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Director
A.W.A. Boot

Board
A. Verberk
J.B.M. Streppel

Address
Plantage Muidergracht 12
1018 TV Amsterdam
The Netherlands
Phone: +31 20 525 4162
E-mail: office@accf.nl
<http://www.accf.nl>

Topics in Corporate Finance / Understanding Fintech and Private Equity ARNOUD W.A. BOOT, JEROEN E. LIGTERINK AND JENS K. MARTIN

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Understanding Fintech and Private Equity

ARNOUD W.A. BOOT
JEROEN E. LIGTERINK
JENS K. MARTIN

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TOPICS IN CORPORATE FINANCE

UNDERSTANDING FINTECH AND PRIVATE EQUITY







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Arnoud W.A. Boot, Jeroen E. Ligterink and Jens K. Martin



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PREFACE

In front of you is the 26th issue of the ACCF *Topics in Corporate Finance* series dedicated to two key issues in finance: the impact of fintech on banking, and the role that private equity plays in the economy.

The first chapter focuses on fintech. The main ingredients are developments in information technology that play a leading role in the transformation of banking. The recent focus on fintech – basically, new technology-driven players entering the financial services industry – is the latest manifestation of the impact of information technology on the industry. The focus is on the structure of the banking industry going forward. The author concludes that much uncertainty remains as fintech will lead to a disaggregation of the value chain, and will challenge the bank-customer interface at the core. The sector will need agility and flexibility to deal with the challenges ahead.

The second chapter is dedicated to the advantages and disadvantages of private equity. How should private equity be viewed? Does it play a valuable role in the economy? And what is its impact on the various stakeholders? The study focuses on buyouts. These are takeovers of mature companies (or parts of companies) by investors financed with considerable leverage (debt). Debates on this topic are often heated. The picture that emerges is a nuanced one. Broadly speaking, the authors conclude that private equity plays a positive role and is associated with value creation, but excesses do occur. Some policy measures are suggested. The chapter is based on an extensive study recently conducted by the authors for the Dutch Ministry of Finance into the role of private equity, specifically in the Netherlands.¹

As Amsterdam Center for Corporate Finance, we hope that you enjoy reading this contribution to the *Topics in Corporate Finance* series, and that it may help foster a healthy public debate on these important issues.

Arnoud W.A. Boot
Director ACCF

February 2018

¹ Ligterink, J.E., J.K. Martin, A.W.A. Boot, K. Cools and L. Phalippou (2017), *Private equity in Nederland, een stakeholder-perspectief*, report prepared for the Dutch government, February 11; also included in the previous issue of *Topics in Corporate Finance* (number 25; in Dutch).



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1 THE FUTURE OF BANKING: FROM SCALE & SCOPE ECONOMIES TO FINTECH

Arnoud W.A. Boot

1.1 INTRODUCTION

The financial services industry is undergoing massive changes. Information technology is key in this process of change. The recent focus on fintech – basically, new technology-oriented players entering the financial services industry – is possibly the most visible manifestation of the impact that information technology has on the industry. This chapter will focus on the structure of the banking industry going forward. We will try to draw lessons from the (older) literature on scale and scope economies in banking, and relate these insights to the ‘modern’ world of information technology and fintech.

Fintech is widely seen as a disruptive force in the banking industry. New information technology-focused entrants, including large data and platform-oriented IT firms like Google and Apple, are seen as a potential threat to the position of banks. While banks appear still in the lead, information technology and fintech are changing the competitive landscape. Empowering customers is one of the effects. Customers have easier access to multiple providers and potentially more transparent product offerings. The traditional bank-customer relationship is at risk. The digitalization of the industry is also changing the operational processes of banks. A massive transformation of banks is on the way.

While the impact of information technology on the operations of banks and the customer interface is a relatively recent phenomenon, information technology has been changing the world of finance already for some time. The impact of the proliferation of information technology on financial markets has perhaps been most noticeable. It has deepened financial markets and via changes in the business models of banks strengthened the link between markets and financial institutions.¹ The latter runs, for example, via securitization and other forms of asset sales that remove assets from a bank’s balance sheet allowing those assets to become tradeable. This intertwines markets and institutions and – as we have seen in the financial crisis – could amplify the impact of financial market conditions on banks (see Shin, 2009).

Apart from providing all kinds of benefits (e.g., diversification, liquidity), a more negative view is that the enhanced opportunities to trade assets invite ‘excessive changeability’ and possibly more opportunistic behavior in banks that could undermine their stability. The linkages to the financial market facilitate a proliferation of transaction-oriented banking (trading and financial market) activities possibly at the expense of more traditional relationship banking activities (Boot and Ratnovski, 2016). Before delving into fintech developments, we will discuss the implications of this more ‘fluid’ and transaction-oriented world of finance (see section 1.2.).

1 See the contribution of Boot and Thakor (2018) in the *Oxford Handbook of Banking*, 3rd edition, forthcoming 2018.

In this context also the ownership structure of banks might be important. For example, the traditional partnership model in investment banking may have contained opportunistic behavior in that partners had their personal wealth tied up in the business, and could not easily leave and liquefy their ownership claims. In a sense, the marketability of their own involvement (human capital) was severely constrained which may have countered the fluidity of banking activities itself. Also here information technology and the deepening of financial markets may have been instrumental in creating a more fluid ownership structure based on a stock market listing.

We will discuss these developments, and subsequently address the more recent fintech phenomenon, or – what *The Economist* has called – the fintech revolution.² In trying to assess the potential impact of fintech on the structure of banks, we will seek to draw insights from the extensive literature on scale and scope economies in banking. We will argue that only limited insights are available. While recent empirical work identifies some scale economies, it faces difficulties in identifying true scope advantages. What is particularly missing in the literature, is the impact that information technology may have on the industry. Information technology and fintech considerations have not been part of this literature.

The organization of this chapter is as follows. In section 1.2 we focus on the impact of information technology and the deepening of financial markets on the transaction- versus relationship-orientation of banks. Section 1.3 discusses ownership structure issues. Scale and scope economies are discussed in Section 1.4. Section 1.5 focuses on the impact of fintech on the banking industry. In particular, we focus there on how fintech might disaggregate the value chain (and may put the customer interface at risk for banks), and to what extent banks will hook-up to fin tech players, and/or become fintech players themselves. Concluding observations are made in Section 1.6.

1.2 INFORMATION TECHNOLOGY AND TRANSACTION ORIENTATION³

An arguably not much contested observation is that banks have become more transaction oriented. As *The Economist* put it over twenty years ago in the context of the experience of securities firms:

“Perhaps the worst feature of the 1980s – which has subsequently returned to haunt the securities firms – was the abandonment by most of them of the old relationships with their customers. [...] “The aim was to do a deal, any deal”, remembers one manager who prefers not to be named” (*The Economist*, April 15, 1995, Special Section: A Survey of Wall Street, p. 13).

While this quote was made over twenty years ago, it is interesting to note that when financial markets prosper they appear to push financial institutions away from their relationship banking franchise. As the consultancy BCG puts it (explaining the surge in transaction oriented activities in 2004-2007): “[...] Amid surging economies, low loan losses, and readily available cheap capital, it did not really matter whether a bank had

² ‘The Fintech Revolution’, *The Economist*, May 9th, 2015.

³ This section follows in part Boot (2011); see also Boot and Ratnovski (2016).

top- or bottom-quartile capabilities [...]. All that mattered were workable sales processes” (BCG, 2010).

The modern world of information technology and deepening of financial markets has clearly induced banks to become more heavily exposed to the financial markets. Doing transactions has become easier, and hence market-linked activities like securitization and proprietary trading have become more prominent. At a more fundamental level, what this points at is the scalability of transaction-oriented activities. Subject to available capital, banks can quickly increase their exposure to those activities. Relationship-based activities are more constrained as they depend on employing human capital and engaging with potential clients. Thus transaction-oriented banking is not only more susceptible to a sudden spur in momentum, but also the feasibility of financial institutions to quickly mobilize resources and give in to such opportunities seems greater than for relationship banking activities.

The competitive dynamics play an important role. When financial markets are exuberant, banks that abstain from, for example, trading activities – one of the financial market activities that can be expanded quickly – may look less profitable and might feel ‘left behind’ in the earnings game vis-à-vis other banks. This is precisely what happened with UBS, one of the bigger victims in the 2007-2009 crisis. An internal investigation in 2008 – following massive losses on subprime investments – discovered that its troublesome subprime investments were undertaken following pressure from external consultants that pointed at its fixed income activities that were lagging those of competitors. To fill this gap, UBS was advised “to close key product gaps” which explicitly referred to subprime investment vehicles (UBS, 2008, page 11).

A more subtle concern is that opportunistic trading may undermine relationship banking. Boot and Ratnovski (2016) show that banks may allocate too much capital to transaction-oriented activities and in doing so have insufficient risk-bearing capacity for relationship banking. Banks may also underestimate the risks involved, and implicitly subsidize the transaction-oriented activities at the expense of relationship-oriented activities. More specifically, by insufficiently recognizing its divergent risk profile, proprietary trading might be granted an artificially low cost of capital. Other – mainly relationship-oriented activities – are then implicitly taxed and appear less profitable than they really are. Thus, proprietary trading could undermine a bank’s competitive edge in its relationship banking business.

A related mechanism is that such transaction-oriented activities initially appear very profitable (as long as the boom lasts), and that during that time those departments – and the individuals involved in them – will gain power. What this might do is that power shifts from people engaged in more prudent relationship banking activities to those engaged in transaction activities. This may affect the overall balance of power in an institution via promotions in the corporate hierarchy, and may tilt power away from its relationship banking franchise. As a consequence relationship banking may suffer.⁴

⁴ These ‘power’ considerations deserve more attention in research. Much of the focus has been on remuneration contracts, while incentives running via promotion opportunities and power might arguably be as important or even more important. A direct link could also exist with the pricing of risk in financial markets. If risks in ‘booming’ times

The extensive work in the field of financial intermediation points at the distinct value of relationship banking. Importantly, however, much of this research predates developments in information technology that have facilitated ‘more distant’ banking operations. While we continue to believe in the importance of relationship banking, information technology – particularly, the way information can be obtained from data analysis (Big Data), and, for example, the proliferation of interactions via social media – will have an impact on how relationship banking can add value. In particular, payment systems and distribution channels are changing rapidly, and this will affect the business of banking and the competitive positioning of banks as distinct financial institutions. We will come back to this when we discuss fintech, and particularly the disaggregation of the value chain that it may entail.

1.3 OWNERSHIP STRUCTURE: PARTNERSHIPS AND STABILITY

As stated, the deepening of financial markets and information technology in general may have caused excessive ‘changeability’ and tradability in the industry. We pointed at the opportunistic behavior that this may unleash. An important link can be made to the ownership structure and stability of investment banks versus commercial (relationship-oriented) banks.

Traditional relationship-oriented banks seem incentivized to build up *institutional* franchise value. Individuals are part of the organization as an entity, and the continuity of the organization and lasting relationships with its clientele define its value. The value cannot be transferred and cannot readily be assigned to individual stars. In other words, the value created is an integral part of the organizational entity (i.e. ‘franchise value’) and not portable as part of individuals.

Investment banks on the other hand, particularly their trading and transaction activities,⁵ seem more based on the individual star concept with high marketability of individuals. As a consequence, less institutional franchise value is built up; individual franchise values dominate. If this is the only difference (relationship banking with franchise value, investment banking less so), Keeley’s (1990) analysis would suggest that an investment bank would take lots of risk, while the franchise value of a commercial bank would help curtail its risk taking.

Historically, investment banks could contain the ‘marketability’ issue and the potential problems associated with the potential lack of institutional franchise value by having partnerships. The partnership structure has two dimensions that could help jointly resolve the marketability problem, and related opportunistic, risky behavior (and star phenomenon):

are underpriced (or underestimated), this would further push banks in such euphoric times toward transactions, like trading activities (Boot, 2014).

⁵ Activities of investment banks have relationship-based components as well. More recently, though, trading dominates, which is not relationship based, but solely transactional. In recent times, traders appear to have gained power within investment banks, e.g. more recent leaders of Goldman Sachs came from the trading side. In any case, we do not see the distinction between commercial banking and investment banking as an absolute dichotomy.

- a partnership means that bankers have their personal wealth tied up in the business. They own the equity claim of the business;
- the partnership structure is such that the equity is not (optimally) marketable.

The latter implies that ‘stars’ cannot take their money out, or only at a reduced value. Implicitly, this means that non-portable franchise value is created, and this value is transferred over time to future partners. As an additional argument, partnerships ensured a relatively high capitalization which directly augmented the franchise value at risk. Interesting examples exist where institutions have made changes that have destroyed this structure. For example, with a go-public transformation (converting a partnership in a listed shareholder owned company) the current partners effectively expropriate all franchise value that has been built up over time.⁶ Even worse, once the partnership is gone, stars may no longer be ‘under control.’ Their financial interest is no longer tied to the firm. This may elevate risk and reduce stability.⁷

In commercial banking, the enhanced marketability – and with it, transaction focus – may have opened the door for some type of star phenomenon as well. In a sense, it may have brought commercial banking closer to investment banking, and similar issues might be at play. This may have induced opportunistic behavior particularly because partnership structures in commercial banking never have been very common.

In any case, partnerships among major financial institutions are rare. The important point however is that via enhancing marketability the demise of partnerships could have undermined stability. As a caveat, all this does not mean that there might not be distinct benefits associated with these developments as well. What we have stressed is the potential downside. We are however prepared to conclude that the financial crisis has made us look more favorably at alternative ownership structures like mutuals, cooperative banks (e.g. Credit Agricole in France) and, indeed, partnerships. Also, having diversity in ownership structures might have become more appreciated. After all, one of the problems of the increasing intertwined nature of banks and markets is that it might make banks look more alike, and that could induce systemic risk. Diversity in ownership structures might help counter this. A question is also what impact fintech will have on ownership structures, and on the structure of the industry in general. Following a discussion of the literature on scale and scope economies, we will turn to these questions.

6 Morrison and Wilhelm (2007; 2008) analyze the decision of major US investment banks to go public. Investment banks were initially organized as partnerships. The opacity of partnerships and illiquidity of their shares allowed for successful mentoring and training in tacit non-contractible human skills, such as building relationships, negotiating M&A deals and advising clients. They argue that IT technology necessitated heavy investments and that that necessitated investment banks to go public. Potentially confirming this is that wholesale-oriented investment banks such as Morgan Stanley – for which tacit human capital was more important than IT technology – went public later than retail-oriented investment banks such as Merrill Lynch. Schellhorn (2011) emphasizes the (unlimited) liability of partners as stabilizing factor, and recommends a private partnership form for investment banks. See also Berger et al. (2008).

7 Publicly listed firms sometimes use restricted stock to create some fixity in the ownership structure and to ensure continued loyalty of key personnel.

1.4 SCALE AND SCOPE ECONOMIES IN BANKING

What drives financial players in choosing their scale and scope of operations? This question is important because the size and particularly the complexity of financial institutions is a concern to regulators and supervisors. More recently, the question is what impact fintech and information technology will have on bank business models, and the scale and scope of banks. Research on scale and scope economies remains rather inconclusive; in the words of Richardson, Smith and Walter (2010): “Indeed, the recent studies mirror the findings [...] some 15 years earlier [...] there was no predominance of evidence either for or against economies of scale in the financial sector.” Nevertheless, the literature on scale and scope has come to some insights. In this section, we will discuss the extant literature. Subsequently, we will seek to use these insights when discussing fintech developments.

1.4.1 Sources of Scale and Scope Economies

A casual observation of real world banking suggests that banks like to *combine* many different activities. This distinguishes banks from many of their competitors, e.g. non-banking financial institutions like mutual funds and finance companies. The latter often choose to specialize and therefore are often more transparent. Banks generally choose to diversify their activities. Although few would readily deny that some degree of diversification is necessary, banks seem to engage in a very broad variety of activities.

Particularly in Continental Europe, the size (and scope) of banks is typically enormous. One explanation could be that implicit or explicit government guarantees and too-big-to-fail (TBTf) concerns give artificial competitive advantages to size (see Feldman, 2010). Universal banks, while often not particularly efficient, might in that way have sufficient ‘protected’ revenues to compete with more focused players.⁸

Scale and scope economies are often cited as rationale for why financial institutions tend to growth in size and complexity (scope) over time. But are scale and scope economies truly present? Sources of scale and scope economies include (see Boot, 2003; and Walter, 2003): *i.* information-technology related economies; *ii.* reputation and marketing/brand name related benefits; *iii.* (financial) innovation related economies; and *iv.* diversification benefits. Information technology related economies particularly refer to back office efficiencies and distribution-network related benefits. Transaction processing offers distinct scale economies. And information technology developments facilitate an increasing array of financial products and services to be offered through the same distribution network, and thus allow for cross selling. Reputation and brand name/marketing related economies may be present in the joint marketing of products to customers. Brand

⁸ Indeed, this is one of the complaints of more focused investment banking institutions. Universal banks can leverage their balance sheet (read: cross subsidize) to secure investment banking business (e.g. *Financial Times*, March 21, 2011, page 17: “US banks face fresh scrutiny on lending”). Some evidence exist on TBTf benefits. Jagtiani and Brewer (2013) find that investors are willing to pay a premium when an acquisition would create a bank with assets over \$100 billion. Rime (2005) finds that banks above some threshold tend to have higher credit ratings and Baker and McArthur (2009) show that banks that have more than \$100 billion in assets have lower costs of capital. Beccalli, Anolli and Borello (2015) show that scale economies are larger for banks that are designated as systemically relevant by the European Commission.

image is partially marketing related, but is also related to the notions of ‘trust’ and ‘reputation.’ (Financial) innovation related economies point at benefits that large(r) institutions may have in exploiting innovations; specifically, they might be in a better position to recoup the fixed costs of those innovations.

Diversification benefits are (at first sight) more controversial. In many cases, conglomeration may lead to a valuation discount which could point at (anticipated) inefficiencies. This is in line with corporate finance theory that tells us that investors can choose to diversify and that this does not need to be done at the firm level. However, key to the business of banking is risk processing and absorption. And confidence in a bank requires it to be safe. Diversification is then needed to be able to absorb risks and be safe. Observe also that several bank activities benefit from a better credit rating, which suggests that diversification at the level of the bank has value.⁹

1.4.2 Evidence on Scale and Scope Economies

Scale and scope economies in banking have been studied extensively. In a 18 year old survey paper Berger, Demsetz and Strahan (1999) conclude that, in general, the empirical evidence cannot readily identify substantial economies of scale or scope. Illustrative is also Saunders (2000). He cites 27 studies, 13 of which found diseconomies of scope, 6 found economies of scope and 8 were neutral.

An important caveat is that this research mainly involves U.S. studies using data from the 70s and 80s. Apart from also potential methodological shortcomings, the results therefore do not capture the dramatic structural and technological changes in banking that have taken place since then. Furthermore, they reflect the historic fragmentation of the U.S. banking industry due to severe regulatory constraints on the type of banking (banks could engage in commercial banking or investment banking, but not both) and the geographic reach of activities (limits on interstate banking) that were present till the deregulation in the 90s (see Calomiris and Karceski, 1998).

Subsequent studies examine the existence of a diversification discount for financial institutions. Laeven and Levine (2007) confirm the existence of a diversification discount in banks that combine lending and non-lending financial services, and suggest that the potential economies of scope in financial conglomerates are not large enough to compensate for potential agency problems and inefficiencies associated with cross-subsidies.¹⁰ Rajan, Servaes and Zingales (2000) nuance this picture. They emphasize that, even though conglomerates trade at a discount on average, 39.3% of the conglomerates trade at a premium. They show that the interrelation between activities within the conglomerate is of crucial importance. Diversified firms can trade at a premium if the

⁹ For many guarantees or contracts and activities that involve recourse, the credit standing of the guarantor is crucial for the credibility of the contract. Mester (2008) emphasizes that bank production decisions affect bank risk. Scale and scope related decisions have via diversification an effect on risk, and that in turn may affect choices about risk exposure. Goetz, Laeven and Levine (2016) show the existence of diversification of risk benefits in domestic geographic expansion of U.S. bank holding companies.

¹⁰ Schmid and Walter (2009) confirm the Laeven and Levine (2007) results, and confirm that this discount is indeed caused by diversification, and not by inefficiencies that already existed prior to the diversification (e.g. prior to an initial diversifying merger). Chevalier (2004) shows that controlling for the pre-conglomeration performance of businesses is important: inefficiencies measured after a merger often already existed prior to the merger.

dispersion between activities is low. High dispersion induces inefficiencies which point at the importance of focus within the conglomerate. In particular, one should look at what type of mergers and acquisitions involve scale and scope benefits. Research suggests that mergers with both a geographic and activity focus are most value enhancing. Similarly, in analyzing scope and scale issues, one should focus on the type of activities. What are the scale economies in each activity? And what product-mix offers true scope economies?

DeLong (2001) looked at the shareholder gains – more specifically, the immediate announcement effect on share prices – from focused versus diversifying bank mergers in the U.S. between 1988 and 1995. She found that focused mergers, both on the level of activity and geography, have positive announcement effects. Moreover, focus in activities was shown to be more important than geographical focus, albeit the latter was important as well. Activity-diversifying mergers had no positive announcement effects. These results point at the presence of scale rather than scope economies.

The typical result in these earlier studies was, however, that even scale economies are exhausted at relatively small bank sizes. Later evidence points at more persistent scale economies. Wheelock and Wilson (2009) and Feng and Serletis (2010) find increasing returns to scale and Elsas, Hackethal and Holzhäuser (2010) find increasing returns to scope also for larger financial institutions. Substantial scale economies are found when it comes to back-office activities and payments.¹¹ Apart from methodological issues (see Mester, 2010), this could be driven by information-technology developments that might only have showed up in more recent data.

In this spirit, researchers have looked at whether there are scale economies in investments in IT as suggested by Boot (2003) and Walter (2003). The evidence is somewhat mixed. Erber and Madlener (2009) find no significant relationship between IT capital investments and bank productivity at the country level. Beccalli (2007) even finds a negative relationship between bank efficiency and investment in hardware and software, but a positive relationship between bank efficiency and country-level bank spending on IT consulting services. Koetter and Noth (2013) find that merely increasing IT investment does not lead to higher profitability, but that the efficiency in employing IT matters.

The impact of IT on bank business models has so far not really been empirically investigated. One could envision that on the demand side, the proliferation of savings products and their link to pensions, mutual funds and life insurance clearly pushes for joint distribution, and suggests economies of scope in distribution. IT developments might have made it possible to better exploit potential scope economies with multiple product offerings to a particular customer group, using new direct distribution channels with relatively easy access to (formerly) distant customers.

All this might also invite new competition as physical presence in local markets might have become less important, as various data sources become available (e.g. Big Data and data analytics as alternative to ‘standard’ relationship banking data collection). As a consequence (as we will see next) the value chain may break up. Some players may,

¹¹ See Hughes and Mester (2015), Davies and Tracey (2012) and DeYoung (2010).

for example, specialize in distribution, others in back office services or product development. Various scale and scope economies could then possibly be attained in a more targeted way. The term ‘fintech’ is associated with this development.

1.5 THE IMPACT OF FINTECH ON THE BANKING INDUSTRY

A key manifestation is that fintech might lead to the disaggregation of the value chain. Interfaces – online platforms in particular – may come about that help bundle the product offerings of different providers, thereby becoming the direct point of contact for customers. The distribution related economies that we alluded to may actually lead to such disaggregation of the value chain.

1.5.1 Online Platforms and Disaggregation¹²

Online platforms could be disruptive to existing financial institutions. Particularly, a disaggregation of the value chain could follow from online platforms becoming the preferred customer interface. Online platforms could offer a supermarket type model facilitating access to various products and services of disparate providers along with record keeping. A financial services platform might act as a market place where people interact directly and financial institutions serve the limited role of an advisor or broker. P2P lending could have parties transacting directly without the benefit of a financial intermediary (except possibly for back office services). Technology firms such as Google, Facebook, Amazon or Apple may use a payments solution (such as Apple Pay) as a platform and gain direct customer interface for related products and services. Legacy financial institutions then might be relegated to serving as the back office to the platform.

There is no reason why a platform should be limited to offering only financial services. A life-style oriented focus could integrate financial and non-financial offerings.¹³ The disruptive forces affecting banking – information technology and fintech in particular – may also offer new opportunities for other businesses that have tried to enter banking. For example, Tesco, a large UK supermarket chain provides banking services to its customers under its own brand.

New specialized lenders have arisen that seek to replace relationship lenders and traditional credit scoring with sophisticated algorithms based on Big Data mining (data analytics). While still in its infancy, such analysis predicts creditworthiness by analyzing buying habits, memberships, reading proclivities, lifestyle choices and all manner of opportunistic demographic correlates. Similarly, the growing availability of inexpensive information allows for public certification of creditworthiness similar to the trustworthiness scores on eBay, or the client satisfaction scores on TripAdvisor. One could envision similar developments enabling P2P lending as well. Whether society will accept the widespread use of these data is a different matter. In any event, more and more potentially sensitive personal information can already be obtained with a few mouse clicks. Big Data

¹² The observations follow in part Greenbaum et al. (2016).

¹³ McKinsey (2017) talks about “a seamless customer experience” with banking and third-party services, and refers to the Tencent’s Wechat platform that includes mobility, travel and dining services.

may also facilitate crowdfunding, another form of direct lending involving multiple lenders and a singular borrower.

At the customer level, we might see a (re)emergence of more community oriented arrangements. As P2P lending and crowdfunding suggest, customers may take matters in their own hands; empowerment thus. Local arrangements may emerge where communities organize their financial affairs directly among themselves. Information technology therefore may not only invite an increase in scale, but might also facilitate more tailor-made local arrangements. The latter would fit the empowerment that customers may increasingly desire. This point is more general. Many of the recent fintech related developments may put customers in the driving seat. For example, the platforms would give them easier access to a variety of providers.¹⁴ The consultancy McKinsey talks about platforms creating ‘a customer-centric, unified value proposition that goes beyond what users could previously obtain [...]’ and is ‘often more central in the customer journeys [...]’ (McKinsey, 2017). This points at empowerment by customers, and simultaneously could cast doubts on whether banks will be able to continue to control the customer interface.

1.5.2 Reach of Fintech in Payments

An area which seems most open to fintech is payments, and particularly retail-related payments. This core area of banking is being coveted by technology firms and payment specialists like Google, Apple and PayPal. Thus far, banks have maintained their central role in payments. Also, the payments innovators are not typically independent of banks, but have developed in joint ventures or other types of alliances with traditional banks. In some countries, banks themselves have managed to offer the leading on-line payments solution.¹⁵ While retail payments were the initial point of entry of fintech players, getting into payment solutions for corporates might be a next step.

Regulatory developments, like PSD2 in the EU, may further elevate competition in this area. PSD2 forces banks to share payment information with others on the request of their customers. This is designed to encourage competition in the payment sphere.

In this context also the blockchain technology should be mentioned. This decentralized system of record keeping and transactions promises to have an impact on the banking industry. It might undermine the centrality of banks in the financial system. Cryptocurrencies, like Bitcoin, that use the blockchain technology could offer an alternative payment infrastructure that bypasses the banking system. However, these developments are still at their infancy, and highly unpredictable.¹⁶ Also, banks may choose to embrace these developments, and be part of it. The response of banks and the more general threat (or opportunity) of fintech for the banking industry we will discuss next.

14 See also a report on fintech by the consultancy Accenture (Accenture, 2014, page 10).

15 Wyman (2014) and BIS (2014).

16 The World Economic Forum rightfully states, “DLT (distributed ledger technology – blockchain, AB) is not a panacea; instead it should be viewed as one of many technologies that will form the foundation of next generation financial services infrastructure” (WEF, 2016). We will not speculate on its most well-known application, cryptocurrencies. Digital currencies might play an important role in the future. Whether private ones (like bitcoin, see Nakamoto, 2008) become important is unknown. One could also envision central bank issued digital currencies gaining the upper hand (Bank of England, 2014).

1.5.3 Banks and Fintech

What role will banks play in these developments? They may face challenges. As Hirt and Milmott (2014) put it: “Digitization often lowers entry barriers, causing long-established boundaries between sectors to tumble. At the same time, the “plug and play” nature of digital assets causes value chains to disaggregate, creating openings for focused, fast-moving competitors. New market entrants often scale up rapidly at lower cost than legacy players can, and returns may grow rapidly as more customers join the network.” In particular, banks lose some of their competitive advantages in overcoming information problems, may no longer enjoy privileged access to a stable customer base and feel an erosion in their access to cheap deposits (Vives, 2017).

Banks Doomed?

This does not mean that banks are doomed. In the past, banking institutions have shown remarkable resilience, despite questions about their viability. As far back as 1994, economists John Boyd and Mark Gertler commented on the predicted demise of banks in a well-known study titled, “Are Banks Dead? Or Are the Reports Greatly Exaggerated?”.¹⁷ At that point, the discussion was about the banks’ role in lending. In particular, the question was whether securitization would undermine the banks’ lending franchise. They concluded that while securitization would make banks less important for the actual funding of loans, the core functions of banks in the lending process – origination (including screening), servicing and monitoring – would be preserved, as would the centrality of banks. Also, banks would typically play a role in the securitization vehicles by providing back-up lines of credit and guarantees on the refinancing of the commercial paper that funds many of the vehicles.

The message of that article undoubtedly has relevance today. Banks will respond and try to be players in the fintech world themselves. They may also set up platforms, and in this way hold on to the customer interface. Moreover, fintech often is facilitating, and thus a way to improve operations and existing processes within banks. Big Data and data analytics could, for example, help improve the lending processes of banks.

Banks and P2P

Banks also play a role in P2P lending. P2P is not (just) an innovation that develops independently of banks and/or without involvement of banks. Like in securitization, banks may serve essential functions in that lending process like compliance, screening and funding. Banks together with institutional investors are important providers of funding to P2P platforms.¹⁸ A bank may also have set-up the platform. All this points at complementarities between banks and fintech players.

Another issue is to what extent the market served by P2P overlaps with that of banks. So far P2P typically targets consumer lending. In some countries (contrary to the U.S.) banks are not key players in this market, and hence competitive effects would be limited.

¹⁷ Boyd and Gertler (1994) and Samolyk (2004).

¹⁸ While peer-to-peer suggests lending by individuals to individuals, this is often not the case. As stated, banks and institutional investors are important providers of funds.

For the U.S., Demyanyk, Loutskina and Kolliner (2017) find that P2P primarily serves a predatory-type segment, causing excess borrowing by often vulnerable consumers. Given that this segment is not a primary banking segment, the overlap would be limited.¹⁹ Buchak et al. (2017) point at competitive effects in the U.S. residential lending market. They show that shadow banks (including fintech) grow strongly in the more risky, yet guaranteed segment (via government sponsored enterprises – GSE) where banks retreat for regulatory compliance reasons.

The prospects for P2P in corporate lending are more difficult to assess. Banking skills might be indispensable, for example those needed to deal with controlling risk (moral hazard) and distressed assets. Again, this could point at a role of banks on P2P platforms. More risky, information-sensitive corporate loans do not seem a good fit for broker-oriented P2P platform (Dermine, 2017).

Partner or Perish?

Increasingly, partnering is seen as crucial for banks. In a recent study the World Economic Forum concludes that “all financial institutions will need to find ways to partner with large techs without losing their core value proposition” (WEF, 2017). Agility and flexibility in setting up and finding value enhancing partnerships are seen as distinct skills.²⁰ In doing so, banks may face dilemmas. When is partnering with fintech optimal, and when is it not desirable? Such dilemma could play for example in partnering with Apple or Google in payments. Will banks continue to be important for such partnership, or only in the beginning, and redundant subsequently?

Banks, however, have some competitive advantages. Banks benefit from the anxiety of people about the safety of their liquid wealth. The financial crisis of 2007-2009 may have created anxiety about the stability of banks, but banks are still seen as the place where money is safe.²¹ Whatever the popularity of Apple, will people trust technology companies in safeguarding their money? Being a bank with a license and an implicit guarantee from the government has value. Banks may also have valuable compliance expertise, and having extensive customer data is a distinct competitive advantage as well.

These comments also point at potential artificial (and undesirable) competitive advantages that banks have. Particularly, as alluded to above, the implicit guarantee that banks have from their governments may give them an edge over new entrants, including

19 In analyzing Lending Club (a well-known U.S. P2P platform), Jagtiani and Lemieux (2017) find that relatively high risk consumers are being served (compared to those by banks). They also see some ‘inclusion’ benefits by pointing to P2Ps role in providing credit to areas that could benefit from additional credit supply. The latter contrasts with Demyanyk, Loutskina and Kolliner (2017) who do not find that P2P covers markets underserved by traditional banks, hence they are skeptical about P2P improving financial inclusion.

20 For a strong stand on partnering, with the motto: ‘Partner or perish’, see a report by the consultancy EY (EY, 2017). It also argues that the major risk for a bank does not come from fintech players but from banks that are better at partnering. See also McKinsey (2017) and WEF (2015) for similar points of view. The Economist notes that banks and fintech become increasingly collaborative (*The Economist*, Special Report, International Banking, May 6th 2017, page 12), a point echoed as well by the World Economic Forum, “Many fintechs [...] have shifted to building partnerships as they struggle with scale and customer adoption” (WEF, 2017).

21 Vatanasombut, et al. (2008) highlight that trust plays a key role in the retention of customers with online banking. They also find that perceived security reinforces trust.

possibly fintech players. Indeed, safeguarding fair opportunities for new players is a challenge when strong and highly politically connected incumbents are present.²²

It is fair to say that the future of the industry and its structure in particular are highly uncertain. Developments in technology have inherently a level of unpredictability. The financial services industry is in the middle of it. Some banks may play a leading role in the new universe, perhaps by becoming fintechs themselves and providers of leading platforms. What seems clear is that banks will need to become agile and flexible to deal with the challenges and uncertainties ahead. Nevertheless, there are reasons to envision a potential decline. New competitors and the disaggregation of the value chain will put pressure on existing players.²³

1.6 CONCLUSIONS

Information technology plays a leading role in the transformation of banking. Developments in information technology and the related deepening of financial markets have pushed banks to more transaction-oriented activities, including trading, at the expense of relationship banking. Banking has become more fluid, and possibly opportunistic as a result. Financial markets also facilitated investment banks in moving away from the more stable partnership model to a more fluid shareholder owned public listing. These changes have put pressure on banks and regulators (stability concerns!) alike.

The latest incarnation of information technology has led to a ‘fintech revolution’ where banks face new competitors with different – more specialized – business models forcing a disaggregation of the value chain. With technology-driven solutions they offer alternatives to key banking services including payments and lending. An important question is to what extent existing financial institutions can be leading. Can they be at the forefront of new developments, for example, by absorbing fintech players and their innovations? Will banks and fintech be complementary and collaborative? Or will banks fade away, with new technology-linked players assuming prominence in the financial sector? While we have commented on the resilience of banks, only time will tell. Many questions, few answers.

Also from a financial stability point of view, the fintech revolution is challenging. The Bank of England has formulated the question whether “[...] the distress or failure of a

²² As Philippon (2016) puts it, “What we do know, however, is that a combination of restrictive regulations and powerful incumbents can certainly prevent entry.” On the importance of political connections in banking, see Calomiris and Haber (2014). Observe also that banks that embrace fintech developments may do this to neutralize innovations and protect their existing ways of operating. A potentially relevant historic example is Moody’s (the rating agency) acquisition of KMV in 2002. KMV had developed a novel approach for assessing credit risk that arguably Moody’s saw as a threat. More recently, some consortia of banks are setting up blockchain systems that are closed for others, and thus possibly frustrate the open architecture that blockchain is based on. An example is ING’s participation in a ‘blockchain-based platform for energy commodities’ which involves a limited number of participants; see ING, press release, November 6, 2017, ‘ING joins forces on blockchain-based platform [...]’. To be fair, ING states in the same press release that its intention is to open it up to others: “The technology is intended to be made available to all market participants and service providers in the energy trading sector.”

²³ The Dutch Central Bank lists three possible configurations for the industry, “i. banks manage to absorb the fintech revolution and manage to continue to be in the lead; ii. a more dispersed landscape comes about with new players in conjunction with (more traditional) banks, and iii. new players take the lead, possibly with high levels of concentration in the hands of the new giants, e.g. Google, Facebook, etc.” (DNB, 2017). See McKinsey (2017) for other insights on the potential different roles of banks going forward.

technology-enabled alternative finance provider have implications for financial stability?” (Bank of England, 2015). We just do not know. The Dutch central bank has identified not just risks in the (new) fintech type operations and players, but also stability risks coming from existing institutions that could lose out in the technology race (DNB, 2016). But stability benefits are also alluded to. Fintech developments may increase diversity in the financial sector. Whether this will benefit or weaken the resilience of the system, time will tell. For example, robo-advice and risk management algorithms could lead to more uniformity, and induce herding, and thus have potentially destabilizing procyclical effects.²⁴ Again, many questions and few answers. A challenging research agenda lies ahead of us.

²⁴ See Carney (2017) and DNB (2017) for further insights on the implications of fintech for financial stability.

REFERENCES

- Accenture (2014). *The Boom in Global Fintech Investment*, see www.accenture.com.
- Baker, D. and T. McArthur (2009). The Value of the “Too Big to Fail” Big Bank Subsidy, *CEPR Issue Brief*, September.
- Balachandran, B., R. Faff and M. Theobald (2008). Rights Offerings, Takeup, Renounceability, and Underwriting Status, *Journal of Financial Economics*, Vol. 89 (2), p. 328-334.
- Bank of England (2014). Innovations in Payment Technologies and the Emergence of Digital Currencies, *Bank of England Quarterly Bulletin*, Q3, p. 1-14.
- Bank of England (2015). One Bank Research Agenda, Discussion paper, February.
- BCG (2010), Global Corporate Banking 2010: Crisis as Opportunity, The Boston Consulting Group.
- Beccalli, E. (2007). Does IT Investment Improve Bank Performance? Evidence from Europe, *Journal of Banking & Finance*, Vol. 31 (7), p. 2205-2230.
- Beccalli, E., M. Anolli and G. Borello (2015). Are European Banks too Big? Evidence on Economies of Scale, *Journal of Banking & Finance*, Vol. 58, p. 232-246.
- Berger, A.N., R.S. Demsetz and P.E. Strahan (1999). The Consolidation of the Financial Services Industry: Causes, Consequences and Implications for the Future, *Journal of Banking and Finance*, Vol. 23 (2-4), p. 135–194.
- Berger, A.N., L.F. Klapper, M.S. Martinez Peria and R. Zaidi (2008). Bank Ownership Type and Banking Relationships, *Journal of Financial Intermediation*, Vol. 17 (1), p. 37-62.
- BIS (2014). Payment, Settlement and Clearing in Various Countries, updated September 2014, www.bis.org/cpmi/paysysinfo.htm.
- Boot, A.W.A. (2003). Consolidation and Strategic Positioning in Banking with Implications for Europe, *Brookings-Wharton, Papers on Financial Services*, p. 37-83.
- Boot, A.W.A. (2011). Banking at the Crossroads, *Review of Development Finance*, Vol. 1, p. 167-83.
- Boot, A.W.A. (2014). Financial Sector in Flux, *Journal of Money, Credit and Banking*, Vol. 46 (1), p. 129-135.
- Boot, A.W.A. (2016). Understanding the Future of Banking: Scale & Scope Economies, and Fintech. In: *The Future of Large Internationally Active Banks*, (A. Demirgüç-Kunt, D.D. Evanoff and G. Kaufmann, Eds.), *World Scientific Studies in International Economics*, Vol. 55, p. 429-448.
- Boot, A.W.A. and L. Ratnovski (2016). Banking and Trading, *Review of Finance*, Vol. 20 (6), p. 2219-2246.
- Boot, A.W.A. and A. V. Thakor (2018). Commercial Banking and Shadow Banking: The Accelerating Integration of Banks and Markets and Its Implications for Regulation. In: *The Oxford Handbook on Banking*, (N. Berger, P. Molyneux and J. Wilson, Eds.), Oxford University Press, 3rd Edition, forthcoming.
- Boyd, J.H. and M. Gertler (1994). Are Banks Dead? Or are the Reports Greatly Exaggerated?, *Federal Reserve Bank of Minneapolis Quarterly Review*, Vol. 18 (3), p. 2-23.

- Buchak, G., G. Matvos, T. Piskorski and A. Seru (2017). Fintech, Regulatory Arbitrage, and the Rise of Shadow Banks. University of Chicago, Working Paper No. 3511, March.
- Calomiris, C.W. and S. H. Haber (2014). *Fragile by Design: The Political Origins of Banking Crises and Scarce Credit*, Princeton University Press.
- Calomiris, C.W. and J. Karceski (1998). *Is the Bank Merger Wave of the 1990's Efficient?*, Washington, D.C.: The AEI Press.
- Carney, M. (2017). *The Promise of Fintech – Something New Under the Sun*, Speech at Deutsche Bundesbank G20 conference, by Bank of England governor Mark Carney, January 25.
- Chevalier, J. (2004). What Do We Know About Cross-subsidization? Evidence from Merging Firms, *Advances in Economic Analysis & Policy*, Vol. 4 (1), p. 1218-1218.
- Davies, R. and B. Tracey (2012). Too Big to be Efficient? The Impact of Implicit Funding Subsidies on Scale Economies in Banking, *Journal of Money, Credit and Banking*, Vol. 46 (s1), p. 219–253.
- DeLong, G. (2001). Stockholder Gains from Focusing versus Diversifying Bank Mergers, *Journal of Financial Economics*, Vol. 59 (2), p. 221-242.
- Demyanyk, Y., E. Loutskina and D. Kolliner (2017). Three Myths about Peer-to-Peer Loans, Economic Commentary Federal Reserve Bank of Cleveland, No. 2017-18, November 9. [See also by the same authors: “The Taste of Peer-to-Peer Loans,” Federal Reserve Bank of Cleveland Working Paper, no. 2017-18.]
- Dermine, J. (2017). Digital Disruption and Bank Lending, *European Economy*, 2017.2., p. 63-76.
- DeYoung, R. (2010). Scale Economies Are a Distraction, *The Region*, FED Minneapolis.
- DNB (2016). Technological Innovation and the Dutch Financial Sector (in Dutch), De Nederlandsche Bank (Dutch Central Bank), Working Paper, January.
- DNB (2017). Innovation in the Loan Market: Prudential Concerns for the Financial Sector and Supervision, De Nederlandsche Bank (Dutch Central Bank), Policy Paper, November.
- Duffie, D. (2010). The Failure Mechanics of Dealer Banks, *Journal of Economic Perspectives*, Vol. 24 (1), p. 51-72.
- Elsas, R., A. Hackethal and M. Holzhäuser (2010). The Anatomy of Bank Diversification, *Journal of Banking & Finance*, Vol. 34 (6), p. 1274-1287.
- Erber, G. and R. Madlener (2009). Impact of ICT and Human Skills on the European Financial Intermediation Sector. In: *Productivity in the Financial Services Sector*, (M. Balling, E. Gnan, F. Lierman and J.P. Schoder, Eds.), Chapter 10, p. 183-200.
- EY (2017). *Unleashing the Potential of FinTech in Banking*, Report, September.
- Feldman, R.J. (2010). Size and Regulatory Reform in Finance: Important but Difficult Questions, *The Region*, FED Minneapolis.
- Feng, G. and A. Serletis (2010). Efficiency, Technical Change, and Returns to Scale in Large US Banks: Panel Data Evidence from an Output Distance Function Satisfying Theoretical Regularity, *Journal of Banking & Finance*, Vol. 34 (1), p. 127-138.

- Goetz, M., L. Laeven and R. Levine (2016). Does the Geographic Expansion of Banks Reduce Risk?, *Journal of Financial Economics*, Vol. 120 (2), p. 346-362.
- Greenbaum, S.I., A.V. Thakor and A.W.A. Boot (2016). *Contemporary Financial Intermediation*, 3rd Edition, Elsevier/Academic Press.
- Hirt, M. and P. Millmott (2014). Strategic Principles for Competing in the Digital Age, *McKinsey Quarterly*, May 2014, p. 1-14.
- Hughes, J.P. and L.J. Mester (2015). Measuring the Performance of Banks: Theory, Practice, Evidence, and Some Policy Implications. In: *The Oxford Handbook on Banking*, (N. Berger, P. Molyneux and J. Wilson, Eds.), Oxford University Press, 2nd Edition, Chapter 10, p. 247-281.
- Jagtiani, J. and E. Brewer (2013). How Much Did Banks Pay to Become Too-Big-To-Fail and to Become Systemically Important?, *Journal of Financial Services Research*, Vol. 43 (1), p. 1-35.
- Jagtiani, J. and C. Lemieux (2017). Fintech Lending: Financial Inclusion, Risk Pricing, and Alternative Information, Federal Reserve Bank of Philadelphia Working Paper, No. 17-16, July 6.
- Keeley, M. (1990). Deposit Insurance, Risk, and Market Power in Banking, *American Economic Review*, Vol. 80 (5), p. 1183-1200.
- Koetter, M. and F. Noth (2013). IT use, Productivity, and Market Power in Banking, *Journal of Financial Stability*, Vol. 9 (4), p. 695-704.
- Laeven, L. and R. Levine (2007). Is There a Diversification Discount in Financial Conglomerates?, *Journal of Financial Economics*, Vol. 85 (2), p. 331-367.
- Ligterink, J.E., J.K. Martin, A.W.A. Boot, K. Cools and L. Phalippou (2017). *Private equity in Nederland, een stakeholder-perspectief*, Report prepared for the Dutch government, February 11.
- McKinsey (2017). *The Phoenix Rises: Remaking the Bank for an Ecosystem World*, McKinsey Global Banking Annual Review, McKinsey & Company, October.
- Mester, L.J. (2008). Optimal Industrial Structure in Banking. In: *Handbook of Financial Intermediation and Banking*, (A.W.A. Boot and A.V. Thakor, Eds.), Amsterdam: North Holland, p. 133-162.
- Mester, L.J. (2010). Scale Economies in Banking and Financial Regulatory Reform, *The Region*, FED Minneapolis, September, p. 10-13.
- Mollick, E. (2014). The Dynamics of Crowdfunding: An Exploratory Study, *Journal of Business Venturing*, Vol. 29 (1), 2014, p. 1-16.
- Morrison, A.D. and W.J. Wilhelm (2007). Investment Banking: Past, Present, and Future, *Journal of Applied Corporate Finance*, Vol. 19 (1), p. 42-54.
- Morrison, A.D. and W.J. Wilhelm (2008). The Demise of Investment Banking Partnerships: Theory and Evidence, *Journal of Finance*, Vol. 63 (1), p. 311-350.
- Nakamoto, S. (2008). Bitcoin: A Peer-to-Peer Electronic Cash System, Working Paper, www.bitcoin.org.
- Philippou, T. (2016). The FinTech Opportunity, NBER working paper 22476.
- Rajan, R., H. Servaes and L. Zingales (2000). The Cost of Diversity: the Diversification Discount and Inefficient Investment, *Journal of Finance*, Vol. 55 (1), p. 35-80.

- Richardson, M., R.C. Smith and I. Walter (2010). Large Banks and the Volcker Rule. In: *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance*, (V.V. Acharya, T.F. Cooley, M.P. Richardson and I. Walter, Eds.), Wiley, p. 181-212.
- Rime, B. (2005). Do “Too Big To Fail” Expectations Boost Large Bank Issuer Ratings? Swiss National Banks, Systemic Stability Section, Working Paper.
- Samolyk, K. (2004). The Future of Banking in America: The Evolving Role of Commercial Banks in U.S. Credit Markets, *FDIC Banking Review*, Vol. 16 (2), p. 29-65.
- Sapienza, P. (2002). The Effects of Banking Mergers on Loan Contracts, *Journal of Finance*, Vol. 57 (1), p. 329–368.
- Saunders, A. (2000). *Financial Institutions Management*, 3rd Edition, New York: McGraw-Hill.
- Schellhorn, C.D. (2011). The Ownership Structure of Investment Banks: A Case for Private Partnerships?, *Academy of Banking Studies Journal*, Vol. 1 (1), p. 109-116.
- Schmid, M.M. and I. Walter (2009). Do Financial Conglomerates Create or Destroy Economic Value?, *Journal of Financial Intermediation*, Vol. 18 (2), p. 193-216.
- Schmid, M. and I. Walter (2014). Firm Structure in Banking and Finance: Is Broader Better?, *The Journal of Financial Perspectives*, Vol. 2 (2), p. 65–74.
- Shin, H.S. (2009). Reflections on Northern Rock: The Bank Run That Heralded the Global Financial Crisis, *Journal of Economic Perspectives*, Vol. 23 (1), p. 101-119.
- Stein, J. (2002). Information Production and Capital Allocation: Decentralized Versus Hierarchical Firms, *Journal of Finance*, Vol. 57 (5), p. 1891-1921.
- UBS (2008). Shareholder Report on UBS’s Write-Downs, 18 April 2008, <http://www.ubs.com/1/ShowMedia/investors/releases?contentId=140331&name=080418ShareholderReport.pdf>.
- Vatanasombut, B., M. Igbaria, A.C. Stylianou and W. Rodgers (2008). Information Systems Continuance Intention of Web-Based Applications Customers: The Case of Online Banking, *Information & Management*, 45 (7), p. 419–428.
- Vives, X. (2017). The Impact of Fintech on Banking, *European Economy*, 2017 (2), p. 97-105.
- Walter, I. (2003). Strategies in Financial Services, the Shareholders, and the System: Is Bigger and Broader Better?, *Brookings-Wharton, Papers on Financial Services*, Vol. 2003, p. 1-36.
- Wheelock, D. C. and P. W. Wilson (2009). Are U.S. Banks too Large? Working Paper 2009-054B, Federal Reserve Bank of St. Louis, December.
- WEF (2015). The Future of Financial Services: How disruptive Innovations are Reshaping the Way Financial Services are Structured, Provisioned and Consumed, Report, World Economic Forum, June.
- WEF (2016). The Future of Financial Infrastructure: An Ambitious Look at How Blockchain can Reshape Financial Services, Report, World Economic Forum, August.
- WEF (2017). Beyond Fintech: A Pragmatic Assessment of Disruptive Potential in Financial Services, Report, World Economic Forum, August.
- Wyman, O. (2014). Payments are Changing, but how Prepared are Retail Banks?, *Oliver Wyman Financial Services Point of View*, October.

2 PRIVATE EQUITY IN THE NETHERLANDS: VALUE CREATION, REDISTRIBUTION AND EXCESSES¹

Arnoud W.A. Boot, Jeroen E. Ligterink and Jens K. Martin

2.1 INTRODUCTION

Private equity continues to be in the news. Proponents emphasize the positive effects it can have. They refer to the advantages of private equity as an alternative source of financing, as vehicle that provides expertise and access to a network of industry experts, as a governance model that leads to better company performance, and to the added value of private equity as an asset class. Critics, on the other hand, argue that no value creation occurs, rather the return for private equity investors is just a redistribution of value at the expense of other stakeholders such as employees, creditors, suppliers and tax authorities. They also point to the dangers of an excessive use of debt financing and the higher insolvency risks this is thought to entail. They claim that as a consequence costs are passed on to society, for example, through lay-offs of employees following insolvency. Critics also point to the possibility of an excessive focus on the short term by private equity investors.

Private equity is risk-bearing capital invested by private equity funds into what is ultimately a non-listed company. The two most important forms are buyouts and venture capital. A buyout is a takeover of a mature company in which the private equity fund generally obtains a majority stake in exchange for injecting equity, primarily raised from institutional investors. The equity investment goes hand in hand with substantial debt financing. The ownership model of private equity is temporary; an exit is usually planned after four to seven years. In the case of venture capital, equity is invested into start-ups or emerging companies.

The Nederlandse Vereniging van Participatiemaatschappijen (NVP), the Dutch trade association for private equity and venture capital firms, reports that in 2015, 348 Dutch companies attracted a total of 3.3 billion euros from private equity funds, nearly 2 billion of which came from foreign private equity funds. Dutch private equity firms raised a record amount of 3.2 billion euros in 2015 for making new investments, of which 268 million consisted of venture capital.² NVP also reports that 1,400 companies in the Netherlands (employing around 380,000 people in total) have a private equity investor as a shareholder.

The focus of the study reported in this chapter is on buyouts (which are also central to the public debate). The research questions are:

- What are the advantages and disadvantages of this form of financing and ownership?

1 We thank Ludovic Phalippou and Kees Cools for their contributions to the original study underlying this report (Ligterink et al. 2017). We also would like to thank Maureen Wouters and Janelle Zoutkamp for outstanding research assistance, and Sidonie Rademaker and Lorena Zevedei for their editorial work.

2 Source: NVP website: <http://www.nvp.nl/pagina/ondernemend%20vermogen/>.

- What is the importance of private equity in the Dutch economy during the period 2007-2015? Does private equity contribute to economic growth? If so, how?
- What is the effect of private equity on the companies in which it has invested? What is the added value, and what effects does private equity have on the stakeholders in these companies, including the tax authorities? How do these effects differ from those of other sources of financing?

The study analyzes how private equity operates, how it can create value, and where excesses might occur. It also contains an empirical study into the effects of private equity in the Netherlands. The study builds upon previous research conducted by De Jong et al. (2007) and Boot and Cools (2007).

The structure of this chapter is as follows: Section 2.2 describes how private equity works and how a return is made on the companies in which a private equity fund invests. Section 2.3 provides insights into how private equity can create value, not only for investors, but also for society as a whole, and discusses findings of international empirical studies. The impact of debt financing (leverage) on the return and compensation of private equity investors is discussed in section 2.4. The source of returns is not necessarily value creation, but could also be associated with redistribution of value from other stakeholders to the private equity investors. This is the subject of section 2.5. Section 2.6 traces the development of private equity and buyouts in the Netherlands, and provides the key insights from an empirical study of the effects of private equity investments in the Dutch market.³ Section 2.7 concludes.

2.2 WHAT DOES PRIVATE EQUITY DO?

How does private equity work? A private equity firm creates an investment fund from which investments are made. The investment fund is ‘filled’ with an injection of capital by the private equity firm itself, acting as general partner.⁴ Meanwhile, capital is also obtained from limited partners. These limited partners are institutional investors such as pension funds, but may also be wealthy private investors. Under the general partner’s leadership, the fund invests in multiple buyouts of companies. Besides capital from the general and limited partners, a considerable amount of debt is used.

Financing with debt offers tax benefits as interest payments are partially deductible. Leverage also enhances the reward for accomplishing improvements in the business. The return on equity becomes (even more) sensitive to the target company’s performance. As an illustration, financing a company valued at 100 with 90% debt implies an equity investment of 10. Increasing the company’s value by 5 then gives a 50% increase in the value of the equity claim; i.e. it increases from 10 to 15.

As such, providers of private equity have strong incentives to actually improve the performance of the companies in which they invest. Additionally, the high leverage ensures discipline and a strong sense of urgency. The high debt load is after all also subject to

³ All details about the study into the effects of private equity in the Netherlands can be found in Ligterink et al. (2017).

⁴ The general partner’s contribution to the fund’s capital is typically around 1%.

default risk. In section 2.4, we examine the importance of leverage in greater detail. Heavy use is also made of performance-linked compensation, both within the private equity investment fund and within the target company. This encourages engagement in the target company.

How does a private equity fund generate a return on its investment? The investment fund's return often comes from a combination of the following sources:

- Operational improvements: implementation of measures that make the company more efficient (for example, more efficient use of the means of production in the company, selection of a better management team, better management information systems, improvements in logistical planning, better-focused R&D, etc.);
- Revised strategic focus: implementation of a new/improved strategy, including better use of growth opportunities and optimization of the corporate scope (for example, a buy-and-build strategy⁵, disposal of non-core activities, etc.);
- Governance structure enhancements: aligning the financial interests of the company's management more closely with those of the shareholder (for example, by making management a co-shareholder), increased supervision and oversight (via stronger incentives and more direct access to information for the shareholders, etc.), changes in the supervisory board (more expertise, more direct involvement, forging relevant networks), stronger incentives through optimization of leverage (increasing pressure and incentives through more debt financing).
- Financial engineering: optimal use of tax benefits (interest expenses may be partially deducted from corporate tax). Because of its specific expertise and experience, the private equity firm may better know how to organize the company's capital structure in such a way that it can be financed with a relatively high amount of debt without facing a corresponding increase in insolvency risk.
- Investment selection and market timing: if private equity investors are in a position to buy up undervalued companies and then subsequently resell them, they can generate returns for themselves. Arbitrage may result from a greater ability to predict developments on the market (market expertise), access to better information about the company, and/or superior deal-making capabilities (negotiation skills and better access to deals).

The most important conclusion from the points listed above is that a company's business affairs intensify the moment private equity enters the picture. Whether this is actually the same as value creation – and, if so, for whom – is the main topic of the chapter ahead.

2.3 PRIVATE EQUITY AND VALUE CREATION

Private equity is a temporary ownership and governance structure that creates a strong financial incentive for action. Its central focus is to achieve a return for the investors. Yet, how are these returns created? And how does private equity impact the insolvency risk of

5 With a buy-and-build strategy, the private equity firm grows the target company through mergers and acquisitions.

companies in which it is invested? To start with, we discuss the value-creation potential of private equity as a governance model. What can it do that other governance structures cannot? Subsequently, we take a closer look at statistical problems in measuring the performance of private equity. Afterwards, we turn to insights from the international empirical literature on the performance of private equity, including the effect on insolvency risk.

2.3.1 *A Closer Look at the Potential for Value Creation*

Private equity addresses an important concern related to public equity: how to discipline management. Private equity involves a small group of shareholders: the general partner(s) – often young, well-educated and active – with direct access to management and the latest information. This makes it easier to maintain a steady focus and strategy with optimal coordination between management and shareholders. Within listed companies, the distance between management and shareholders is often greater, and the dispersion of shareholdings can lead to so-called ‘free-rider’ problems. This refers to shareholders ‘looking to one another’ which begs the question who is keeping watch over management? Each individual shareholder would be happy if someone else would put in the effort, but if everyone assumes that someone else is doing it, ultimately nobody will.

The combination of maximal co-determination and minimal information asymmetry reduces the typical agency problems characteristic of public equity. Another feature of private equity is the very strong alignment of interests of shareholders (i.e. the private equity fund) and management through a compensation contract with powerful financial incentives, often including an obligation for management to buy shares in the company. Such an obligation ensures that management not only profits when things go well, but also faces consequences when things go badly. Normally, management cannot sell its investment before an exit takes place. This illiquidity eliminates, for example, the incentive for management to manipulate short-term results (see Kaplan and Strömberg, 2009, p. 131). The horizon is the moment of exit, which lies a few years in the future. Private equity funds also have no qualms about replacing poorly performing management at an early stage (see Acharya et al., 2013).

Another aspect of private equity which contributes to higher returns is a possibly more remote and clinical view which could make reorganizations easier. Furthermore, private equity can help companies achieve a change in strategic focus by injecting funds, expertise and access to an external network. Private equity funds (i.e. the general partners) often seek the advice of external experts with specialized knowledge on various aspects of the company’s activities.

This execution is often accompanied by a disposal of activities that are determined not to be part of the company’s core business, as well as additional takeovers to strengthen the company’s actual core activities. The corporate scope (and adjustments made to it) are a primary focus of private equity investors.

The picture sketched above indicates that private equity has an added value and thus can have advantages as a form of ownership compared with other ownership structures. This should be expressed in an improved operational performance and stronger growth

Box 1: Statistical Problems in Quantification

What happens to the company after the buyout? What changes do occur? In empirical studies, the greatest problem is that it remains unknown what would have happened to the company if it had not been bought out by private equity. In other words, the so-called counterfactual is unknown. To approximate this counterfactual, researchers look for the most relevant benchmark for comparison. Sometimes they choose to compare with the sector, or with a collection of companies from the same sector with similar characteristics to the target company. This can already lead to an initial problem of selection bias; companies financed by private equity are not randomly chosen, but may precisely be those with the greatest potential for improvement, opportunities for growth, etc. Furthermore, the company's management and shareholders must be open to private equity. That means, there may also be a selection bias here. Companies that are open to private equity are possibly different, even if adjustments are made for obvious differences. This makes it difficult to compare the two groups (companies financed by private equity versus those without private equity financing) or draw conclusions about the effects of private equity.

in the companies financed by private equity compared with similar companies that are not financed with private equity. Additionally, this suggests that private equity investors can achieve higher risk-adjusted returns compared, for example, to public equity.⁶

Another problem in empirical research on the effects of private equity is that many of the necessary data are not (fully) available, at least in public databases. This is especially the case for non-listed companies taken over by private equity. The lack of data for private companies creates also a potential problem in choosing the correct sample of comparable firms. Publicly listed companies are often chosen for this because of the availability of data. But these are typically relatively large companies, whereas private equity investments are usually smaller in size. Therefore, it remains unclear whether the findings of these studies can be generalized to provide insights into the often smaller buyout companies.

2.3.2 Returns for Private Equity Investors (Limited Partners)

Empirical studies show that, historically speaking, the net return for the limited partners of private equity funds is higher than that of a diversified stock portfolio (a value-weighted stock market index). This is true even after the deduction of costs and (considerable) fees. However, the spread in returns is large, and, when adjusted for disadvantageous factors, such as reduced liquidity and higher risk compared to the benchmark, there appears to be essentially no outperformance for the limited partners.

The general partners charge substantial fees. Metrick and Yasuda (2010) estimate,

⁶ Due to leverage, private equity investors automatically achieve higher returns on average, but this goes hand-in-hand with greater risk. Higher risk-adjusted returns, that are not caused by undervaluation at the moment of investment, should be an indicator of the company's improved performance (unless these higher returns are caused by tax benefits associated with leverage).

based on a simulation, that the present value of these fees is approximately 17% of the committed capital.

It is important to emphasize that the higher return on private equity is based on an average. There is significant variation over time and among different funds. Selecting the right funds and fund managers appears to be very important. Not every institutional investor has equal access to private equity funds. Particularly large institutional investors with a strong reputation will be invited by the most successful private equity firms to participate in their funds. On top of that, these larger institutional investors may have the in-house expertise to select the right funds and know how to keep costs in check. A smaller, less professional pension fund will have greater difficulty achieving comparable high returns.

Yet, even if these high returns are actually achieved, this does not necessarily mean outperformance. It can be a compensation for extra risk. The risk profile of a private equity fund is different than that of a well-diversified stock portfolio. The fund often contains smaller companies with a relatively low market value compared to their book value, and lower-liquidity investments are also typical. If adjustments are made for these extra risk factors, various studies find that the higher return is largely eliminated (i.e., it is attributable to these factors). That means there is no such thing as a significant out-performance for limited partners: the extra return is a compensation for exposure to these factors.

2.3.3 *Operational Performance and Insolvency Risk*

Based on existing international research, we can cautiously conclude that private equity has a positive effect, on average, on the operating performance and growth of companies in which it is invested. Most studies find that companies achieve a higher EBITDA margin and higher revenues on average. At the same time, recent studies conclude that these advantages have declined over time (see, for example, Guo, Hotchkiss and Song, 2011). Important disclaimers must be applied here. In the first place, it is unclear to what extent the positive effects are caused by the selection of underperforming companies. This would indicate a selection effect rather than an outright positive contribution of private equity. Secondly, takeovers and divestments of parts of companies (which often go together with private equity investments) can lead to the creation of entirely different companies that have little to do with the original benchmark.

Studies find that the return often consists of three primary components: operational improvements and growth; market timing and selection; and advantages of high leverage. Acharya et al. (2013) find that, in a sample of 395 European buyout transactions, operational improvements and growth account for 35% of the return, market timing and selection for 15%, and advantages of higher leverage for 50%.

Another important element of the performance of private equity is its influence on risk, particularly insolvency risk. Research on the United States shows that insolvency risk slightly rises due to the increased leverage under private equity. This rise is, however, limited. Work by Hotchkiss, Smith and Strömberg (2014) on the US is probably the most extensive study of the impact of private equity on insolvency risk. This study examines

more than 2,000 companies from 1997 to 2007 and finds a 4.9% chance of insolvency among private equity supported companies compared to a 3.6% chance among companies without private equity support. European studies such as Tyková and Borell (2012), covering a sample of European private equity companies, and Wright et al. (2014), covering a group of companies in the United Kingdom, find no differences in the probabilities of insolvency. Furthermore, Harford and Kolasinski (2013) find that refinancing activities used to pay out dividends have no discernible impact on a private equity-backed company's chances of insolvency.

Consequently, studies show that the risk of insolvency in a company financed by private equity is hardly higher on average than that of similar companies without private equity backing.⁷ This suggests that private equity funds are apparently capable of managing the high degree of leverage.⁸ Private equity investors aim to decrease the leverage (through the cash flows generated by the portfolio company) to a lower level before they exit the company. As the median holding period is 4 years, the high leverage of the portfolio company is more pronounced in the early years.

Since the chances of insolvency are only slightly higher, the expected societal costs (lay-offs, value destruction during insolvency proceedings, etc.) are limited.

Additionally, private equity funds act as buyers of (parts of) bankrupt companies, potentially enabling bankruptcies to be resolved more efficiently. This makes it easier, for example, to keep viable parts of a bankrupt company afloat.⁹ Private equity also plays a significant role in the takeover market by facilitating the transfer of companies through restructuring and rationalization of operational activities. In the process, it creates liquidity in the takeover market in places where it would otherwise be less available.

2.4 THE IMPORTANCE OF LEVERAGE

We shall illustrate how financing with debt influences the expected return and risk of private equity investments, before turning to its impact on the general partner's compensation (the carried interest).

2.4.1 *The Influence of Leverage on Investment Risks and Returns*

The effect of leverage on returns can best be explained using a simulated example. Suppose the value of a company that a private equity fund seeks to acquire is 100. In the first scenario, this investment is 100% financed by the fund with equity; in the second scenario, 50% of the investment is financed with equity and the rest is external debt; and, in the third scenario, equity accounts only for 10% of the investment, with the remaining being external debt.¹⁰ Suppose, the private equity fund succeeds in increasing the target

7 The studies are not unequivocal. Some studies find an increase, where others find no change in the chances of insolvency compared with a group of companies that are not financed by private equity.

8 An alternative explanation is that low-covenant loan agreements give private equity players a strong position with regard to their creditors, who, in turn, are quicker to make concessions in case problems arise.

9 Private equity could enable viable parts of companies to be salvaged from insolvency (Imtech, for example), or prevent insolvency through well-timed reorganizations.

10 We have chosen for rather extreme values of the financing ratios in order to clearly illustrate the effect of debt financing on the return on equity of the private equity fund.

company's value by 15% (i.e. the value becomes 115) through operational improvements or organic growth. What would be the return for the private equity fund in each of the three financing scenarios? Considering that the value increase goes to those who have provided equity (the private equity fund), the return on an investment consisting entirely (100%) of equity is 15%. In the scenario where 50% of the investment is made up of debt and the fund's own equity makes up the other 50%, the return rises to 30% (i.e. $(15/50) \times 100\%$); in the scenario where debt makes up 90% of the investment, the return on the fund's equity investment increases all the way to 150% (see Table 1).¹¹

Table 1: Development of the Shareholder's Return in Case of Value Creation of 15

	Value Increase of 15		
	100% Equity	50% Equity	10% Equity
Company Value	100	100	100
Equity	100	50	10
Debt	0	50	90
Value Creation	15	15	15
Return as % of Equity Invested	15%	30%	150%

Additionally, it is important to emphasize that greater leverage also increases the spread (and, therefore, the risk) of the private equity investor's return. Suppose there are two possible scenarios: the value added is 15 (as above), or there is a decrease in value of 5. How is the return on the invested capital affected for the private equity fund in case of a decrease in value of 5? Assuming once again that the fund's equity accounts for 100%, 50% or 10% of the investment, the return on equity is -5%, -10% and -50%, respectively (see Table 2). In other words, the higher the leverage, the higher the positive returns, but also the more negative the negative returns on the fund's equity. This applies generally for returns on investments in the financial markets. In the case of active private equity involvement, the returns are effort related, and are basically a reward (i.e. extra returns) for the restructuring or new growth strategies. And that reward can be boosted by leverage.¹²

11 For the sake of simplicity, we abstract from the cost of debt in these examples. If this is put at 5%, and the (one-time) 15% value creation is achieved in a single year, this leads to a return on the fund's own investment of equity equal to 15%, 25% (i.e. $[(15-2.5)/50] \times 100\%$) and 105% (i.e. $[(15-4.5)/10] \times 100\%$), respectively.

12 Leverage thus increases the reward (but also the loss if it does not work out). Note that this is different from the focus of the famous work of Modigliani and Miller that looks at returns that investors require for holding stocks, bonds or other assets. Those returns do typically not reflect any skill or action, but are a compensation for time preference and

Table 2: Effect of (Operational) Value Decrease of 5 on the Return on Equity

	Value Decrease of 5		
	100% Equity	50% Equity	10% Equity
Company Value	100	100	100
Equity	100	50	10
Debt	0	50	90
Value Creation	-5	-5	-5
Return as % of Equity Invested	-5%	-10%	-50%

2.4.2 The Effect of Leverage on the Compensation of the General Partner

The general partner of the private equity fund is compensated in the form of a management fee and a fee related to the fund’s performance (the carried interest). In this section, we demonstrate how the buyout, as a means of financing, influences the general partner’s carried interest. Suppose the agreement contains apart from the 20% carried interest, a ‘hurdle’ of 8%. This means that the general partner only receives the carried interest once the limited partners achieve at least an 8% return on their investment. Once this 8% return is achieved, the general partner receives a follow-up return until it reaches a return of 20% (this is known as a catch up). Any additional return achieved is then distributed at a ratio of 80% (for the limited partners) to 20% (for the general partner). The total of this performance-based variable compensation for the general partner is known as the carried interest.

To illustrate the effect of leverage on the carried interest, we return to the example used in section 2.4.1. (i.e. 15 in value creation). Assume a 20% carried interest on the return achieved above the 8% hurdle. Although, in reality, the carried interest is usually calculated based at the fund level, we will assume here for the sake of simplicity that only one investment has been made from the fund and that all value is created within a single year. We assume a total operational value creation within the company of 15 on top of a company value of 100. We will show the carried interest for the three scenarios, in which the fund’s investment of equity amounts to 100%, 50% and 10%, respectively.¹³

In the first financing scenario, the fund’s equity accounts for 100% of its investment. In that case, the limited partners first receive a return of 8% on their investment (i.e. 108). Then, the general partner receives an amount equal to 20% of the return paid out

risk. With leverage those returns need to be on average higher (i.e. higher expected returns) to compensate investors for extra risk.

¹³ For the sake of simplicity, we do not take management fees into consideration in this example.

thus far. This is 25% of 8, which equals 2. The rest ($15 - 8 - 2 = 5$) is distributed among the general partner and limited partners according to the 20/80 rule. Therefore, the general partner receives an additional $0.2 \times 5 = 1$ from this. In total, the general partner receives a carried interest (performance-based compensation) of 3 in this scenario. If we carry out these calculations for each of the three financing scenarios, we see that, in each case, the general partner receives 3 (see Table 3). This seems to suggest that the general partner is indifferent with regard to the financing proportion, but that is only the case if we look at a single investment. In fact, by financing with more debt, the general partner can finance more projects, considering the size of the investment fund, and thus increase the total compensation across all projects combined. Suppose the general partner's fund has a size of 100. In that case, the general partner can make a single investment in which equity amounts to 100. If the fund invests with 50% debt, it has 200 to invest (100 equity and 100 debt), thus enabling it to take on two projects of 100 each, and thus receiving twice the carried interest. If the fund invests with 90% debt, even 10 such projects can be taken on, each contributing to the general partner's carried interest. In other words, the total carried interest increases proportionally to an increase in leverage.¹⁴ It is important to note that the carried interest is calculated at the fund level so that, if one investment fails to deliver a good return, it comes at the expense of the total carried interest.

Table 3: Development of Carried Interest in a Project Under Various Financing Scenarios

	100% Equity	50% Equity	10% Equity
Company Value	100	100	100
Equity	100	50	10
Debt	0	50	90
Operational Value Creation	15	15	15
Value of Equity at Exit	115	65	25
Hurdle Rate (8%)	108	54	10.8
Surplus Profit Above Hurdle	7	11	14.2
GP's Catch up (up to 20%)	2	1	0.2
GP's Remaining Carried Interest	1	2	2.8
GP's Total Carried Interest	3	3	3

¹⁴ In the example in Table 3, we assume that the cash flow is high enough to pay out the hurdle as well as the catch up.

Abstaining from problems associated with default of insolvency, the preceding analysis implies that the general partner of the private equity fund has an interest in financing investments using debt to the greatest extent possible.

2.4.3 *Leverage and Value Creation*

There are multiple reasons for using leverage in buyouts. It makes it possible to do ‘more’ with a limited amount of equity, thus increasing a fund’s clout (multiple buyouts can be done by adding debt to the available funds). It enables more concentrated shareholdings (fewer additional shareholders needed) improving engagement and reducing free rider problems. Leverage increases the return on the private equity investors’ efforts, and the performance-sensitivity of the general partner’s compensation (the carried interest). It further could enforce greater discipline and urgency. Additionally, it could offer tax benefits as stated.

Private equity funds can raise the leverage even more by providing loans themselves (so called shareholder loans). The interest rate on these loans is usually high, and could further increase the tax savings. Depending on the selected structure, the private equity fund’s interest income is either non-taxable or taxed at a relatively low rate.

The tax benefits associated with leverage have been scaled back by recent legislation in several jurisdictions. In 2012, the Netherlands began limiting the tax-deductibility of interest payments. In the tax plan for 2017, the deductibility of interest on shareholder loans was abolished through an amendment to Article 10a of the Dutch Corporate Tax Act.

The high degree of leverage is often seen as undesirable by critics because it reduces taxes for the government and might expose the company and its investors to a high level of insolvency risk. Critics also claim it can be used as a means of ‘pillaging’ a company by having it pay out a superdividend with the cash from newly issued debt. This may result in greater insolvency risks, and it may impact the company’s future prospects.

However, general partners of private equity funds seem capable of managing the risks of greater leverage. They work closely with the company and contribute their own knowledge and expertise. This makes them better capable of promptly evaluating the desirability and necessity of additional injections of capital as soon as problems arise. They also often have a relatively strong negotiating position when dealing with creditors (e.g. banks). Additionally, they may care about their reputation because investors need to be found for new funds that they may establish in the future. This argument expands to creditors of the firm as well as management. Since private equity firms also want to fund future investments with relatively high debt levels, they have an additional incentive not to default on their debt. Management will prefer a private equity investor with a good track record as they often invest alongside the private equity investor and thus has “skin in the game”.

2.5 REDISTRIBUTION AND POSSIBLE EXCESSES

Besides ‘real’ value creation, the return that private equity investors earn can point to a redistribution at the expense of other stakeholders. Employees may lose their jobs or face pressure to accept lower salaries, suppliers may be forced to make concessions, and creditors may be pressured to lower their claims. If private equity raises the company’s risk profile, a heightened insolvency risk may inflict damage on other stakeholders.

In the section below, we first discuss possible negative aspects of private equity, specifically the often-bemoaned short-term focus and aggressive ‘asset stripping’ (i.e. selling a company’s underlying assets following the buyout). Then, we turn to possible redistribution effects. We discuss redistribution effects towards the government (tax arbitrage), the possibility of favoritism towards management at the expense of existing (‘old’) shareholders, redistributions that put employees at a disadvantage, and redistributions between the general and limited partners. Finally, we examine the possible spillover effects of private equity on the sector in which the target firm operates, and externalities vis-à-vis the economy as a whole.

2.5.1 *Investments, Short-Term Bias and Asset Stripping*

Does private equity lead to a heavier focus on the short term, in the sense of damaging the long-term prospects of the target company? The notion of a stronger short-term mentality among private equity companies (compared to similar non-private equity-funded companies) is only in a very limited way supported by findings in the international research. Studies on the effects of private equity in the 1980s found that private equity-financed companies invest less. This could be characterized as a stronger focus on the short term. However, at that time, private equity focused primarily on inefficient conglomerates in need of restructuring. This would naturally lead to reductions in scope and limits on wasteful investments. To characterize this as an undue bias in favor of the short term is somewhat misleading. In recent decades, private equity is more focused on growth, with typically no decrease in investments throughout its ownership. Recent studies show that the level of investments in R&D does not decrease under private equity but does become more focused. A median holding period of 4 years would also suggest a more medium term, rather than short-term focus.

Another (related) criticism focusses on ‘asset stripping’ and superdividends; basically, selling assets at the expense of future opportunities of the firm in order to increase profit distributions. However, asset stripping and the issuing of superdividends are not structural occurrences in companies taken over by private equity. Although superdividends have been observed in some cases, and may indicate that the company in question is being pillaged, research by Cohn, Mills and Towery (2014) finds that even for businesses in the 90th percentile of highest dividend payouts, dividend accounts for only 0.1% of the transaction value in the first year and 1.7% in the second year. This means that dividends were even lower than *before* the buyout. The study does find that companies (buyouts) with low cash flows tend to pay slightly higher dividends, and vice versa. However, the effect on the economy, as a whole, is very limited.

Furthermore, the possibilities of paying superdividends have been somewhat limited by government policy. Around the world, legislative measures have been enacted to prevent excessive profit distributions and ‘asset stripping’ in its purest form.¹⁵ In the Netherlands, this falls under directors’ liability (Article 2:216 of the Dutch Civil Code) and the AIFM directive, which is enshrined in law (Article 4:37v of the Dutch Financial Supervision Act (Wft)). Under Article 2:216 of the Dutch Civil Code, directors must act in the company’s interest when carrying out planned profit distributions. They must test on the basis of realistic prognoses whether the distribution may result in continuity problems for the company. In the event of insolvency, the directors can be held personally liable if this testing was not carried out, or was carried out inadequately. If shareholders have received dividends and the company goes bankrupt, the creditors can claim and recover the wrongfully paid out amount from the shareholders. The AIFM directive (Article 30) contains a measure to counter asset stripping; among other things, it requires the private equity fund with a controlling interest in a company to abstain for the first 24 months from supporting actions that affect the assets of the company in question. This is intended to prevent a private equity fund from selling off valuable assets and redirecting the profits to themselves by paying dividends.

Another source of concern is that excessive leverage places too much pressure on management, tempting them to ‘cut corners’. There is some evidence that high leverage pushes management to increase short-term cash flows in order to help deal with the debt burden. This could lead to a degradation in the quality of products. Matsa (2011) shows that this can indeed occur. He found that concessions were made with regard to the quality of products in heavily debt financed private equity transactions in the American supermarket sector. This does seem to indicate a short-term focus: in the longer term, a similar strategy would probably cost the company clientele and revenue. This research is, however, too limited to draw broader conclusions.

Overall one could say that there is no reason to assume that desirable investments decline. R&D investments are, however, more focused under private equity.¹⁶ Only in isolated cases are superdividends paid out at an early stage. However, absolute conclusions cannot be drawn. Concerns can be raised about limitations in the empirical studies, including selection biases. Also, as mentioned previously, research focuses primarily on relatively large companies because more data on these companies are publicly available.¹⁷

2.5.2 Market Timing and Selection

An alternative (partial) explanation for the positive return for private equity investors is the possibility of timing as well as selection. If a private equity fund is good at selecting undervalued companies that it later sells for a higher price, this is ‘merely’ a transfer of value from the shareholders of the target company to those of the private equity fund. In that case, the returns reflect the elimination of undervaluation, rather than value crea-

15 ‘The purest form’ refers to selling assets so that superdividends can then be paid out, leaving creditors and employees with a ‘hollowed-out’ company.

16 Lerner et al. (2011) argues that patents of LBO firms seem to have a higher economic impact; they are more cited.

17 The study by Cohn et al. (2014) is an exception. Cohn et al. base their research on tax returns, thus incorporating data from smaller, more comparable companies.

tion. This can also apply to the buyout of a company with undervalued assets which are then sold off in parts (asset stripping).

Exposing the undervaluation can actually have real effects. Achieving an accurate valuation can enable assets to be allocated more optimally. It sends a better signal about where opportunities are, and thus can result in a better allocation of resources.

Strategies focusing on market timing and asset stripping were particularly popular in the 1980s when breaking up conglomerates was common. In those years, not only was undervaluation an issue, but typically also underperformance of the different parts. Within the conglomerate, the different pieces could hide their shortcomings. Breaking up these conglomerates allowed a more focused response offering possibilities for real value creation.

2.5.3 *Redistribution Effects*

In this section, we discuss how private equity can lead to redistributions of value among the various stakeholders and private equity investors.

Government and Tax Arbitrage

Private equity goes hand in hand with a relatively high level of debt. This produces tax savings through the deductibility of interest payments. As a result, the government loses out on tax revenues. This has led many countries to develop regulations to limit tax deductions for leveraged buyouts. In Germany, for example, the deduction is capped at 30% of EBITDA. The Netherlands has set limits on the interest deduction with its 'acquisition holdings' decision of 2012. Article 15Ad of the Dutch Corporate Tax Act of 1969 specifies that, effective 1 January 2012, only the interest paid on the healthy part of the acquisition debt is deductible. The healthy part is set at 60% of the acquisition price. This is lowered by five percentage points each year, for a period of seven years after the buyout, until it reaches 25%. The deduction limit includes a SME franchise of 1 million euro interest per year.¹⁸

Tax arbitrage can also take place by charging management fees at the company level. These management fees are (partially) tax-deductible. Depending on where management fees fall, they may be taxed at a lower rate, or not at all.

The tax advantages of leverage are significant. Knauer et al. (2014) find that tax savings in Germany, for example, amount to between 16% and 20% of company value. This results in lower tax revenues for the government. The benefit comes with higher prices that are paid during a buyout and thus seem at least in part to be transferred to the bought-out shareholders of the companies being taken over (see Jenkinson and Stucke, 2011).

As indicated, tax benefits are by no means the only reason why private equity transactions involve leverage. They are simply part of a broader set of forces, including the impact of leverage on incentives. The (further) elimination of tax benefits will therefore not make the relatively high use of leverage in private equity disappear, but may moderate it.

¹⁸ For further analysis of the fiscal aspects of private equity, see Van de Streek (2015). With the recent Dutch Tax Plan of 2017, interest deduction for shareholder loans has been abolished.

Redistribution Through Favoritism Towards Management

A less flattering example of private equity transactions is whenever the deal is consciously created to achieve more lucrative rewards at the expense of existing shareholders. In particular, management of the target company might be susceptible to pressure or promises from the private equity fund. Management may have been approached in the run-up to the buyout and, based on promises made with regard to its role in the buyout, already be acting in the interest of the private equity fund instead of in the interest of existing shareholders or other stakeholders.

Some evidence of this is found in the study by Mao and Renneboog (2015), which shows that, in management buyouts (MBOs), more downward earnings-manipulation takes place in the year leading up to the transaction. It may imply that existing management tries to negatively influence the value of the company in order to bring down the purchase price for the private equity fund. This creates a greater potential to increase the company's value after the transaction. Management might benefit if it is promised a role post-buyout, particularly when it gets shares. In any case, this calls for an active role on the part of non-executive directors (the supervisory board) of the target company; its management might be compromised. In Box 2 the (failed) buyout of Qantas by a consortium of private equity parties is discussed, illuminating some of these issues.

Box 2: Conflicts of Interest Between Shareholders and Management at Qantas¹⁹

In early 2007, a consortium of private equity funds (referred to here as APA, a group which included Macquarie and TPG) made a bid 33% above the latest share price on shares in the listed Australian airline company Qantas. In March of that year, Qantas released its annual report which showed earnings that were 30% to 40% higher than had been expected. APA did not increase its bid based on this information, and on 12 April, amended the bid so it would be conditional on backing from 70% of Qantas shareholders. Yet, by the 7th of May of that year, not even 50% of the shares were offered, prompting APA to withdraw its bid.

The most important reason why the buyout fell through was that investors considered the bid to be too low. However, in addition to that, a conflict of interest between management/board and shareholders may have played a significant role.

Qantas chairwoman Margareth Jackson had been a strong proponent of the deal. The fact that no increase in the bid was requested despite the company's reported earnings being higher than expected, contributed to the perception that management at Qantas was eager to make a deal that played into the private equity fund's hand rather than putting the interests of the 'old' shareholders first. Qantas announced that its management would acquire 1% of shares in the privatized company (a value of around 110 million dollars). Later, it was revealed that this stake might increase to as much as 4.5%. These revelations reduced confidence in both management and board, and ultimately contributed to the shareholders' decision to turn against them. The Qantas case raised much attention and concern in Australia and other countries over conflicts of interests in private equity buyouts.

19 This case study is based primarily on a study by the Melbourne Centre for Financial Studies (2009).

There are several other ways in which management might be compromised, for example, exorbitant severance packages might be offered for members of management who consent to the buyout. Again, this would tempt existing management to advise shareholders to sell the company too quickly and at a price that is too low.²⁰ This puts existing shareholders at a disadvantage, and calls for a vigilant role of non-executive directors.

Redistribution and Employees

The impact of private equity on the size of the workforce within a company is, on average, negative during the first year after the buyout; however, the workforce generally recovers in the years after that (see Cressy, Munari and Malipiero, 2007; Wilson et al., 2012; Boucly, Sraer and Thesmar, 2011). In private equity transactions focused on restructuring, a more permanent negative impact of private equity on the number of employees can be expected. However, also here, understanding the counterfactual is important: what would the prospects of employees have been if the restructuring would not have taken place?

Also, Schumpeter's 'creative destruction' argument should be taken into account. What opportunities come about by restructuring or downsizing a bloated incumbent, or by enforcing a strategic reorientation? The company itself might ultimately grow again based on the strategic reorientation (with possible subsequent mergers and takeovers by the company).²¹ The most extensive study of the effects of private equity financing on employment in companies is Davis et al. (2014). That study analyzes a very broad dataset from 3,200 buyout companies during the period 1980-2005, concluding that buyouts lead to a limited *net* loss of jobs (less than 1%) but result in significant *gross* job creation. While a considerable number of jobs are eliminated, a large number of new jobs are created (resulting in only minor net job losses).

With regard to salaries per employee, the picture is less clear. Some international studies find a slight decrease, while others identify an average increase. Although identifying the exact reasons for such ambiguous findings remains anyone's guess to a certain extent, there are two effects which seem to play a part. Private equity exerts downward pressure on salary levels in general, but, at the same time, there is a possible shift towards more higher-level job positions.²² Studies show that other forces and arrangements that surround employees (union membership, occupational safety records, career perspectives, complaints procedures, internal promotions, etc.) do not fundamentally change.²³ In that sense, there seems to be no systematic evidence of indirect transfers of value from employees to investors.

²⁰ This conflict of interest also may occur in non-private equity initiated takeovers (see for example Mannesmann, where management received a very favorable retirement package).

²¹ Note that the process of shrinking and growing again will not be without pain, nor without costs to society. Whenever a mass outpouring of older workers occurs, they may not all be able to re-enter the labor market, and substantial costs are passed on to society even in the long(er) term.

²² A possible mechanism for this is that financing with large amounts of debt, and the resulting pressure on the company, does weaken the negotiating position of employees; for a thorough theoretical discussion of this topic, see Perotti and Spier (1993).

²³ See, for example, the survey by EVCA/CMBOR (2008).

Redistribution from Limited Partners to General Partners

The general partner's compensation contract (with management fee and carried interest) should seek to align the interests of the general partner with those of the limited partners. Nonetheless, conflicts of interest may still arise. These are primarily related to the fact that the general partners place great importance in the size of the fund (see also our analysis of the carried interest), whereas limited partners are primarily concerned with the return on their investments. The urge to see the size of the fund (and that of subsequent funds) as objective can lead the general partner to undertake less optimal investments, particularly at the end of a fund's lifetime. The general partner's reputation and strong screening measures by the limited partners of private equity funds are intended to keep this behavior under control. Furthermore, the general partner can charge all kinds of other fees, for example, a management fee to be paid by the company. Nowadays, limited partners usually try to define such fees in their contracts with the fund or negotiate that these fees will be deducted from the amount of carried interest paid. Nonetheless, transparency towards smaller investors in particular remains a concern. Market forces could prompt some discipline. Currently, however, a relative surplus of capital has given rise to a 'demander's market', giving general partners greater power, and putting market discipline under pressure.

2.5.4 Spillover Effects of Private Equity

Two recent studies (see Bernstein et al., 2010; and Lubbers, Von Eije and Westerman, 2015) have examined the impact of private equity on the meso- (i.e. sectoral) level. Bernstein et al. (2010) find that sectors in which private equity funds have been active in the last five years experienced relatively more growth in employment as well as more investment. This may point to spillover effects onto competitors in the sector due to the presence of private equity funds. For example, if private equity involvement via, 'creative destruction' elevates competition, that competition could stimulate non-private equity-financed companies to increase their productivity and improve operational processes.

It is too soon to draw strong conclusions based on these studies. They are simply too sporadic for that. It is clear, however, that there is a real possibility that the presence of private equity financing has positive effects on other companies in the same sector. Research on this topic is still in the early stages.

2.6 DEVELOPMENTS IN THE PRIVATE EQUITY MARKET IN THE NETHERLANDS

The market for private equity investments reached its high point in 2007, worldwide as well as in the Netherlands. Aside from the overheating at that point and the correction that followed during the financial crisis (especially in 2009), the volume of private equity has increased steadily over the last three decades. However, the market develops in waves which are strongly influenced by the degree to which debt is available at any given time, as well as how easy it is to make an exit. The latter depends strongly on the stock market.

In this section, we first provide general information about the Dutch private equity

market. Subsequently, we present empirical insights from an analysis of buyouts in the Netherlands during the period 2007-2015.

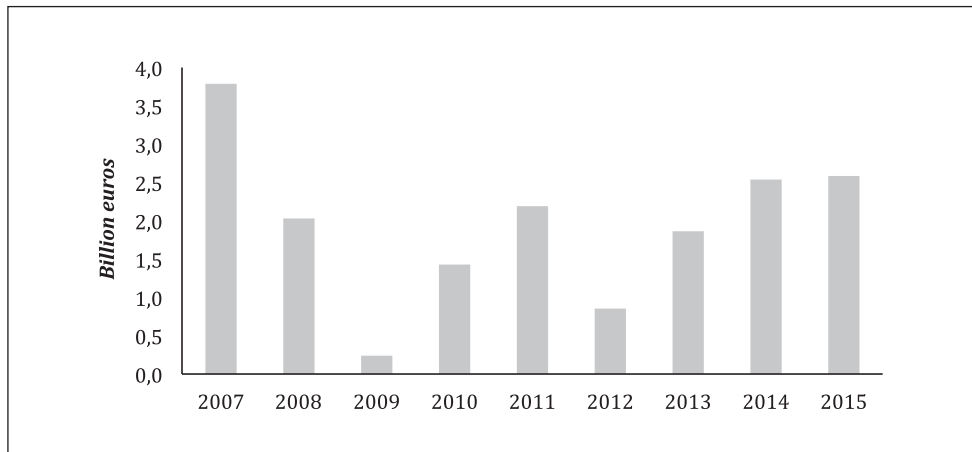
2.6.1 Private Equity in the Netherlands

Because of relatively high returns in the past – at least compared with a well-diversified equity index – private equity has become a popular asset class for institutional investors. The pension fund ABP, for example, has invested approximately 5% of its total portfolio in private equity. The increasing supply of capital for private equity is also a result of the relatively high number of exits by earlier private equity funds, which frees up capital for reinvestment. As a consequence, there are currently many funds on the market with relatively high amounts of capital that is committed but not yet invested (also known as ‘dry powder’). In such a market the suppliers of capital may have a relatively weak bargaining position compared to the demand side (i.e. the private equity funds).

Annual private equity investments in the Netherlands from 2007 to 2015 amounted to approximately 2 Billion euro, 0.3% of GDP (see Figure 1).²⁴

The greatest portion (62%) of private equity investments falls in the category mid-market, with investments between 15 and 150 million euros; 22% are smaller deals, and the remaining 15% are large transactions (see Figure 2). For the period from 2007 to 2015, 46% of the total investment volume on average was initiated by foreign private equity firms. Syndication, in which multiple private equity parties are involved, occurs regularly (29% of the time on average for the 2007-2015 period).

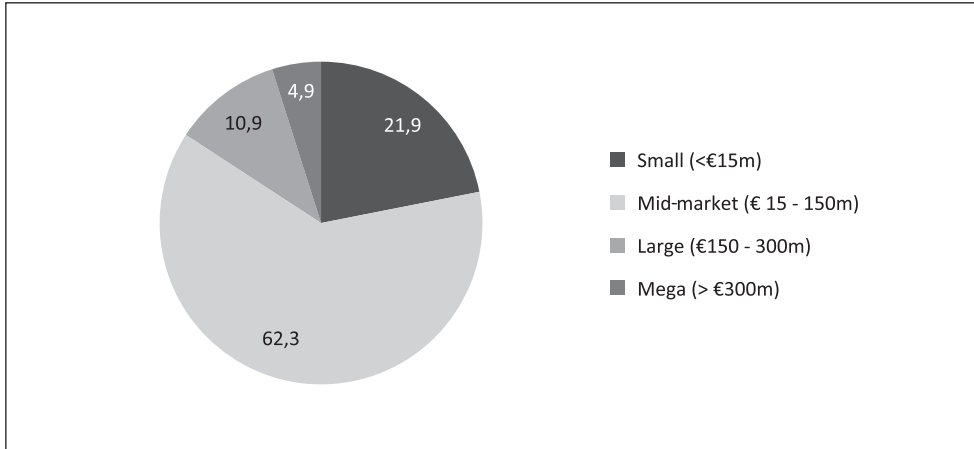
Figure 1: Overview of the Development of Buyout Investments in the Netherlands by Private Equity Funds (European PE Funds); in Billions of Euros



Source: Invest Europe country tables 2007-2015 (Table 26)

²⁴ Because of the relatively high degree of debt financing, the clout of private equity is greater than its own contribution of capital (including any shareholder loans). This is reflected in the higher leverage, on average, after a buyout. Following the crisis, around 60% of the capital in private equity-held companies is debt, which is somewhat below the average amount of debt before the crisis. This refers to the all-in leverage (i.e., the leverage on the level of the buyout holding as well as within the company).

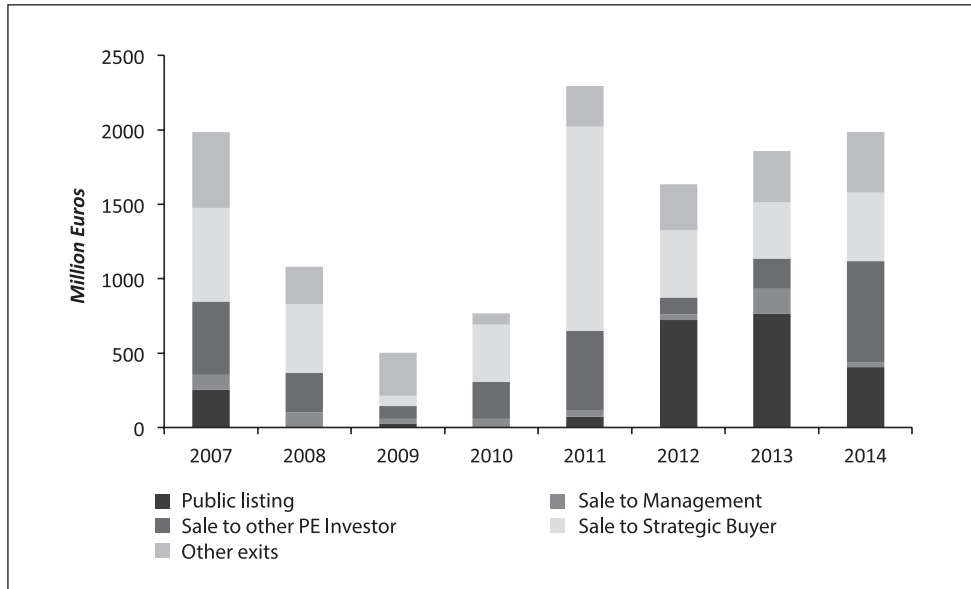
Figure 2: Classification by Size of Financing in Buyouts by Private Equity Funds; Averages (2007-2015)



Source: Invest Europe country tables 2007-2015 (Table 24)

Private equity funds maintain their investment for approximately five years on average. For the period from 2007 to 2015, selling to a strategic party (an operating company) was the most commonly used method of exit (33% of all cases). Reselling to another private equity fund (secondary buyouts) accounted for 20% of exits, while 12% of cases ended with an exit through a public listing. Secondary buyouts are becoming increasingly important, not only in the Netherlands, but worldwide. The increase in secondary buyouts is explained in part by private equity funds that still need to invest despite reaching the end of their investment period (usually the first five years of a fund), or by funds that need to get rid of their investments at the end of the fund's lifetime. Secondary buyouts can be optimal from a value-creation point of view when successive buyouts build on complementary skills; for example, through a restructuring in the first round towards a growth strategy afterwards.

**Figure 3: Divestments (Exits) by Private Equity in the Netherlands (2007-2015)
Organized by Exit-Type; in Millions of Euros**



Source: Invest Europe country tables 2007-2015 (Table 39)

2.6.2 Insights from Empirical Data

Although governance models vary from one country to the next, the ultimate manifestation is far more uniform than it seems (see Boot, 2010). This is even more so for the private equity model. Private equity as a governance model has very few fundamental differences across the world. Dutch funds invest in the Netherlands and abroad, and the same goes for their fundraising. There are also many foreign private equity funds active in the Netherlands. As a result, the insights from the international empirical studies mentioned in section 2.3 are undoubtedly also relevant for the Netherlands.

In addition to taking stock of these insights, we have specifically looked at the Netherlands (see Ligterink et al., 2017, for details). Based on two complementary samples, an attempt is made to gain insights into the effects of private equity buy-outs in the Netherlands. The first sample comes from a public database (Zephyr by Bureau van Dijk, referred to here as BvD). Based on this, 595 private equity buyouts were identified over the period from 2007 to 2015. The results of these buyouts are compared with two control groups. One control group contains ten Dutch companies which are comparable in size and sector, and the other consists of ten similarly comparable European companies. We examine the development of certain figures from one year before the buyout until three years afterwards, or the moment of exit. Because the availability of data for these companies is often limited, the final sample is considerably smaller than 595 and the number of companies varies depending on

the aspect being examined. As such, less than 5% of the original sample remains for certain figures related to revenue, debt, number of employees, and taxes. This may impact how representative the ultimate sample is, implying that the results should be interpreted with caution.

The second, much smaller sample (31 buyouts) contains more detailed information, making further analyses possible. We refer to this database as the PE database (alongside the aforementioned BvD database). The PE database contains information on the size of the investments and the characteristics of the companies involved, and that for the year in which the buyout occurred until the exit (in so far exit had already taken place). The most important insights are discussed below.

Holding Period and Deal Characteristics

The median holding period for both samples is four years for the companies that realized an exit during the period 2007-2016. This is comparable to the European median. Furthermore, only 192 of the 595 companies had realized an exit. This is most likely related to the influence of the crisis. This means that the actual period a company is held by private equity on average is longer.

In most cases, private equity funds buy a majority stake (90.3% in the PE database). In 16% of cases, co-investors are involved – investors who invest along with the private equity fund – and in nearly 10% of cases, multiple private equity funds participate in a single deal. In terms of the initial investment, private equity funds buy from a strategic seller in 33% of cases; in 42% of cases, they buy from other private equity funds; and in 25% of cases, they buy directly from company owners or their families. When realizing an exit, private equity funds choose a strategic buyer 33% of the time. Alternatively, they sell to a different private equity fund (39%), undertake an Initial Public Offering (3%), or sell to a family, private investor or company management (3%). In 18% of cases, the company is written off.

Effect on the Company

The BvD database shows higher median growth of total assets and earnings for companies during the first three years under private equity, compared with the control groups. This suggests that private equity funds are capable of either selecting fast-growing companies, or speeding up the growth of the companies they invest in. It is important to recall earlier disclaimers. Selection effects might be present. Also, acquisitions and disposals by these companies (which often go together with private equity investments) can lead to the creation of entirely different companies that have little more to do with the original benchmark. The importance of this can be seen in the BvD database, where 57% of the portfolio companies were involved in mergers and buyout activities in the period under private equity ownership.

Compared with the year before the buyout, private equity companies have more debt.²⁵ This decreases at the end of the lifetime for those companies that subsequently

²⁵ The amount of debt is probably still underestimated considering that a portion of the debt often remains in the buyout holding. This cannot be ascertained in the figures from the database.

have had an exit. Other findings show how important it is to correct with a control group. For instance, the performance of the private equity companies shows a negative trend, but relative to the control groups it is positive. Thus, companies with private equity as an investor perform better. Furthermore, it appears that companies that have had an earlier exit are the ‘problem children’: their growth rate is negative compared with that of the control groups.²⁶

The Employee’s Perspective

In terms of the number of employees, we see an increase for the companies in the large BvD database from one year prior to three years after the buyout. The control groups, however, show an even stronger increase. The difference in employee growth rates between the private equity companies and the control group companies is not significant. Also for companies with an exit, the increase in the number of employees is not significantly different from that of the control groups. The number of observations here is, however, very limited.²⁷

The cautious conclusion to be drawn from this is that private equity does in fact maintain employment levels, but ultimately shows less growth in employment numbers than the control groups when the full three-year period is taken into consideration. Combined with the aforementioned higher growth in total assets and earnings compared with the control groups, this means that private equity succeeds in growing companies without a corresponding growth in employment.

The Investor’s Perspective

We only have information about the returns achieved by investors for the small PE database. The median return (IRR) amounts to 24% for all companies combined; for the companies with an exit, the IRR amounted to 22%. These returns are not adjusted for fees charged by the private equity fund.

Taxes

In the large BvD database, we witness a decrease in taxes paid by companies in the period from one year prior to the buyout until three years after the buyout, or until the moment of exit. The decrease in taxes paid is, however, not as large as among the control groups. This decrease in part might be explained by the financial crisis.

As mentioned earlier, the aforementioned findings are based on a small number of observations. Furthermore, major changes often occurred in the composition of the companies involved (see the disclaimers). It is therefore essential that these findings be interpreted and used with due caution.

26 For the PE database, we see strong growth in earnings and an increasing company value. In addition to this, there is a slight decrease in EBITDA and debt compared with the year in which the buyout itself takes place (information for the year prior to the buyout is not available).

27 In the small PE database, we also witness an increase in the number of workers measured three years after the buyout, or, alternatively, at the moment an earlier exit takes place (actually, in case of the latter, we look at the first year after the buyout; information for the year prior to the buyout is not available).

2.7 CONCLUSIONS

Much like in the rest of the world, investments by private equity funds in the Netherlands increased strongly in the run-up to the financial crisis, fueled in part by favorable market conditions (low interest rates, advantageous credit conditions, and good opportunities for selling companies). In the period after the crisis, a downward correction took place, but recovery quickly set in. Overall, one observes a continued growth of private equity over time.

The study supports the view that private equity has an added value as an ownership structure. It is not particularly short-term oriented with a horizon typically of four to seven years. Due to strong financial incentives (in part because of leverage), private equity adds urgency to accomplishing improvements in target companies. Private equity involvement brings financial clout, expertise and access to an external network. Via concentrated ownership, it also mitigates free-rider problems associated with public (i.e. exchange listed) ownership.

In historical terms, private equity has generated a return for its investors (limited partners) which is above that of a well-diversified equity portfolio, even after deducting costs and the considerable fees. We are referring here to limited partners who participate as investors from the outside. This history is also the most important reason why these investors are eager to participate in private equity. However, the spread in returns is large, and, when it is adjusted for unfavorable factors like reduced liquidity and higher risk compared with the benchmark, there seems to be no significant outperformance for the limited partners.

Our own analysis and the international literature show that private equity investment has a slightly positive effect on a company's performance in general. Private equity-financed companies in our Dutch sample grow somewhat faster and are slightly more profitable than comparable companies in the control group. The impact on employment is slightly negative compared to the control group. International evidence points at a marginal net loss of employment (to be expected, particularly in restructurings), but going hand in hand with gross employment creation.

The return that private equity funds achieve on their investments in target companies stem from a number of sources:

- operational improvements, including adjusting the strategic focus and facilitating growth;
- improving the governance structure by aligning interests and strengthening oversight;
- benefits associated with higher leverage;
- investment selection and market timing; a private equity firm's ability to track down undervalued buyout candidates (and take advantage of that by reselling them later at a higher price).

There are concerns however. The return for the private equity investor is not always true value creation, but could be based on redistribution effects at the expense of other stakeholders inside and outside the company. This is an important area of concern in discussions on private equity, and points at possible conflicts of interest. The most important potential conflicts of interest between a private equity fund and other stakeholders are:

- an incentive to push heavily for fast-paced reorganizations, too much focused on cash payouts (high dividends) at the expense of investments in the business. More generally, taking an (overly) opportunistic approach. This can result in burdens for the company's employees, suppliers and customers;
- an incentive to significantly increase leverage to arbitrage (i.e. reduce) taxes paid, and create via insolvency risk an undue burden on creditors, suppliers (including a deterioration of payment terms) and ultimately employees and customers.

Our conclusion is that these conflicts undoubtedly do arise, but that excesses have occurred only in isolated incidents. Also, the likelihood of insolvency is only slightly higher than in companies with no private equity involvement. Reasons for this include: the proximity of private equity to the companies in which they invest, the ability to inject capital when needed, and the stronger negotiating position with regard to creditors. We also find no systematic evidence of harmful effects of private equity on employment and other stakeholders.

A more rigorous understanding of the forces leading to leverage is important given its presence in private equity investments and the controversy associated with it in the public debate. An obvious reason for leverage are the tax savings because of the possibility of deducting interest payments. Why such stimulus needs to be provided is not clear. In many countries – like the Netherlands – limits are being introduced. However, private equity investors have also other reasons for financing buyouts with relatively large amounts of debt. Debt makes the fund's return on its equity investment more sensitive to performance; i.e. it provides extra rewards for return enhancing actions. Debt also creates a sense of urgency. The high leverage 'demands' action, which is particularly important when a restructuring is needed. It also enables more investments to be made with a set amount of equity (this has a positive impact on, for example, the private equity general partner's compensation). Finally, it can help the company in pushing for concessions from other stakeholders (e.g. due to the burden of leverage, they may be more prepared to make concessions). Particularly the latter, but also the tax benefits, point at advantages gained at the expense of other parties, and thus are based on redistribution of value rather than a 'real' increase in the value of the company. Overall one may conclude that leverage exists for several reasons, and just limiting or even abolishing tax benefits will not have it disappear, but might help contain it.

Conflicts of interest may also arise between the general and limited partners in a private equity fund. The general partner often has an interest in the size of the fund and therefore may have different concerns than the limited partners. The fee structure can also result in conflicts of interest between the general and limited partners. General partners are closer to the company in which the fund invests and extract considerable

fees. Although general partners benefit from having a good reputation among limited partners – they will need to find limited partners in the future too – ultimately, there remains a potential for conflict. The danger of conflicts of interest must not be understated. More pressure from the limited partners would be a welcome development, and transparency in limited partnership agreements could help bring this about. The recent guidelines developed by the Dutch pension fund PGGM push in this direction, but it is unclear how effective they are, and to what extent they apply to the sector as a whole. Appropriate governance, both within the buyout companies and the organizations that the limited partners belong to (specifically, institutional investors), is crucial. As these are business transactions involving large institutions, the scope for government interference is limited; in the end these are business decisions and responsibilities.

Nevertheless, it is legitimate to have concerns. International standards might offer little protection and transparency is limited. Institutional investors (e.g. pension funds as limited partners) might not be able to offer sufficient counterweight vis-à-vis the general partners in private equity funds. Also, the transaction process leading up to a buyout deserves attention. Prior to a buyout, management of a target company might be in a conflicting situation. In particular, private equity investors have an interest in acquiring shares in the target company for as little as possible. Because the company's management might be enticed with the promise of a post-buyout role (including equity-based compensation), it may have an interest in driving down the share price prior to the transaction. This is damaging to the existing ('old') shareholders and relates to the more general topic of protecting the interests of minority shareholders. It is essential for the company's board (particularly its non-executive directors) to take the right position and keep its management's own interests in check, and thus protecting existing shareholders.²⁸

Another area of attention is shareholder loans. These are considered legitimate sources of financing in their own right. The question is whether these loans should not be treated as equity which would therefore make them subordinated to other creditors' claims. This may prevent abuse.²⁹

To conclude, further work on understanding the impact of private equity is important. Private equity plays a legitimate role, but more is needed to shed light on its operations. Particularly for the Netherlands, significant data problems need to be resolved. Access to data is limited. This is not just a problem for empirical analyses like in this study, but also limits public acceptance of private equity. Therefore, it is critical that more comprehensive databases will be created.³⁰

28 Also, the effectiveness of current regulations (see, for example, legislation in the area of directors' liability, the Dutch AIFM directive, and the interaction with insolvency legislation) needs to be regularly assessed.

29 Tax deductibility for the interest paid on these loans is undesirable, to the extent that it still exists. Not only is it worrisome because of the burden it imposes on other taxpayers, it is primarily problematic for the improper conduct it entices. Interest deductibility on these loans has been abolished in the Dutch Tax Plan for 2017.

30 The Nederlandse Vereniging van Participatiemaatschappijen (NVP) could improve this situation, for example, by following in the footsteps of an initiative by the British Venture Capital Association (BVCA) to create a representative database. In an attempt to increase transparency and reporting in the area of private equity, the BVCA reports annually on the effects of a representative sample (see BVCA, 2015).



REFERENCES

- Acharya, V.V., O. Gottschalg, M. Hahn and C. Kehoe (2013). Corporate Governance and Value Creation: Evidence from Private Equity, *Review of Financial Studies*, 26 (2), p. 368–402.
- Achleitner, A.K. and C. Figge (2014). Private Equity Lemons? Evidence on Value Creation in Secondary Buyouts, *European Financial Management*, 20 (2), p. 406–433.
- Amess, K., S. Girma and M. Wright (2008). What are the Wage and Employment Consequences of Leveraged Buyouts, Private Equity and Acquisitions in the UK?, CMBOR Occasional Paper.
- Amess, K. and M. Wright (2007). The Wage and Employment Effects of Leveraged Buyouts in the UK, *International Journal of Economics and Business*, 14 (2), p. 179-195.
- Ang, A., D. Papanikolaou and M.M. Westerfield (2014). Portfolio Choice with Illiquid Assets, *Management Science*, 60 (11), p. 2737–2761.
- Asquith, P. and T. Wizman (1990). Event Risk, Wealth Redistribution and its Return to Existing Bondholders in Corporate Buyouts, *Journal of Financial Economics*, 27, p. 195-213.
- Australian Council for Super Investors Inc. (2009). Public Companies Being Taken Private, Research paper, prepared by the Melbourne Centre for Financial Studies, University of Melbourne.
- Bacon, N., M. Wright, L. Scholes and M. Meuleman (2009). Assessing the Impact of Private Equity on Industrial Relations in Europe, CMBOR Occasional Paper.
- Bain & Company Inc., 2016, Global Private Equity Report 2016.
- Bergström, C., M. Grubb and S. Jonsson (2007). The Operating Impact of Buyouts in Sweden: A Study of Value Creation, *The Journal of Private Equity*, 11 (1), p. 22-39.
- Bernstein, S., J. Lerner, M. Sørensen and P. Strömberg (2010). Private Equity and Industry Performance, NBER Working paper 15632.
- Bernstein, S. and A. Sheen (2016). The Operational Consequences of Private Equity Buyouts: Evidence from the Restaurant Industry, *Review of Financial Studies*, 29 (9), p. 2387-2418.
- Boon, van der, V. (2016). Aandeelhouders Xeikon bleven onwetend van hogere biedingen, *Financieel Dagblad*, June 6, p. 19.
- Boot, A.W.A. (2010). *De ontwortelde onderneming. Ondernemingen overgeleverd aan financiers?*, 2nd Edition, Assen: Koninklijke Van Gorcum BV.
- Boot, A.W.A. and K. Cools (2007). Private equity en activistische aandeelhouders: bestuur onder vuur. In K. Koedijk and S. Eijffinger (Eds.), *Private equity en aandeelhoudersactivisme*, Preadviezen van de Koninklijke Vereniging voor de Staathuishoudkunde, p. 15-56.
- Boucly, Q., D. Sraer and D. Thesmar (2011). Growth LBOs, *Journal of Financial Economics*, 102, p. 432–453.
- Boucly, Q., D. Thesmar and D. Sraer (2009). Leveraged Buyouts - Evidence from French Deals. In *The Global Economic Impact of Private Equity Report 2009, Globalization of Alternative Investments*, A. Gurung and J. Lerner (Eds), Working Papers Volume 2, World Economic Forum, p. 47-64.

- Bureau Van Dijk Electronic Publishing. Zephyr Public Database (2007-2015).
- BVCA (2015). Annual Report on the Performance of Portfolio Companies, VIII.
- Cohn, J.B., L.F. Mills and E.M. Towery (2014). The Evolution of Capital Structure and Operating Performance After Leveraged Buyouts: Evidence from U.S. Corporate Tax Returns, *Journal of Financial Economics*, 111, p. 469-494.
- Cohn, J.B., N. Nestoriak and M. Wardlaw (2015). Leveraged Buyouts and Workplace Safety, Working paper.
- Cook, D., J. Easterwood and J. Martin (1992). Bondholder Wealth Effects of Management Buyouts, *Financial Management*, 21, p. 102-113.
- Cressy, R.C, F. Munari and A. Malipiero (2007). Playing to their Strengths? Evidence that Specialization in the Private Equity Industry Confers Competitive Advantage, *Journal of Corporate Finance*, 13 (4), p. 647-669.
- Davis, S.J., J. Haltiwanger, K. Handley, R. Jarmin, J. Lerner and J. Miranda (2014). Private Equity, Jobs, and Productivity, *American Economic Review*, 104 (12), p. 3956-3990.
- Demiroglu, C. and C.M. James (2010). The Role of Private Equity Group Reputation in LBO Financing, *Journal of Financial Economics*, 96, p. 306-330.
- Ducanovic, I. (2014). *Private Equity and Employment in the Netherlands*, Master Thesis Utrecht School of Economics.
- EVCA/CMBOR (2008). *The Impact of Private Equity Backed Buyouts on Employee Relations*, European Private Equity & Venture Capital Association/Centre for Management Buy-out Research.
- Ewens, M., R. Nanda and M. Rhodes-Kropf (2015). Cost of Experimentation and the Evolution of Venture Capital, Working Paper.
- Fang, L., V. Ivashina and J. Lerner (2013). Combining Banking with Private Equity Investing, *Review of Financial Studies*, 26 (9), p. 2139-2173.
- Franzoni, F., E. Nowak and L. Phalippou (2012). Private Equity Performance and Liquidity Risk, *Journal of Finance*, 67 (6), p. 2341-2373.
- Gaspar, J.M. (2012). The Performance of French LBO Firms: New Data and New Results, *Finance*, 33 (2), p. 7-60.
- Gatti, S. and C. Chiarella (2015). Private Equity Investments - Financial Markets, Macroeconomic Trends and the Return of Leveraged Buyouts.
- Gilligan, J. and M. Wright (2014). Private Equity Demystified: An Explanatory Guide, Third Edition, *SSRN Electronic Journal*.
- Gottschalg, O. (2007). Private Equity and Leveraged Buy-Outs, *Study for the European Parliament (IP/A/ ECON/IC/2007-25)*.
- Guo, S., E. Hotchkiss and W. Song (2011). Do Buyouts (Still) Create Value?, *Journal of Finance*, 66, p. 479-517.
- Harford, J. and A. Kolasinski (2013). Do Private Equity Returns Result from Wealth Transfers and Short-Termism? Evidence from a Comprehensive Sample of Large Buyouts, *Management Science*, p. 888-902.
- Hotchkiss, E.S., D.C. Smith and P. Strömberg (2014). Private Equity and the Resolution of Financial Distress, Working Paper.

- Jelic, R. and M. Wright (2011). Exits, Performance, and Late Stage Private Equity: The case of UK Management Buyouts, *European Financial Management*, 17 (3), p. 560-593.
- Jenkinson, T. and M. Sousa (2015). What Determines the Exit Decision for Leveraged Buyouts?, *SSRN Electronic Journal*.
- Jenkinson, T. and R. Stucke (2011). Who Benefits from the Leverage in LBOs, Working Paper, Oxford University.
- Jong, de, A.P.J.G. Roosenboom, M.J.C.M. Verbeek and P. Verwijmeren (2007). Hedgefondsen en private equity in Nederland, RSM Erasmus University.
- Kaplan, S.N. (1989a). Management Buyouts: Evidence on Taxes as a Source of Value, *Journal of Finance*, 44 (3), p. 611-632.
- Kaplan, S.N. (1989b). The Effects of Management Buyouts on Operating Performance and Value, *Journal of Financial Economics*, 24 (2), p. 217-254.
- Kaplan, S.N. and A. Schoar (2005). Private Equity Performance: Returns, Persistence, and Capital Flows, *Journal of Finance*, 60 (4), p. 1791-1823.
- Kaplan, S.N. and J. Stein (1993). The Evolution of Buyout Pricing in the 1980s, *Quarterly Journal of Economics*, 108 (2), p. 313-357.
- Kaplan, S.N. and P. Strömberg (2009). Leveraged Buyouts and Private Equity, *Journal of Economic Perspectives*, 23 (1), p. 121-146.
- Klymenova, A., E. Talmor and F.P. Vasvari (2012). Liquidity in the Secondaries Private Equity Market, Working Paper.
- Knauer, A, A.P. Lahman, M. Pflucke and S. Swetzler (2014). How Much Do Private Equity Funds Benefit from Debt-Related Tax Shields?, *Journal of Applied Corporate Finance*, 26 (1), p. 85-93.
- Korteweg, A.G. and S. Nagel (2016). Risk-Adjusting the Returns to Venture Capital, *Journal of Finance*, 71 (3), p. 1437-1470.
- Lerner, J., M. Sørensen and P.J. Strömberg (2011). Private Equity and Long-Run Investment: The Case of Innovation, *Journal of Finance*, 66 (2), p. 445-477.
- Leslie, P. and P. Oyer (2009). Do Private Equity Firms Create Value?, Working Paper.
- Leslie, P. and P. Oyer (2013). Managerial Incentives and Strategic Change: Evidence from Private Equity, Working Paper.
- Lichtenberg, F.R. and D.S. Siegel (1990). The Effect of Leveraged Buyouts on Productivity and Related Aspects of Firm Behaviour, *Journal of Financial Economics*, 27 (1), p. 165-194.
- Ligterink, J.E., J.K. Martin, A.W.A. Boot, K. Cools and L. Phalippou (2017). Private equity in Nederland, een stakeholder-perspectief, Report for the Dutch government (Ministry of Finance).
- Long, W.F. and D. Ravenscraft (1993). LBOs, Debt and R&D Intensity, *Strategic Management Journal*, 14 (S1), p. 119-135.
- Longstaff, F.A. (2009). Portfolio Claustrophobia: Asset Pricing in Markets with Illiquid Assets, *American Economic Review*, 99 (4), p. 1119-1144.
- Lopez-de-Silanes, F., L. Phalippou and O. Gottschalg (2015). Giants at the Gate: On the Cross-Section of Private Equity Investment Returns, *Journal of Financial & Quantitative Analysis*, 50 (3), p. 377-411.

- Lubbers, R., J.H. Von Eije and W. Westerman (2015). Does Private Equity Stir Up European Industries?, *SSRN Electronic Journal*.
- Mao, Y. and L. Renneboog (2015). Do Managers Manipulate Earnings Prior to Management Buyouts?, *Journal of Corporate Finance*, 35, p. 43–61.
- Marais, L., K. Schipper and A. Smith (1989). Wealth Effects of Going Private on Senior Securities, *Journal of Financial Economics*, 23 (1), p. 155-191.
- Matsa, D.A. (2011). Running on Empty? Financial Leverage and Product Quality in the Supermarket Industry, *American Economic Journal: Microeconomics*, 3 (1), p. 137–173.
- Melbourne Centre for Financial Studies (2009). *Public Companies Being Taken Private*. Study commissioned by the Australian Council of Super Investors Inc. and prepared by the Melbourne Centre for Financial Studies.
- Metrick, A. and A. Yasuda (2010). The Economics of Private Equity Funds, *Review of Financial Studies*, 23 (6), p. 2303–2341.
- Meuleman, M., K. Amess, M. Wright and I. Scholes (2009). Agency, Strategic, Entrepreneurship and the Performance of Private Equity Backed Buyouts, *Entrepreneurship Theory and Practice*, 33 (1), p. 213-240.
- Meuleman, M., M. Wright., S. Manigart and A. Lockett (2009). Private Equity Syndication: Agency Costs, Reputation and Collaboration, *Journal of Business Finance & Accounting*, 36 (5-6), p. 616-644.
- Meyer, T. (2010). Venture Capital Adds Economic Spice, Deutsche Bank Research.
- Modigliani, F. and M.H. Miller (1958). The Cost of Capital, Corporation Finance, and the Theory of Investment, *American Economic Review*, 48, p. 261-297.
- Muscarella, C.J. and M.R. Vetsuypens (1990). Efficiency and Organizational Structure: a Study of Reverse LBOs, *Journal of Finance*, 65 (5), p. 1389-1413.
- Nederlandse Vereniging voor Participatiemaatschappijen (NVP), (2017). Source website <http://www.nvp.nl/pagina/ondernemend%20vermogen/> on 21 March 2017.
- Perotti, E.C. and K.E. Spier (1993). Capital Structure as a Bargaining Tool: The Role of Leverage in Contract Renegotiation, *The American Economic Review*, 83 (5), p. 1131-1141.
- Phalippou, L. (2008a). Where is The Value Premium?, *Financial Analysts Journal*, 64 (2), p. 41-48.
- Phalippou, L. (2008b). The Hazards of Using IRR to Measure Performance: The Case of Private Equity, *Journal of Performance Measurement*, 12 (4), p. 55-56.
- Phalippou, L. (2014). Performance of Buyout Funds Revisited?, *Review of Finance*, 18 (1), p. 189–218.
- Phalippou, L. and O. Gottschalg (2009). The Performance of Private Equity Funds, *Review of Financial Studies*, 22 (4), p. 1747–1776.
- Popov, A. and P. Roosenboom (2009). Does Private Equity Investment Spur Innovation? Evidence from Europe, European Central Bank Working Paper Series.
- Preqin (2016). Global Private Equity and Venture Capital Report.
- PwC (2012). The Integration of Environmental, Social and Governance Issues in Mergers and Acquisitions Transactions; Trade Buyers Survey Results.

- PwC (2016). Are we nearly there yet?, Private Equity and the Responsible Investment Journey.
- Robinson, D.T. and B.A. Sensoy (2015). Cyclicity, Performance Measurement, and Cash Flow Liquidity in Private Equity, *Journal of Financial Economics*, 122 (3), p. 521-543.
- Roland Berger (2016). What is Holding Back Returns of European Private Equity, Amsterdam, January.
- Roosenboom, P.G.J. (2009). Private equity onder vuur. *Fusie en Overname (M&A Magazine)*, 10, p. 30-32.
- Schumpeter, J.A. (1942). *Capitalism, Socialism and Democracy*, New York: Harper Perennial.
- Sensoy, B.A. and N.P.B. Bollen (2015). How Much for a Haircut? Illiquidity, Secondary Markets, and the Value of Private Equity, Working Paper.
- Shivdasani, A. and Y. Wang (2011). Did Structured Credit Fuel the LBO Boom?, *Journal of Finance*, 66 (4), p. 1291–1328.
- Smit, H.T.J. and W.A. van den Berg (2007). De private-equity golf, *Maandblad voor Accountancy en Bedrijfseconomie*, 81, p. 303-311.
- Smith, A. (1990). Capital Ownership Structure and Performance: the Case of Management Buyouts, *Journal of Financial Economics*, 13, p. 143-165.
- Sørensen, M., W. Wang and J. Yang (2014). Valuing Private Equity, *Review of Financial Studies*, 27 (7), p. 1977–2021.
- Stafford, E. (2015). Replicating Private Equity with Value Investing, Homemade Leverage, and Hold-to-Maturity Accounting, Working Paper.
- Stichting Pensioenfonds ABP (2015). Jaarverslag, Bestuursverslag, Bron: http://jaarverslag.abp.nl/docs/ABP_JV_2015/pdfs/ABP_JV_2015_01_Bestuursverslag.pdf.
- Streek, J.L. van de (2015). Fiscale aspecten van private equity: aanpassingen nodig?, Memo for Hearing in the Dutch Parliament, April 29.
- Strömberg, P. (2008). The New Demography of Private Equity, Unpublished Working Paper. SIFR.
- Trappenburg, N. (2015). ABP legt zich er bij neer: Private equity kost veel geld (interview), *Financieel Dagblad*, 31 augustus 2015, p. 1-3.
- Trappenburg, N. (2016). Vermogensbeheerskosten grootste pensioenfondsen gedaald, *Financieel Dagblad*, May 12.
- Tyková, T. and Borell, M. (2012). Do Private Equity Owners Increase Risk of Financial Distress and Bankruptcy?, *Journal of Corporate Finance*, 18 (1), p. 138-150.
- Wang, Y. (2012). Secondary Buyouts: Why Buy and at What Price?, *Journal of Corporate Finance*, 18 (5), p. 1306-1325.
- Warga, A. and I. Welch (1993). Bondholder Losses in Leveraged Buyouts, *Review of Financial Studies*, p. 959-982.
- Weijts, de, R. (2016). *Wanorde? Hoe het faillissementsrecht zich tegen schuldeisers dreigt te keren*, Den Haag: Boom juridisch.
- Weir, C., P. Jones and M. Wright (2009). Public to Private Transactions, Private Equity and Financial Health in the UK: An Empirical Analysis of the Impact of Going Private, CMBOR occasional paper.

- Weir, C., D. Laing and M. Wright (2008). Public to Private Buyouts, Distress Costs and Private Equity, *Applied Financial Economics*, 18 (10), p. 801-819.
- Wilson, N. and M. Wright (2013). A Convenient Truth: Private Equity and Portfolio Company Growth, British Venture Capital Association.
- Wilson N., M. Wright, D. Siegel and L. Scholes (2012). Private Equity Portfolio Company Performance during the Global Recession, *Journal of Corporate Finance*, 18, p. 193-205.
- World Economic Forum (2010). Globalization of Alternative Investments, the Global Economic Impact of Private Equity, report.
- Wright, M. (2007). Private Equity and Management Buyouts. In *Handbook of Research on Venture Capital*, H. Landström (Ed.), Cheltenham: Edward Elgar.
- Wright, M., B. Chiplin, S. Thompson and K. Robbie (1990). Management Buyouts, Trade Unions and Employee Ownership, *Industrial Relations Journal*, 21 (2), p. 137-46.
- Wright M, R. Cressy, N. Wilson and H. Farag (2014). Financial Restructuring and Recovery in Private Equity Buyouts: the UK Evidence, *Venture Capital*, 16, p. 109-129.
- Wright, M.R., R. Hoskisson and L. Busenitz (2001). Firm Rebirth Buy-outs as Facilitators of Strategic Growth and Entrepreneurship, *Academy of Management Executive*, 15 (1), p. 111-115.
- Yale Investments Office (2015). Endowment Update 2015, Yale University, New Haven.

NOTES ON THE CONTRIBUTORS

ARNOUD W.A. BOOT is Professor of Corporate Finance and Financial Markets at the University of Amsterdam. He is chairman of the Bank Council of the Dutch Central Bank (DNB), member of the Dutch Scientific Council for Government Policy (WRR), and chairman of the European Finance Association (EFA). Arnoud Boot is also member of the Royal Netherlands Academy of Arts and Sciences (KNAW) and Research Fellow at the Centre for Economic Policy Research (CEPR) in London. His publications have appeared in major academic journals, including the *American Economic Review* and the *Journal of Finance*.

JEROEN E. LIGTERINK is Associate Professor of Finance at the Faculty of Economics and Business of the University of Amsterdam and chair of the Finance Group. In 2001 he obtained his PhD degree with the dissertation *Corporate Financial Risk Management*. His research interests include theoretical and empirical corporate finance. In particular: corporate risk management, international mergers and acquisitions, bankruptcy, shareholder loans and vulture funds.

JENS K. MARTIN is Assistant Professor of Finance at the Faculty of Economics and Business of the University of Amsterdam and director of the Master in International Finance program. Since 2015 he is research fellow at the Tinbergen Institute. In 2009, he graduated summa cum laude at the University of Lugano on *Managerial Behavior, Asymmetric Information and the Flow of Information Around Equity Offerings*. His research interests include private equity, information asymmetry, behavioral finance, analyst coverage and equity offerings.



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