servicing ensued, which caused concentration in servicing to rise faster than concentration in origination.\footnote{Between 1989 and 1999, the top ten servicers’ share of the market rose from 11 to 41 percent, while the top ten originators’ share went from 17 to 36 percent—so the concentration cumulative growth rate was roughly double for the former. The most efficient firms have gained share more quickly in servicing, and that has happened through the purchase of servicing rights (Inside Mortgage Finance Publications, 2000).}

In addition to established players attempting gains from trade, other actors supported the current case of disintegration. First among these were potential entrants who stood to benefit from a disintegrated industry structure. Such entrants could come from within the ranks of existing firms (such as the brokers, who wanted to become self-managed entities) or from other segments, such as Wall Street firms that wanted to get securitization volume to generate fees. To do this, they had to find willing accomplices and also ensure that they leveraged their own capabilities (for accessing the capital markets and structuring deals) to become active players in the new sector. Outsiders who stand to gain from vertical disintegration try to shape an institutional environment to fit their capabilities.

A second group of actors in such cases are technology providers, who often precipitate a change in vertical structure inasmuch as they help transfer information or modularize a production process. In this case, technology suppliers such as FiServ and AllTel structured their offerings to accommodate a vertical disintegration. As a technology executive noted:

Look, you have to go to the client with a competitive edge. So if you tell them they can do something new—better integrate brokers, accommodate the latest thing, and then explain how this will save them money—you’re more likely to win business. So we try to be proactive.

Such suppliers are often the first to recognize the potential gains from a reorganization of production, and they try to take some of the benefits that result from the vertical reorganization of labor; but these latent benefits must exist for their efforts to be worth the investment, even if the participants are not always convinced ex ante. Consider the case of rating agencies, like Moody’s and Standard & Poor’s (for the market for securitized loans), or Fitch ICBA or Fair Isaac (for mortgage banking), or credit record agencies for consumers (for the market for brokered loans). These firms, in the process of finding new, profitable business for themselves, created the preconditions for the new intermediate markets to be created by standardizing information.

The third set of actors includes the government and regulators. The government’s key role in the mortgage banking industry was its early involvement with the government-sponsored enterprises and with jump-starting the secondary market for mortgage loans (U.S. Department of Housing and Urban Development, 1996). Creating the legal background making securitization possible, especially through the institution of Article 9 of the Universal Commercial Code, was very important as well. The government created the templates that the market needed. However, once the templates were set, it phased out its participation and eventually privatized the government-sponsored enterprises (U.S. Treasury Department, 1991). Also, through the Garn-St. Germain Act of 1982, the U.S. government lifted the statutory limits that forced thrifts to be integrated, thus allowing a disintegration it had previously prohibited in part of the industry (U.S. Congress, 1982). The government’s narrowly focused involvement worked because it unlocked the latent gains from trade, which led to the support for such an action. Without this intervention, intermediate markets might have taken substantially longer to emerge, although they could have manifested themselves in some form, as they did in Europe in the late 1990s (Coles, 1999). But governmental or regulatory intervention is not indispensable. In the other two market episodes—the separations of origination and brokerage and of servicing and origination—the involvement of such a central authority was conspicuously absent. Perhaps surprisingly, the mortgage banking industry is the least regulated part of the financial services sector in the United States.

Regulation tends to either institute or legitimize new rules, such as vertically cospecialized arrangements. As players in each part of an industry try to lobby for their interests, they try to promote an industry structure that is maximally profitable for themselves. In essence, then, potential gains from trade also appear to shape the role of government, in that potential gainers who can be organized enough and stand to win enough will lobby aggressively, by pushing for standardization and the legitimization of particular ways of organizing (Aboafia, 1996; Zelizer, 1979). As the CFO of a midsized mortgage bank said:

There’s no beating around the bush. As far as regulation goes, it’s clear there’s a battle going on. [The
securitizers) want to encroach on our turf, and change the division of labor so they end up with a greater part of the pie. Which is why we spend all these lobbying dollars to ensure we keep the structure of the industry more reasonable.

So it appears that the institutional background of this industry was driven by industry participants’ conscious efforts to shape it to their advantage. This observation offers both support for and qualification of Olson’s (2000) analysis of the role of market-augmenting governments. The support is that, in this setting, government can play a significant role through providing appropriate infrastructure, or even catalyzing a market through its own actions, as it did for securitization. Thus, markets and governments should not be viewed as polar opposites; rather, there is a direct need for governmental support to facilitate the emergence of markets (cf. North, 1986). The qualification of Olson (2000) resides in the possibility that governments augment markets not only because they expect growth and as such an increase in their own tax revenues, but also because lobbying pressures and the desire to placate particular constituencies make the case novel institutional arrangements (cf. Olson & Kahkonen, 2000; Azfar & Cadwell, 2003). The words of a White House official speaking to economists on policy making, as reported by De Long (2000: 139), capture this dynamic well: “What you economists don’t see, is that you are pushing for the public interest. But there are other interests that can be more important.”

Given the current results, I tentatively concur. While the interplay between government, private interests, and institutions requires dedicated analysis that far exceeds the scope of this paper, the current evidence points to some interesting possibilities: It indicates that the evolution of institutional form, and even the role of government in shaping it, might depend on the “interests” at hand, and in turn these depend on the structure of production that determines the incentives of different industry participants, through their expected gains from trade. So these gains need to be understood.

**Gains from trade: Theory.** Potential gains from trade are necessary for a market to emerge—for an exchange to happen, it must be economically motivated and viable (Afuah, 2001; Zenger & Poppo, 1998)—but they also facilitate disintegration. First, gains from trade occur when the capabilities in an industry are not evenly distributed. Whenever a firm is efficient in one part of the production process (say, loan origination) and not in another (say, servicing), it has the incentive to support the creation of a new market that allows it to eliminate the inefficient part of its organization. So differences in capabilities between firms along the value chain, with some firms being good upstream and others downstream, push disintegration, as a quantitative study of the same sector has elaborated (Jacobides & Hitt, 2005).

A subtler but equally important motivation for a market to emerge is uneven growth along a value chain. In the presence of bottlenecks resulting from parts of a chain having different rates of growth and profitability, efficient firms trying to expand their volume want to use outside providers that enable them to grow more quickly and increase total profits (cf. Jacobides, 2004).

Similarly, the presence of economies of scale that are important in only one part of a value chain (such as those reported in the servicing sector in this context) make specialization of a few, larger companies in that scale-intensive sector profitable; so some firms specialize in the segments with high economies of scale, whereas the others become specialized, smaller players in the segments with “diseconomies” (Jacobides, 2004; Stigler, 1951).

Such latent gains from trade explain why incumbents often support rather than fight new specialized firms, such as mortgage brokers (cf. Carroll, 1985). Yet gains from trade do not only concern existing industry participants, who stand to gain from vertical specialization and exchange: They also concern potential entrants, who can only participate in the industry if and when it becomes vertically specialized; and further, they concern technology and infrastructure providers. Potential entrants and technology providers are keen to see the structure of an industry become specialized. They thus try to push for disintegration, partnering either with other outsiders, or with incumbents.

### A Model of the Drivers and Mechanics of the Process of Vertical Disintegration

Figure 7 shows graphically the full model of vertical disintegration developed here. This framework helps to explain why and when vertical disintegration happens. To retrace the chain of causation, I have explained that the real drivers of vertical disintegration are (1) benefits from specialization, which are themselves driven by differences in the knowledge bases and requisite managerial styles along the value chain, and (2) potential gains from trade, resulting from imbalances of capabilities along the value chain of existing participants or gains that could obtain if new, vertically specialized entrants were to migrate into an industry. For instance, inasmuch as the upstream part of the mortgage business relies on financial expertise and managing interest rates, and the downstream part...
of the business relies on salesmanship, there are potential gains from specialization within a single firm itself. Potential differences in management styles or in knowledge bases make administrative separations between departments more effective than unified management (Lawrence & Lorsch, 1967; Gulati, Lawrence, & Puranam, 2001), which means there are some real managerial benefits to be had by specializing. In the presence of such gains, a process of intraorganizational partitioning is put in motion. For instance, firms create clearly distinct departments of interest rate management and sales, perhaps by creating separate divisions, or even create different profit-and-loss centers for each part of the value chain. This intraorganizational partitioning allows the coordination between the two adjoining parts of the value chain to be simplified through a reduction of task interdependence, which further fuels administrative partitioning.

Also, as a function of history and capabilities, some firms are simply better than others in particular parts of a value chain. Inasmuch as there are latent gains from specialization—that is, if some firms are good upstream and weak downstream and vice versa—the prospect of being able to specialize becomes attractive for those who stand to benefit from it. Gains from specialization (which mean firms are more likely to be good at one rather than both parts of the value chain) tend to reinforce gains from trade, which may or may not be evident to potential transactors. Additionally, whenever firms cannot quickly expand all the parts of a value chain, the possibility of relying on an outside party to help them grow, through vertical cospecialization, becomes a profitable prospect. Technology vendors and potential entrants who stand to thrive or at least participate in such a disintegrated environment also try to push for disintegration, often encouraging current industry participants to support specialization by making a case for it and by helping to turn latent gains from trade into identified gains. The attractiveness of a market increases with intraorganizational partitioning, which raises comparisons of efficiency inside and outside a firm. For all these reasons, firms engage in interfirm learning, with the objective of enabling vertical cospecialization and gains from trade. This process leads to the standardization of information and to ironing out problems that market transactions would induce. In this process, insiders and outsiders may engage regulators, the government, or other industry bodies that can help information become standardized.

With information sufficiently standardized and coordination simplified, a market can emerge, even if significant problems of opportunism, dependency, and measurement persist. As the market operates, the problems are gradually addressed, and institutional arrangements are made to cope with them; information also becomes increasingly standardized and coordination modularized, enabling more value to be divided through the market; the market itself, then, becomes adept at coordinating increasingly complex activities through a feedback loop of the cospecialization and learning process.

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![FIGURE 7](figure7.png)

The Full Model: Drivers and Mechanics of Vertical Disintegration and Market Creation

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DISCUSSION

This industry study provides a framework for explaining the nature and the drivers of vertical disintegration. It suggests that coordination simplification and information standardization are the necessary conditions for market emergence. Further, this study sets forth the proposition that these two conditions are respectively met through the processes of intraorganizational partitioning, and vertical cospecialization with interfirm learning. Going further back in the chain of causation, I proposed that gains from specialization and latent gains from trade shape those two enabling processes. I noted that such gains exist when both the knowledge bases and managerial styles along a value chain, and firms’ capabilities, differ. Such differences set vertical disintegration into motion.

The analysis of the dynamics of vertical disintegration fills a significant gap in the literature regarding this very important aspect of industry evolution. Academic research so far has not examined vertical disintegration, despite the fact that it radically transforms the industries in which it occurs. Much as the computer industry’s identity radically changed with its shift toward a multitude of subsegments in both the hardware and software sectors, the mortgage lending industry was transformed through vertical disintegration. The birth of a vertically cospecialized ecosystem, shown in Figure 3, changed the nature of the industry and redefined potential entrants and competitors, whether firms chose to be integrated or not (Jacobs, 1993). The dynamics of vertical disintegration that transformed the mortgage banking world would have gone undetected with use of the established frameworks of industry evolution, since these do not address the evolution of an industry’s vertical structure; they would also not have been captured by transaction cost economics, which, focusing on individual transactions, risks losing sight of the forest for the trees.

This study suggests that by shifting focus from an individual firm and from the final market for a product or service to the value chain structure and the process by which the good or service is produced, one can capture hidden but important dynamics. This analysis suggests that exogenous factors did not shape this value chain, but rather, the conscious, even if occasionally myopic, efforts of industry participants and potential entrants shaped it. Firms and individuals who break industry norms instigate disintegration as they, unlike the rest of the industry, understand the potential of a disintegrated production structure and are willing to put in the effort to make such disintegration possible (Knight, 1921; Schumpeter, 1911). Efforts of Salomon and Lehman Brothers executives (such as those captured in Lewis’s [1989] best-seller, Liar’s Poker, for example), while motivated by a chance to profit or profiteer, helped securitization take hold and led to disintegration.

Yet, at the same time, changes in vertical scope in the focal industry were not the result of a well-thought-out plan but, rather, of a quest for near-term profit. Most of the interviewees I spoke to could not even describe the structure of the mortgage banking value chain; part of what made my project interesting to them was the fact that they could get this strategic overview. What they did know was that they were constantly changing their own boundaries to increase their margins, be more effective, or gain market share. This quest for profits and operational efficiency often came at the expense of their strategic prospects. While I was conducting the study, I noticed a significant change in attitudes toward some of the finer degrees of disintegration facilitated by information technology. Increasing specialization, originally hailed as efficiency-enhancing, started hitting firms’ bottom lines through intensified competition, and executives came to grips with the fact that their quest for efficiencies or even short-term growth through specialization could ultimately hurt them. This quotation from a 2002 speech by Angelo Mozillo, the CEO of CountryWide, the largest U.S. mortgage bank, captures this dilemma: “For years we have been trying to make the system more efficient and get rid of the middleman... the problem is, we are the middleman.”

Purposeful, even if myopic, manipulation of institutional context is way beyond what transaction cost analysis would lead one to posit. Firms, according to that theory, choose from menus of options, or transactional alternatives, to minimize the sum of production and transaction costs. But the theory does not address how menus of transactions evolve over time. By looking at the evolution of an entire value chain over time, I have observed that transactional environments themselves evolve, shaped by the actions of firms that reduce “mundane transaction costs” either consciously (through trying to standardize information) or unwittingly (by simplifying coordination along the value chain, initially to improve the division of labor within their own scope). So this study suggests that to understand vertical scope, scholars have to understand, at the industry level, the forces that affect it. In particular, this study suggests a need to examine the forces driving toward disintegration, rather than simply focus on the microanalytics of firms’
individual make-or-buy choices (cf. Langlois & Foss, 1999; Jacobides & Winter, 2005).

My findings also qualify transaction cost economics by suggesting that the types of transaction costs operating in the initial disintegration stage are quite different from those that push individual firms to pursue vertical integration. The costs that inhibit specialization reflect Coase’s (1937) original concept of “friction”—what Williamson (1985), perhaps dismissively, called “mundane transaction costs” (see Baldwin & Clark, 2003). These mundane costs are driven by lack of standardization and difficulties of coordinating across firm boundaries, rather than by the problems of hold-up discussed by Klein, Crawford, and Alchian (1978) and by Williamson (1985, 1999). My findings suggest that these costs are quite important: they determine a firm’s ability to rely on a market in the first place, a question that Williamsonian analysts do not even consider.

Langlois (1992) and Langlois and Robertson (1995) argued that transaction costs are a dynamic and hence transient phenomenon, but their work does not explain when and how these transaction costs are reduced. This study provides a framework that accounts not only for the mechanisms of transaction cost reduction and market emergence, but also looks at the causes and underlying factors that explain when and why transaction costs decrease rapidly in some settings, leading to disintegration, whereas in others they do not. It suggests that it is the nature of a production process, and the resulting gains from specialization and trade, that drive vertical scope, market emergence, and the potential for disintegration.

This research also complements the work of economic sociologists who have been interested in the nature and role of markets. Sociologists, building on White’s (1981) work, have explored the emergence of markets, construed as categories of offerings that both producers and consumers perceive as close substitutes, focusing in particular on the social and institutional dynamics of “product category” creation (Carruthers & Babb, 2000; Porac et al., 1995; White, 1981). They have examined the norms that sustain marketplaces—the (well-defined) junctures where goods and services are exchanged (Abolafia, 1996), the norms of production and exchange (Zelizer, 1979), and their social construction (Ruef, 1999)—and considered markets both as broad societal institutions (Carruthers, 1996) and as social fields (Fligstein, 2001). Yet they have not directly focused, to date, on explaining how markets that link two stages of a value chain arise, or on how a productive system evolves and endogenously leads to the emergence of new markets. This study does so, and in so doing suggests that, under some conditions, participants in an integrated status quo may have the incentive to promote institution-changing innovations (cf. Carroll, 1985).

This qualitative study, then, suggests that the sociological argument that existing actors (dominant firms) try to reproduce their own structures (White, 1992) is not universally applicable. In this setting, the forces to create new markets came from or were immediately supported by existing firms. Incumbents, rather than reproducing existing structures, supported disintegration (contrast this view with Fligstein [2001: Ch. 3 & 4]). Despite the fact that these representatives of established firms supported the new markets observed here, disintegration ultimately became detrimental to them. Likewise, the findings are in contrast to the resource-partitioning view (Carroll, 1985), which suggests that newly specialized firms have to fight against (integrated) incumbents. Whereas sociological research by and large suggests that new markets only emerge when they serve the interests of the status quo, I found that this is not always the case. In mortgage banking, many established firms helped disintegration happen, even if they eventually found it to be strategically detrimental. Further study could thus help provide a more nuanced view of the social dynamics of new intermediate markets.

This study also affords some opportunities for speculation. While markets may “emerge” (as did the market for mortgage brokers), they also require effort to be set up. In the setting of this research, and possibly in many others, markets are not as self-enforcing as, say, a food market in a rural bazaar (Olson, 2000: Ch. 10). My analysis suggests that markets are “artifacts” (Simon, 1962), consciously designed either by industry participants or by government and regulators. For instance, without the creation of an institutional backbone for exchange, including but not limited to information standards and norms of collaboration, a market could not operate. While law, especially in Anglo-Saxon countries, tends to follow business practice, and as such ratifies and regulates the efficient modes of organizing that have emerged (cf. Cooter, 2000), it is still the case that the legal and institutional framework must be such that it can support market creation (Olson & Kahkonen, 2000). Markets depend on economic agents who willingly partake when they can see and calculate the benefits of doing so (Callon, 1998), but markets also critically depend on the establishment of infrastructure and norms for interaction (MacKenzie & Millo, 2003). Infrastructure and norms are the results of both trial
and error and painstaking design (Coase, 1992; North, 1986), which help partition value chains and delimit the scopes of activity of all involved (Loasby, 2000). So, for markets to emerge, effort must be extended; and it may be that, absent regulatory involvement, no party will find its private benefit from a new market worth the set-up costs, and as such a potentially beneficial new structure may be foregone (Olson, 2000).

Limitations and Extensions

This research has several limitations. This is a study of a particular industry and hence should not be hastily generalized to other settings. Like any other process research (Mohr, 1982), it focuses on understanding the causal dynamics of a particular setting, as opposed to providing information on the generalizability of the findings to other settings. I chose the mortgage banking industry because it underwent disintegration and market creation, in particular because it witnessed several episodes of vertical specialization. I also looked at a stable industry with few changes in product definition in order to isolate the major conceptual issues. It would be interesting to consider how this analysis should be modified to accommodate substantial process and product innovation.

This study does not provide much microanalytical detail on the changes in coordination or information mechanisms that enabled disintegration and market creation. It would be useful to study the specific microprocesses by which latent gains to trade were identified and how entrepreneurs and incumbents tried to change the industry’s structure as a result of such identifications. A look at such microprocesses would help better explain the political and strategic element of the information standardization process (Fligstein, 2001; Gawer & Cusamano, 2002) and the agency of actors in shaping their institutional and social environment (Cacciatori & Jacobides, 2005).

A related topic that has not been fully explored herein is the mediating role of government in vertical disintegration. While not every market requires intervention or even support by government, my evidence does suggest that it facilitates or even prompts the emergence of some markets, as securitization demonstrated here. The way in which a government or regulator affects vertical specialization and market creation through legislation, through subsuming fixed costs of market infrastructure, or through incentives (such as tax incentives), and, even more, the way in which industry participants can affect governmental action, all remain fascinating topics for future research.

Finally, in focusing on delineating the conditions for and drivers of vertical disintegration, this study has underplayed the role of historical accident, which does affect industry evolution. In this case, history partly “paid the cost” of the infrastructure of new markets: For instance, when the Resolution Trust Corporation was endowed with mortgages that someone had to service, it had to come up with a way of selling mortgage servicing rights and thus indirectly subsidized the creation of the market infrastructure. Also, historical conditions can provide the external shock that enables a departure from previously developed routines inherent in institutional form and vertical scope (Nelson & Winter, 1982; North, 1981). For instance, the layoffs of loan agents in the 1980s brought the latent but previously disregarded gains from specialization and trade to the surface, which ultimately led to the creation of the market for brokered loans: Learning requires some “unlearning” first, and unlearning often requires a shock or crisis (Polanyi, 1957).

There are several other possible extensions to this research. At the micro level, one could explicitly study the relationship between organizational identity and vertical scope (see Cacciatori & Jacobides, 2005; Jacobides & Winter, 2005). One could study how framing, identity, and cognitive representations change as a function of changing industry scope, and how changes in identity further shape the vertical scope of a sector. In the setting of this study, one could study the evolving identity of the mortgage broker segment, which was both caused by and resulted in an increase of vertical specialization and market creation. Researchers could further look at how mortgage brokers see themselves, and how they differ from those originating loans within integrated firms. Last, researchers could examine how the emergence of mortgage brokers has changed the identity and nature of loan origination even within integrated firms.

At the meso level, in addition to looking at how managerial differences along the value chain and capability differences between firms affect vertical scope, researchers could examine how changes in vertical scope affect the capability development process, managerial styles, and knowledge bases. As Jacobides and Winter (2005) also recently suggested, disintegration changes the structure of an organization, and as such changes the process of capability development. This theme is developed by Cacciatori and Jacobides (2005), who explained how vertical specialization affects and constrains the capabilities of an industry as a whole, but clearly more needs to be done in that respect. Explicitly linking capabilities and vertical scope, and in particular focusing on how changes in scope
loop back to capability development, could be a promising research venue.

Another extension to this research would be to reconsider “modularity”—that is, the extent of autonomy of different stages of a production process. In the current setting, the modular structure of the industry was the result of an evolutionary, bottom-up process, motivated by gains from specialization and trade, achieved through organizational partitioning and information standardization. This evolution does not quite fit recent work on organizational theory and modularity (Baldwin & Clark, 2000; Schilling, 2000; Simon, 1962), which usually examines design problems from the perspective of a “system designer.” Thus, an extension of this study would be to consider “modular emergence” and the conditions that allow bottom-up modularization in the absence of a designer.

Finally, at the macro level, research could study the new entrants who arrive with newly disintegrated sectors (for instance, the entry of EDS [Electronic Data Systems] into banking through information processing) and explore how such firms migrate from one industry to another, often prompting disintegration. This analysis could provide some new insights into how vertical disintegration affects the dynamics of competition and help explain how different sectors converge, often through vertical disintegration.

More generally, this study is best viewed as only one part of a broader investigation into what Coase (1992) called “the institutional structure of production,” an examination of how labor is divided both between different firms, and across the vertical divide (Jacobides & Winter, 2005). Industries do not only disintegrate. They also reintegrate, or recombine on the basis of newly found possibilities for organizing (Fine, 1998). For instance, in automobile manufacturing, where the initial stage of vertical disintegration occurred, several firms are now emerging as “systems providers,” integrating components once produced by independent firms that contracted directly with OEMs (original equipment manufacturers). At the same time, these systems integrators themselves are relying even more on new markets, using several subcontractors to help create “systems” (see Brusoni, Prencipe, & Pavitt, 2001). Also, as Cacciatori and Jacobides (2005) argued in their study of building construction, vertical reintegration in services often requires the creation of new all-in-one markets, where a buyer needs to find a new way to interact with one integrated service provider, abandoning piecemeal contracting. Thus, perhaps paradoxically, scholars may need to better understand the process of new market creation to explain the process of vertical reintegration as well.

Studying the nature and the evolution of productive systems by focusing on their value chains or value networks is a promising path for future research that can bring to the fore new empirical regularities and can augment understanding of how firms and industries coevolve. It can also point to new explanations for old and new puzzles alike. For instance, as I argue in related work (Jacobides, 2005), the “path dependency” in the vertical division of labor, and country-level operation of the dynamics that shape intermediate markets, mean that otherwise similar countries may have industries with markedly different vertical structures. Thus, foreign expansion in some sectors may meet limits inasmuch as two countries have incommensurate “vertical modules.” So capabilities developed in one context, for one part of a value chain, are not transferable to another context, a trend that is evident not only in mortgage banking, but also in other sectors, such as construction. Conversely, international convergence in value chain structures can drive toward or be motivated by the prospect of global trade (Jacobides, 2005). Studying the vertical division of labor thus becomes an important means to explain globalization patterns—a topical issue, given the recent rise of global trade through “offshoring” and international outsourcing (see Feenstra, 1998).

CONCLUSION

In terms of practice, this framework explains when and why vertical disintegration occurs and thus provides a tool for managers who want to understand whether their industry is or is not liable to this change. Evans and Wurster (1997) and Hagel and Singer (1999) suggested that the boundaries of organizations and industries would be redrawn in the near future. The framework developed here contextualizes such claims; it identifies the conditions under which disintegration does happen. Evans and Wurster (1999), for instance, argued that many sectors were ripe for disintegration and reconfiguration; yet many of the sectors they singled out have remained integrated to date. Insurers, for instance, presumably did not manage to simplify coordination sufficiently or standardize the requisite information, and there were not enough gains from trade on the industry level to justify specialization. In a world of rapidly changing firm and industry boundaries, analyzing vertical disintegration and its determinants can help guide practice by providing more robust foundations for strategy and policy alike.
In terms of analysis, by changing the level and focus of analysis—from an individual firm’s static determination of vertical scope to the systemic evolution of an industry’s intermediate markets—this study uncovered some dynamics that had not been studied to date. By doing so, it qualified and extended existing research (in particular, transaction cost economics) and also went deeply into the chain of causation, showing that transaction costs are an incidental part of an evolutionary process. It highlighted the factors that are ultimately responsible for vertical disintegration and suggested researchers and managers should not take the vertical structure of an industry for granted. Finally, this study suggests that changes in a value chain’s structure have significant implications for all firms, be they integrated or not, and may well be the least studied, yet a very important, part of industry evolution.

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