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Innovation, intermediation and the nature of entrepreneurship: A historical perspective

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Abstract

We consider two sources of innovation, technical and financial, and examine their separate and joint impacts, through the process of financial intermediation, on the nature of entrepreneurial opportunity. These impacts are time dependent and reflect the institutional context of entrepreneurship. As illustrations, we investigate three historical episodes, ranging from the product led innovations of the industrial revolution, to the closely aligned innovations of the buy-out wave of the 1980s to the more recent effects of finance led innovation. We identify systematic underlying factors that can cause significant differences in the entrepreneurial opportunity set.

Managerial abstract

We provide lessons from three historical periods regarding how policy toward entrepreneurship might ensure technical and financial innovation are successfully intermediated. This implies an alliance-based notion of entrepreneurship, underpinned by enabling systems of governance and suitable institutions reduced dependence on specific individuals or generations. A balance also should be struck to mitigate risky investment through sharing, and specifically equalizing rights and information between borrowers and lenders. Regulatory changes should discourage capital and information hoarding and support risky lending to asset-backed, knowledge-based industrial projects.

Introduction

The nature of entrepreneurial activity varies by context (Autio, et al., 2014; Zahra and Wright, 2011) and historical epoch (Schumpeter, 1942; Baumol, 1990). But are there systematic underlying factors that cause such significant differences in the entrepreneurial opportunity set? Entrepreneurship is conceptualized in strategic terms as opportunity recognition (discovered or created) and mobilization of resources to exploit opportunities. Accordingly, we present a model of strategic entrepreneurship based on the interaction of product market innovation, financial intermediation and financial innovation.

Following traditional entrepreneurship theory, we argue that innovations impacting product markets create new entrepreneurial opportunities, adding that financial intermediation can facilitate or obstruct scalable exploitation of innovation, which may be enhanced or disrupted by appropriate or inappropriate financial innovation. Intermediation here refers to the institutional arrangements that govern the "rules of the game," or specifically the allocation of financial resources to investment projects and the payoffs implied, most importantly between inventor and financier. By combining product market, or henceforward "technical", discovery with financial intermediation, the entrepreneurial function creates opportunity through co-operation in individual networks or institutional alliances. Conceptualized thus, entrepreneurship is necessarily a historical phenomenon, in terms of context and process.

In this formulation, financial intermediation is the key historical variable and we present cases demonstrating its differential impact on entrepreneurial opportunity. First, the early British industrial revolution offers a case study of well-documented technical innovation, but also significant variations in the intermediation process. These illustrate the politicization of financial intermediation, and associated entrepreneurial opportunity, and, by contrast, how financial networks are mobilized to secure capital for industrial expansion. The second case, the development of the United Kingdom management buyout (MBO) wave of

the 1980s illustrates the positive coincidence of technical innovation and financial intermediation, creating more radical aggregate innovation, contrasting more destructive patterns of contemporaneous entrepreneurship such as greenmail, junk bonds and leveraged buyouts. Third, expansion of credit markets and financial instruments, growth of information sharing amongst lenders, "shadow banking" and "non-bank finance", before and after the recent financial crisis, and associated innovations including automation of lending decisions, have increased transaction cost, while potentially constraining entrepreneurs' ability to exploit innovations in the product markets. These illustrations provide dynamic context to explain entrepreneurship as a historical economic variable and its relationship to economic performance.

We contribute to the conceptualization of a historical perspective on entrepreneurship as follows. First, by analyzing the interplay between technical innovation and financial intermediation we contribute to explaining the puzzle of differing historical combinations of entrepreneurial opportunity. Second, by examining these combinations using contrasting periodizations, and through the analysis of prevailing institutional norms, we demonstrate how historical perspective contributes to the wider understanding of entrepreneurial opportunity. As such, we provide a model suitable for analyzing the context of entrepreneurship and the interplay of different types of entrepreneurial opportunity. Third, we illustrate how triangulating entrepreneurial opportunity develops novel perspectives on important turning points in British economic history.

Conceptualizing entrepreneurship

If entrepreneurship is conceptualized as opportunity recognition and resource mobilization to exploit those opportunities (Autio et al. 2014), these in turn depend on two principal components that set the context of entrepreneurial activity: technical innovation, and, through

financial intermediation, matching investment requirements with suitable financial resources. Innovation positively impacts growth, either through incremental improvements in technology or through more radical changes accompanied by Schumpeterian creative destruction (Beckman et al., 2012). In Schumpeter's model, entrepreneurs also mobilize financial resources to develop the new technological paradigm (Schumpeter, 1934). Financial systems can similarly be a source of creativity (Schumpeter, 1934: 89), and the domain of financial intermediation, as impacted by financial innovation, can be an important source of entrepreneurial opportunity, for example in the form of new financial instruments.

Following Schumpeter's general approach, and building on Baumol (1990), we argue that productive entrepreneurship supports innovation through successful intervention in the financial intermediation process. Accordingly, we specify the role of finance and its relationship to innovation. Combinations of innovations, through intermediation, provide the institutional context of entrepreneurial opportunity. Successful entrepreneurs identifying and exploiting new ideas depend on various complementary agents, such as skilled labor and venture capitalists (VCs). High-impact entrepreneurship becomes impossible without these complementary competencies and inputs. Thus, focusing solely on entrepreneurship abstracts from other factors necessary for economic prosperity. Still, entrepreneurship is crucial and cannot be fully offset by an ample supply of skilled labor or an extensive capital market (Braunerhjelm and Henrekson, 2013). Successful financial intermediation ensures appropriate combinations of these factors to create opportunity and growth.

Thus, on one hand financial intermediation payoffs may incentivize innovation and investors for handling financial risk. On the other hand, the result may be rent seeking through monopoly or excessive intermediation. Recent literature, reflecting the effects of the 2007-2008 financial crisis, has noted that intermediation chains have become longer over time (Adrian and Shin, 2010), subject to greater moral hazard (Di Maggio and Tahbaz-Salehi,

2014) and cut across existing regulatory boundaries. Financial intermediation therefore reflects the complexity of network relationships between individuals and institutions and may also, depending on the character of institutions and their regulation, have a significant political character (Chen et al, 2017).

These negative effects may be mediated by financial innovation. Indeed a further strand of literature suggests a symbiosis between technological innovation and subsequent financial innovation that facilitates screening and capital allocation in the new sectors. For example financial reporting innovations in response to the emergence of the railroad network and the development of dedicated VC funds in response to information and biotechnology (Laeven, Levine and Michalopoulos, 2015). Financial innovations typically provide institutional structure for the time value of money concept, contingent claims and negotiable instruments (Goetzmann and Rouwenhorst, 2005), which may facilitate the financial intermediation of technical innovation.

Financial innovation can be positive or negative. Beck et al, (2016), make such a contrast, through the "innovation growth view" and the "innovation fragility view." In the former, financial innovation improves bank services quality and allocative market efficiency (Houston et al, 2010), thereby altering the character of the entrepreneurial opportunity set. Post the 1929 crash, issuing houses replaced individual company promoters previously responsible for financial instability and, also as a consequence of a sharp drop in bank finance availability (Nanda and Nicholas, 2014), channeled funds away from more experimental, radical innovations to more incremental and sustaining innovations. Through these processes, technical innovations were intermediated successfully, with significant positive consequences for growth industries of the 1930s. Recent parallels include emergence of crowd-funding and peer-to-peer lending absent bank finance for risky ventures (Nesta, 2016) and in biotech, where VC investors provide start-up firms with a "market for ideas"

(Gans, and Stern, 2002: 5), allowing firms to sell results of their experiments at agreed milestones. Negative financial innovations by contrast, might misrepresent risk to third parties and promote financial instability (Beck et al, 2016). Bouts of "uncreative production" or "unproductive destruction" may result, where innovation opportunities are unrealized through lack of suitable finance, or where unsuitable forms of committed capital obstruct necessary restructuring and innovation. Baumol (1990) cites arbitrageurs, speculators and associated litigation as examples of unproductive entrepreneurship.

Financial intermediaries may promote financial innovation, or alternatively financial rationing and capital misallocation. Financial innovation may enable beneficial financial intermediation or excessive and destructive financial intermediation, including in the latter case, increased transaction cost, and more costly and less effective regulatory oversight (Johnson and Kwak, 2012). Positive financial innovation enables productive use of savings, or shifts financial resources to more productive use. It is not productive per se, but depends on the opportunity to deploy financial resources already identified.

A theoretical model of innovation, intermediation and entrepreneurial opportunity

Based on the above, figure 1 presents a stylized model of generalized determinants of entrepreneurial opportunity and their interaction. On the horizontal axis, technical innovation is evaluated through intermediation, which determines the character of the entrepreneurial opportunity set and the appropriation of rewards. On the vertical axis, financial innovation impacts financial intermediation. There is a further indirect link outlining the relationship between financial and technical innovations that do not impact intermediation and are therefore outside the specific scope of our investigation.

INSERT FIGURE 1 NEAR HERE

Technical innovation is assumed incremental vis-à-vis the pre-existing knowledge base and thus potentially productive (Pastor and Veronesi, 2009). In general, technical innovations may include knowledge, process or organizational improvements, reconfiguring resources, thereby providing a portfolio of entrepreneurial opportunities. The financial intermediation process involves evaluating innovations and valuing their expected profits, combined with pooling resources and diversifying risk. Financial intermediaries include individuals and financial or political institutions of approval and regulation.

Entrepreneurs exploiting opportunities from technical innovation must either carry out these functions themselves, or interact with intermediaries. Entrepreneurs may be technical or financial intermediaries as individuals, but following Schumpeter's (1934) general approach, the entrepreneurial function combines both, allowing constraints on innovation to be overcome or modified. Hence:

P1: The character of entrepreneurial opportunity is determined by the relationship between innovation and the intermediation process.

The intermediation process may reflect chains of market based relationships and/or politically mediated relationships through institutions of regulation. These rules of the game affect distributions of profits and rents between innovators and financiers and how innovation is manifested as scalable growth opportunities for entrepreneurs. Intermediation is impacted by financial innovation, which may alter the beneficial or destructive character of financial intermediation through redistribution of payoffs and transaction costs, and modification of regulatory oversight (Figure 1). Hence:

P2: The intermediation process is impacted by technical and financial innovation with positive or negative consequences for entrepreneurial opportunity.

Combined, our two propositions support the analysis of financial intermediation as the key historical variable and contribute in several ways by specifying the relationship

between productive entrepreneurship and the financial system. Baumol (1990) contrasts "innovation" with "rent seeking and organized crime" (p.893), while our model removes this dichotomy. By treating financial intermediation as a historical variable it shows that productive entrepreneurship is an outcome of innovation and financial intermediation, which can be enhanced by financial innovation. Room remains for the unproductive and destructive aspects of entrepreneurship arising from political and financial institutional variations suggested by Baumol. In short, figure 1 expands the role of productive entrepreneurship yet provides a consistent framework for understanding unproductive and destructive episodes. Accordingly, we expand Baumol's rent seekers to include financiers seeking short-term financial gain purely from financial innovation, diverting financial resources away from the real economy. Note Baumol's (1990) analysis predated the transformation of banking and financial services of the late 1980s onwards through the series of changes in regulations affecting both financial (deregulation of financial services) and capital ("Big Bang" changes to stock markets) markets. Implicit in Baumol's analysis is that finance plays a facilitative role in the real economy and is not driving resource allocation. The post 1980s period, up to the financial crisis of 2008 can be characterized somewhat differently where rent-seeking behavior amongst bankers and financial service providers ultimately redistributed wealth and reduced growth.

Methodologically, the implications of the relationships in figure 1 are qualitative and suggestive of historical contextualization (Sewell, 2005) and contingent responses (Lippmann and Aldrich, 2014) at the individual firm or groups of firms level within and across industries. What should be documented is not just how entrepreneurs, or groups of entrepreneurs exploit opportunities arising from technical innovation, but how they discover or create innovative financing responses to such opportunities. How the financial system might provide opportunities should also be reviewed in the same context, and whether

financial innovations enhance or restrict financial intermediation. Finally, cases of failed financial intermediation pose counter-factual scenarios where innovation that would have occurred absent such failure is documented. These situations provide a further justification for investigating constraints on entrepreneurial activity historically.

Historical approaches to entrepreneurship

Our framework extends two conceptions of the entrepreneur rooted in the history literature: The entrepreneur as innovator (Schumpeter, 1934), and as a risk taker (Knight, 1921). As such it builds on interpretations that view the firm as a pool of resources (Barney, Ketchen and Wright, 2011) interacting with evolving financial institutions, which act as constraints or facilitators of entrepreneurial activity (Toms, Wilson and Wright, 2015). Historical structuralist approaches (Wadhwani, 2016) facilitate the analysis of such constraints within specified periods and their impact on entrepreneurial opportunities, which in our conceptual framework can be interpreted as a dynamic sequence of interactions driven by technical innovation, financial intermediation and financial innovation, or restricted by the absence of such innovation or ineffective intermediation. For example in the British industrial revolution (BIR), were technological innovations complemented by financial innovations, or was the achievement of the entrepreneur made all the more remarkable by their absence? Does the potential of the positive coincidence of technical and financial innovation create the possibility of more radical innovation in the aggregate, as in the MBO wave of the 1980s? Do apparently negative financial innovations, for example those that characterized the financial crisis, limit productive intermediation and thereby restrict entrepreneurial opportunity?

Data

Our model combines structuralist and contingency approaches to the historical contextualization of entrepreneurial opportunity. Following Wadhwani and Jones (2013), historical structuralism is based on the premise that past developments constrain present choices, while contingency-based approaches focus on the process of actual change and the developments that make it possible. In our model and the periodization below, we suggest that technical and financial innovation and financial intermediation may be poorly synchronized, through the institutionalization of the intermediation process, and may remain so for long periods, thus constraining or determining the character of entrepreneurial opportunity and behavior. Such patterns may be disrupted by relatively short phases, associated with crisis, or radical innovation, so that entrepreneurial action helps set the context for the next phase of development.

To examine the interactions specified in figure 1, we consider three cases drawn from turning points in British economic history. First, the BIR involved a revolution in productive technique accompanied by a protracted period of politicized regulation and embryonic networks of financial intermediation. Industrialists had to accommodate traditional financing methods, although through time, financial innovation enhanced the intermediation process. Indeed, the BIR also prefaces the subsequent expansion of managerial capitalism, both in Britain and the US. A new techno-structure, controlled by technical and managerial specialists, led Schumpeter (1942) and Galbraith (2015 [1967]) to conclude that such historical developments in the organization of production would lead to the disappearance of the entrepreneur. Our second case, the emergence of the MBO, illustrates the reversal of this historical trend, as financial innovation combined with technical and organizational innovation to unlock value from over-extended industrial corporations through disintermediation. A third case, the use of automated lending systems, exemplifies the impact

of financial innovation on the intermediation process, and its negative consequences for entrepreneurial opportunity, particularly in the small and medium firm sector.

Our choices illustrate the value of a historical approach to understand the context and nature of entrepreneurship. Conceptually, as argued above, entrepreneurship is simultaneously about innovation and the mobilization of resources, which are typically in the first instance financial resources. If innovation and financial intermediation are seen as processes, they, and their interaction, are governed by cause and effect relationships. Understanding a priori conditions as unexpired processes thus helps unwrap the nature of entrepreneurial opportunity. In the production process, what is the ex-ante knowledge and material base accessible from which to draw new ideas about technical improvements? In the intermediation process how are previously accumulated financial resources owned and controlled and what are the institutional rules that determine access and allocation for the purposes of financing innovation? These processes may differ in their dynamic tendencies, and, for separate causal reasons, be subject to radical or incremental rates of change.

Using a historical method relies on multiple sources of information and data. To present a broad historical sweep at sufficient levels of generality to draw out useful contrasts, we rely on secondary accounts and detail from the historical literature. Such sources typically provide efficient coverage of the individual components of figure 1, but by definition exclude specific commentary on the linkage patterns and conceptualization of the whole model. We concentrate on the latter, but where appropriate and complementary, our case specific analysis is also underpinned by primary sources. For the BIR, we draw on archival records of leading firms and associated literature. For MBOs we utilize a unique population database collected in real-time as buyouts and related transactions evolved from the early 1980s onwards, and covering some 200 funders and over 18,000 UK buyouts based on primary data collection by one of the authors from various market actors, underpinned by archival data

relating to government inquiries and reports, regulatory and legal changes affecting the development of MBOs (e.g. changes to Stock market regulations, Companies Acts), and company histories and articles concerning associated actors (e.g. Governor of the Bank of England, private equity practitioners and advisors, and firms that underwent an MBO), supplemented by secondary sources such as media reports, stock exchange circulars, and other databases. Analysis of causes of the financial crisis of 2008 and its consequences for credit allocation mechanisms and the global recession is contained in a large longitudinal database of financial characteristics for the population of UK companies, a growing academic literature, government inquiries and reports (e.g. FCIC, 2011; Dodd-Frank 2010), expert working groups[1] and the analyses of regulatory and related institutions (e.g. Basel Accords, Bank for International Settlements).

Illustrative examples

The British industrial revolution

Technological innovations of the BIR that led to the rapid expansion of infrastructure and the industrial base, through steam power and process automation in textiles, were decisive in the longer run context (Landes, 2003). At first sight, the financial system remained antiquated, with restrictions on usury and reliance on long dated bills of exchange (Tawney, 1926; Toms, 2010), and was thus poorly equipped to support technical innovation. Usury laws were only repealed in 1854. Joint stock banking was not introduced until 1826, with joint stock company organization remained highly restricted before 1844 before 1855 (Taylor, 2014).

These rules impacted the intermediation process, and produced both constraints and a range of entrepreneurial opportunities. These depended on the institutionalized routes

[1] One author sat on UK government expert working groups: advising on improving information sharing in the credit industry, Expert Working Group on the Sharing of Non-consensual Credit information (2007); and small firm financing (Breedon (2012)

available for accessing financial resources. A good example was a significant financial innovation of the eighteenth century: the development of the private insurance underwriting network centered on Lloyd's of London, which led to financial product and process innovation (Pearson, 1997). Kingston (2007) contrasts the consequences of these innovations in terms of differential access to information available to private and corporate insurers and the impact on risk bearing and adverse selection in the British market as compared to the US where a similar private network did not develop.

A further contrast can be made between large-scale infrastructure projects and industrial finance. Infrastructure projects and their scale, in terms of fixed capital and risk involved, generally required incorporation to access the finance required. However, post 1720, the effects of the Bubble Act and associated limitations on joint stock incorporation resulted in a highly politicized process of raising fixed capital. So, although joint stock companies continued to be promoted, based on innovations in canals, roads, docks and other infrastructure, their character was strongly impacted by the intermediation process. New firms were decoupled from stock exchange finance (Poitras, 2012, pp.90-91), and, before the 1850s, approval for incorporation depended on the support of specific and specially convened parliamentary committees. Competing economic interests could frustrate schemes, particularly where they could influence the composition of parliamentary select committees.[2] The typical story in this literature is local variation based on the exploitation of opportunities within existing and frequently archaic legal systems and customs, and the use of agents and barristers to support passage through the committee stages, created significant cost (Freeman et al. 2012).

Successful entrepreneurs were those most adept at exploiting institutions of

[2] Examples included the St Nicholas Bay and Canterbury Canal Company, London and Westminster Oil and Gas Company, Freeman et al (2012, p.50)

intermediation in the face of high transaction costs. In general, however, the costs of incorporation impacted negatively on economic growth (Temin and Voth, 2013), and also led to fewer but larger corporations relative to the US (Hannah, 2014), suggesting that financial intermediation had a decisive and broadly negative effect on the development of significant sectors of the economy during the BIR.

In other sectors, technical innovation placed lower demands on fixed capital, allowing entrepreneurs to access traditional networks of financial intermediation. For example mining and textiles were both cases where only part of the conversion process could be automated, resulting in lower demand for fixed capital, but a much higher demand for working capital (Pollard, 1964). Networking assisted innovators accessing mercantile and agricultural accumulations of capital (Singleton, 2013), and the pre-existing character of the working capital cycle and its modification through automation assisted such connections. For example, Arkwright's inventions meant that spinning could be automated and the increased volumes of yarn then subcontracted to domestic outworkers. This structure required cash to pay factory workers' wages and bills of exchange to finance the increased investment in working capital in associated stages of production. Cotton firms found even limited amounts of fixed capital finance difficult to obtain and relied on London bills and access to discounting opportunities to finance working capital (Cottrell, 1980). Archival evidence for the cotton industry, based on balance sheets of 22 firms during 1798-1860 shows almost a complete absence of structured debt finance and institutional lending and a predominance of partnership based equity, with a long credit cycle dominating the scope and fluctuation of business activity.

The major financial innovation of the late eighteenth and early nineteenth centuries that responded to these requirements was the emergence of the country-banking network. Many entrepreneurs entered the intermediation process offered by these banking institutions,

either directly as part time partners, or, through the resulting financial network, securing connections to larger pools of capital available via the London market (Davis, 1994).

These relationships are illustrated by Jedediah Strutt, a merchant and entrepreneur, who, through innovative activity in textile production became closely associated with Richard Arkwright, inventor of the water spinning frame. Previously, Strutt had invented a mechanism for adapting the stocking frame to ribbed hosiery. However, he lacked the finance for its application in production, so he joined a partnership of established hosiery merchants. As a consequence, he gained a London connection, and was subsequently backed by Samuel Need, a wealthy Nottingham hosier, enabling Strutt to establish himself as a manufacturer. He later partnered and financed Richard Arkwright in the 1770s, as facilitated by Arkwright's erstwhile banker, Inchabod Wright (Fitton and Wadsworth, 1968).

The Strutt and Arkwight example illustrates the crucial entrepreneurial combination of invention and financial intermediation to secure growth opportunities in early textile industries. Entrepreneurial control of intermediation could be cemented by trust, in legal partnerships or through financial networks. This also illustrates the advantage of flexible partnership based networks where permanent capital requirements were limited and the main disadvantage *vis-a-vis* limited liability (the untimely dissolution problem, Guinnane et al 2007) was less important. Finally, we illustrate the alternative to the complex process of political intermediation that was only worthwhile where fixed capital requirements were much larger.

Where partnership and unincorporated networks were stretched, through geographical distance or layering of multiple financial agents, intermediation provided opportunities for negative interventions. Small-scale private banking was associated with financial instability, speculation, commercial dishonesty and fraud, and lacked the expertise and capacity to sustain industrial expansion (Cottrell, 1980). The causes included uncontrolled issuing of

paper money and multiple discounting of bills and credit created by issuing bills with long discounting chains (Kindleberger and O'Keefe, 2001). Temin and Voth (2013) conclude that a "warfare state" of regulation and credit rationing designed to facilitate government borrowing for military purposes, created high and rising returns to capital because "the key role of a financial system—to collect savings and allocate them to high-return projects—was performed poorly in Britain between 1750 and 1850" (p.158). Again, the financial intermediation process and its impact on entrepreneurial opportunity were implicated here.

In summary, during the BIR, demand for fixed capital was satisfied through political intermediation, such that there were significant returns for middlemen. In manufacturing, the partial automation of single processes in a wider credit cycle otherwise carried out by handicraft workshops meant it was easy for merchants to provide financial support under the usury cap from their working capital. The country bank network responded underpinning liquidity requirements based on trust, but at the same time creating the possibility of excessive intermediation through multiple bill discounting, and risk of fraud.

Further waves of industrialization, although assisted by joint stock finance and banking and oriented towards larger factories and major infrastructural investment, particularly railroads, nonetheless continued to rely on local sources of finance and profit reinvestment (Cottrell, 1980). Financial institutions' risk preferences were conservative, and they increasingly avoided industrial projects in favor of overseas portfolio and fixed interest investments (Kennedy, 1974). Ad hoc syndicates of individuals and trusts meanwhile provided venture capital, often without lasting success (Michie, 1981). In general, the British entrepreneur failed to transfer personal leadership to successor managerial teams, thereby also failing to create the modern corporation from disparate business units (Lazonick, 1992).

Even so, such an interpretation implies the further divorce of technical innovation from finance, with its potentially negative consequences for entrepreneurship. From the BIR

onwards, the joint stock company, far from being seen as a financial innovation that facilitated the mobilization of capital for entrepreneurs, attracted criticism in its own right (Taylor, 2014). Attacking the restrictions of mercantilism, Adam Smith also questioned the value of the joint stock company, arguing that ownership dilution would stifle entrepreneurial activity (Smith, 1776, V.1.107). In similar vein, for Schumpeter (1942) and Galbraith (2015 [1967]), the development of large-scale industrial activity paved the way for managerial capitalism and the disappearance of the entrepreneur. For Schumpeter (1942), the large scale firm partitions production and organization into separate specialist functions, leading to the death of entrepreneurship. Abolition of this separation therefore becomes a crucial aspect of the revival of entrepreneurship once large-scale production is established. As shown in the next section, decisive financial innovation now led to new upsurge in entrepreneurship.

Emergence of venture capital and management buyouts

In the diversified conglomerates that emerged up to the 1960s, managers, through their deeper knowledge of their markets than more hierarchically and geographically distant parent firms and owners, were increasingly able to identify entrepreneurial opportunities (Wright and Coyne, 1985). Prior to the development of the VC/private equity (PE) market there was a gap in the provision of equity finance that enabled MBOs as innovative organizational forms to be created so that such entrepreneurial opportunities could be pursued (Toms, et al., 2015). MBOs involve the purchase of a firm by its managers with funding provided by VC/PE firms and debt providers (Gilligan and Wright, 2014).

Following a government report into lack of funding and especially equity funding provided by financial institutions the Governor of the Bank of England observed that the main clearing banks had created venture and development capital subsidiaries, so-called captive funds (Governor of the Bank of England, 1981, p.83). For example, Barclays Bank

created Barclays Development Capital in 1979 to formalize an existing experiment with venture capital within its Merchant Bank activities (Ackrill and Hannah, 2001). From barely double figures in 1980, the number of organizations providing equity finance to MBOs had risen to 147 by 1986 (CMBOR/Venture Economics, 1987). These new providers included the establishment of specialist buyout funds, notably Candover Investments.

A further financial innovation that facilitated the intermediation process through making larger amounts of equity funding available was the introduction of limited life partnerships to avoid double taxation. If independent private equity funders were established as limited companies they would have been taxed on their profits and then shareholders would have been taxed again on their distributions (Gilligan, 2018). The taxation of distributions to fund managers as capital gains, and hence subject to tax relief, rather than income, proved to be a controversial policy aspect of this innovation (TSC, 2007) but these developments enhanced the incentives to invest in buyouts, providing important new sources of finance previously absent and contributing to establishment of the phenomenon.

According to reports from the private equity industry association, the investment stage focus of these equity providers gravitated quickly towards MBOs as the risk-return trade-offs were considered to be more favorable than for early stage investments (BVCA, 1990). As these MBOs were established firms with track records, the intermediation process was facilitated, as scrutinizing their current and potential performance was more feasible than for early stage ventures. Further, management, as insiders were more aware of opportunities and challenges than distant corporate headquarters. As such it was easier to align business strategy and financial provision.

These deals were not restricted to cost-cutting and efficiency improvements but oftentimes were entrepreneurial buyouts frequently involving radical innovations in business models coupled with innovation in structured financial provision, with wider consequences

for spin offs and infrastructure partnerships with the public sector, nationally and internationally (Wright et al., 2000b). As a result, MBOs were essentially seen as benign; it was only at the peak of the second buyout wave in 2006-8 that such deals came to media and policy scrutiny in the UK (TSC, 2007). This was in contrast to LBOs in the US where, despite the generally positive academic evidence (Baker and Smith, 1998), there was much policy and media scrutiny of their alleged adverse effects on employment and innovation (Burrough and Helyar, 1989; House of Representatives, 1989; Forbes, 1988; Kaufman and Englander, 1993) during the 1980s.

The growth in finance provision evolved during the 1980s as it became increasingly recognized that the scope for investing in buyouts went beyond attempts to rescue potentially entrepreneurial ventures in the early 1980s recession to encompass vast numbers of "corporate orphans" with upside potential not considered core activities as the shareholder value wave led to many large conglomerates changing to a refocusing strategy, such as Coats Viyella's divestment of low margin divisions (Wright et al., 2000a). As product markets became characterized by contracting out, many buyouts also involved vertical disintegration of activities enabling former parents to gain advantages of asymmetries of interdependencies with their former divisions that in turn were now freer to pursue entrepreneurial opportunities (Wright, 1986). Survey evidence shows considerable new product development that would not have occurred absent the buyout (Wright et al., 1992).

During this period, the Conservative Government's privatization program questioned the orthodoxy regarding the extent and boundaries of state-owned enterprises, and began to generate large numbers of MBOs of parts of these enterprises where the main enterprise was being shaped for an initial public offering (IPO) (Thompson et al., 1990). As such, privatization changed the nature of intermediation, in that firms could access new sources of finance. These divested parts had been even more financially and organizationally

constrained than subsidiaries of private sector corporations as their parent companies were loss-making or chronically under-performing under state ownership. For example, after their MBO, companies such as Istel, the former computer services division of loss-making automobile manufacturer Austin Rover, could grow rapidly by exploiting new markets that it previously could not, and Unipart could take advantage of new product market innovations creating opportunities in vertical supply chains between automotive parts suppliers and automobile manufacturers that it was unable to exploit as part of a larger state-owned corporation (Wright et al., 2000b).

Development of the phenomenon was further enhanced by financial innovations, deregulation and legal relaxations. Regarding debt, financial instrument innovations enabled the intermediation process to fund innovative opportunities needed to retain cash flow in the short term to fund restructuring and investment and hence could not service regular repayment loans. Such financial innovations notably including high yield debt ('Junk bonds'), Collateralized Debt and Loan Obligations (CDO/CLOs), subordinated (mezzanine) debt and multi-layered senior debt ('alphabet debt') were financial instrument innovations enabling greater use of leverage oftentimes with delayed or rolled-up interest and capital repayments, and different approaches to covenants, provided by new entrants such as Intermediate Capital Group and US banks. Their contribution to the intermediation process accommodated more fine-grained layers of risk in a target company's cash flow, but varied regarding the flexibility they afforded for renegotiation of terms in case of borrower distress. While critics argued that high leverage would make buyouts more vulnerable to failure, systematic empirical studies find that private equity backed buyouts are no more prone to financial distress or bankruptcy than comparable companies (Wilson and Wright, 2013). Moreover, when such buyouts face stress, due to high leverage and/or adverse economic

conditions private equity investors are proactive in negotiating resolutions with creditors (Hotchkiss, Smith and Stromberg, 2012).

Financial innovations also included the introduction of so-called equity ratchets, performance contingent equity rewards for managers in buyouts (Valkama et al., 2013) pioneered in the UK by ICFC (now 3i) (Coopey and Clarke, 1995), and in the corporate divestment of Mallinson Denny enabling management to obtain between 16.7% and 35% of the equity (Robbie and Wright, 1989). Equity ratchets thus enabled managers who successfully grew their buyouts to obtain a greater equity stake while uncertainties about prospects at time of the deal meant that equity providers were unwilling to cede a larger equity stake at the outset. Together with the establishment of specialist funds, these financial innovations enabled MBOs of larger firms through the 1980s. They also led to innovations in deal types that further extended the market as management buy-ins, where funders brought in their own entrepreneurial management to replace or supplement weak or non-entrepreneurial incumbent managers (Robbie and Wright, 1995). A further financial innovation involved secondary buyouts where an initial buyout was refinanced with a new incoming equity provider, oftentimes with skills to grow the business, and allowing management a larger equity stake to exploit further entrepreneurial opportunities, such as in Maccess (Robbie and Wright, 1990). Over time secondary buyouts became a major part of the market, enabling equity providers in the initial deal to realize gains as an alternative to IPO or strategic sale and enabled new entrants to invest in deals, although there is debate whether intended entrepreneurial growth is realized in such deals (Zhou, Jelic and Wright, 2013).

Deregulation facilitated innovation of a secondary tier stock market (The Unlisted Securities Market [USM]) in 1980, enabling exit of smaller MBOs with growth prospects and performance track record insufficient for a main market listing. In 1985 and 1986, 44 buyouts launched IPOs on the USM, twice the number of buyout IPOs on the main market (CMBOR,

1994). An important legal change was relaxation in the Companies Act 1981 Sections 151-6 of the restriction in the Companies Act 1948 on firms' provision of financial assistance for the purchase of own shares, although the restriction was not eliminated entirely (Wright, Coyne and Mills, 1986). Nevertheless, this innovation opened the way for lenders to obtain security for debt provision (Wright and Coyne, 1985).

Credit expansion, credit information, and credit scoring

From the mid-1980s there was a step shift in financial services provision. From the 1950s to the early 1980s British banking was characterized as uncompetitive, inefficient, conservative and exclusive. "Banks acted as the prudent and paternalistic custodians of the money of middle and upper class households" (Vik, 2016, p.6). The 1980s and 1990s banking and financial services were transformed in the UK and globally. Key drivers for financial innovation from mid to late 1980s were changes in the regulation of financial markets, creating opportunities for new entrants in financial service provision, and the "Big bang" deregulation of 1986, increasing banks' access to capital markets and their scope to innovate complex financial instruments for risk management. Parallel and complementary were the transformative developments of the Internet. Indeed, the corporate and financial landscape, from the late 1980s, has changed more dramatically than any other period in history, coinciding globalization of product and input markets, privatization and financial liberalization (e.g. Financial Services Act, 1986), technological and financial innovation, and development of a globally interconnected financial system linked to, and facilitated by, the rapid growth in information and communication technology (Rajan, 2005; Shin, 2017).

Rapid developments in the innovation of financial products created opportunities for entrepreneurial rent seeking outside of the productive (real) economy (Tett, 2009). From the mid-1980s the banking and financial sector in the UK, faced with new entrants, intense

competition and cost pressures, restructured and centralized systems and procedures, warehoused customer databases (linked to the growing credit reference sector) and implemented risk-scoring algorithms, automated decision systems and centralized customer contact centers. Bank branches, and credit card operations became focused on sales and staff incentivized using sales targets, or in the case of back office operations, collection/recovery targets. Outsourcing of back office activities became commonplace as did use of the debt purchase sector, a mechanism for off-loading distressed debt from bank portfolios. British banks became financial conglomerates involved in merchant banking and an array of services through financial supermarkets (Mullineux 1987). Boundaries between the regulated banking sector and unregulated shadow banking became increasingly blurred, with the latter representing an important source of credit for firms and households (Hume and Sentence, 2009) before the financial crisis.

Thus the 1990s and 2000s marked a significant movement from "relationship lending" to one of "automation" or "market-based lending", with decisions made predominantly by risk scoring algorithms fed by the growing information infrastructure managed by rating and reference agencies (Mizen, 2008). Demand for financial services helped increase UK consumer credit outstanding to £1.5 trillion, representing growth of around 10% per annum from the mid-1980s to 2008, with almost three quarters involving secured (mortgage) lending. Credit card debt grew considerably as a function of risk based pricing via credit scoring. Debt to income levels reached 165% by 2008 and distress products (consolidation loans, debt restructuring, etc.) grew rapidly from 2004 (Bank of England, 2014). Sharing of consumer credit information by lenders within credit bureaus and closed user groups reduced informational asymmetries and facilitated increased risk based pricing, a proliferation of new credit products for households tailored across the risk spectrum, reduced default rates, and stimulated economic development (Houston et al. 2010). However,

information sharing agencies were heterogeneous across economies, differing in the extent of information sharing, with some holding partial data from private lenders' closed user groups, whereas public registries required the compulsory sharing of data between all banks.

However, hidden but fundamental flaws in this particular innovation ultimately fed into lending decisions (White, 2009). Key decision-makers were apparently oblivious to these inherent flaws in supporting infrastructure. Automation of decision-making on lending and account management reduced specialist and technical capacity at branch level. Estimates of individual account risks were ultimately fed into other metrics that facilitated hedging strategies via derivative products traded globally. Scoring models were fed by internal customer level data, but importantly, with raw data and Bureau scores from the Credit Reference Agencies (CRAs) who pooled and managed data on individuals from other lenders. However, there were important shortcomings relating to data provision as the system developed and therefore likely errors in the (credit scoring) risk classifications of obligors (Bank of England 2014; Jappelli and Pagano, 2002). While the CRA system in the UK worked as a closed user group, until at least 2005, some major lenders (HSBC, RBS, NatWest) and many newer smaller and peripheral credit providers did not participate and contribute data.

As information for lending decisions was thus partial, already indebted borrowers had unfettered access to credit undetected by the system. Moreover the lending interface was likely sales and marketing teams, inexperienced in risk underwriting and incentivized by sales targets. As CRAs had limited access to individual bank account data they could not assess a borrower's debt-income profile. Risks score thus contained information only on current liabilities, the history of payment behavior and any adverse information such as recorded court actions for the recovery of debt, bankruptcies or convictions for fraud. These developments fueled property price bubbles and diverted resources from innovative

production and the real economy (Berger, 2014). Risks were not shared between lenders and borrowers nor were consequences of 'bad lending decisions' (Mian and Sufi, 2015), thereby precipitating the financial crisis with its wider consequences (White, 2009).

In contrast, business lending witnessed little automation of decision-making because of the its relative complexity and the lack of available data on the (private) company sector to develop and feed risk grading algorithms. Yet banks reduced the number of (business) lending specialists at local level as part of re-engineering of processes and rationalization of branch management. Indeed 'expertise' embedded in the banking system was rapidly being replaced by bureaucratic processes, systems and algorithms (Ellis and Taylor 2010), exacerbating informational asymmetries in the entrepreneurial and smaller firm sectors. Consequently, the household sector credit boom coincided with increased credit rationing and an estimated funding shortfall for smaller businesses of £190 billion (Breedon, 2012).

These developments largely by-passed the UK corporate sector, except for construction and real estate sectors and corporate restructuring activities (e.g. LBO's) in listed and large corporates. Indeed the last two cycles manifest a decoupling of the financial sector from the real economy with consequences for entrepreneurial ventures. Thus the nexus between the financial and real economy is important in the analysis of business fluctuations and resource (mis) allocation during this period. This decoupling has been discussed in relation to the phasing of "financial cycles"[3] in comparison to "business cycles." A historical study covering 1873 to 2007 (Bordo and Haubrich, 2010) identifies major periods of credit distress. The authors' summarize, "financial distress events exacerbate business cycle downturns both in the 19th and 20th century and that a confluence of such events makes recession even worse" (p.1). Moreover, the length and amplitude of the financial cycle has

[3] That is *"self-reinforcing interactions between perceptions of value and risk, attitudes towards risk and financing constraints, which translate into booms followed by busts."* (Borio, 2012: 2).

increased strikingly since the mid-1980s financial liberalization and the 2008 crisis provides evidence of the effects. Also, during the boom period, the mask of an evidently robust economy draws new ventures into the economy and too much capital in overgrown sectors crowds out innovation and growth in others, thereby creating an equity gap. The "equity gap," is an outcome of market failure arising from imperfect or asymmetric information between finance providers and viable businesses. Such market failures may be structural in nature and/or emerge in relation to (radical) innovations, technology developments, increasing importance of intangible corporate assets), shifting or converging industrial boundaries (Varian, 2009) and evolving (global) market opportunities.

Consequently, the nature of the equity gap has changed over time. During the BIR, restrictions on access to financial resources impacted business ownership and investment scale and scope, which were also subject to disruption in credit crises. Such misalignment of business and financial cycles in the economy moreover, can exacerbate such market failure and its impact. Equity gaps have persisted in comparison to transitory rationing due to disequilibrium in credit markets related to changing demand (excess demand) and supply conditions (reduced supply). Moreover, the literature does not distinguish between different equity gaps during the development of the entrepreneurial firm e.g. the requirement/demand for follow-on capital. Sub optimal funding provision for firms with growth potential has provided rationales for government intervention in venture financing (in the UK the Seed Enterprise Investment Scheme, Enterprise Investment Scheme and Venture Capital Trusts)[4]. These initiatives recognize requirements for follow-on funding, especially in knowledge intensive businesses. Indeed, VC firm valuation of such knowledge intensive businesses with significant intangible assets poses major challenges. The ratio of intangible to tangible assets in the economy has

[4] https://www.gov.uk/government/collections/summer-finance-bill-2015

been increasing, and the proportional investment in intangibles has accelerated (Blaug and Lehki, 2009). Entrepreneurs have also addressed the equity gap by exploiting opportunities provided by innovations in crowd funding. Consequently, some entrepreneurs have become serial crowd-funders raising extra finance through crowd funding for their initial or a subsequent venture (Buttice, et al., 2017). The effectiveness of crowd funding as a financial innovation aligned with the needs of growing innovative ventures remains an open question.

Discussion and conclusion

We have provided a time-based conceptualization of entrepreneurship, to analyze the circumstances in which technical innovation, financial intermediation and innovation explain differing historical combinations of entrepreneurial opportunity. To contrast the long run differences and similarities of outcome, two propositions arising from our framework have been examined using illustrative historical evidence. Our first proposition, that the character of entrepreneurial opportunity is determined by the relationship between innovation and the intermediation process, is illustrated differently in each case. Examples from the industrial revolution reveal how technical innovation was subjected to political intermediation, particularly where fixed capital requirements were substantial, and intermediary structures arose from pre-existing credit networks, thereby framing the characteristics of entrepreneurial opportunity. Regarding the development of private equity and MBOs, innovations in organizational forms relating to the boundaries of conglomerates, state ownership and vertical integration of markets created entrepreneurial opportunities for growth and efficiency improvements, the characteristics of which were framed by the variety of intermediation channels that emerged. Financial innovation, following financial deregulation from the late 1980s expanded credit availability through expansion of intermediation, shadow banking, non-bank finance, and the development of the credit services industries. However, as the

financial services sector became globally interconnected achieving regulatory oversight was an intractable problem. This period sees the decoupling of the financial sector from the real economy with consequences for entrepreneurial ventures. Short-term financial sector rent seeking diverted financial resources from productive entrepreneurial ventures. The system of self-regulation was reactive rather than proactive in tackling this excessive short-term rent seeking. In the aftermath of the financial crisis Basel III recommendations focused on increasing capital requirements and implementing more rigorous stress testing.

Historical evidence also illuminates our second proposition, that the intermediation process is impacted by technical and financial innovation with positive or negative consequences for entrepreneurial opportunity. In the BIR, technical innovation, particularly in infrastructure projects, impacted the political character of intermediation, creating entrepreneurial opportunity within the intermediation process and significant modifications to projects or obstacles to development. Financial innovations, like the country banks, helped facilitate intermediation by building upon existing networks of credit, thereby promoting the deployment and expansion of new technology. In the development of private equity and MBOs, financial innovations like limited life partnerships and various forms of debt provision facilitated intermediation, enabling both larger deals and those with more complex revenue streams and investment needs to take advantage of entrepreneurial opportunities to be funded. As with development of eighteenth century insurance underwriting, information sharing has been a recent source of important innovation in the financial sector, impacting on intermediation by facilitating the risk scoring of consumers and businesses, risk-based pricing of credit products and automation of lending decisions. Although in theory decisions should be better informed, we also highlight negative consequences of the rapid development of new financial products and risk management tools, leading to distortions in the intermediation

process manifest as short term rent seeking and misallocation of financial resource, and issues relating to inaccuracy of risk scores and credit ratings.

Although the subject of considerable research attention individually, our linking of events based on the time variant nature of financial intermediation and entrepreneurial opportunity provides a novel perspective on significant episodes of British economic history. Focus on financial intermediation reveals new perspectives on forces affecting the character of entrepreneurship during the BIR. As an episode in economic history, the 1980s MBO wave demonstrated the possibilities for institutionalizing the entrepreneurial function through effective intermediation. Finally, application of recent financial innovation to automated lending created inefficiencies in the intermediation process, created rent-seeking opportunity while potentially constraining productive entrepreneurial activity.

Our analysis also has potential lessons from history regarding how policy toward entrepreneurship might ensure that technical and financial innovation are successfully intermediated, thereby creating productive opportunities for entrepreneurs. As the MBO case shows, technical and financial innovation and their effective intermediation implies a team or alliance based notion of entrepreneurship, underpinned by enabling systems of governance. These arrangements should underpin serial processes of innovation and adaptation, reducing dependence on specific individuals or generations. As the BIR case illustrates, credit networks have the potential to intermediate innovation, where supported by suitable institutions, and not obstructed by political process. A balance is therefore needed such that risky investment between firms and financial institutions is mitigated through sharing, and specifically equalizing rights and information between borrowers and lenders. Recent intervention in the UK (latest Enterprise Bill) is moving in this direction, forcing banks to share business-lending data via CRAs. In policy terms, banks hoarding "lending data" prevent entry for new lenders, hindering the flow of finance. Arguments have been made for

a central body to compile all business and lending data and produce independent risk ratings, to improve the flow of finance. Some countries are moving in this direction while others allow private organizations to facilitate (credit) information sharing. In general, tax, subsidy or regulatory changes are needed that discourage capital and information hoarding and support risky lending to asset backed, knowledge based industrial projects rather than devices that facilitate financial speculation. The Credit Rating Agency Reform Act 2006 in the US aimed to end dominance by the three major players to foster accountability, transparency, and competition in the credit rating agency industry. However, many proposed reforms (Dodd-Frank 2010) have not yet happened.

Our paper has limitations, opening options for further research. First, our focus has been on the UK context. Further historical research is therefore required to explore whether the relationships analyzed here hold in other institutional contexts. Second, we have focused on three specific periods. Additional research might explore whether the nature of these relationships differ in different time periods to establish the boundary conditions to our analysis. Third, there is scope for further analysis of the processes of transition, with a focus on intermediation mechanisms enacted through institutional changes and regulation. The role of macro-conditions is important but there is also scope for assessing impacts of differential patterns of innovation and intermediation at the micro level and even within organizations.

Nevertheless, despite these limitations, our analysis of the interplay between technical innovation, financial intermediation and financial innovation helps explain the puzzle of differing historical combinations of entrepreneurial opportunity and demonstrates how comparative analysis of these combinations in contrasting periods contributes to a wider understanding of their successful exploitation. There are thus periods in history where entrepreneurs can interact with intermediaries so that their function effectively spans organizational and financial capabilities. However, there are other circumstances where

intermediation becomes disaggregated from productive activity, such that the entrepreneurial activities occur in the realms of organization and financial intermediation but without providing the opportunity for productive activity.

References

Ackrill, M., Hannah, L. 2001. Barclays: The Business of Banking, 1690-1996. Cambridge University Press: Cambridge.

Adrian, T., Shin, H. S. 2010. Liquidity and leverage. Journal of financial Intermediation. 19(3): 418-437.

Autio, E., Kenney, M., Mustar, P., Siegel, D., Wright, M. 2014. Entrepreneurial innovation: The importance of context. Research Policy, 43(7): 1097-1108.

Baker, G., Smith, G. 1998. The New Financial Capitalists Cambridge University Press: Cambridge.

Bank of England. 2014. Should the availability of UK credit data be improved? Discussion paper. ISSN 1754–4262

Barney, J. B., Ketchen, D. J., Wright, M. 2011. The future of resource-based theory revitalization or decline? Journal of Management, 37(5): 1299-1315.

Baumol, W. 1990. Entrepreneurship: Productive, Unproductive, and Destructive, Journal of Political Economy, 98(5): 893-921.

Beck, T., Chen, T., Lin, C., Song, F. M. 2016. Financial innovation: The bright and the dark sides. Journal of Banking and Finance, 72: 28-51.

Beckman, C., Eisenhardt, K., Kotha, S., Meyer, A. Rajagopalan, N. 2012. Technology entrepreneurship. Strategic Entrepreneurship Journal, 6: 89-93.

Berger, S. 2014, How Finance Gutted Manufacturing, Boston Review, April http://bostonreview.net/forum/suzanne-berger-how-finance-gutted-manufacturing

Blaug, R. and Lekhi, R. 2009. Accounting for intangibles: Financial reporting and value creation in the knowledge economy. Work Foundation

Bordo. M.D., Haubrich J.G., 2010. Credit crises, money and contractions: An historical view. Journal of Monetary Economics. 57: 1-18.

Borio, C., 2012. The financial cycle and macroeconomics: What have we learnt? Bank for International Settlements, Working Papers, No 395

Braunerhjelm, P., Henrekson, M. 2013. Entrepreneurship, institutions, and economic dynamism: lessons from a comparison of the United States and Sweden. Industrial and Corporate Change, 22(1): 107-130.

Breedon, T., 2012. Boosting Finance Options for Business, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32230/12-668-boosting-finance-options-for-business.pdf

Burrough, B., & Helyar, J. 1989. Barbarians at the gate: The fall of RJR Nabisco. New York: Harper & Row.

Buttice, V., Colombo, M., Wright, M. 2017. Serial crowdfunding, social capital, and project success, Entrepreneurship Theory and Practice, 41: 183-208.

BVCA 1990. Report on Investment Activity. London: British Venture Capital Association.

Chen, D., Guan, Y., Zhang, T., Zhao, G. 2017. Political connection of financial intermediaries: Evidence from China's IPO market. Journal of Banking and Finance, 76: 15-31.

CMBOR. 1994. Management Buyouts. Quarterly Review from the Centre for Management Buyout Research, Spring.

CMBOR/Venture Economics, 1987. Trends in UK Buyouts 1987. London: Venture Economics.

Coopey, R., Clarke, D. 1995. 3i. Fifty Years of Investing in Industry. Oxford: Oxford University Press.

Cottrell, P.L., 1980. Industrial finance, 1830-1914: the finance and organization of English manufacturing industry. Methuen: London.

Davis, G. 1994. A history of money: From ancient times to the present day, University of Wales Press: Cardiff.

Di Maggio, M., and Tahbaz-Salehi, A. 2014. Financial intermediation networks. Columbia Business School Research Paper, 14-40.

Dodd–Frank, 2010. Wall Street Reform and Consumer Protection Act. (Pub.L. 111–203, H.R. 4173

Ellis V., Taylor M. 2010. Banks, bailouts and bonuses: a personal account of working in Halifax Bank of Scotland during the financial crisis. Work Employment and Society Volume 24(4): 803–812

Financial Crisis Inquiry Commission (FCIC), 2011. Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States. February, 2011. https://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf

Fitton, R. S., and Wadsworth, A. P. 1968. The Strutts and the Arkwrights, 1758-1830: A study of the early factory system. Manchester University Press: Manchester.

Forbes, 1988. How the government subsidizes leveraged takeovers, Forbes, November 1988, 192-96

Freeman, M., Pearson, R., and Taylor, J. 2012. Shareholder democracies? Corporate governance in Britain and Ireland before 1850. University of Chicago Press: Chicago.

Galbraith, J. K. 2015 [1967]. The new industrial state. Princeton University Press.

Gans, J. and Stern, S., 2002. Managing ideas: Commercialization strategies for biotechnology. Melbourne Business School, University of Melbourne.

Gilligan, J. 2018. A Brief History of Private Equity. In Wright, M., Amess, K., Bacon, N. and Siegel, D. (eds). The Routledge Companion to Management Buyouts. London: Routledge.

Gilligan, J., Wright, M. 2014. Private equity demystified. London: ICAEW, 3rd edition.

Goetzmann, W., Rouwenhorst, G. 2005, "Introduction: Financial innovations in history," in Goetzmann, W. and G. Rouwenhorst (eds.), "The Origins of Value: The Financial Innovations that Created Modern Capital Markets. Oxford: OUP.

Governor of the Bank of England. 1981. Reflections on the role of the institutions in financing industry. Bank of England Quarterly Bulletin, March, pp.79-85. (first Stockton Lecture, London Business School, 22 January 1981).

Guinnane, T. W., Harris, R., Lamoreaux, N. R., and Rosenthal, J. L. 2007. Ownership and control in the entrepreneurial firm: An international history of private limited companies. Center discussion paper // Economic Growth Center, No. 959.

Hannah, L. 2014. Corporations in the US and Europe 1790–1860. Business History, 56(6), 865-899.

Hotchkiss E., Smith, D.C., and Stromberg, P., 2012. Private Equity and the Resolution of Financial Distress. Chapter in NBER book Market Institutions and Financial Market Risk ISDA Research Note 3

House of Representatives, 1989. Management and Leveraged Buyouts: Hearings Before the Subcommittee on Telecommunications and Finance of the Committee on Energy and Commerce, House of Representatives, One Hundred First Congress, First Session, February 22 Nd May 25, 1989, Volume 4Houston, J.F., Lin C., Lin, P., Ma Y., 2010. Creditor rights, information sharing, and bank risk taking. Journal of Financial Economics 96: 485-512

Hume, M. Sentence, A., 2009. The global credit boom: Challenges for macroeconomics and policy. Journal of International Money and Finance. 28: 1426-1461

Jappelli, T and Pagano, M., 2002. Information sharing, lending and defaults: cross-country evidence, Journal of Banking and Finance, Vol. 26, No. 10, pages 2,017–45.

Jentzsch, N. 2007, Financial privacy: an international comparison of credit reporting systems, 2nd edition, Springer.

Johnson, S., Kwak, J. 2012. Is Financial Innovation Good for the Economy? Innovation Policy and the Economy, 12(1): 1-16.

Kaufman, A and Englander, E. 1993. Kohlberg Kravis Roberts & Co. and the Restructuring of American Capitalism. The Business History Review, 67, 52-97

Kennedy, W. P. (1974). Foreign investment, trade and growth in the United Kingdom, 1870–1913. Explorations in economic history, 11(4): 415-444.

Kindleberger, C. P., and O'Keefe, R. 2001. Manias, panics and crashes. Palgrave Macmillan.

Kingston, C. 2007. Marine insurance in Britain and America, 1720–1844: a comparative institutional analysis. Journal of Economic History, 67(2): 379-409.

Knight, F. H., 1921. Risk, uncertainty and profit. New York: Hart, Schaffner and Marx.

Landes, D. S. 2003. The unbound Prometheus: technological change and industrial development in Western Europe from 1750 to the present. Cambridge University Press.

Lazonick, W. 1992. Organization and Technology in Capitalist Development, Edward Elgar: Aldershot.

Laeven, L., Levine, R., Michalopoulos, S. 2015. Financial innovation and endogenous growth. Journal of Financial Intermediation, 24(1): 1-24.

Lippmann, S., Aldrich, H. E. 2013. History and evolutionary theory. In Organizations in Time: History, Theory, Methods, Buchelo, M., Wadhwani, D. (eds). Oxford University Press: Oxford: 124-146.

Mian, A., Sufi, A. 2015. House of Debt: How They (and You) Caused the Great Recession, and How We Can Prevent It from Happening Again**.** University of Chicago Press; First Edition, edition (20 May 2015)

Michie, R. C. 1981. Options, concessions, syndicates, and the provision of venture capital, 1880–1913. Business History, 23(2): 147-164.

Mizen, P. 2008. The Credit Crunch of 2007-2008: A Discussion of the Background, Market Reactions, and Policy Responses. Federal Reserve Bank of St. Louis Review, 90(5): 531-67.

Mullineux, A. U. K. Banking after Deregulation. London: Routledge, 1987.

Nanda, R., Nicholas, T., 2014. Did bank distress stifle innovation during the Great Depression? Journal of Financial Economics, 114(2):.273-292.

Nesta, 2016. Pushing boundaries: the 2015 UK alternative finance industry report. Nesta: London. http://www.nesta.org.uk/publications/pushing-boundaries-2015-uk-alternative-finance-industry-report#sthash.25nEjUTq.dpuf (accessed 14 June 2016)

Pastor, L. Veronesi, P. 2009. Technological Revolutions and Stock Prices. American Economic Review, 99,4: 1451-1483.

Pearson, R. 1997. Towards an historical model of services innovation: The case of the insurance industry, 1700–1914. Economic History Review, 50(2): 235-256.

Poitras. G. 2012, "From the renaissance exchanges to cyberspace: A history of stock market globalization", in Poitras. G. (ed.) Handbook of research on stock exchange globalization, Edward Elgar, Cheltenham:.68-115.

Rajan, R.G. 2005. Has financial development made the world riskier, NBER Working Paper 11728, November 2005.

Robbie, K., Wright, M. 1989. Financial Aspects of the Buyout at Mallinson Denny in P Barnes (Ed) Case Studies in Financial Management, Deddington: Philip Allan.

Robbie, K., Wright, M. 1990. The Second Buy-out at Maccess in S Taylor and S Turley (Eds), Cases in Financial Reporting, Deddington: Philip Allan.

Robbie, K., Wright, M. 1995. Ownership and Management Change: Evidence from Management Buy-ins. Journal of Management Studies, 32: 527-550.

Schumpeter, J. 1934, The Theory of Economic Development. New Jersey: Transaction Publishers (16th Edition, 2012)

Schumpeter, J.A., 1942. Socialism, capitalism and democracy. Harper and Brothers.

Sewell Jr, W. H. 2005. Logics of history: Social theory and social transformation. University of Chicago Press: Chicago.

Singleton, J. 2013. The World Textile Industry, Routledge: Abingdon.

Smith, A. 1776. An Inquiry into the Nature and Causes of the Wealth of Nations, available online at http://www.econlib.org/library/Smith/smWN.html, para.V.1.107.

Tawney, R. H. 1926. Religion and the Rise of Capitalism. Transaction publishers.

Taylor, J. 2014. Creating capitalism: Joint-stock enterprise in British politics and culture, 1800-1870. Boydell and Brewer.

Temin, P., Voth, H.J. 2013. Prometheus Shackled: Goldsmith Banks and England's Financial Revolution After 1700. Oxford University Press: Oxford.

Tett. G. 2009. Fools' Gold: The inside story of JP Morgan and how Wall Street greed corrupted its bold dream and created financial catastrophe. New York Free Press.

Thompson, S., Wright, M., Robbie, K. 1990. Management Buy-outs and Privatisation: Organisational Form and Incentive Issues, Fiscal Studies, 11(3): 71–88

Toms, S., Wright, M. 2005. Divergence and convergence within Anglo-American corporate governance systems: Evidence from the US and UK, 1950–2000. Business History, 47(2): 267-295.

Toms, S. 2010. Calculating profit: A historical perspective on the development of capitalism. Accounting, Organizations and Society, 35(2): 205-221.

Toms, S., Wilson, N., Wright, M. 2015. The evolution of private equity: corporate restructuring in the UK, c. 1945–2010. Business History, 57(5): 736-768.

TSC 2007. Private Equity. House of Commons Treasury Select Committee

Valkama, P., Maula, M., Nikoskelainen, E., Wright, M. 2013. The impact of macroeconomic and governance factors on leveraged buyout returns, Journal of Banking and Finance, 2013, 37:2378-2393.

Varian H. L (2009), http://www.mckinsey.com/industries/high-tech/our-insights/hal-varian-on-how-the-web-challenges-managers.

Vik, P. 2016. 'The computer says no': the demise of the traditional bank manager and the depersonalisation of British banking, 1960–2010. Business History, 58: 1-19.

Wadhwani, R. D., Jones, G. 2013. Schumpeter's plea: Historical reasoning in entrepreneurship theory and research. Organizations in Time: History, Theory, Methods. Buchelo, M., Wadhwani, D. (eds). Oxford University Press: Oxford: 192-216.

White. L.J. 2009. The Credit-Rating Agencies and the subprime debacle. Critical Review, 21 2-3, 389-399.

Wilson N., Wright M. 2013. Private Equity and Insolvency Risk, Journal of Business Finance and Accounting, 40(7-8): 949-900

Wright, M. 1986. The Make-Buy Decision and Managing Markets: The Case of Management Buy-outs. Journal of Management Studies, 23(4): 434-53.

Wright, M., Coyne, J. 1985. Management Buyouts. Beckenham: Croom Helm.

Wright, M., Coyne, J. and Mills, A. 1986. Spicer and Pegler's Management Buyouts. London: Woodhead-Faulkner.

Wright, M., Chiplin, B., Robbie, K., Albrighton, M. 2000a. The development of an organizational innovation: UK management buy-outs 1980-1997, Business History: 42, 137-142.

Wright, M., Hoskisson, R., Busenitz, L., Dial, J. 2000b. Privatization and entrepreneurship: The upside of management buy-outs. Academy of Management Review, 25(3): 591-601.

Wright, M., Thompson, S. Robbie, K. 1992. Venture Capital and Management-Led Leveraged Buy-outs. Journal of Business Venturing, 7(1): 47-72.

Zahra S., Wright M. 2011. Entrepreneurship's next act. Academy of Management Perspectives 25, 67-83.

Zhou, D., Jelic, R., Wright, M. 2013. Secondary buyouts and IPO exits. Managerial and Decision Economics, 35(2): 88-102.

Figure 1: Innovation, intermediation and entrepreneurial opportunity