The Impact of the ECB’s Guidance on Leveraged Transactions on Banks and Shadow Banks

Regulatory Arbitrage at Work

MASTER’S THESIS

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Ebenso in besonderer Weise hervorheben möchte ich meine Freunde und Kommilitonen, welche manchmal viel Geduld mit mir haben mussten und mich in der stressigen Phase zwischen meiner beruflichen Tätigkeit und dem Verfassen dieser Abschlussarbeit nicht sehr oft zu Gesicht bekamen.

Ein besonders großer Dank gebührt meinen beiden Betreuern Univ.Prof. DDr. Jürgen Huber sowie Doz. Dr. Peter Haiss, welche mich durch das Verfassen dieser Arbeit begleiteten und, trotz der teilweise großen Hürden, nie die Zuversicht verloren und mir stets mit wertvollen Anregungen zur Seite standen. Ebenso bedanke ich mich bei meinem Onkel Luis für seine hilfreiche Unterstützung sowie seinem gezeigten Interesse an dieser Arbeit.


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ABSTRACT

Leveraged Transactions (LT) bear a higher risk for underwriters. Targeting bank lending, Both the US FED (2013) and the ECB (2017) therefore issued rules for underwriting and reporting of leveraged transactions. What is the impact on the market for Leveraged Loans on the issuers of Leveraged Loans? Using real credit data from Thomson Reuters DealScan (volume and number of leveraged loans over the Period of January 2014 to May 2019), and drawing on previous studies covering the US legislation, we investigate the impact of the ECB’s “Guidance on leveraged transactions” on the European market. Has there been a shift from regulated to less regulated entities? Are there less leveraged loans issued since the Guidance? Based on Kane’s (1981) “regulatory dialectic” framework, we expect to find a shift from regulated entities to non-regulated or less-regulated entities such as smaller banks or the shadow banking sector. We find evidence for a "shift of risk" from regulated, well supervised, towards less regulated and less supervised entities. The leveraged lending activity of non-banking Financial Intermediaries is particularly positive related to higher risk. This is important for market participants, regulators and auditors in order to understand the true implications of such regulation.

JEL-Classification: G28; G21; G23; C51; F42
Keywords: ECB; leverage; regulation; regulatory arbitrage; shadow banking
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Abbreviations

BCBS  Basel Committee on Banking Supervision
bip  basis point
BIS  Bank for International Settlements
bn  billion
BoE  Bank of England
BofAML  Bank of America Merrill Lynch
CAPEX  Capital Expenditures
CLO  Collateralized Loan Obligation
cov  covenant
CRR  Capital Requirements Regulation
EBA  European Banking Authority
EBITDA  Earnings Before Interest Taxes Depreciation and Amortization
ECB  European Central Bank
ECBFSR  European Central Bank Financial Stability Review
e. g.  exempli gratia
EGOV  Economic Governance Support Unit
ESRB  European Systemic Risk Board
etc.  et cetera
EU  European Union
EUR  Euro
FAQ  Frequently Asked Questions
FC  Financial Crisis
FDIC  Federal Deposit Insurance Corporation
FED  Federal Reserve System
FIH  Financial Instability Hypotheses
FSB  Financial Stability Board
FT  Financial Times
HY High Yield
i.e. id est
ICE Intercontinental Exchange
II Institutional Investors
IMF International Monetary Fund
JST Joint Supervisory Team
LBO Leveraged Buyout
LCD Leveraged Commentary & Data
Lev Leveraged
LIBOR London Interbank Offered Rate
LLI Leveraged Loan Index
LPC Loan Pricing Corporation
LSTA Loan Syndications and Trading Association
LT Leveraged Transactions
MBS Mortgage Backed Securities
mn million
M&A Mergers & Acquisitions
nbFI non-banking Financial Intermediary
NPL Non-Performing Loan
OCC Office of the Comptroller of the Currency
OFI Other Financial Intermediaries
PD Probability of Default
PE Private Equity
PSE Public Sector Entity
RCF Revolving Credit Facility
RF Retail Funds
S&P Standard & Poor’s
SIFI Systemically Important Financial Institution
SME  Small and Medium-Sized Enterprises
SNC  Shared National Credit
SPV  Special Purpose Vehicle
SREP  Supervisory Review and Evaluation Process
tn  trillion
UK  United Kingdom
USA  United States of America
USD  US-Dollar
WACC  Weighted Average Cost of Capital
WB  World Bank
WC  The Warwick Commission on International Financial Reform
1 Introduction

After the financial crisis [FC] between 2007 and 2009 the European Central Bank [ECB], as well as several other Central Banks, increased their oversight over the financial sector. Growing concerns about the riskiness of the market for leveraged loans led to the issuance of related regulations in the United States of America (USA) and in Europe. Both guidances just focus on closely supervised lenders with full bank licences. This may on the one side open the door for regulatory arbitrage seeking institutes and on the other side may provoke a situation of regulatory dialectic. We consider this situation as an optimal testing ground for our research question: What is the impact of the ECBs (2017) Guidance on leveraged transactions on treated and non treated institutes in Europe? Based on Kane (1981)’s "regulatory dialectic” framework, we are mostly interested to see whether we find signs of a ”shift of risk” away from affected closely supervised banks towards non-affected banks and shadow banks. Therewith we try to shed light on a small, but important, part of the big puzzle of financial stability.

Our findings indicate a shift of newly issued leveraged loans away from regulated entities towards less regulated lenders which are not subject to the ECB (2017) guidance. Even though related papers find similar patterns in the United States after the similar US guidance (FED (2013))1 was issued, there is, at least to our knowledge, no paper until now investigating the question why we observe a shift of risky leveraged loans from affected to non-affected lenders. By applying Kane (1981)’s "regulatory dialectic” framework and using arguments of regulatory arbitrage and herd behavior, we try to fill this gap. This thesis will add to the already available knowledge why we observe an increasing leveraged lending activity measured in volume in the aftermath of the guidance especially within non-affected entities.

1see for example: Kim et al. (2017), Schenck and Shi (2017) or Calem et al. (2016).
Non-banking Financial Intermediaries [nbFI] significantly increased their leveraged lending activity measured in terms of volume in the aftermath of the ECB (2017)’s guidance on leveraged transactions, which regulates the leveraged lending activity of European ECB supervised institutes, was issued. The average monthly volume of leveraged loans with non-banking Financial Intermediary participation increased by 36.4% to EUR 12.7 billion [bn] after the guidance was released. Also non-affected banking institutions increased their leveraged lending activity measured in average monthly volume by 9.2% to EUR 4.5 bn. Even though this finding is important in an economic context, the increase in volume of non-affected banking institutes is, statistically speaking, not significantly different from zero. Notwithstanding the increase in volume of leveraged loans, the monthly average number for both lender types stayed rather constant. While observing an increase in average deal size for non-affected institutes, we would anticipate to find a decrease for affected ECB supervised institutes. In contrast to our expectations we find however, that affected ECB supervised lenders increased both, their average monthly issued volume and their average monthly issued numbers of leveraged loans. Both, volume and numbers, increased due to augmented syndication activity together with non-banking Financial Intermediaries which also increased ECB supervised institutes’ interconnectedness with the non-banking Financial Intermediation sector.

Microlevel loan data from Thomson Reuters LPC DealScan (LPC (2019)) provide an ideal data source to test our hypotheses. To do so we analyzed 11,282 term loans originating from between January 2014 and May 2019 in the regions of Western Europe (9,760), Eastern Europe and Russia (1,043) as well as the Middle East (479)[2]. We find that the syndication activity of non-banking Financial Intermediaries is positively related to higher risk. Using several Logit model regressions we find that non-banking Financial Intermediary participation is positively related to the loan being considered leveraged as well as the absolute spread of the loan and negatively related to the loan volume. Since

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[2]This regional allocation follows LoanConnector, the database used.
the first two measurements are indicators of the riskiness of a loan we conclude, that non-banking Financial Intermediaries participate mainly in riskier leveraged loans. Additionally, we find evidence that non-banking Financial Intermediaries, even though not directly affected by the guidance, significantly increased their riskier lending volume after the guidance. Those findings are very important because they may help us to understand better the unintended consequences of regulations on leveraged transactions.

Our findings support the already available literature by Kane (1981), who states, that every regulation has intended as well as unintended consequences. A shift of risk from supervised entities towards less regulated entities, which as the Bank of England (BoE 2019b) finds, are less transparent, less experienced with financial crises and an incalculable factor during economic downturns, may worsen the financial stability in its entirety and therefore even lead to a deteriorating situation for our economic and public well being. This "shift of risk” is a critical finding which underlines the importance of considering also potential unintended consequences of a regulation which may arise out of regulatory dialectic or regulatory arbitrage. Beside the impact of the "shift of risk” from supervised entities towards less regulated non-banking Financial Intermediaries, the different reaction of non-banking Financial Intermediaries on monetary policy, as the ECB (2016) find, alters the way monetary policy is transmitted to the real economy. As an alternative explanation we also discuss the impact of lending constraints on banks driving them into following non-bank lenders´ behaviour.

The remainder of the thesis is structured as follows. We start with a general introduction to Leveraged Loans in Section 2. This section explores the importance of our topic and provides useful background information on this thesis. We divide the section into three different parts: regulatory concerns and warnings, differences in the definition of leveraged loans, and key risk drivers in the market for leveraged loans. Section 3 presents the guidance on leveraged transactions in more detail. Section 4 outlines the available
literature on regulations with a focus on regulatory dialectic, regulatory arbitrage and syndicated loans. We also raise a strain of literature which tries to link the current situation in the market for leveraged loans to Minsky (1992)’s financial instability hypothesis [FIH] and links the FIH to current topics in bank regulation. Several agencies introduced a similar guidance in the US some years prior to the ECB guidance on leveraged transaction. Section 4 does also provide a literature review on the evidence of similar studies after the US guidance was introduced. Section 5 presents our data and sample characteristics. In section 6 we describe our methodologies as well as our hypothesis. In section 7 we present our results after the investigation of the guidance on leveraged transactions on banks and shadow banks. Section 8 concludes with a discussion of our findings as well as with some final remarks.
2 An Introduction to Leveraged Loans

In the first subsection of this chapter we provide a summary of various concerns of regulators regarding the current situation in the market for leveraged loans as well as the regulators’ different estimates of the size of the market and the underlying dynamics. We will see that the size estimates differ significantly, which arises out of the lack of a uniform definition of leveraged loans. In the second subsection of this chapter, we will show the heterogeneity in definitions of "leveraged loans" by various regulators, academics as well as practitioners. In the third subsection we identify and analyse key risk drivers in the market for leveraged loans: size, leverage ratios including the corresponding calculation method, covenants [cov] as well as non-transparent, unregulated market participants. To conclude this chapter we will also discuss the arguments in favor of leveraged [Lev] loans.

2.1 Regulatory Concerns

This section provides a brief overview of regulatory concerns issued by several regulators and institutions as well as the size and growth of the market for leveraged loans. It focuses on different sources, their estimates of the size of the market as well as their concerns. We will see that there are large differences in estimations of the size of the outstanding leveraged loans between the different institutions and regulators.

In the aftermath of the financial crisis in between 2007 and 2009 the market for leveraged loans has recovered fast and meanwhile passed the crisis peak. These dynamics concerned several regulators and lead to an increasingly strong attention on the topic of leveraged loans. Just recently, in May 2019, the Financial Stability Board FSB (2019b) mentioned warnings by the Federal Reserve System [FED] about the high levels of leveraged loans. The FED noted that the most indebted companies are the ones which recently took on the most additional leverage. This indicates that, as Dell’Ariccia et al. (2014)
find, already risky corporates may have increased their risk even more, which increases risk concentration and drives increased spillover effects. The high concentration of leverage is very concerning if we consider, as IMF (2019) warns, that there are signs that the credit cycle is matured and bears risks for the global economy which may jeopardise the overall financial stability. According to the Financial Times (FT (2019)), the Bank for International Settlements [BIS] raised concerns about potential downgrades of BBB rated loans to non-Investment Grade [ ] ratings which could start a fire sale with unintended consequences for the overall corporate debt market since many companies may struggle to refinance their debt. According to Wiltermuth and Haunss (2019), Janet Yellen, a former Chair of the Fed, is concerned by the record levels of leverage which may bring corporates into distress if the economy cools down, which may lead to terminations of employees and cut back on investments which could easily lead into a deeper recession. In 2018, the ECB, European Central Bank (2018) considered the rollover of maturing loans to new credit lines with borrower-friendlier conditions as hazardous. A year later, the ECB (2019a) heralded warnings, that weakening underwriting standards may keep weak firms alive for a longer period of time and lower future recovery rates. The ECB (2019c) therefore declared leveraged loans a key risk factor in 2019.

Regulators and international institutions raised concerns about the market for leveraged loans. But why are banks and other institutions continuing to lend to risky borrowers? We will see that there are several aspects why banks and other institutions continue lending. Feldstein (2014), Kwan (2014), Ekpu (2016), and IMF (2018) mention the loose monetary policy by central banks as one of the root causes for an increase in financial leverage. The authors consider quantitative easing as a source of increased leverage and a risk factor for price stability. Expansionary monetary policy leads to higher deposits at the central bank which can be used by banks to increase their lending activity. Negative interest rates on bank deposits even bear the incentive to lend money also to less creditworthy borrowers. Both leads to an increase in supply of loans.
Vandenbussche (2018) mention that investors lend money to risky borrowers for reasons of overly optimistic expectations about the future or simply because they are searching for a higher yield in the current low interest environment. A theoretical explanation of banks higher risk taking can also be derived out of Fink and Haiss (1999), who find that banks increase their risk taking especially during volatile times. The authors explain this phenomenon by agency problems as well as herd behavior.

Deslandes et al. (2019) from the European Parliament’s Economic Governance Support Unit [EGOV] mention, beside issued regulatory warnings about the inherent riskiness of leveraged loans, the alarmingly large size of outstanding leveraged loans in Europe, the US and several other regions of the world. But how large is the market for leveraged loans? Estimates of the total outstanding amount of leveraged loans vary substantially from between $1.3 tn to $2.2 tn. There is a huge gap of roughly $1 tn in estimated size. This equals the same amount as the total subprime market size at the peak of the recent subprime mortgage crisis. The various source estimates are shown figure 1:

Figure 1: Size Estimates of Global outstanding leveraged loans in USD

Note: The ECB estimate of EUR 2 trillion was converted to $1.8tn
Source: authors own illustration
The BoE (2019b) estimated the outstanding amount of leveraged loans worldwide at $2.2tn. $1.8tn of the $2.2tn are held by non-banking Financial Intermediaries. The BoE (2019b) counts small sized and less liquid loans as well as loans to banks to the overall amount of leverage. Beside the refinancing of previous transactions, the issuance of new credits and loans is on the highest level since the Financial Crisis. The S&P/LSTA Loan Index (S&P (2018)) estimated the global market for leveraged loans at $1.35tn at the end of 2018, whereof the European share of the market corresponded to over $200bn. For the IMF, Adrian et al. (2018), three directors and experts at the IMF, mention the ongoing period of low interest rates as well as yield-hungry, risk-seeking investors as a source of excessive leverage. They estimate the total global market for leveraged loans at $1.3tn and find that the global newly issued leveraged loans in 2017 surpassed for the first time the pre-crisis high of 2007. The ECB, European Central Bank (2018) estimated the total amount of outstanding leveraged loans at EUR 2tn as of November 2018 and is, beside of the size, especially worried about the weak underwriting standards as well as the compressed, borrower-friendly spreads which may not account for the total risk in the market. According to the FSB (2019a), the size of the market for leveraged loans equals $1.4tn as of October 2018. The FSB (2019a) is of the opinion that the size of outstanding leveraged loans could be even higher since banks often retain revolving credit facilities [RCF], letters of credit as well as certain term loans on their balance sheets. The Financial Times [FT] dedicated a series called "The Debt Machine" to the topic of leveraged lending. Fleming (2019), an author of the Financial Times, estimates the market for leveraged loans at $1.4tn.

The BIS (2018) recognizes that the market for leveraged finance (comprising High-Yield [HY] bonds as well as leveraged loans) has doubled since the financial crisis between 2007 and 2009. The ECB, European Central Bank (2018) notes that the European market for leveraged loans keeps growing and may pose risks to the overall financial stability. As can be seen in the first panel of figure 2, the leveraged loan share of total leveraged finance has
peaked during the financial crisis and has since then grown faster than HY bonds. The BIS (2018) remarks the higher degree of pro-cyclicality of leveraged loans compared to High Yield bonds. Higher pro-cyclicality may lead to higher volatility and therefore to higher risks within the market. As provided in the second Panel of figure 2, while on average loans are issued with 25% less covenants, the ratio of cov-lite loans has increased in the aftermath of the financial crisis. The ratio of down-flex to up-flex loans (Panel 2), which according to Forbes (2013), is a measurement of market demand, indicates a borrower friendly market environment.

Panel 3 of figure 2 shows the expansion of Collateralized Loan Obligations (CLO). Fleming (2019) mentions, that the Financial Stability Board started a deeper examination of CLOs, derivative products that have already been used to securitize mortgages before and during the financial crisis from 2007 to 2009.
To sum it up: Many institutions, regulators and practitioners agree that the market for leveraged loans in Europe as well as in the US is soaring and probably already passed the all-time high reached in 2007. We find that it is very difficult to determine the real dimensions of the leveraged loan market. The estimates range from $1.3tn to $2.2tn, which may be the consequence of a lack of data, different data sources, different used methodologies or because of different definitions of what shall be considered a ”leveraged loan”. In the next subsection we want to provide the reader with an overview of the different definitions of leveraged loans.

2.2 Definition of Leveraged Loans

A problem when talking about the market for leveraged loans, the issuance of leveraged loans or the regulation of the product “leveraged loans” is that neither regulators, practitioners nor academics, by speaking about the same topic, mean exactly the identical subgroup of risky loans. There is no unique definition of what a leveraged loan actually is and everyone uses a slightly different definition, which is visible not just in discussions but also within regulations and, as the BoE (2019b) states, also when measuring the size of the market. This problem has already been pointed out by the OCC (1999) in the year 1999. Defining leveraged loans has become a major concern for market participants. The EBA (2019) Draft Guidelines on loan origination and monitoring (to be implemented by June 2020), which, through the “proportionality principle” based on the size, nature and complexity of the institutions, apply to all credit institutions in the EU (and not just to SIFI), also require institutions to have a definition of leveraged transactions in place, and to define their respective risk appetite accordingly. In this section we provide the reader with an overview of some of the most common definitions and will show that the definition of leveraged loans differs across institutions, regulators and academics. Since it is not the scope of this thesis, this list is without any claim to be complete. For the readers’ convenience we will group the definitions into three groups: Spread-based definitions, Rating-based definitions and definitions based on multiple or other criteria.
<table>
<thead>
<tr>
<th>Definition by</th>
<th>Definition Type</th>
<th>Definition</th>
<th>Annotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim et al. (2017)</td>
<td>Spread</td>
<td>Syndicated term loans with a spread of $\geq 200$ basis points [bip] over LIBOR</td>
<td>Kim et al. (2017) realized during their quantitative research that over 90% of all issued loans in their sample have a spread of $\geq 150$ bip over LIBOR which may, since we know that leveraged loans are just a subgroup of total loans, be a signal that the threshold of 150 bip is too narrowly chosen</td>
</tr>
<tr>
<td>Bloomberg</td>
<td>Spread</td>
<td>Loans with a spread of $\geq 250$ bip over LIBOR</td>
<td>Source: Lim. et al. (2012)</td>
</tr>
<tr>
<td>BoE (2019b)</td>
<td>Rating</td>
<td>Loans with a private equity sponsor or with a sub-investment grade rating</td>
<td>Recently, in July 2019, the BoE (2019a) updated their definition of Leveraged Loans and is now, beside of institutional and term loans, also including drawn and undrawn revolving credit facilities</td>
</tr>
<tr>
<td>Smith (2016)</td>
<td>Rating</td>
<td>A loan agreement between a medium- to large-sized non-investment grade corporate borrower and a financial institute</td>
<td></td>
</tr>
<tr>
<td>SNC et al. (2019)</td>
<td>Rating</td>
<td>Loans with supervisory ratings below pass</td>
<td>Those loans typically contribute the highest share of all ”special mention” and ”classified” loans</td>
</tr>
<tr>
<td>Thomson Reuters DealScan</td>
<td>Rating</td>
<td>Loans rated less or equal BB+ or unrated</td>
<td>Source: Lim. et al. (2012)</td>
</tr>
<tr>
<td>Schenck and Shi (2017)</td>
<td>Multiple / Others</td>
<td>According to their purpose, their rating as well as their interest spread</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: An Overview of various Definitions of Leveraged Loans I
<table>
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<tr>
<th>Definition by</th>
<th>Definition Type</th>
<th>Definition</th>
<th>Annotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P (2018)</td>
<td>Others / Others</td>
<td><strong>syndicated commercial loans</strong> which are “first structured, arranged, and administered by one or several commercial or investment banks (. . .) then **sold (or syndicated) to other banks or institutional investors.”” (S&amp;P (2018))</td>
<td>Beside the definition, S&amp;P uses also a bisected classification method using the <strong>rating</strong>: ≤ BB+ or not rated ≥ BBB- but has either a <strong>spread</strong> of +125 bip over LIBOR or is secured by a first or second lien</td>
</tr>
<tr>
<td>FSB (2019a)</td>
<td>Multiple</td>
<td>Loans to highly indebted non-financial corporates with a <strong>non-Investment-Grade rating</strong> or a <strong>spread</strong> at issuance above a certain threshold</td>
<td>In the definition of FSB (2019a) trade finance and asset-based loans are excluded</td>
</tr>
<tr>
<td>FED (2013)</td>
<td>No clear definition</td>
<td>No clear definition of leveraged loans in their initial guidance. Instead of a definition, the FED acknowledges that there exist <strong>many different definitions</strong> and banks may specify an appropriate definition for the institution</td>
<td>According to Calem et al. (2016), they mention a framework consisting of 1) the purpose: Loans used for buyouts, acquisitions or dividends, 2) the total Debt / EBITDA ratio ≥ 4 or senior debt ≥ 3 times EBITDA, 3) a Debt / Net Worth ratio which recognizes the company as highly leveraged in the debt market as well as 4) debt ratios significantly exceed industry norms or historical levels</td>
</tr>
<tr>
<td>Deslandes et al. (2019)</td>
<td>Multiple / Others</td>
<td>Loans provided to <strong>highly indebted firms</strong> or to <strong>firms that are owned by financial sponsors</strong> which use the loan to finance <strong>buyouts or M&amp;A deals</strong></td>
<td></td>
</tr>
<tr>
<td>ECB (2017)</td>
<td>Multiple / Others</td>
<td>Every borrower which is owned or controlled by one or more financial sponsors (the ECB (2017) defines the method &quot;<strong>Sponsor test</strong>&quot;) as well as every borrower whose post-financing leverage exceeds a threshold of 4 times Gross Debt / EBITDA (Wicks et al. (2017) define the method &quot;<strong>Four times test</strong>&quot;) as leveraged</td>
<td>To meet the definition of a leveraged transaction according to the ECB (2017), it is enough to fulfill one out of the two criteria</td>
</tr>
</tbody>
</table>

Table 2: An Overview of various Definitions of Leveraged Loans II
We clearly see that there is a lack of an appropriate universal definition. A harmonization of regulations will always lag behind if there is no unique definition of the product. The ECB (2017) recognized this problem and with its guidance tries to harmonize the definition of leveraged loans.

2.3 Key Risk Drivers in the Market for Leveraged Loans

As shown in subsection 2.1, many supervisors issued warnings about the riskiness of the market. In this chapter we will provide a deeper analysis of the main risk factors which are liquidity, size and concentration, structure, cash flow multiples as well as new unregulated and non-transparent market participants.

2.3.1 An Investigation into the Riskiness of Leveraged Loans

The BIS (2018) mentions that leveraged loans are pro-cyclical and therefore bear a higher risk than high-yield bonds. The ECB, European Central Bank (2018) finds, that already leveraged corporates are still able to issue new loans in the leveraged loan market and further increase their leverage due to high investors demand, which enlarges the outstanding amount of leveraged loans and, as the IMF (2018) finds, increases systematic risk. Beside the volume, as Adrian et al. (2018) find, deteriorating underwriting standards in particular are unsettling and may bear an even higher risk.

Deslandes et al. (2019), from the European Parliament’s Economic Governance Support Unit, argue that there are three main risk factors in leveraged lending: credit risks, reputational risks as well as funding and liquidity risks. Ivashina and Scharfstein (2010) are interested in the liquidity risk part and therefore investigated US banks’ lending practices during the financial crisis and compared them to lending practices before the financial crisis. They find that the reaction of banks already started before the banking panic in Q4/2008, but the level of adjustment accelerated over time. Non-Investment Grade lending, a proxy for leveraged lending, in Q4/2008 was 91% below the peak in Q2/2007.
Ivashina and Scharfstein (2010) mention two potential reasons for the illiquidity of the market for leveraged lending: a demand effect because firms suspended expenses and investments as well as a supply effect if banks have less access to deposit finance and at the same time an increase in overall credit risk decreases their lending capacity. A sudden stop in credit supply could, as De Haas and Van Horen (2012b) find, destabilize the financial stability and intensify an economic cooling down. As Smith (2016) argues, a lack of credit supply worsens the situation of companies in a recession even more. An important finding by Ivashina and Scharfstein (2010) is that even though a lot of leveraged companies had a non-investment grade rating and a CDS implied very high probability of default [PD] at the end of 2008, most of them did not underperform and could repay their interests as well as their debt.

Cross (2019) investigates leveraged loan default rates and finds that, at least in the US, the default rates of leveraged loans in march 2019 hitted a 7-year low at 0.93% which is far below the historical average of 3.1%. According to Eyerman et al. (2018), also European leveraged loan default rates are at <2% not just on a very low level but also below their historical average. When interpreting default rates as an indicator for current credit risk, one should always keep the covenant lite structure of currently issued leveraged loans in mind, which keeps otherwise defaulted companies alive longer and therefore lowers current default rates. Also S&P (2019) mentions that ongoing strong corporate earnings as well as the delaying factor of covenant-lite structures are most likely the reasons for the low default rates. Another mitigating reason why default rates may be lower compared to their historical average may lie in the fact that many leveraged loans are held within CLOs. The size of CLOs, as Nelson (2018) finds, increased significantly after the financial crisis and gained additional momentum in 2011, since when CLOs doubled in size. The author mentions that CLOs usually have different bond-like covenants, which may lead to a heavy lag in the recognition of a default. In addition to the covenant lite structures, we observe in general a borrower-friendly market combined with strong eco-
nomics framework conditions which lead to strong corporate earnings and therefore allow also leveraged corporates to take on even more debt.

Deslandes et al. (2019) are of the opinion that due to the interconnectedness of the banking system and probably also due to the interconnectedness between the banking system and the shadow-banking system, banks are exposed to a reputation risk. There is a lot of uncertainty about how those mostly unregulated investors will react in case of a financial crisis and if potential problems would spill over to the real economy. Nevertheless, this risk as well as the degree of interconnectedness is difficult to measure. The Warwick Commission on International Financial Reform (WC 2009) [WC] describes an asset selling spiral as a contagion effect which may arise out of deeper interconnectedness. A very similar idea was developed by Fink and Haiss (1999), who explain bank failures with ”herd behaviour”. Both ideas will be discussed in more detail later in this paper.

Gundy and Eckert (2018), Deslandes et al. (2019) as well as Yeatman and Firth (2018) find, that underwriting standards for leveraged loans have weakened and that cov-lite loans do not just account for a historically high percentage of issued leveraged loans, but that the quality of remaining covenants fell to its historically lowest level in Q3/2018. Adrian et al. (2018) remark, that weaker covenants go also hand in hand with a decline of recovery rates. Compared to a pre-crisis average of 82%, the average recovery rate fell to 69% in 2018. Barajas et al. (2018) are of the opinion that, despite the fact that banks’ balance sheets are safer compared to the period before the financial crisis, this should not lead regulators to a reform fatigue. Since risk factors for financial stability usually arise during economically favorable times and change over time, also regulations need to be adapted. Barajas et al. (2018) mention liquidity shortcomings, macroprudential regulations, shadow banking, bank resolutions and destabilizing cyber-attacks as potential risk factors for banks nowadays.
2.3.2 Add-back adjusted EBITDA

There are two main recognized and widely used techniques how to calculate the leverage ratio: either by debt over equity or by debt over cash flow. The first technique is an indicator of the capital structure of a company and reveals the multiplier of debt relative to equity. The second technique is more often used in a leveraged finance concept: debt over cash flow (or more prevalently used: debt over EBITDA\(^3\) which is well accepted as a proxy for cash flow). The debt / EBITDA ratio measures the available cash flow to pay back interest and debt. The BoE (2019b) is worried about the increasing share of so called add-back adjusted EBITDAs when calculating leverage ratios in this way. Add-back adjusted EBITDAs remove one-time and non-lasting effects from the EBITDA and include expected future earnings to draw a more normalized and realistic picture of the future cash flow and earnings potential of a company. A Debt / EBITDA multiple therefore implicitly assumes that one is able to predict future EBITDA with current information. Without any doubt, add-back adjusted EBITDA may bear incentive risks. Berman and Knight (2009) recognize that EBITDA, since depreciation and amortization - two expenses where there is no cash outflow of the company and which are subject to judgments and estimates - are not included, can be used as a proxy for operating cash flow. Berman and Knight (2009) also remark that there is a possibility to inflate or manipulate cash flow estimates according to the EBITDA technique by prolonging the amortization structure or by accruing expenses to assets which later are depreciated and thereby artificially increase profits without generating any new cash flow. The potentially inflated cash flow proxy is the main reason why the ECB (2017) restricts the use of add-back adjusted EBITDAs. If the EBITDA is inflated, the Debt / EBITDA multiple will be too low and does not cover the entire risk of the company.

Add-backs are widely used and do not just inflate debt multiples but also valuation multiples. The FSB (2019a) mentions the tendency of borrowers to make optimistic adjust-
ments to increase the Enterprise Value especially for M&A purposes, where an EBITDA multiple is often used as a valuation method. An adjusted EBITDA, if correctly reassessed as a more justifiable EBITDA without any one-time effects which will not last post-transaction, may also be a better proxy for future earnings. The ECB (2017) generally refers to unadjusted EBITDA but also permits enhancements, which have to be duly justified and reviewed by an independent risk function. Lutz Business Insights [LBI (2019)] mentions owner salary and compensation as well as other owner-related expenses, rent and other real estate related expenses, gaps in the management team, legal / litigation items as well as other miscellaneous items which may rightly be adjusted from the EBITDA as common EBITDA adjustments.

According to the ECB, European Central Bank (2018) the Debt / EBITDA ratio (first lien only) has increased from below 3.5 in 2012 to above 4.5 in 2017. The actual leverage is expected to be significantly higher than the reported leverage due to the mentioned observable trend to use add-back adjusted EBITDA numbers. The IMF (2018) measures the leverage multiple of all new issued highly leveraged loans (defined by a multiple ≥ 5) in the US and in Europe and finds that the multiples have surpassed pre-crisis levels. Over 60% of all new issuance’s in the leveraged loan market have a leverage multiple (measured by the ratio of debt to EBITDA) >5.00, nearly half of them have a multiple >6.00. The last time this ratio exceeded 60% was before the start of the financial crisis in 2007:
2.3.3 Cov-Lite Loans

Many market participants are especially worried about the increasing share of covenant lite leveraged loans. Deslandes et al. (2019) mention that formerly issued leveraged loans have been protected to a large degree by covenants, while nowadays the share of cov-lite loans is rising. According to Becker and Ivashina (2016), the share of covenant lite loans is nearly three times higher compared to the time when the share of covenant lite loans peaked in 2007. S&P (2019) estimates the number of covenant lite loans at 81.6% of the total outstanding European leveraged loans in January 2019. Becker and Ivashina (2016) evaluate whether the rise in cov-lite structures is due to an increased demand for cov-lite loans, a market overheating or increasing activity of non-banking Financial Intermediaries, especially mutual funds. Some attributions of non-banking Financial Intermediaries are wider syndications, restricted skills, most likely fewer monitoring, eventually weaker control rights and also more diverse incentives.
But what are problems with cov-lite structures? Contracting of loan agreements with no covenants or cov-lite structures tend to be borrower-friendly and more risky for the lender. Trollobe (2014) argues that borrowers eventually refuse interventions of lenders and therefore do not want cov-heavy structures. Negative experiences during the financial crisis from 2007 to 2009 could be potential explanations why corporates nowadays refuse to accept lender friendly covenant structures. This option would be realistic since the market nowadays is very borrower-friendly. Becker and Ivashina (2016) mention that cov-lite does not necessarily mean that there are fewer covenants but that the term cov-lite describes weaker enforcement possibilities of covenants. Cov-lite structures, in contrast to cov-heavy structures where there is no event needed to break a covenant, usually require an active event to happen. But how can we differ between cov-lite and cov-heavy? Bell et al. (2018) mention financial maintenance covenants as an indicator for cov-lite or cov-heavy. If a loan agreement includes a single financial maintenance covenant (e.g. senior debt may not exceed operating cash flow by more than four times), the loan is considered cov-heavy. If a loan agreement lacks a financial maintenance covenant it will be considered cov-lite, independent of how many other covenants the agreement may include. This distinction already leads us to the theory that a judgement about riskiness just by looking at the criteria of cov-lite or cov-heavy may be a premature judgement since it disregards many other risk relevant parameters.

Gundy and Eckert (2018) find that, according to Moody’s Loan Covenant Quality Index, also the quality of remaining covenants has deteriorated. Yeatman and Firth (2018) mention that the deterioration of European covenant quality fell in Q3/2018 to the lowest level ever seen. As the FED (2018) points out, the deterioration of covenants could reflect the increased prevalence of non-banking Financial Intermediaries who just barely exercise loan covenants. Covenant-lite loans are less restraining to borrower’s and often include structures which make it more difficult for lenders to liquidate the borrowers assets. Therefore they feature lower recovery rates. In many cases, cov-lite loans do not restrict
dividend payments or allow the borrower to move assets out of the access of lenders, which creates a situation where assets can be moved out of the scope of investors. Rennison and Smith (2019) mention Neiman Marcus as an example where covenants at the time of origination could have protected investors from the future that was lying ahead. Neiman Marcus bought the German company Mytheres in 2014. Neiman Marcus at that time was already owned by the private equity firms Ares Management and the Canada Pension Plan Investment Board which transferred Mytheresa to Neiman Marcus’s parent company. The assets of Mytheresa thereafter have been out of Neiman Marcus’s control. After Mytheresa was transferred out of the range of Neiman Marcus, the PE funds announced a restructuring of Neiman Marcus. The assets of Mytheresa have at that point in time already been out of the creditors’ range. The PE owners of Neiman Marcus argued, that since there was no limiting covenant, everything was legal.

The ECB, European Central Bank (2018) is of the opinion that cov-lite loans weaken the level of investor protection and increase the probability of a default being delayed and recovery rates being lower. Traditionally riskier loans featured at least one maintenance covenant. S&P (2019) argues that the absence of maintenance covenants makes cov-lite loans more like bonds, which usually just face incurrence covenants. The ECB, European Central Bank (2018) recognizes that - apart from maintenance covenants - there are also incurrence covenants which limit certain actions. But recently also the number of incurrence covenants per loan has decreased markedly. The ECB, European Central Bank (2018) mentions several other maintenance covenants like maximum leverage, minimum interest coverage ratio or capital expenditures [CAPEX] limits. Deslandes et al. (2019) remark that covenants allow lenders to interfere when the repayment capability decreases. The FED (2018) finds that spreads on newly issued leveraged loans, despite the cov-lite structures, remained at the lower end of their historical range.
Becker and Ivashina (2016) evaluate cov-lite structures with data gathered from S&P Leveraged Commentary and Data (LCD) and DealScan in the period from 2001 to 2014. The authors find that loans have historically almost always been covenant-heavy and find evidence for coordination costs in syndicated loan agreements, which are the main driver for the increasing share of cov-lite structures. Their findings contradict the intuitive answer that borrowers bargaining positions are the only drivers for the higher share of cov-lite structures. Becker and Ivashina (2016)’s main finding, that the rise in cov-lite structure is most likely investor-driven, does not allow us to make a conclusion on the macroprudential impact of the rising cov-lite structure on the overall financial stability.

2.3.4 The rise of non-banking Financial Intermediation

Every borrower needs a lender. The lender of leveraged loans influences every credit parameter, ranging from the lending amount to covenants, and fulfills the important task of ongoing monitoring during the lifecycle of the loan. We find it important to discuss
specifically the increasing share of non-bank Financial Intermediary lending. Musatov and Perez (2016) recognize the increased activity of potentially more vulnerable non-banking Financial Intermediaries which escape bank regulations. The authors apprehend that due to the strong interconnection between banks and non-banks, a non-bank collapse could also affect banks, which in turn could affect lending by banks to the real economy. The latter argument is in line with concerns by the European Systemic Risk Board (ESRB (2018)), who identified several key risks arising out of the increasing importance of non-banking Financial Intermediaries. This key risks include liquidity, leverage, interconnectedness, pro-cyclicality and data gaps in the assessment process.

The FSB (2019a) evaluated global trends in non-bank financial intermediation in the period ranging from 2011 to 2017. Non-banks are defined as insurance companies, pension funds, financial auxiliaries and other financial intermediaries [OFI]s (all financial institutions except central banks, banks, public financial institutions, insurance corporations, pension funds or financial auxiliaries). The paper refers to a so called ”narrow measurement” which includes ”non-bank financial entity types that authorities have assessed as being involved in credit intermediation activities that may pose bank-like financial stability risks” (FSB (2019a), p. 7). This ”narrow measurement” non-banks diversify the alternative financing options for firms, generate competition in the market and fulfill typical banking sector activities. In order to use a universal and easily understandable term, we will furthermore use the expression ”non-banking Financial Intermediaries” to describe the narrow measurement of non-banks which fulfill intermediary functions in the corporate loan market. The FSB (2019a) remarks that non-banking Financial Intermediaries may give rise to systematic risk directly, and due to their interconnectedness with the banking sector also indirectly. The FSB (2019a) recognizes that the non-banking Financial Intermediaries sector is gaining size compared to the traditional banking sector. In 2017 the non-banking Financial Intermediaries sector grew by 7.6% (measured in assets) and accounted for 30.5% of total global financial assets. In the last 10 years, as
the ECB (2019a) mentions, non-banking Financial Intermediaries increased their share of loans provided to the private sector of the euro area from 24% to 36%. In the same time the share of traditional banking institutes decreased from 64% to 46%. The ECB (2019a) furthermore recognizes, that non-banking Financial Intermediaries increased their share especially in the riskier part of leveraged loans, rated BBB- or lower. Non-banking Financial Intermediaries held in 2017 over 70% of the primary leveraged loan market in the European Union [EU]. Even if this ratio declined in 2018, it stays above 50% (figure 5, left panel). This includes CLOs as well as Private Equity [PE] funds, retail funds [RF] and other institutional investors [II].

Figure 5: The Share of non-banks in the European Primary Leveraged Loan Market

The ECB (2016) mentions the low interest rate environment, which increased the attractiveness of insurance and pension fund products, as well as regulatory arbitrage as the main principles behind the increasing share of non-banking Financial Intermediaries in the private loan market. Also FSB (2019a) recognizes, that the market for leveraged loans is
becoming more complex with non-banking Financial Intermediaries taking on traditional banking roles.

The right panel of figure 5 shows that investors hold European leveraged loans mainly through CLOs (∼30%) or private equity loan funds (∼20%). Borrowers provided with loans by private equity funds tend, according to the FSB (2019a), to have higher debt multiples as well lower ratings. Around 20% are held by other non-banking Financial Intermediaries. The banking sector holds the remaining amount, around 30%. In order to avoid any confusion: The FSB (2019a) is referring to the share of leveraged loan holdings and not to issues. The difference is that leveraged loans may be issued by banking institutions which do not want to hold them in their books and therefore sell them to non-banking Financial Intermediaries and other investors. The FSB (2019a) considers it as likely that some banks are exposed to further indirect risks which may not be captured in our currently available statistics.

According to the BoE (2019b), increased securitization through CLOs, which are mainly composed of leveraged loans, is a key driver for the growth in the leveraged lending market. Roughly two thirds of all CLOs worldwide are held by non-banking Financial Intermediaries. Fleming (2019) finds that the Financial Stability Board is concerned about the non-banking Financial Intermediary sector, sized at $50 tn by a new assessment, and is looking for ways to regulate it. The BoE (2019b) argues, that an economic downturn could result in significant losses for those CLOs held by non-banking Financial Intermediaries. Those entities are less regulated, less capable to absorb losses and could therefore react differently to short-term losses than banks. In contrast, Skinner (2019) argues that since non-banking Financial Intermediaries often function as lenders of last resort the effect on the market in economic recessions is ambiguous.
There is a lot in favor of non-banking Financial Intermediary issued direct lending. Direct lending, the form of financial intermediation in which lenders other than banks provide loans to corporates without any intermediary, is increasingly fast growing in Europe. According to the Deloitte Alternative Lending Tracker (Deloitte (2019)), there have been 1,753 direct lending deals completed within the last five years, 664 thereof in the UK. The deal number is increasing as well as the total number of alternative lenders, which increased from 2015 to 2018 from 448 to 522 (+ 16.5%). Those alternative lenders are different from classical banks in many ways. Deloitte (2019) describes the differences through the access to more structural flexibility (bullets, covenant-lite structures, mezzanine, quasi equity financing etc..) but also the faster handling and lower degree of complexity as key differences of alternative lenders. Schenck and Shi (2017) argue, that especially the last point could indicate that those non-banking Financial Intermediaries face a lower level of regulation compared to their competitors in the banking sector and therefore have a regulatory advantage. The ECB (2015) mentions, that non-banking Financial Intermediary reduce the reliance of small and medium-sized enterprises [SME] as well as mid-caps from traditional bank financing by providing an alternative source for borrowing. Non-bank financing could provide an alternative lending source especially for constrained firms or during a financial crisis when bank lending declines. This positive diversifying impact of non-banking Financial Intermediaries on funding possibilities for borrowers is also recognized by the ESRB (2019). Skinner (2019) highlights the important countercyclical role of non-banking Financial Intermediaries during economic downturns. Private funds are structured and incentivized to work as countercyclical lenders when banks move out of the market. The ECB (2016) recognizes, that non-banking Financial Intermediaries mitigated effects of the financial crisis in between 2007 and 2009 as well as the euro area sovereign debt crisis. Therefore, Skinner (2019) argues, despite the lower transparency and lower regulatory standards, they may lead to a higher level of financial stability. Of course this implies the liquidity of non-banking Financial Intermediaries as well as the feasibility of companies to switch lenders. Usually non-
banking Financial Intermediaries can take on additional risk also in turbulent economic times but require a higher spread as compensation for the additional risk. In our opinion the argument mentioned by Skinner (2019) is misleading since it implicitly assumes that institutions are self-regulating and that de-regulating institutions has a positive impact on the overall financial stability even though we know that this is not the case, especially due to different incentives and short-terminism. The ECB (2016) adds critical aspects when assessing the benefits of non-banking Financial Intermediaries. Whereas regulated banks on the one hand are subject to regulatory requirements such as minimum reserves and on the other hand do also have public backstops like Central Bank liquidity assistance during a crisis, non-banking Financial Intermediaries do neither have strong regulatory requirements nor a public backstop which could protect them during a crisis. Thus, as the ECB (2016) argues, non-banking Financial Intermediaries accelerate the transformation of monetary policy to the real economy and therefore lead to more short-terminism and as a consequence create instability in the market.

Adrian et al. (2018) find that potential risks of institutional ownership are harder to assess and to mitigate. It is uncontested that banks’ balance sheets became safer after the financial crisis. The FSB (2019a) finds an increasingly important role of PE funds in former traditional banking fields like M&A. Barajas et al. (2018) considers higher capital cushions and a better ability to convert assets into cash during volatile times, as important improvements for the financial stability since the financial crisis. But due to the shift of risky loans to the non-banking sector since the financial crisis, as for example Kim et al. (2017) as well as Schenck and Shi (2017) find, the overall financial stability situation remains unclear.

2.4 Shall Leveraged Lending be prohibited?

Since we find that the discussion of leveraged loans, also in this thesis, is mainly about the downsides and risks of leverage we find it necessary to discuss also the academic lit-
erature in favor of leveraged loans and non-banking Financial Intermediary participation in the leveraged loan market.

Bell et al. (2018) argue, that covenant-lite loans do not necessarily mean a deterioration of lending standards. High quality loans do not need maintenance covenants. It is better having a cov-lite high quality loan than a cov-heavy low quality loan. Bell et al. (2018) are of the opinion that the value of a covenant in a distressed credit situation is probably even lower compared to having no covenant. Since the borrower has the biggest incentive to keep the business going, the value generating potential of the covenant in a distressed credit situation for the lenders themselves may be less than the value created by the borrower itself. Cov-lite loans performed relatively well compared to cov-heavy loans during and after the financial crisis of 2007 to 2009. This does not indicate that covenants are unimportant, but that the value of cov-heavy loans in the case of a default may ex ante be overstated or that cov-lite loans for high quality lenders should not be worrying.

Skinner (2019) and Smith (2016) criticize, that there is no evidence that leveraged loans are a substantial risk for the economy, moreover there is an abundance of literature which points out the positive effects of leveraged lending to distressed companies. Smith (2016) argues, that leveraged lending is a critical source of financing for a distressed company and questions the logic of the guidance’s on leveraged loans since they may eventually force companies into the non-bank sector. He even mentions that the statistics published by the regulators themselves do not draw a risky picture but rather that the level of leverage is nowadays on a pre-crisis historical average. He finds that leveraged loans provided by banks bear benefits for borrowers in need of cash to invest, innovate, and grow. Financing through banks provides a higher value to borrowers than through non-banking Financial Intermediaries, has a positive impact on company performance and is better monitored. A limitation of bank-issued leveraged lending could on the one hand reduce economic output, make companies more vulnerable to economic downturns and thereafter reduce their
resilience. On the other hand, a reduction in leveraged loans issued by banks could also support less regulated non-banking Financial Intermediaries. Smith (2016) argues against the general regulatory effort to regulate leveraged lending and especially against purpose driven definitions. The author also states that the focus on leveraged loans is distracting for two more reasons: 1) during the financial crisis in between 2007 and 2009, leveraged loans did not face huge credit losses, in contrast to low-quality mortgages, exposures to mortgage backed securities [MBS] and commitments to support paper-backed programs in particular. 2) the quality of the leveraged loans outstanding is at an average level and is not in a decline, which would justify broader regulatory attention.

According to Ivashina and Scharfstein (2010) the default rate of leveraged loans did not increase but issuance decreased during the financial crisis. The decrease in issuance can be explained by lower risk tolerance of banking institutions during the financial crisis and can be seen as an indicator for the pro-cyclicality of leveraged loans. Smith (2016) mentions the total percentage of "classified" loans [loans that are defined as comprising "loss", "doubtful", and "substandard" non-performing loans [NPL]] and "criticized" loans [classified loans plus "special mention" loans which are very risky but still performing] declined to a pre-crisis average before the guidance was issued. The SNC et al. (2019) find a further decline in the share of classified and criticized loans from 2015 until 2018. Even though the total amount of criticized and classified loans has risen by over 158%, the total share of classified and criticized loans stayed rather constant. This effect can be explained by looking at the cumulative share of criticized loans: it increased during the financial crisis beginning in 2007, peaked in 2009 and was back at pre-crisis levels already in 2013, from which onwards the share stayed rather constant. Jensen (1986) also recognized the positive impact leverage can have on the performance of a company. He argues on the basis of the fact that (high levels of) debt has a disclosing impact on corporate borrowers and pushes the management to generate high levels of operating cash flow and therefore reduces agency costs. Smith (2016) as well as Jensen (1989) find that
beside general advantages leverage can bring there are special advantages of LBOs which combine the advantages of debt with skilled investors and ownership in addition. Smith (2016) therefore argues that regulatory efforts to limit LBO’s, including a purpose driven definition of leveraged loans, are misguided. James (1987) even found a significant and positive response of the stock price to an announcement of a new bank loan and a negative response if there is a private placement or bond issued used to repay bank loans. Recalling Jensen (1986), who states about the mitigating impact of leverage on agency costs: whereas a high payout ratio can limit a management’s conflicts of interests with shareholders, it is not that clear whether the same applies to leverage. Leverage increases the firm’s size, which has a positive impact on executive compensation as Parthasarathy et al. (2006) find.

When talking about leveraged loans on a macro level one often forgets the micro (balance sheet) level of debt. Even if debt has advantages for companies it is undisputed that high levels of leverage also bear higher risks for companies and subsequently also a higher risk for the economy. Even if leverage may have a positive impact on company’s performance, it is not evidence that this company’s performance is also long-lasting as regards economic and financial stability. The effect of leverage lowers a company’s weighted average cost of capital [WACC] (mainly through tax shield effects) and causes a company to appear more profitable, at least until the optimal capital structure is reached. The optimal capital structure, most famously described by Modigliani and Miller (1958), does not disregard the negative impact of leverage. Even if the tax shield can be increased further than the optimal point where the interest tax shield equals the marginal expected bankruptcy costs, it is not creating additional wealth anymore. The tax shield can be predominant in the short run, which could be seen in increased profitability; in the medium run, the increased risk and bankruptcy cost will reverse the short-term advantage and leave the company with a leverage burden. This burden can harm the company and due to spillover effects of a defaulting company even be a risk for financial stability.
3 Guidance on leveraged transactions

On 16 May 2017 the European Central Bank, after a period of public consultation starting on 23 November 2016, published their final Guidance on leveraged transactions. The final guidance went into effect 6 months later. Flaunet and Peters (2017) state that the guidance can be seen as the equivalent to the 2013 published US guidance on leveraged lending (FED (2013)). Kim et al. (2016) mention a similar motivation for the US Guidance compared to the European Regulation: rapid leveraged lending volume growth, increased non-bank participation and deteriorating standards. For this reason we expect the European Guidance to have a similar impact on the European Market for Leveraged Loans than the comparable US Interagency Guidance on Leveraged Lending.\footnote{For a detailed comparison of both guidances please see Wicks et al. (2017).}

3.1 The Motivation mentioned in the Guidance

In the introduction of the ECB (2017) Guidance on leveraged transactions, the ECB already stated that the ongoing period of low interest and the high level of competition among credit institutions led to a weakening of deal structures and a greater leniency on credit policies. Additionally, the ECB (2017) Feedback Statement observed market trends towards more liberal amortization profiles where borrowers are able to repay current interest and principal payments but eventually not future interest and principal payments, which is a sign for an overly leveraged-borrower.

Leverage is a key risk for banks equity. The ECB, European Central Bank (2015) Financial Stability Review [ECBFSR] across different credit institutions showed that the market of leveraged transactions has strongly recovered after the financial crisis and that the market nowadays is characterized by fierce competition with covenant-lite structures. Additionally, the Review showed low second market activity possibilities and rising contagion effects in the shadow banking sector. Josenhans et al. (2017) hold the position that
the increased competition between banks and alternative capital providers led to borrower friendly conditions.

The ECB (2017) mentioned considerable heterogeneity in the definition of leveraged transactions and ways of dealing with leveraged transactions in terms of reporting and risk management across the different surveyed credit institutions. The ECB, European Central Bank (2015) revealed that a large number of financial institutions just consider Leveraged Buyout [LBO] deals with one or more private equity sponsors as leveraged lending. The ECB (2017) considers this approach as too weak and too narrow in the context of a fully elaborated risk management framework. The EBA (2019) confirms the importance of a overarching definition as well sound governance structures to monitor leveraged loans. The ECB (2017) furthermore acknowledges that the risk that a borrower does not pay back its debt rises with leverage. With the new Guidance on leveraged transactions for every significant credit institution the ECB tries to improve and to standardize the monitoring practice of financial institutions. The ECB (2017) declares, that this new Guidance applies to all ECB supervised significant credit institutions under ECB (2018) Article 6(4) of the Single Supervisory Mechanism Regulation.

For all less significant institutions the ECB considers itself as qualified to issue regulations or guidelines to national supervisors to unify supervisory practices. Thus, Josenhans et al. (2017) argue that the guidance could also impact indirectly less significant institutions. Maifarth et al. (2017) argue in their Risk Report that whereas the guidance is not binding it will be enforced through ongoing off-site as well as on-site investigations. The ECB expects the Guidance to have positive spillover effects to other, non-significant institutions, so that those institutions shift their internal policies towards the regulation.

To control the implementation process, the ECB (2017) confirms that the ECB will ask certain credit institutions to report on their leveraged lending activities regarding the eval-
uation of the exposure and the corresponding risk. Maifarth et al. (2017) also expect that the Guidance will be part of future ECB audits. The ECB (2017) tries to focus on risk appetite as well as on risk management and governance practices. Prior to the publication there was a public consultation phase beginning on November 23 2016 and lasting until January 27 2017 and a public hearing for industry participants and interested parties on January 20 2017.

3.2 The Objective of the Guidance

Section B3 of the Feedback Statement provided by the ECB titled the “Key objectives of the guidance” (ECB (2017), p. 5) defines two main objectives of the guidance. At one side the guidance shall help the senior management of financial institutions to identify leveraged transactions by a comprehensive definition. The senior managers shall get an overview about the institutions leveraged lending activities independent of business units and geographical areas. At the other side it will support risk management and foster adequate reporting standards to increase an institutions’ ability to perform during a period of economic downturn and in an advanced step also to demystify lending to leveraged borrowers during times of high volatility, which would ultimately promote a less volatile lending activity throughout the business cycle. As Section B5, titled the “Economic impact of the guidance” (ECB (2017), p. 6), states, the guidance shall not impair the lending activities vs leveraged borrowers but improve credit risk practices and harmonises the definition of leveraged transactions. Steady risk management practices lead to continual credit supply during the economic cycle.
3.3 Definition of Leveraged Transactions and the computation method according to the ECB

There is no unique definition of a leveraged transaction in the Guidance. According to Wicks et al. (2017), any credit or loan which meets the sponsor test or the four-time test is considered a leveraged transaction. The ECB (2017) states that not just bank debt shall be considered. Especially incremental facilities, which recently got very popular in corporate lending markets, have led to the need of an extended definition. Additionally, the ECB (2017) mentions, that in general the debt level shall be calculated on the consolidated borrower level (“group-of-risk-concept”), except if the group does not support the borrower in case of a default.

According to Avery et al. (2017) total committed debt considers gross debt plus also undrawn facilities as basis of debt. This does include drawn as well as undrawn facilities plus “any additional debt that the loan agreement may permit” (ECB (2017) p.10). Avery et al. (2017) find, that the Feedback Statement considers also shareholder loans when calculating total committed debt. The definition includes all kinds of debt, even if it is held by financial institutions others than banks. Willey et al. (2017) find that, consistent with the US Guidance on Leveraged Lending, cash shall not be netted against debt.

According to Wicks et al. (2017) the guidance in general refers to unadjusted EBITDA but permits in special cases also enhancements to the EBITDA to be made. These enhancements must be duly justified and reviewed by an independent party. Adjusted or add-back adjusted EBITDA’s have gained popularity in the aftermath of the financial crisis. The ECB (2017) expresses that forecasting future earnings as well as future EBITDA is very difficult to access and could lead to very inhomogeneous LT- ratios between different financial institutions for the same customer because of different adjustments, expectations and because of different incentives for Financial Institutions to adjust the EBITDA ac-
Accordingly. Beside of different incentives for Financial Institutions to adjust the EBITDA, the ECB (2017) observes, that higher leverage also puts borrowers into a higher risk class. An overly idealistic view on future corporate growth rates, synergies arising out of an acquisition, future decreases in costs or overall growth of the economy may allow a borrower to take on additional risk which puts the company under additional pressure in a period of economic downturn. Therefore, the ECB decided to restrict adjustments to the EBITDA. The ECB (2017) mentions that the ECB will take a closer look on the real economic impacts of the limited adjustments to the EBITDA and eventually decides to adjust the restriction to adjust EBITDA.

The ECB (2017) considers borrowers with a Debt/EBITDA-Multiple higher than 6 times EBITDA as highly leveraged borrowers. There is no general prohibition of lending to highly levered borrowers but the lending activity versus highly leveraged borrowers should be duly justified and has to be specially monitored by senior management and a high-risk function. Additionally ECB (2017) states that in the monitoring process all risk factors and financial indicators have to be reviewed together to evaluate a borrower’s capacity to pay back its debt and the sustainability of the borrower’s capital structure. The ECB (2017) considers enterprise valuations not just as an integral part in the credit approval process but also as a central component when assessing a highly levered borrowers capability to repay its debt. The estimations underlying an enterprise valuation must be documented, queried, well supported and reviewed by an independent risk function. The ECB (2017) considers three possible approaches for an enterprise valuation: an asset-based approach, a market-based approach and an income-based approach. Even if a combination of all three is possible the rearmost is considered the most common and reliable. Since there are no prescriptions for the form of the valuation the principle of proportionality has to be applied.
3.4 Test for Leveraged Transactions and the List of Exclusions

The test for a leveraged transaction relevance shall be implemented into the credit approval process of any affected institution. Financial Institutions must test their customer portfolios for already existing leveraged transactions. According to Maifarth et al. (2017) after any change in the credit structure, e.g. any prolongation, modification or changed refinancing structure, the test for an LT relevance must be redone. Beside of the term “Sponsor test” defined in the Feedback Statement, Wicks et al. (2017) define also the term “Four times test” to check if a borrower meets the criteria of a leveraged transaction.

According to the ECB (2017) any credit or loan exposure where the borrower is owned or controlled by one or more financial sponsors (sponsor test) or any credit or loan where the borrower’s post-financing leverage exceed a gross debt to EBITDA ratio of 4 times (four times test) is defined as a Leveraged Transaction. ECB (2017) states that every transaction to a borrower where one or more financial sponsors own over 50% of the borrowers equity and influence the borrowers financial policies, are considered as Leveraged Transactions. The ECB aims to capture financial investors who borrow money to distribute non-earned dividends, finance private equity deals, leveraged buyouts, leveraged acquisition deals or related financial activities in order to earn capital gains. These transactions bear a high level of risk for the borrower, its investors and also for the Financial Institution and shall therefore be monitored and considered with additional effort. Nevertheless, the ECB (2017) defines several relaxations to the Regulation:

3.4.1 Customers who’s total committed debt is <EUR 5 mn

Calculated as total post financing gross debt which does include drawn as well as undrawn facilities and any other debt agreements.

3.4.2 Loans to investment-grade borrowers

Besides the monitoring of every leveraged exposure, the ECB (2017) also expects Financial Institutions to consider other metrics (e.g. debt service cover, cash conversion,
liquidity headroom, equity cushion, and others) when evaluating if an exposure is lever-aged. As most of those criterias should be covered within the rating system the ECB decided to exclude investment grade borrowers from the regulation. Josenhans et al. (2017) therefore regards borrowers with an equivalent rating of BBB- (SP), BBB- (Fitch), Baa3 (Moodys) or above is considered as investment grade borrower and therefore apart from the guidance.

3.4.3 Loans provided to natural persons

3.4.4 Loans provided to SME except if the borrower’s equity is owned or controlled >50% by one or more financial sponsors

The ECB (2017) defines SME by European Commission (2003) with the exception of those owned and controlled by one or more financial sponsors. European Commission (2003) defines SME in Article 2 of the Annex as enterprises which employ fewer than 250 persons, have an annual turnover less than EUR 50 million [mn] and a balance sheet not exceeding EUR 43 million. Article 4 of European Commission (2003) makes clear that in order to gain or lose the status of an SME the thresholds has to exceeded or fallen below in two consecutive accounting periods.

3.4.5 Exposures to Sovereign or Sovereign Related Exposures as well as Exposures to Public Sector Entities [PSE]

Article 4(1)(8) of European Commission Regulation (2013) [Capital Requirements Regulation - CRR] defines public sector entities as “non-commercial administrative body responsible to central governments, regional governments or local authorities, or to authorities that exercise the same responsibilities as regional governments and local authorities, or a non-commercial undertaking that is owned by or set up and sponsored by central governments, regional governments or local authorities, and that has explicit guarantee arrangements, and may include self-administered bodies governed by law that are under public supervision” - European Commission Regulation (2013).
3.4.6 Loans provided to Credit institutions, investment firms financial institutions

Definition according to Article 4(1)(1) and (2) of European Commission Regulation (2013) as well as 4(1)(27).

3.4.7 Specialised Lending


a) Exposures to a specifically created entity to finance or operate a physical asset - often considered as an Special Purpose Vehicle [SPV]

b) The lender contractually and substantially controls the asset and the generated income

c) The financed asset generated income is the primary source of income to direct repayment

BCBS (2001) defines Project Finance, Income-Producing Real Estate, Object Finance, Commodities Finance as well as asset-based lending types like Debtor in possession (DIP) financing as exposures which meet this criteria. The ECB (2017) excluded the latest one from the list of specialized lending types. The European Banking Authority [EBA] in Article 2 of EBA/RT/2016/02 lists in detail the assessment criteria for the exposure types mentioned above. In contrast to the opinion of several participants in the Feedback statement, the ECB (2017) stated, that it did not find it necessary to exclude specific industries from the Guidance.
3.5  Ongoing Monitoring and Supervision by the ECB

Maifarth et al. (2017) acknowledge, that the ECB after 18 months expects a report from the internal revision to the ECB Joint Supervisory Team [JST] including information which regulations are already implemented. Flaunet and Peters (2017) highlight, that the guidance will be considered in the Supervisory Review and Evaluation Process [SREP]. The ECB expects credit institutions to monitor the leverage ratio of borrowers with a special focus on repayment capacity and on signs of an unlikeliness to pay. In the field of risk management, monitoring and supervision, the proposed principle of proportionality is very important. The ECB (2017) makes clear that the risk management, monitoring and supervision should be proportional to the size and the risk profile of the overall exposure to leveraged transactions as well as on an institutions equity, assets and earnings situation.

The ECB (2017) made clear, that any lending activity that entails credit, syndication or underwriting risk should, independently of the guidance, be monitored with special effort and has to be approved in advance by an independent risk function. This includes “best efforts” transactions and as well as “club deals” (2017) An especially high focus shall be provided for exposures to borrowers with a high level of leverage, defined as a LT-ratio >6 or negative. The ECB (2017) notes that the focus should be proportional and especially higher for syndications, club deals or best effort transactions. Bruche et al. (2017) argue that banks, which are mostly lead-arrangers in syndications, club deals or best effort transactions, face an increased pipeline risk compared to their non arranging counterparts. If an investors willingness to pay is less than expected, the arranging bank has to retain a larger share of loans in their books. Thus, in a context of leveraged loans, could lead to higher risks and a debt overhang problem for the arranging bank, since they cannot actively reduce their risk by selling a loan if investors willingness to pay is already exhausted.

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5 A “best efforts” transaction is “a transaction where the arranger of the deal agrees to use all efforts to sell down as much of the loan as possible” (ECB, 2017, p. 6).
6 A “club deal” is, according to ECB (2017), a transaction that is not not syndicated on the open market but which is pre-marketed to a closed group of lenders. Those lenders usually agree before closing on individual terms and conditions.
The ECB (2017) is of the opinion, that a leveraged borrower should be able to deleverage its capital structure in a reasonable period. Therefore, monitoring shall not focus only on a borrower’s current ability to repay liabilities but also on the stability and sustainability of cash flows, on guarantors or indirect liabilities and on the ability to restrict any form of profit distribution to shareholders or the possibility to cut expenditures without risking the operational business. The ECB also expects Financial Institutions credit approval process to critically review business plans and projections and to stress test the cash flow generation in downside periods for highly leveraged borrowers. Additionally Maifarth et al. (2017) remarks, that the financial institution shall stress-test the overall portfolio with different scenarios like credit migration, devaluation of collaterals or increasing PD. As an indicator of debt repayment capacity, the ECB (2017) argues, that a borrower should be able to repay back senior secured debt by a five to seven-year period.

ECB (2017) considers it as necessary, that credit institutions shall define indicators of an unlikeliness to pay (UTP) and implement those UTP triggers into the credit approval process. Those UTP Triggers shall help to recognize early a potential default of an obligor which is defined in Article 178 of the European Commission Regulation (2013) [CRR]. Article 99(4) of European Commission Regulation (2013) [CRR] requires institutions to report those financial information to obtain a comprehensive view of the risk profile of the institutions and by the institution to the financial sector.

Maifarth et al. (2017) suggests that the internal reporting system of any applicable financial institution has to review the implementation of the guidance at least every three years. The EBA (2019) confirms the importance of sound governance and monitoring structures as well as a consistent oversight of leveraged loans.
4 The Theoretical Framework and Related Findings

4.1 Regulations and Regulatory Dialectic from a Syndicated Loan Perspective

In this section we intend to link the already available literature on regulation of syndicated loans to the concept of regulatory dialectic introduced in Kane (1981). We initiate the discussion with a general exposition of pros and cons of regulations and explain in more detail the difference between microprudential and macroprudential regulation. The concept of "herd behavior" or similarly "lemming banking", as expressed in Fink and Haiss (1999), is introduced. Since, as Lee et al. (2017) mention, syndicated loans are mostly made to risky leveraged borrowers, we will also exemplify the functions and some specialties of syndicated loans. There is already a considerably high amount of literature on regulations of syndicated loans. Our topic adds to this literature the link to the concept of regulatory dialectic within the very specific market for leveraged loans.

4.1.1 The Effect of Regulation

Before talking about regulations it is of a high importance to state on the positive and negative effects of regulations. The aim of a regulation is to reduce financial instabilities, which inflict high costs on the economy and the society. The WC (2009) stances, that regulations are needed to internalize external costs for the society into risk triggering institutions. As we will see later in this section, regulation also leads to more innovation. Fink and Haiss (1999) are of the opinion that economic stability, which can be seen as the positive result of regulation, is a public good. A benefit of economic stability is an increasing propensity to save which in turn allows banks to allocate capital more effectively. Regulations may also create a level playing field which, as Morrison and White (2009) mention, rewards the most efficient business models and creates minimum standards all institutes have to comply with. Frontier (2012) finds that a regulation may have an overly positive but also an overly negative impact on stability and long term
growth. Eliminating market failures and removing economic inefficiencies can be stimuli of growth but unintended consequences or distortions may also have negative impacts on economic growth. Fink and Haiss (1999) mention an increasing incentive to avoid a regulation, often in the form of insider trading, as a downside of more regulations. As incentives of regulatory avoidance increase, there will be more institutes trying to avoid regulations, which eventually harms the overall financial and economic stability. Frontier (2012) also mentions the rising compliance costs for regulated institutions. While the impact of several regulations are often unclear, they still create high compliance costs for regulated entities, which decreases the economic efficiency. Regulations can also harm financial stability either by forcing regulated entities or regulated products to move into less regulated and often more risky markets or by a costly over-regulation where the costs for institutions are bigger than the benefits of the regulation. We see, that the effect of a regulation on the financial stability is ambiguous and depends on many factors. Similar to the effect of a regulation, the effect of a de-regulation on the overall financial stability may be ambiguous as well. If an over-regulation is balanced by lowering the regulatory requirements, it may help the regulated entity and increase financial stability. But, as Fink and Haiss (1999) find, a de-regulation of a formerly exclusive markets may increase competition and put pressure at the profitability of formerly protected entities with an ambiguous effect on financial stability.

Aizenman (2009) describes "regulation paradox” as the tendency to under-regulate in boom phases and to over-regulate especially after a costly crisis. As the WC (2009) shows, the regulating approach is sometimes controversial as well. The WC (2009) for example criticizes, that regulators recently require an expanded use of market prices for valuation and accounting purposes which may lead to the use of historical market prices to assess the riskiness of an asset, which in turn leads to higher demand and overvaluations of "safe heaven” assets. In a second step this increases correlations and shifts business models towards unregulated assets.
4.1.2 Defining Microprudential Regulation and Macroprudential Regulation

Regulating or supervising activities can either have microprudential or a macroprudential character. Bollard et al. (2011) define a microprudential regulation as an entity focused regulation which puts a deeper look on a single entity and aims to mitigate the risk for a specific, individual institution and its customers but does not consider the overall systematic impact a regulation may have. The overall impact of microprudential regulations on the financial stability may be ambiguous. In contrast, macroprudential regulations, as defined in Clement (2010), have the objective of promoting the financial stability as a whole and do not consider individual entities within it. Kim et al. (2017) consider the advantage of macroprudential regulations in giving the regulator the possibility to regulate parts of the industry in a shorter time frame. Also Canuto and Ghosh (2013b) argue in favor of macroprudential regulations. Since the assets of a single failing institute may be transferred to other entities, the risk for the economy is a failure of multiple institutions at the same time. Canuto and Ghosh (2013a) as well as Fink and Haiss (1999) warn that seeing institutions as too-big-to-fail may lead to moral hazard problems in the form of risk-taking incentives for institutions. Zhou (2009) finds that size in general should not be considered as an indicator for the systematic risk triggered by a single institute. Whereas an isolated large bank is no risk for the financial stability, the failure of a large bank with diversified activities may bear significant systemic risk.

By targeting either the individual institutional or the overall systematic risk, both types of regulations may have unintended consequences. As an unintended consequence of microprudential regulation, the WC (2009) describes the emergence of an asset selling spiral where banks or other affected entities have to sell certain assets to comply with a regulation. In this situation every bank has to sell the same assets at the same time which leads the price of those assets to collapse and the institute eventually to loose capital. As a result, institutions have to sell other types of assets, most likely assets which have previously been held for hedging purposes due to their low correlation with the regulated
asset. This does not just lead to a decrease in bank capital but also to a regulatory faulted increase in correlation, which may even have a distorting impact on future hedging practices. The WC (2009) found evidence for this spirals during the recent financial crisis, the dotcom bubble, the Long Term Capital Management crisis, the East Asian crisis, the stock market crisis of 1987 and several other financial crisis. A similar idea is developed by Fink and Haiss (1999), who are of the opinion that, especially during times of volatile markets, bank failures often arise out of the simultaneously same “herd behaviour” of banks, which increases their portfolio risk, their behavioral risk and their economic losses. Haiss (2005) finds, that certain combinations of regulation and governance tempt banks into herding behaviour and therefore even lower financial stability. Fink and Haiss (1999) term this herd behaviour as ”lemming banking” (referring to lemmings, small rodents which often are, due to their evolutionary behaviour, falsely accused of mass suicides). The authors mention several examples where banks behave like lemmings, for example if they hide their financial distress and try to resolve it by increasing their risk appetite, which eventually leads to an even worse outcome. In another instance, banks may be overly optimistic and therefore overlend to projects with poor long term prospects. Fink and Haiss (1999) mention agency problems as a potential cause. Bankers are rewarded with bonuses if the institute performs well and do not have to bear the costs if the entity defaults. We paradigmatically showed that microprudential regulation may also affect macroprudential factors in every direction. Based on various similar reasonings, Bollard et al. (2011) are of the opinion, that regulators need to consider both micro- and macroprudential impacts when deciding about the implementation of a regulation.

Fink and Haiss (1999) are of the opinion, that when regulating banks one should avoid the narrow-minded problem-solving-thinking and instead analyze strategic networks, interrelations and unintended consequences of prudent sounding regulations. Also Kane (1981) states, that regulators have to keep in mind that every regulation may bear intended, but also unintended effects. In order to deal with this difficulty, Fink and Haiss (1999) are
of the opinion that regulators should behave less like lemmings. That is, not to copy regulations unquestioningly, but to analyze the impact a regulation has and to search for ways how to maximize the purpose while minimizing direct costs for regulated entities and unintended indirect costs for the financial stability.

4.1.3 An assessment of Kane’s (1981) ”regulatory dialectic” framework

Kane (1981) starts his thoughts with a Hegelian description of the interplay between market participants and regulators: the interplay is described as a political action to regulate followed by an economic reaction of regulatory avoidance which then leads to a political action to re-regulate and starts the process again. This interplay is described by the term of ”regulatory dialectic” and could be continued endlessly. Kane (1981) states that regulations can be seen as a direct tax on the regulated activity / business. Since taxes are costly, it increases the reward of tax avoidance and therefore creates and incentive for regulated entities to innovate products, organizations or strategies in order to avoid the costly regulation. Subsequently, regulations do also lead to more innovation. Since regulated entities have an incentive to avoid costly regulations (regulation = tax), they usually are fast in finding an innovative way to avoid the regulatory impact. Santos (1996) and Finnerty (1985) mention innovation through changes in organizational structures or altering the portfolio of activities as steps financial institutions regularly use to exploit loopholes in regulations. This innovating reaction to the regulating action is again followed by an eventual regulators action who tries to close these loopholes. Kane (1981) recognizes a delayed response of re-regulation after an economic action of regulatory avoidance. This delayed response results, according to Kane (1981), at one hand out of political prudence to postpone a re-regulation until there are enough information available and at the other hand, regulators face few direct consequences if a regulation erodes but they may face severe consequences for a faulty re-regulation.
Kane (2012) tries to define non-banking Financial Intermediaries within a context of regulatory dialectic. "Shadowy banks" are institutions or bank sponsored vehicles (which does not just include non-banking Financial Intermediaries but also financial instruments such as swaps or securitized products) that use an organization, product or transaction strategy, which allows them to bypass current laws or control procedures, and which "extract implicit (i.e., confidently conjectured) guarantees from a nation’s financial safety net without informing taxpayers about their exposure to loss and without adequately compensating them" (Kane (2012), p. 2). Therefore, Kane (2012) suggests that the business model of "shadowy banks" might be called "Safety-Net Arbitrage" (Kane (2012), p. 3). According to this definition, the group of non-banking Financial Intermediaries is not static but rather altering over time and defined out of their regulation-avoiding character.

Santos (1996) mentions a very important fact which may help us understand why especially banks are often associated to the practice of regulatory dialectic: a banks business model is simply supplying customer demands. Banks can therefore be seen as service providers. Regulating banks leaves customer demands unchanged. From this perspective regulated banks either have to find an innovative way to circumvent the regulation (regulatory dialectic) or other non-regulated participants may profit from the regulation by substituting former bank services (regulatory arbitrage). Santos (1996) explains the higher regulatory effort to regulate banks by their important function to create money and granting credit to the economy. In our opinion an innovating activity to avoid the impact of a regulation (regulatory dialectic) shall be linked to regulatory arbitrage. This is also indicated by Nouy (2017), a former Chair of the Supervisory Board of the ECB, who defines regulatory arbitrage as any structuring activity to reduce the impact of a regulation without reducing the underlying risk. Nouy (2017) finds, that globally harmonised regulation leaves less space for regulatory arbitrage and therefore reduces loopholes and opportunities for regulatory dialectic seeking financial institutes.
Santos (1996) imparts us a very important lesson about regulatory dialectic. The process of regulation, regulatory avoidance and re-regulation may lead to huge costs for the regulated entity and for the regulator as well. Regulatory dialectic consumes vast sums of money, ineffectively binds resources to innovate a circumvention of the regulation and last but not least may also costs the society a lot of money if unregulated and more risk seeking entities profit from the regulation (regulatory arbitrage). If non-regulated entities substitute for regulated entities after a regulation, then the triggering principle for the regulation will be unchanged but the costs of the regulation have to be borne by regulated entities even though others may now profit from the regulation. This gives those regulatory-arbitrage seeking entities a twofolded competitive sword.

4.1.4 A ”level playing field” across Institutes

In contrast to Modigliani and Miller (1958), La Porta et al. (1998) is of the opinion, that products shall be identified by their rights, obligations and legal rules and not by thereout arising cash flows. La Porta et al. (1998) find that efficiency depends on the regulatory framework as well as on regulatory enforcement, which may differ markedly through different fields and different countries. Morrison and White (2009) analyze the impact of level playing fields in international financial regulation. A level paying field would settle regulatory differences and therefore creates the same attractiveness, for example to apply for a license, in every country. Morrison and White (2009) mention, that with a level playing field also bank profits would be independent of the legal seat. The authors find that level playing fields have the negative effect of imposing standards of the weakest regulator upon the strongest. Hence, the level playing field penalizes the best regulator and, by increasing reputation, rewards the weakest regulator. As Morrison and White (2009) find, reputation plays a very important role. Banks even make more profits if they are regulated by the regulator with the best reputation because of increasing consumer confidence. Since weakly regulated institutes would face the same parameters than strongly regulated institutes, a level playing field would provide them with an advantage; assum-
ing away differences of regulators impacting the reputation of institutes as well. Level playing fields are a valid method to counter cherry picking, a practice which arises out of problems with capital mobility, where regulated entities may move some businesses from one place to another where there are more favorable circumstances and pick the most favorable regulatory area for every product.

A product based instead of an entity based regulation, as proposed by Carstens (2018), would be a resolution to many problems related to regulatory arbitrage. Carstens (2018), a managing director of the BIS, argued about the level playing field in banking, that national regulators have an incentive to make the regulatory field not even but rather uneven. This regulatory difference leads to unintended regulatory gaps where corporations split their activity towards the most favorable regulated locations. Carstens (2018) defines it as key not to neglect the regulation of non-banks and Fintechs and states in favor of a further regulation according to the context of “same risk, same regulation”. This would imply an approach to regulate the product instead of the institution. Regulations according to this principle could be more efficient since regulators do not need to account for every eventuality arising out of innovations within products, organizations or strategies. Even the problematic regulatory arbitrage, where one type of institutes profits if another gets regulated, would be mostly solved. In a leveraged lending context, non-banking Financial Intermediaries would thereafter be affected the same way when lending to levered borrowers as banks. Less-regulated Financial Intermediaries could not be used as vehicles for regulatory avoidance any longer.

4.1.5 Kane’s (1981) ”regulatory dialectic” framework linked to Syndications

Since our data sample consists in a large part of syndicated loans, which, as Lee et al. (2017) as well as Altunbas et al. (2009) find, are often loans provided to risky levered borrowers, we will briefly introduce related literature on the topic of syndicated loans and interpret this literature in the context of leveraged loans.
We will shortly introduce an explanation of syndicated loans and state on the main purpose of syndicated loans. According De Haas and Van Horen (2012b) syndications are large loans provided by a group of financial institutions and a major source for cross-border financing of corporates and economies. Altunbas et al. (2009) investigate European firms and find, that the larger a firm is, the more profitable with higher liquidation value and the more leveraged a firm is, the more they tend to choose syndicated loans. Byoun et al. (2013) find that the diversification effect plays a major role for lenders in explaining why syndicated loans usually bear higher levels of leverage. Haselmann and Wachtel (2009) describe two different roles of syndicated loans. In small financial markets, syndicated loans serve as substitute for missing public debt markets and therefore complete the market whereas in large financial markets they facilitate risk diversification for lenders. Even if syndicated lending fulfills different functions in small and large financial markets, they anyhow serve as a possibility for cross border lending. Ivashina and Scharfstein (2010) mention the illiquidity of the market for leveraged loans during the recent financial crisis. This finding is very important, but does not distinguish in between stand-alone issued leveraged loans and syndicated leveraged loans. Syndicated leveraged loans nowadays do have an increasingly large share in the market for leveraged loans. In the next paragraph we contribute to the finding of Ivashina and Scharfstein (2010) a literature review of how especially banks reduced their syndicated leverage lending activity.

De Haas and Van Horen (2012b) recognize a strong reduction in cross border syndicated lending during the financial crisis of between 2007 and 2009. The authors find, that banks did not just generally exit from the market but rather actively decided where to reduce their lending activity more and where to reduce their lending activity less. They find evidence that banks reduced there lending activity less in geographically closer markets, in markets where they had more experience, in markets where they operated a subsidiary and in markets where they collaborated with different domestic partner banks. This finding
may be explained by the information-theory-based findings of Marquez and Hauswald (2002), who find that, especially in competitive markets, banks compete for borrowers by investing in information advantages: the closer a borrower is located to a bank the better the bank can assess the borrowers probability of default and the more resources will be shifted towards closer borrowers. De Haas and Van Horen (2012b) on the one side suggest that deeper financial integration is associated with more stable lending and on the other side answer the question how banks reduced their lending activity during the crisis. De Haas and Van Horen (2012a) investigate banks cross border lending changes after bank-funding shocks (e.g. access to long term debt or capital shocks). They find that (funding-)constrained banks withdrew more syndication volume than less constrained banks, especially more from smaller and from more risky borrowers. This finding is very interesting in the context of leveraged loans because it may imply that cross border leveraged lending is particularly strong affected by funding shocks. Since, at least in our knowledge, there is no paper researching the impact of funding shocks on cross border leveraged lending, this question will be left for future research.

In this thesis we aim to contribute to the literature the impact of the ECB (2017) guidance on leveraged transactions on leveraged lending activity in Europe. Applying the theory on regulatory dialectic we investigate the reaction of non-treated banking institutes and non-treated non-banking Financial Intermediaries and particularly investigate if the guidance impacted not directly affected financial institutions. Has there been a shift of risk from regulated to less regulated entities? If that is the case, shall we then consider this unintended effects in our cost-benefit equation? Haiss (2005) as well as Santos (1996) find many examples in the history of banking regulation where the cost-benefit equation of a regulation was incomplete until one considered hidden costs and unintended consequences of a regulation. Our investigation is very important for regulators, auditors as well as other participants for understanding the intended as well as the unintended consequences of such a regulation on the market for leveraged loans.
Nevertheless, there are several questions, like the impact of funding shocks on cross border leveraged lending, unintended effects arising out of the context of “same risk, same regulation”, as stated by Carstens (2018), or the relationship between regulated banks and non-banking Financial Intermediaries left for future research. Especially the latter question plays a major role in the concept of regulatory dialectic. The mentioned service provider character of banks may even force them to amplify their cooperation with non-banking Financial Intermediaries or to find ways how to circumvent regulations by establishing their own non-regulated intermediaries, in order to stay in the market. We conclude this section with a strong argument in favor of product based regulations instead of entity based regulations as well as with an endorsement that we should try to include non-intended effects as well as indirect effects through non-affected market participants into our assessments and shall not back away even to overthink regulations that are already in place.

4.2 Minsky (1992)’s Financial Instability Hypothesis linked to Leveraged Loans

There is also a strain of literature which links the current situation in the market for leveraged loans to Minsky (1992)’s financial instability hypothesis. Schoenmaker (2019) is of the opinion that the combination of strong growth in the market for leveraged loans combined with cov-lite structures are signs of competition and overtrading which may lead to mispricings. Also the FSB (2019a) recognizes that the current low spread environment may underprice cov-lite structures as well as the increasingly high level of leverage. Therefore Schoenmaker (2019) compares the current dynamics in leveraged finance as well as the dynamics before the financial crisis between 2007 and 2009 to Minsky (1992)’s financial instability hypotheses. According to Minsky (1992), financial crises are nearly unavoidable due to the structure of our capitalist economy. Changes
in the business cycle do not rely on exogenous shocks but rather arise intrinsically. In this capitalist economy, as Minsky (1992) argues, capital evolves by exchange of present money for future money. As a consequence investments will be financed by maturity matching liabilities and aggregated demand determines profits. Minsky (1992) therefore considers the Financial Instability Hypothesis as a theory of the impact of debt on our capitalist system. De Antoni (2010) adds that in Minsky (1992)’s model capitalist instability is upwards and that growth is a driver of instability which therefore leads to volatile markets. Interpreting De Antoni (2010)’s arguments in a context of leveraged loans, one may reason that a rise in externally financed investments leads to higher profitability which in turn again leads to higher expectations and increases external financed investments. This leads to the situation of a Minsky overindebtedness, where external finance can prolong growth but ultimately may not prevent the collapse.

Minsky (1992) identifies three income-debt stages: hedge-, speculative- and Ponzi-finance. The economy is just in an equilibrium in the hedging finance stage. Schoenmaker (2019) regards our current situation in the market for leveraged loans in between the speculative and the Ponzi-finance stage where an accident could cause the collapse of the leveraged finance market. Minsky (1992) describes the three stages in the financial instability hypothesis as follow:

1. Hedge finance: in the hedge finance stage financial intermediaries are rather cautious and the economy may be in an equilibrium. Minsky (1992) mentions borrowers ability to fulfill every contractual obligation by their cash flow as well as a higher share of equity capital in investments as characteristics of this stage.

2. Speculative finance: in the speculative finance stage borrowers are able to repay interests but not principals. As a consequence, as Minsky (1992) argues, liabilities need to be rolled over. We can interpret this stage as a bet on rising asset prices which can be used as collateral.
3. Ponzi finance: in the ponzi finance stage the cash flow is not sufficient either to fulfill interest nor principal payments. In this stage borrowers need to sell assets or borrow more money. Minsky (1992) argues that both, selling assets or borrowing more money, will lower the equity base of a unit and therefore also lower the margin of safety for lenders.

Minsky (1992) argues that the more speculative stage and Ponzi stage finance dominate the financial structure, the more likely the economy may be in a “deviation amplifying” system and just in the hedge finance stage the economy may be in an equilibrium. Therefore the stability of an economy depends to a large part on how it is financed and financial instability is omnipresent in our capitalist economy.

Since the theory states, that business cycles in our capitalist economy are not dependent upon external factors but change according to the internal dynamics of our economy as well as through the regulatory environment, the theory is interesting also in a leveraged finance or regulatory context. In the FC of 2007 banks speculated on rising asset prices and lent money to borrowers who could not repay their debt and defaulted. The trigger of the defaults was, as Kregel (2007) finds, not the incapacity of borrowers to repay their credits or loans, but rather the decrease in housing prices and therefore decreasing margins of safety for lenders. Kregel (2007) argues, that financial fragility results from changes in liquidity preferences which is represented in the margins of safety. Kregel (2007) considers the FC of 2007 as a typical Minsky debt deflation example where assets have to be sold to repay liabilities. Kregel (2007) uses Minsky (1992)’s FIH to analyze the stability stimulated with bank regulation. The author argues, that ongoing financial stability leads individuals to conduct actions which are increasingly risky and therefore less likely to be concluded. Since we should not regulate moments but rather the structure of the financial system, Kregel and Papadimitriou (2012) argue, that a theory of financial instability is a vital component of regulations. Regulations which do not build upon a theory of financial instability are just dealing with ad hoc events which are unlikely to recur again.
By combining the theoretical part of Minsky (1992)’s FIH with our previous mentioned findings, that non-banking Financial Intermediaries, which play an increasingly large role in the market for leveraged loans, step up the pace of monetary policy transmission to the real economy, the question of the impact of the increasing share of non-banking Financial Intermediaries on financial stability arises. However, even though this question would be very interesting, especially in a context of leveraged loans, it will be left for future research.

4.3 Empirical Evidence on the Impact of the Similar US Guidance

Since the FED (2013) is very similar to the ECB (2017) Guidance we will also evaluate the findings of similar studies which investigated into the impact of the Interagency Guidance on Leveraged Lending (FED (2013)). Before we start with our empirical analysis we will dedicate this very brief chapter to the already available literature by iterating the three closest current paper.

Kim et al. (2017) find, that the American guidance was effective in reducing the leveraged lending activity of regulated entities. The total issued number of leveraged loans as well as the total volume of leveraged loans decreased significantly. Interestingly, by splitting the period after the issuance of the guidance into two durations: one before and one after the "Frequently Asked Questions" [FAQ] Statement was released, they found strong evidence supporting the need for clarity in regulations. The guidance on leveraged lending was first issued in 2013 jointly by the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation [FDIC] as well as the Office of the Comptroller of the Currency [OCC]. Schenck and Shi (2017) mention, that the initial regulation did not contain a clear definition of "leveraged loans" which lead to multiple different definitions by different institutions whereat the regulation should apply. In November 2014 the institutions issued a document called "Frequently Asked Questions
for Implementing March 2013 Interagency Guidance on Leveraged Lending” to add clarity into some aspects of the issued regulation.

To research the initial lack of clarification Kim et al. (2017) break the after-guidance period into two different periods, before and after the issuance of the FAQ statement. They find that the guidance effectively reduced the volume of leveraged loans only in the period after the FAQ document was published. The total number of leveraged loans as well as the total volume of leveraged loans increased significantly after the issuance of the first regulation in 2013 and did just shrink after there was enough clarity on which borrowers to apply the guidance. Kim et al. (2017) accuse the lack of clarification in the initial guidance as the root cause for the initial malfunction of the guidance. They continue that this lack of clarity lead to different ways how institutions identified leveraged loans: either by rating (borrower or loan), by the leverage ratio, by purpose or by the spread at origination. They found evidence that some risks did not decrease, but just left the banking sector towards non-banks. Smith (2016) criticizes this shift towards non-banking Financial Intermediaries since it could weaken the overall aim of macroprudential regulations to reduce systematic risk.

Kim et al. (2017) checked for how those non-banks are financed and found, that those non-banking Financial Intermediaries are to a large degree financed through the traditional banking system. The question arises if the risk did even leave the banking system or stayed through less-regulated intermediaries within the system. The authors find, that nbFI are less likely to demand collateral but more likely to demand dividend restrictions. The overall impact on the systematic risk therefore remains ambiguous. An important finding of Kim et al. (2017), which is the reverse of our findings using European data, is that non-banks seem to be somehow limited to finance large volumes. The main findings of Kim et al. (2017) highlight the importance of clarity in regulations as well as the limited ability of non-banks to substitute for the banking system.
Schenck and Shi (2017) uses US data from Shared National Credit [SNC] as well as from Thomson Reuters LPC [Dealscan] and researches the effectiveness of the Leveraged Lending Guidance with a deeper focus on non-banking Financial Intermediary participation in syndicated loans. They identify leveraged loans according to the purpose: Acquisition and Merger Financing, or Business Recapitalization and Dividends. In a further regression they use three different metrics to identify a leveraged loan: 1) a rating <BBB-, 2) a spread of LIBOR +125 bps or higher and is secured by a first or second lien and 3) the mentioned purpose criteria. Similar to Kim et al. (2017) they find, that the Guidance was effective in reducing the leveraged lending activity of regulated entities after the FAQ statement was issued. Furthermore, nbFI participation peaked during the uncertainty period and decreased significantly after the issued clarification documents to the lowest observed level. This findings can be seen as another example why regulatory clarity is so important. Interestingly, Schenck and Shi (2017) found a positive and highly significant coefficient of nbFI participation in leveraged syndicated structures with the variables log amount, dummy variables for term loan and leveraged loan by purpose as well as the duration in years and for lower ratings at origination. This finding indicates a higher risk tolerance or even a risk seeking behavior of non-banking Financial Intermediaries and is in line with our findings.

Calem et al. (2016) are specifically interested in the response of regulated banks, non-banks and foreign banks to the guidance. They use loan data provided by the SNC to investigate the impact of the Interagency guidance on leveraged lending. The authors define leveraged loans as speculative-grade syndicated loans at origination and restrict their data sample to term loans. The authors compare the share of issued leveraged loans at an institutional level before the guidance, before the issuance of the FAQ document as well as after the FAQ document. Their first findings indicate that the lending activity of non-banking Financial Intermediaries is with 97.1% of the total lending activity nearly
exclusively for leveraged loans (compared to normal banks in their sample where 71.2% of the lending activity is vs. leveraged borrowers). Calem et al. (2016) find little evidence that the guidance itself had an impact on limiting leveraged loans. A decreasing impact on the issuance of leveraged loans can be found after the FAQ statement was issued. Similar to Kim et al. (2017), this finding can be interpreted as a strong indicator for the importance of regulatory clarity.

All previous empirical studies about the impact of the FED (2013) favor regulatory clarity. Conversano and Morgan (2016) investigate especially on banks behavior during an uncertainty or pre-implementation period of regulations and research the question if there is any evidence of banks increasing risks ex ante of a regulation. They test if there is an increased tolerance to take risk during the transition period or if banks already decrease their risk taking in advance of the regulation to act as regulators intend them to do with the regulation. The latter theory of total compliance in advance to the regulation can be empirically rejected. A no-shift hypotheses as well as regression to the mean are rejected as well. Conversano and Morgan (2016) recognize the impact of the strength of the future regulation, the degree of uncertainty as well as adjustment costs as influencing factors to their study. They find evidence, that especially large banks increase their risk taking during transition periods, probably because they anticipate greater restrictions to come. This findings are very important because they add to the already stated characteristic of regulatory clarity also the perspective, that during transition periods banks tend to act opposite to the intention of the regulation. Conversano and Morgan (2016) state, that their findings may suggest that the transition period ahead of the implementation of regulations can be a source of systematic risk. In our opinion this can be linked to Kane (1981)’s theory of regulatory dialectic. There is an economic incentive for banks to react to the regulation in order to mitigate the impacts also in advance of their implementation. There is a probability that banks try to close deals in the transition period which after the guidance would not be possible anymore.
5 Data

In this section we describe the main micro-level data source used in this thesis and provide some descriptive statistics of our sample. Apart from the data points and their origin, we also describe how we have edited the data to prepare them for our analysis. To create the summary tables of our regressions we used the R "stargazer" package by Hlavac (2018).

For this thesis we use data from Thomson Reuters Loan Pricing Corporation’s [LPC] LoanConnector platform (LPC (2019)). Besides real-time news, data and analysis on the global primary and secondary loan market, the LoanConnector platform also provides access to DealScan, a source for historical deal information on the global loan markets. Thomson Reuters LPC includes data provided by commercial banks, journalist as well as regulatory filings. Even though there are many data points missing and several variables contain heterogeneous data that have to be transformed to a uniform notation, LPC LoanConnectors DealScan is, as Bord and Santos (2012) note, the most comprehensive data source on the syndicated loan market and thus on leveraged loans.

5.1 Sample Description and preparation of our data points

In this subsection we describe our sample as well as how we prepared our data. This facilitates future replication and clarifies the attributes of our sample for interpreting results.

Our sample covers term loans originated between January 2014 and May 2019 in Western Europe, Eastern Europe and Russia and the Middle East. We limit our sample to term loans. Following Kim et al. (2017) and Schenck and Shi (2017), we exclude revolving credit facilities (RCF; e.g. working capital loans), since they may not be drawn and therefore do not necessarily increase leverage. By restricting our sample to term loans, we are left with 11,282 term loans in our sample. Out of our 11,282 term loans within our sample, 9,760 were originated in Western Europe, 1,043 in Eastern Europe and Rus-
sia and 479 term loans in the Middle East. We delete every loan where the deal amount is missing. This leaves us with a total of 10,869 loans over the whole period whereof 6,672 are syndicated loans and 4,197 are single-bank loans. 7,735 of these loans were originated before the guidance went into effect and 3,134 after the ECB (2017) guidance went into effect. We account for the different period lengths before and after the guidance by using monthly average data as well as non-aggregated data in our different methods.

LPC’s DealScan is comprised mainly by syndicated loans and includes various information on every loan at the time of origination. The database includes in total 49 variables to describe the borrower, the lender, deal terms as well as different external ratings by the rating agencies Moody’s and Standard & Poor’s. The borrower details include the name, the country as well the industry of the borrower. Deal details contain information on the type, maturity, amendments, seniority, spreads as well as purpose and segment. DealScan also provides information on the syndicate structure, the identity of the lenders as well as information on collaterals and repayment types. By using the provided identity of lenders, we can classify them as Systemically Important Financial Institutions [SIFI] (according to the definition of the ECB) which are affected by the Guidance on leveraged transactions, nonSIFI banks as well as non-banking Financial Intermediaries. Despite the lender identification, Lee et al. (2017) note that the database does not contain information on the shares a lender holds. DealScan just contains information on loans at origination and does not consider the repayment structure or changes in the syndication structure. Kim et al. (2017) similarly find that the majority of borrowers are privately held companies which do not disclose their balance sheet data. Since there is no unique definition of leveraged loans and academics as well as practitioners definitions vary widely, we developed our own method of leveraged loan identification. As balance sheet data are not available, we cannot rely on balance sheet ratios to identify leveraged loans. For this reason, we used the, at least in our opinion, most unambiguous criteria to identify leveraged loans. Our definition follows the categorizations provided by our used database and builds upon four criteria:
• the segment (Leveraged, LBO, Sponsored, Non-Investment Grade)

• the primary purpose (Leveraged Buyout, CAPEX, Restructuring, Sponsored Buyout, Recapitalization)

• the spread at origination as an indicator for the riskiness of expected future cash flows

• senior debt non investment grade ratings provided by the rating agencies Standard & Poor’s and Moody’s

The threshold for our spread criteria is \[ \geq 250 \] basis points. Several market participants as well as other papers used less than 250 basis points for the identification of leveraged loans\(^7\). For robustness, we checked the most common spreads of investment grade loans in our sample. We found that investment grade loans are most likely comprised of spreads \[ \leq 200 \] basis points. Using spread at origination also helps us to identify the risk taking behavior of lenders. To avoid including non-leveraged loans in our sample we decided to use a threshold of \( \geq 250 \) basis points, which results in a total number of 1,798 loans exceeding the threshold (2,097 loans would exceed the threshold of 200 basis points) and did not significantly impact our findings. Our segments criteria result in 3,584 leveraged loans, our purpose criteria result in 1,575 leveraged loans and our Non-Investment Grade rating criteria results in 1,170 leveraged loans. Even though there are a lot of missing data points in LPC LoanConnector’s DealScan our sample seems to provide a good estimate of the most risky loans. In total we identified 4,829 leveraged loans, whereof 3,280 are syndicated loans and 1,549 are single-bank loans and of which 2,444 fulfill more than 1 leverage criterion. Our chosen identification approach is confirmed by a strong correlation within each of our leverage criteria. The only exception is the rating criterion which has a low correlation with other criteria. We think this is a result of the many missing ratings in the leveraged segments, especially if they are issued by non-banking Financial Inter-

\(^7\)See for example Kim et al. (2017) who use a spread of 200 bip or S&P (2019), a data provider for leveraged loans, who identifies loans not rated \( \text{BBB-} \) with a spread of \( \geq 125 \) bip as leveraged loans
mediaries. Probably there are various incentives for lenders and borrowers not to report bad ratings. We checked if there are less leveraged loans identified by the rating criteria in the period after the guidance compared to the period before the guidance and found no significant difference. The leverage proxy is negatively correlated with \(\ln(\text{Volume})\) (-0.11) as well with absolute volume (-0.18). The volume is also positively related to non-investment grade ratings which may be due to the important leverage factor in the determination of ratings or due to higher debt capital needs for lower rated corporates.

We calculated the maturity in months and found that the \(\ln(\text{Volume})\) is slightly negative correlated to maturity (-0.04). The spread is positively correlated to maturity with a coefficient of 0.29. The latter two findings seem very intuitive: borrowing money with longer maturities bears higher risk for lenders and is therefore more expensive.

We subdivide our sample into three different lender categories: SIFI as the group of banks which are directly impacted by the guidance, non-SIFI institutions as loans issued by banks without SIFI institute participation and which are therefore not directly impacted by the guidance, and non-banking Financial Intermediaries. We use the list of supervised entities provided by the ECB (2019b) with the cutoff date 1st April 2019 to identify SIFI institutions. In order to classify every syndication participant of every loan we needed to create a sophisticated algorithm which considers that every loan may have up to two syndicating groups which may consist of numerous syndication participants. In the DealScan database every syndicating group is merged within one single cell. Therefore we have to detach the syndicating group and check for every stand alone participant if it is a SIFI institute or not according to our official SIFI institutions list with cutoff date 1st April 2019. According to this methodology we have to examine every lender in the syndication group (the biggest syndication group contained 27 different lenders) and repeat this for all of our loans in our sample. With our classification method of SIFI institutions, we implicitly assume no changes in the group of entities supervised by the ECB and subsequently that every issued loan of a SIFI institute was also supervised by the ECB at the time of
origination. This is obviously not true in every case. But since the group of SIFI entities is rather consistent over time and does not change all too frequently, we do not think that this has a significant impact on our results. We omitted every loan for which no lender information was available. As a final step we standardised some heterogeneous formats and created a unique ID for every single loan.

5.2 Descriptive Statistics: Monthly Average Numbers and Volume of Leveraged Loans prior and post Guidance

As can be seen in Panel A and at Panel B of table 3, the number as well as the volume of leveraged loans both increased after the guidance. The monthly average number (volume) of newly issued leveraged loans increased from 65.3 (EUR 19.5 bn) prior to the guidance to 68.5 (EUR 22.1 bn) in the period after the guidance. The expansion of leveraged loans holds true for the total number (volume) as well as for every tested sub-category except for non-bank Financial Intermediary leveraged lending alone, which decreased in the post-guidance period compared to the pre-guidance period. This decrease could be a result of the very low sample size in the post-guidance period with just 2 newly issued leveraged loans per month on average; still, in total this covers 22 loans.) Very surprisingly, also the leveraged lending activity of the treated SIFI banks increased from on average 47.5 loans prior to the guidance to 52.0 leveraged loans after the guidance was issued, which could also indicate that lenders waited for the ECB to issue the final guidance. The same holds true if we look at the volume of leveraged loans issued by SIFI institutions which increased by over 17% to on average EUR 17.4 bn per month compared to the monthly average of EUR 14.8 bn before the guidance.
<table>
<thead>
<tr>
<th>Panel A: $\sum$ Number</th>
<th>prior Guidance</th>
<th>post Guidance</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
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<tr>
<td>All</td>
<td>65.3</td>
<td>59.0</td>
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<tr>
<th>Panel B: $\sum$ Volume (mn)</th>
<th>prior Guidance</th>
<th>post Guidance</th>
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<tr>
<td></td>
<td>Mean</td>
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<tr>
<td>All</td>
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<th>Panel C: Number</th>
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<td>nonSIFI</td>
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<tr>
<td>nbFI participation</td>
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<td>34.0</td>
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<td>25.0</td>
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<tr>
<td>t/o nbFI:nonSIFI</td>
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<td>6.0</td>
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<tr>
<td>t/o nbFI alone</td>
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<th>Panel D: Volume (mn)</th>
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<th>post Guidance</th>
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<td>SIFI</td>
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<td>nonSIFI</td>
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<td>t/o nbFI:nonSIFI</td>
<td>1,861</td>
<td>1,405</td>
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<td>t/o nbFI alone</td>
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<td>380</td>
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<th>post Guidance</th>
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<td>t/o nbFI alone</td>
<td>2.5732</td>
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</table>

Table 3: Monthly average leveraged loans prior and post guidance period

Based on the results of table 3 one could cast doubts on the efficiency of the guidance. We find the highest growth of the average number of newly issued leveraged loans in the category of affected SIFI institutions. SIFI institutions increased their average number of leveraged loans to a large extent within syndications with non-banking Financial Intermediaries. On average 3.5 loans more per month are issued within syndications of SIFI institutions and non-banking Financial Intermediaries. The average syndication volume
with non-bank Financial Intermediary participation increased by over 35% to EUR 12.7 bn per month. The monthly average syndication volume between SIFI institutions and non-banking Financial Intermediaries increased from EUR 6.9 bn in the period before the guidance to a monthly average of EUR 10.5 bn in the period after the guidance. This equals an increase of over 50% and accounts for more than the total increase within the monthly average volume of SIFI institutions. Hence we conclude, that the guidance may have been effective in limiting the leveraged lending activity of SIFI institutions alone but may have shifted those institutions’ lending activity towards more syndications with non-banking Financial Intermediary participation and therefore also increased SIFI institutions’ interconnectedness with the non-banking Financial Intermediation sector.

NonSIFI institutions alone increased the average number of monthly issued leveraged loans by 2.4 to on average 15.4 newly issued loans per month. The observed shift of SIFI institutions towards more syndicated lending together with non-banking Financial Intermediaries cannot be observed to the same extent in our category of issued loans without SIFI participation. NonSIFI banks increased their syndication activity with the non-banking Financial Intermediaries category from 6.7 to on average 7.7 loans per month. The monthly average syndication volume of both categories increased by EUR 272 mn to EUR 2.1 bn.

By looking especially at Panel D we see that most of the leveraged lending activity is done by banks. Even if the participation of non-banking Financial Intermediaries increased in the aftermath of the guidance, non-banking Financial Intermediaries seem to be somehow limited when it comes to issuing leveraged loans totally on their own and still have to rely on the traditional banking system. Even if traditional banks remain the strongest participants in the market for leveraged loans the participation rate of non-banking Financial Intermediaries is rising since the guidance was released. Non-banking Financial Intermediaries participated in roughly 60% the volume of leveraged loan prior to the re-
lease of the guidance. Since the guidance was issued this share decreased by 2%. In the same period, the average newly issued monthly volume with participation of non-banking Financial Intermediaries increased from 47.8% by 9.8 percentage points to 57.6% of the newly issued volume. This suggests that non-banking Financial Intermediaries today are more involved in larger deals than they were some years ago.

To sum it up: We do not observe a reduction in newly issued leveraged loans, neither in the entire sample over all of our tested categories nor by affected SIFI institutions alone and neither in absolute quantities nor in volume. We can observe that nonSIFI institutions as well as non-banking Financial Intermediaries have increased their monthly leveraged lending activity after the release of the guidance by absolute quantities as well as by volume. Non-banking Financial Intermediaries in particular increased their participation rates in larger loans since the guidance was issued. This might be a sign for a shift of riskier leveraged loans from stricter regulated SIFI institutions towards less regulated nonSIFI institutions and non-banking Financial Intermediaries. Such a shift of riskier loans towards less regulated and less transparent non-banking Financial Intermediaries casts doubts on the general effectiveness of the guidance.

For information purposes we also added the ln(Volume) table in Panel E which we use in our difference-in-difference analysis. The sample size of loans issued by non-banking Financial Intermediaries after the guidance was considerably smaller compared to those issued by SIFI institutions, loans without involved SIFI institutions and loans where non-banking Financial Intermediaries participated as syndication partners. We therefore completely dropped the non-banking Financial Intermediaries variable since it did not have any explanatory power in our models.
6 Hypothesis Development and Methodology

In this section we derive our hypothesis as well as our empirical model and describe our different approaches to measure the impact of the guidance on leveraged transactions on our dependent variables: number and volume of leveraged loans for non-treated institutions (see Hypothesis I) as well as the participation of non-banking Financial Intermediaries in riskier loans (see Hypothesis II). We do so by performing a difference-in-difference analysis using micro-level data from LPC’s DealScan database ranging from January 2014 to May 2019. Our methodology identifies changes in the number (respectively volume) of leveraged loans as well as the participation of non-banking Financial Intermediaries in risky loans prior and after the guidance went into effect. To check for the robustness of our results we do also control for domestic private credit using data from the WorldBank (2019). This method allows us to evaluate the effectiveness of the guidance and the different types of market participants.

We divide lenders into three types based on the magnitude by which they are affected by the guidance: SIFI institutions, which are banking institutions that are directly impacted by the guidance (treatment group), non-SIFI institutions which institutions that are not treated by the guidance (control group) and non-bank financial intermediaries which are often referred to as ”shadow banks” (control group). Calem et al. (2016) argue that even if loans issued by non-SIFI institutions as well as non-banking Financial Intermediaries are not directly impacted by the guidance they could be impacted indirectly since Financial Intermediaries like banks are interconnected through syndications. The financial system is also interconnected throughout the interbanking market, which fulfills important functions like refinancing or providing liquidity. We will measure changes for nonSIFI institutions as well as for non-banking Financial Intermediaries after the guidance compared to the period prior to the guidance. According to Calem et al. (2016), the effect on non-directly subjected institutions should be much smaller than the effect on directly sub-
ected institutions. We consider every arranging banking institute which is not supervised by the ECB as a non-SIFI institute in our sample. This latter group is mainly composed of smaller banks as well as foreign banks. The category of non-banking Financial Intermediaries is mainly composed of private equity firms, hedge funds, alternative lenders, leveraged buyout funds and non-banks. We define a leveraged loan as a loan affected by the guidance if at least one of the arrangers is a SIFI institute. This is in line with the regulatory ECB provisions, which require SIFI banks, regardless of their share in the loan, to evaluate if a loan is considered as leveraged or not. As explained in our data description, since they do not necessarily increase leverage, we excluded revolving credit facilities. The impact of the guidance on leveraged loans including revolving credit facilities is a question that will be left for future research.

6.1 Hypothesis Development

The ongoing period of low interests combined with a loose monetary policy inevitably leads into a situation where it is getting difficult for investors to find an appropriate yield without investing in risky assets. Lee et al. (2017) investigates the impact of low interest rates on the cross-border market for leveraged loans and find a positive relationship between lower interest rates and higher risk taking. Above-average yields may still come from assets such as corporate loans or leveraged loans. Since regulatory requirements constrain banks and other regulated financial institutions from exposing themselves excessively to riskier loans, non-banking Financial Intermediaries could eventually profit from this adverse situation. Aramonte et al. (2015) find that certain types of non-banking Financial Intermediaries search for yield in the high risk segment, especially during ongoing periods of low-interest rates. Furthermore, they note that a low-interest rate environment at the one hand increases riskier lending activity but at the other hand has just a limited effect on real loan spreads. Riskier lending is also associated with increased risk taking, which increases financial stability risk. Since we observe an ongoing period of low-interest rates which, according to Aramonte et al. (2015), should encourage
non-banking Financial Intermediaries to take on more risk, and due to the fact that the
guidance on leveraged transactions is additionally narrowing risky lending by SIFI in-
stitutions, we expect to find a significant increase in number and volume of leveraged
loans with non-banking Financial Intermediary participation as well as within our non-
SIFI class. According to this rationale, we establish our first hypothesis as follows:

**Hypothesis I:**

Both the issued number of leveraged loans with non-banking Financial Intermediary par-
ticipation and/or nonSIFI institutions as well as the volume of leveraged loans with non-
banking Financial Intermediary participation and/or nonSIFI institutions increased signif-
icantly after the release of the Guidance on leveraged transactions.

Lim. et al. (2012) recognize the increasing significance of non-banking Financial Interme-
diaries in the corporate lending market which, beside of compensations for default risk,
also need higher required returns in order to satisfy their investors and therefore usually
have higher yield requirements than banks. Rajan (2005) indicates that many non-banking
Financial Intermediaries have fixed rate obligations which requires them to increase their
risk taking when interest rates fall in order to achieve their required yield. Lee et al. (2017)
mentions that, according to portfolio theory, a decline in yield for non-risky assets, as we
could observe in the recent years after the financial crisis, shifts yield-searching investors
portfolios from less risky to more risky assets. The ESRB (2019) is, beside of the positive
diversification effect for the real economy, worried that due to the increasingly important
role of non-banking Financial Intermediaries, risks may shift outside the banking sec-
tor to less regulated non-banking Financial Intermediaries. Taking into consideration that
banks and non-banking Financial Intermediaries both invest in the same asset class but the
latter face higher return requirements we develop our second hypotheses as follows:

**Hypothesis II:**

Non-banking Financial Intermediary participation in syndicated lending is positively re-
lated to riskier leveraged loans.
In our analysis of hypothesis I, we focus on the monthly average number of leveraged loans as well as the monthly average volume of leveraged loans prior to and after the guidance was issued. We also check for different results if we use the full data sample instead of grouping it by month and control for domestic private credit using data from the WorldBank (2019). To account for both the high kurtosis and for the right-skewed data (long right tail in the positive direction), we use the $\ln(Amount)$ in our analysis.

To account for possibly occurring disturbances in our error terms which could lead into heteroscedastic influenced residuals, we use heteroscedastic-robust standard errors. Regarding our large sample size, heteroscedastic-robust standard errors will incline anyways towards normal standard errors and the effect of outliers should be limited. In our analysis for hypothesis II, we use the whole data sample and create a binary response model to focus on non-banking Financial Intermediary participation. We also use heteroscedastic-robust standard errors in our regressions and control for time fixed effects, for time trends as well as for the impact of domestic private credit. In the specific scenario of hypothesis II where we test risk taking of non-banking Financial Intermediaries over time, we additionally cluster our sample by year of origination. Using this yearly-clustering approach, we account for possible cross-sectional correlations between individual years of origination and account for disparities within different years. We also performed an analysis where we accounted for clusters in countries as well as the major borrowers industry. Since the guidance on leveraged transactions is a multinational guidance and the major industry of a company may change over time and a company may operate in multiple industries, we decided not to include those results in this thesis. Since banking institutions do vary far less over time than non-banking Financial Intermediaries we do not use our yearly-clustering-approach in the tests of hypothesis I. We identify leveraged loans in both hypothesis tests by 4 criteria: the segment of the loan, the primary purpose of the loan, the spread as well as the rating of the loan.
6.2 Methodology

6.2.1 Difference-in-Difference Methodology

To measure the impact of the guidance on leveraged transactions on our different lender types we follow the work of similar studies which perform a difference-in-difference analysis by which we compare the monthly average number (volume) of leveraged loans for each lender type before and after the guidance was issued. To do so, we developed the following model:

$$\Pi_{i,t} = \alpha + \beta SIFI_i + \lambda GUID_t + \gamma GUID_t \ast SIFI_i + \epsilon_{i,t}$$

where

- $\Pi_{i,t}$ stands for our dependent variable: the monthly average number (volume) of leveraged loans originated by bank $i$ during period $t$.

- $SIFI_i$ is an indicator variable that has the value one if the originating institute is a SIFI institute or if at least one institute of the originating syndication is a SIFI institute. Implicitly zero corresponds to a loan in which no SIFI institute is involved. In a further variant of our model we replace the SIFI variable with three different indicator variables for every lender class to distinguish between possibly different impacts of the guidance on different types of involved lenders.

- $GUID_t$ is an indicator variable that has the value one if the loan was originated after the guidance and zero if this is not the case.

- $\epsilon_{i,t}$ is an error term

---

8See for example Kim et al. (2017), Schenck and Shi (2017) or Calem et al. (2016).
Our difference-in-difference estimator $\gamma$ can be derived by

$$\gamma = (\Pi_{B,2} - \Pi_{B,1}) - (\Pi_{A,2} - \Pi_{A,1})$$

where our difference-in-difference estimator $\gamma$ is simply the post-guidance average of the treatment group $[\Pi_{B,2}]$ less the pre-guidance average of the treatment group $[\Pi_{B,1}]$ less the difference of the post-guidance average of the control group $[\Pi_{A,2}]$ and the pre-guidance average of the control group $[\Pi_{A,1}]$.

### 6.2.2 The Binary Dependent Logit Model to test Hypothesis II

To test Hypothesis II, we examine the relationship between several variables on the binary dependent variable non-banking Financial Intermediary participation. Since there is a lot of academic literature against the usage of linear probability models to investigate classification problems with binary response variables (see e.g. Horrace and Oaxaca (2006) and Heckman and Syder (1996)) we decided to use a binary dependent logit model. In order to avoid a pretrial judgement about linear probability models in our methodology we tested a linear probability model in our sample but did not find it viable for a number of reasons. The predicted probabilities for non-banking Financial Intermediary participation resulted, just to mention an example, in values higher than 100% as well as lower than 0%, which obviously makes no sense for probabilities. The share of estimates that are located outside of the logical percentages range of in between $[0, 1]$ varied from 7.3% up to over 60%. Friedman (2012) mentions, besides estimated probabilities outside of the logical area, also heteroscedastic standard errors as possible shortcomings of linear probability models. We could address the latter issue simply by calculating heteroscedasticity robust standard errors, but the first issue is more tricky and could result in biased and inconsistent results. Other papers, which use linear probability models for similar hypothesis tests, may have different data and therefore may not be inaccurate at all. Schmidheiny
(2018) is of the opinion that linear probability models can be viable if combined with heteroscedasticity robust standard errors and if the point of interest is located in the average marginal effect of change in the independent variable on the binary classification variable. Since this premise may hold true in some specifications, linear probability models may be viable and have the advantage of being more easily and directly interpretable.

In our analysis we decided to use a more common logit model to account for the change in our binary response variable. The source of the following derivations can be found in Rodriguez (2013). The response variable in hypothesis II is non-banking Financial Intermediary participation, which can be represented as a Bernoulli distributed variable that is defined as

\[
\alpha_i = \begin{cases} 
1 & \text{if the } i_{th} \text{ loan is issued with non-banking Financial Intermediary participation} \\
0 & \text{if the } i_{th} \text{ loan is issued without non-banking Financial Intermediary participation} 
\end{cases}
\]

\(\alpha_i\) is a so called Bernoulli – distribution which can be written as

\[
P[A_i = \alpha_i] = \pi_i^{\alpha_i} (1 - \pi_i)^{1-\alpha_i}
\]

In this distribution mean and variance both depend upon \(\pi_i\). Any change in \(\pi_i\) affects mean and variance. That is the main reason why a linear probability model, which assumes constant volatility, will not result in correct estimates. To avert the stated problems of linear probability models, logit models work with so called odds which are simply the ratio of ones (success) to the ratio of zeros (failures):

\[
\text{odds}_i = \frac{\pi_i}{1 - \pi_i}
\]

Odds have no ceiling restrictions and can vary between \([0, \infty]\). In order to remove the floor of resulting odds, one takes the logarithm to calculate \(\ln - \text{odds}\):

\[
\ln(\text{odds}_i) = \ln\left(\frac{\pi_i}{1 - \pi_i}\right)
\]
This step maps the \( \text{ln} – \text{odds} \) to a range of in between \([-\infty, \infty]\) and makes them easier interpretable. With the inverse transformation of the logit transformation one gets probabilities within the logical range of \([0, 1]\)

\[
\pi_i = \ln^{-1}(\ln(\frac{\pi_i}{1-\pi_i}))
\]

In the logit regression, one does not assume a linear probability model but assume that the \( \text{ln} – \text{odds} \) of the probability \( \pi_i \) follow a linear model. In other words one does not fit the data with a linear model but rather with a logistic function which results in a ”S”-curvature rather than a straight line and therefore fits our data considerably better than a linear probability model.
7 Findings

7.1 Hypothesis I: Increase in issued Numbers and Volume of Lever-aged Loans by not directly affected Financial Institutes

We investigate the effects of the guidance on leveraged transactions by comparing the leveraged lending activity before and after the guidance was issued for all of our three lender types: leveraged loans issued with SIFI institutions participation, leveraged loans issued by nonSIFI banking institutions without participation of SIFI institutions and loans issued by non-banking Financial Intermediaries stand alone or as syndications of SIFI or nonSIFI institutions with non-banking Financial Intermediary participation. Every loan in which a SIFI institute is involved is affected by the guidance on leveraged transactions. In the first section of hypothesis I we compare the monthly average volume of leveraged loans issued by each of our categories as well as the ungrouped time-independent impact of the guidance on the issuance of leveraged loans. In the second section of hypothesis I, we compare the monthly average of issued leveraged loans for every lender type before and after the guidance was issued. We compare both regressions and control if there are differences arising from different approaches.

7.1.1 Regression analysis: volume of leveraged loans over the total sample

We start with the time-independent ungrouped regression of our dependent variable: newly issued leveraged loan \( \ln(\text{Volume}) \). We split our analysis in two parts: the overall mean impact of our independent variables on the leveraged loan \( \ln(\text{Volume}) \) as well as the changes after the guidance on leveraged transactions went into effect. As can be seen in column (2) of table 4, the involvement of banking institutions (including SIFI as well as nonSIFI banking institutions but excluding loans issued by non-banking Financial Intermediaries all alone) is significant and positively related to \( \ln(\text{Volume}) \). By splitting our sample into loans issued with SIFI institutions participation and loans issued without SIFI institutions participation we find that there is no significant difference between both
groups. This indicates that the leveraged lending practices of banking institutions are not very different between both groups and that the loans granted by stronger regulated SIFI institutions are not significantly smaller compared to leveraged loans issued without involved SIFI institutions. While there is no significant impact on the loan being issued with or without SIFI institutions participation there is a significantly negative impact of non-banking Financial Intermediary participation on the $\ln(Volume)$ of newly issued leveraged loans. This indicates that leveraged loans issued by non-banking Financial Intermediaries alone or in a syndication construct of banking institutions with non-banking Financial Intermediary participation has on average a lower $\ln(Volume)$ compared to leveraged loans issued without non-banking Financial Intermediary participation. This could indicate that, as Kim et al. (2017) found, non-banking Financial Intermediaries have a limited ability to lend high volumes. Another explanation could be derived from hypothesis II where we find that non-banking Financial Intermediaries are more likely involved in the smaller, but more profitable part of risky leveraged loans. These high-risk leveraged loans do usually have higher spreads to compensate for the risk as well as a lower volume.
**Table 4: Regression Results Hypothesis 1: volume**

By splitting the syndication activity of non-banking Financial Intermediaries up into activity with or without involved SIFI institutions we find that ln(Volume) is not significantly related to non-banking Financial Intermediaries syndication activity with SIFI institutions as well as with nonSIFI institutions. This indicates that, although non-banking Financial Intermediary participation is negatively related to ln(Volume), non-banking Financial Intermediary participation has a positive impact on syndication volumes.

Column (1) of table 4 compares the means of the period before and after the guidance. The mean ln(Volume) after the guidance is higher compared to the one of the period.
before the guidance. This finding just tells us that there is an increase in \( \ln(\text{Volume}) \) after the guidance but does not answer the question where this increase comes from. In table 3, we can see that the volume of leveraged loans increased after the guidance for each of our analyzed lender types. Despite the coefficient being not significant, this finding challenges the overall efficacy of the guidance on leveraged transactions. In column (4) of table 4, we estimate the impact of the guidance on leveraged transactions on our different lender types. This differentiation is very important because it allows us to distinguish between responses from types of lenders to which the guidance does or does not apply. Issued leveraged loans without the participation of SIFI institutions are not covered by the guidance and therefore serve very well as a control group for leveraged loans issued by our treated SIFI institutions.

Our findings indicate that the guidance had a significant positive impact on \( \ln(\text{Volume}) \) issued without treated SIFI institutions and a significantly negative impact on \( \ln(\text{Volume}) \) issued with participation of SIFI institutions. The interaction coefficient of the guidance on \( \ln(\text{Volume}) \) issued by or with participation of non-banking Financial Intermediaries is positive and significant. This indicates that beside of nonSIFI also non-banking Financial Intermediaries increased their issued \( \ln(\text{Volume}) \) after the guidance. In a further regression analysis, we estimate the impact of this finding on a monthly aggregated level. We find evidence that non-banking Financial Intermediaries increased their syndication activity together with SIFI after the guidance. There also signs that risky leveraged loans shifted from SIFI towards less regulated nonSIFI and especially to syndications with non-banking Financial Intermediaries. The latter finding challenges the overall efficacy of the guidance in reducing systematic risk and is very important, since it confirms the concerns raised by the ESRB (2019). The ESRB (2019) is worried that the rise of non-banking Financial Intermediary participation could shift existing risks outside the banking sector into less regulated sectors which may be comprised of different risk factors related to interconnectedness, liquidity and leverage risks.
7.1.2 Regression analysis: monthly average volume of leveraged loans

In this second part of hypothesis I, we compare the monthly average issued volume of leveraged loans for every lender type before and after the guidance was issued. We will briefly describe the results of our monthly regressions and then, since both summary tables are comparable in their core points, just shortly state the differences of our regressions using the whole non-aggregated sample or monthly aggregated data. Since the scope of the thesis is to answer our research question we will not go into detail about the potential root causes of the differences of both methodologies but just introduce our rationale on why there are differences.

At first glance we already see in column (1) of table 5 that the monthly average volume of newly issued leveraged loans increased after the guidance. According to the same rational as mentioned above we do interpret this coefficient as economically important but due to the low R-Squared we do not interpret it as significant for our overall analysis. The higher coefficients in the monthly aggregated summary table (table 5) compared to our non aggregated summary table (table 4) arise from the monthly aggregation and are not indicative of a stronger effect magnitude. As we find in our non aggregated data, the involvement of banking institutions is significantly positively related to higher monthly average issued \( \ln \text{Volume} \) of leveraged loans. Also the involvement of SIFI institutions is significantly positively related to higher \( \ln \text{Volume} \), whereas the involvement of non-banking Financial Intermediaries is significantly negatively related to \( \ln \text{Volume} \). As in table 4 the guidance had a positive and significant effect on non-banking Financial Intermediary participation.
Dependent variable:
monthly average ln(volume) of leveraged loans

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Note: *p<0.1; **p<0.05; ***p<0.01

Table 5: Regression Results Hypothesis 1: monthly average volume

Beside the many overlapping data points, there are also some differences between the monthly average summary table and the non-aggregated summary table. By comparing our non-aggregated output summary depicted in table 4 and the monthly average aggregated lnVolume summary in table 5, one can see that both summary tables are overlapping for most of the coefficients. By analyzing monthly averages instead of our total sample, we massively reduce our sample size and therefore decrease the statistical power of our regressions. The lower statistical power, due to the lower sample size, also impacts the magnitude of our coefficients and therefore our significance levels. The magnitude of coefficients for our interaction terms is still significant but weaker for monthly data
compared to the non aggregated summary table 4. The adjusted R-squared, which tells us how much of the data variability is explained by our model, is significantly higher in our monthly average output table. A low R-squared value is not unusual when using dummy variables since the formula adjusts by one degree of freedom for every used variable which halves our available values (a dummy can either have the value zero or one). Therefore the R-squared in our sample should just be compared to similar papers which do also have comparable low R-squared values.\(^9\) The R-squared in our monthly aggregated sample is higher since the variance of our sample data is reduced by the process of aggregation. Beside this very intuitive difference, there are several more differences in our regressions.

In order to choose between monthly or daily data, one should also keep granularity of needed forecasts in mind. A shorter forecasting period needs more granular (e.g. daily) data whereas a forecasting period of several months should be fitted with monthly aggregated data. A downside when using non-aggregated data can arise from the volume scale of leveraged loans: loan data are usually highly skewed with several outliers which may impact the coefficients. We mitigated this issue by using a logarithmic transformed volume which, as Feng et al. (2014) find, has several downsides to consider. The authors conclude that tests performed on log-transformed data are often not relevant for the original, non-transformed data and therefore may lead to misinterpretations. Since we do not need normally distributed data for our linear regressions (but for the distribution of errors) and since our used approach is the current -"state of the art"- in economics we do not consider their findings as harmful for our analysis.

We find that SIFI institutions have a significantly positive impact in our monthly average regressions but no significant impact in the non-aggregated sample: the p-value is 0.1485 in regression 4 of table 4 and not significantly different from zero in table 5. The

\(^9\)A proposed list of comparable papers are Kim et al. (2017), Schenck and Shi (2017) or Calem et al. (2016).
interaction term of guidance and no SIFI involvement is significantly positive in the non-aggregated data and not significantly different from zero in the monthly average data: the p-value of regression 4 in table 4 is 0.0831 whereas the p-value of regression 4 in table 5 is 0.189. The mean volume comparison of the period before the guidance with the period after the guidance is significant in our monthly regressions but not significant in our non-aggregated data; the p-value for non aggregated data is 0.566. For monthly average data the p-value equals 0.087. We interpret the differences in significance out of the lower sample size in the aggregated data.

The question arises where do the aforementioned differences come from and whether we are prone of some biases or misspecifications?

We do not think so. Non aggregated data may lead to biases since we cannot control for groups in our sample. Normally one should control for grouped patterns of heterogeneity within the sample which may have an impact on our coefficients (e. g. for lenders). Unfortunately it is very difficult to group by lenders in our sample because LPC’s DealScan database does not provide us with unique lender IDs. Since the lenders are not even identifiable (or just with an enormous effort) because of heterogeneities in notations it is nearly impossible to group them. This is also a plausible explanation why there are no lender ID’s available. Since our data sample mostly consists of syndications, this issue is widely mitigated. Syndication structures vary massively and every participation may have their own characteristics which have just a marginal impact on the overall syndicating structure of the loan. We do not think that we have ungrouped heterogeneity biases when we look at our data sample. The share of syndications in loans classified as leveraged in our sample is even higher than for non leveraged loans and there are mostly multiple syndication partners in one syndicating group of lenders (up to a maximum amount of 27 different lenders in one single syndicating group within our sample). We therefore think that every lender specific characteristic should vanish in our sample. As group structures vanish in the aggregation process, the problem of grouped patterns of heterogeneity is just present.
in non-aggregated data. The overlapping results when using our monthly aggregated data compared to the results when using our non-aggregated data suggest that our theory of vanishing grouped patterns of heterogeneity holds true.

7.1.3 Regression analysis: monthly average number of leveraged loans

In this subsection we want to estimate the impact of the guidance on leveraged transactions on the monthly average number of issued leveraged loans in our sample. In table 3 we already provided a list containing information on the monthly average number of issued loans as well as the corresponding median and standard deviation. As we have already expected and according to the result of our regression analysis, the increase in the average number of monthly issued leveraged loans after the guidance is not statistically significant. The corresponding coefficient shown in column (1) of table 6 is positive but not significantly different from zero. This indicates that the guidance did not have a significant impact on the monthly average number of leveraged loans. There is a significant and positive relationship between banking institutions and the monthly average number of issued loans. In column (3) we split the overall positive coefficient of banking institutions into SIFI and nonSIFI and find a significant and negative (positive) coefficient for nonSIFI (SIFI). Non-banking Financial Intermediary participation also has positive impact on our dependent variable of monthly average number of leveraged loans. SIFI together with non-SIFI institutions are involved in 80% of the issued loans in our sample before and after the guidance.
To isolate the effect of the guidance on leveraged transactions on every lender type in our sample, we created several interaction variables where we compared the monthly average number of leveraged loans for every lender type before and after the guidance was issued. Based on this approach, which did not impact the overall significance within our sample, we investigate if there was a different impact of the guidance on our three lender types. As we can see in column (2), the interaction coefficient of Guid and banking institutions is positive and significantly different from zero. Due to the low R-squared as well as the low confidence level we do not interpret this that the guidance led to an increase in the monthly average number of issued loans by banking institutions. The interaction

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<td>JustBanks</td>
<td>10.367***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.011)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guid*JustBanks</td>
<td>4.700*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.956)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>noSIFIinv</td>
<td>−17.809***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.218)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nbFI</td>
<td></td>
<td>8.170***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.189)</td>
<td></td>
</tr>
<tr>
<td>noSIFIinv*nbFI</td>
<td></td>
<td>−8.654***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.324)</td>
<td></td>
</tr>
<tr>
<td>Guid*noSIFIinv</td>
<td>−1.649</td>
<td>0.720</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.706)</td>
<td>(2.769)</td>
<td></td>
</tr>
<tr>
<td>Guid*nbFI</td>
<td></td>
<td>2.251</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4.908)</td>
<td></td>
</tr>
<tr>
<td>noSIFIinv<em>nbFI</em>Guid</td>
<td></td>
<td>−4.355</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5.085)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>13.120***</td>
<td>4.756***</td>
<td>23.745***</td>
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<tr>
<td></td>
<td>(0.770)</td>
<td>(0.480)</td>
<td>(1.167)</td>
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<tr>
<td>Observations</td>
<td>319</td>
<td>319</td>
<td>319</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.002</td>
<td>0.121</td>
<td>0.529</td>
</tr>
</tbody>
</table>

*Note:* p<0.1; **p<0.05; ***p<0.01

Table 6: Regression Results Hypothesis 1: monthly average number
Coefficient of loans issued by SIFI institutions together with non-banking Financial Intermediaries is negative and significantly different from zero. According to the interaction coefficients of guidance with our three lender types the guidance did not have an impact on the average monthly number of issued leveraged loans.

We find no significantly different from zero impact of the guidance on leveraged transactions on our indicator variables. This findings is very interesting since it attests SIFI as well as non-banking Financial Intermediaries an overall positive relation to the monthly average number of issued leveraged loans and furthermore states, that the guidance on leveraged transactions did not have a significant impact on the monthly average number of issued leveraged loans.

Combining the findings of these two subsections-, that the average number of leveraged loans issued after the guidance did not increase significantly but the monthly average $\ln(Volume)$ of issued leveraged loans increased - leaves us with the conclusion that the average deal size of leveraged loans increased after the guidance. This growth in average deal size is confirmed by table 3. The average deal size increased from EUR 298.4 mn before the guidance to 322.2 in the period after the guidance. We find significantly positive coefficients of increasing average $\ln(Volume)$ within the not affected lender types nonSIFI and non-banking Financial Intermediaries in the non-aggregated sample and significantly positive coefficients for non-banking Financial Intermediaries in the monthly sample. On the one hand, this indicates a shift of leveraged volume from regulated SIFI institutions to less regulated nonSIFI institutions and non-banking Financial Intermediaries. At the other hand, it indicates that, according to our findings in table 6, non-banking Financial Intermediaries are constrained in issuing higher numbers of leveraged loans and therefore just increase their participation size. One might conclude that this could lead to fewer issued leveraged loans by banking institutions if they are in a regulatory need of non-banking Financial Intermediary participants to carry the high risk tranches.
Since we find that the guidance did not have a significant overall impact on the average monthly number of issued leveraged loans and that it did not significantly impact the monthly average volume of leveraged loans, one should question the efficacy as well as the reasonableness of the guidance on leveraged transactions. The guidance is associated with high costs for SIFI and does not just lead to more bureaucratic hassle but also needs to be monitored by the ECB. If the effect of the guidance is not significant when it comes to reducing systematic risk but while it just leads to higher bureaucratic hassle and administrative expenses, decision-makers might consider redesigning or to abolishing the guidance on leveraged transactions. According to our analysis, we estimate a significant increase in leveraged lending by non-banking Financial Intermediaries as well as by loans issued without SIFI participation. This finding leaves us with the general question if the guidance reduced the overall risk of leveraged lending on the economy or rather increased it by handing over a competitive sword to less regulated and less transparent non-banking Financial Intermediaries as well as nonSIFI banking institutions.

7.2 Hypothesis II: non-banking Financial Intermediary involvement in riskier loans increased after the guidance was issued

By means of Hypothesis II, we want to have a deeper understanding of the risk-taking behavior of non-banking Financial Intermediaries. In contrast to Kim et al. (2017), who found that non-banking Financial Intermediaries did not increase the size of leveraged loans but rather the number, we find that, at least in our European data sample, it is the other way around: non-banking Financial Intermediaries did not significantly increase the number of issued leveraged loans but increased their participation in leveraged loans.

To answer the question if there is a relationship between non-banking Financial Intermediary participation and risk, we analyze the impact of several risk parameters on our depen-
dent variable. By using the aforementioned methodology, we perform several logit model regressions. The reported results do all have yearly clustered heteroskedastic-robust standard errors.

\[
\begin{array}{|c|c|c|}
\hline
\text{Dependent variable:} & \text{non-banking Financial Intermediary involvement} \\
\hline
\text{ln(Volume)} & -0.172^{**} & -0.237^{***} \\
& (0.063) & (0.071) \\
\text{Leveraged} & 7.516^{***} & 7.547^{***} \\
& (0.457) & (0.472) \\
\text{Maturity} & 0.001 & 0.001 \\
& (0.002) & (0.002) \\
\text{Spread (bip)} & 0.002^{***} & 0.002^{***} \\
& (0.0003) & (0.0003) \\
\text{Guid (0/1)} & -1.053^{***} & -1.025^{***} \\
& (0.282) & (0.202) \\
\text{ln(Volume):Guid} & 0.192^{**} & \\
& (0.064) & \\
\text{Spread(0/1)} & & \\
\text{Segment(0/1)} & 9.052^{***} & \\
& (0.491) & \\
\text{Purpose (0/1)} & 2.434^{***} & \\
& (0.419) & \\
\text{Non-IG(0/1)} & -1.157^{***} & -1.025^{***} \\
& (0.203) & (0.202) \\
\text{Constant} & -6.807^{***} & -6.491^{***} & -7.878^{***} \\
& (0.588) & (0.592) & (0.580) \\
\hline
\text{Observations} & 9,327 & 9,327 & 9,327 \\
\text{Log Likelihood} & -2,865.111 & -2,854.697 & -1,629.194 \\
\text{Akaike Inf. Crit.} & 5,740.223 & 5,723.394 & 3,268.388 \\
\hline
\end{array}
\]

*Note: \(^*p<0.1; ^{**}p<0.05; ^{***}p<0.01\)

Table 7: Regression Results Hypothesis II: risk-taking of nbFI

Table 6 shows that non-banking Financial Intermediary participation is significantly and negatively related to ln(Volume) of a single loan. By reiterating the findings of table 3, we find that the monthly average volume of leveraged loans with non-banking Financial Intermediation participation increased from a mean of EUR 9.3 bn before the guidance
to a monthly average of EUR 12.7 bn after the guidance. Combining the fact that the monthly average volume of non-banking Financial Intermediary participation increased after the guidance and that \( \ln(\text{Volume}) \) negatively impacts non-banking Financial Intermediary participation, the increase in non-banking Financial Intermediary participation has to result from something different other than an increase in \( \ln(\text{Volume}) \).

Non-banking Financial Intermediary participation is neither statistically nor economically significantly related to maturity. Since non-banking Financial Intermediaries are less regulated than banks, it should be possible for them to lend money with longer maturities than those of banks. Since we do not find any evidence that maturity is related to non-banking Financial Intermediary participation we conclude that non-banking Financial Intermediary participation has, at least in our sample, which consists mostly out of syndications, no significant impact on longer maturities. This finding could be a result of lead arranger policies, which are mostly banking institutions and of the low number of reported loans with non-banking Financial Intermediary participation as the lead arranger of a loan. Our leveraged dummy is significantly and positively related to non-banking Financial Intermediary participation with a very high coefficient. Also the absolute Spread measured in basis points is significant and positively related to higher non-banking Financial Intermediary participation. Both indicators, our proxy for leverage as well as the higher spread, are indicators for higher risk. Non-banking Financial Intermediary participation therefore seems to be negatively related to the \( \ln(\text{Volume}) \) of a loan but positively related to its riskiness, which leads us to the conclusion that non-banking Financial Intermediaries mainly increased their monthly average volume of leveraged loans after the guidance by means of riskier loans. The interaction term of \( \ln(\text{Volume}) \) and Guidance is positive and significant, which indicates that the \( \ln(\text{Volume}) \) after the guidance had a positive impact on non-banking Financial Intermediary participation.
Non-bank Financial Intermediaries are relatively more likely involved in leveraged loans according to our definition. In table 3 we see that especially the leveraged loan volume of SIFI institutions grew slower after the guidance than the leveraged loan volume of non-SIFI institutions. It is possible that this riskier leveraged loan exposure migrated from SIFI banks to non-banking Financial Intermediaries. The factor of $\ln(\text{Volume})$ and guidance, an indicator variable which controls if non-banking Financial Intermediary increased $\ln(\text{Volume})$ after the guidance, is significantly positive. This finding approves our findings in table 3, where we found that the monthly average $\ln(\text{Volume})$ for non-banking Financial Intermediary participation increased whereas the number of leveraged loans stayed almost constant. Our finding suggests that non-banking Financial Intermediaries increased their share in issued leveraged loans but not the number of monthly average issued leveraged loans. This finding also explains the negative coefficient of Guidance in our logit model: the share of non-banking Financial Intermediary participation in the monthly average number of issued leveraged loans after the guidance declined. This finding is to some extend converse to what Kim et al. (2017) find in the US market after the corresponding guidance on leveraged lending: non-banking Financial Intermediaries may have reached their capital limits for single loans in the US and and therefore have not been able to absorb the total increase in free supply of leveraged loans after the guidance by scaling their average volume per loan but by increasing numbers of monthly issued loans. An alternative explanation for the increasing share of non-banking Financial Intermediary participation may be found if we interpret being leveraged as a form of “being financially constrained” to borrow from traditional banks. The ECB (2015) mentions, that especially constrained corporates turned to non-banking Financial Intermediary financing in recent years after the financial crisis of in between 2007 and 2009.

Similar to Schenck and Shi (2017), we find that non-banking Financial Intermediary participation is significantly and positively related to the leveraged dummy defined out of our four criteria: Spread, Purpose, Segment and Rating. Regression three evaluates the
individual effect of our four criteria on the binary outcome of non-banking Financial Intermediary participation. In contrast to our expectations, non-banking Financial Intermediary participation is significantly and negatively related to the criteria of spread and rating. This finding may result from the nature of a dummy variable: it does not take into account the magnitude of the spread above the threshold. The circumstances that non-banking Financial Intermediaries often do not disclose external ratings as well as spreads leads to the situation that disclosed ratings / disclosed spreads in our database are mainly disclosed by banking institutions rather than non-banking financial intermediaries. This leads to fewer available observations of ratings and spreads the higher the share of involved non-banking Financial Intermediaries. Non-banking Financial Intermediary participation is significantly positively related to the leverage purpose criteria and the leverage segment criteria. Both criteria are statistically significant and have high coefficients, which makes them also economically more significant than the coefficients of spread and rating. The significance is intuitive since our defined purpose and segment criteria mostly consist of traditional non-banking segments and purposes like leveraged buyouts or recapitalization. The positive coefficients of segment and purpose are much higher compared to the lower and negative coefficients of spread and rating. The combined leverage dummy is significant and positively related to non-banking Financial Intermediary participation.

To summarize our findings: non-banking Financial Intermediary participation is significantly positively related to the leverage criteria as well as the spread - both are indicators for risky loans. Our findings indicate that non-banking Financial Intermediaries increased their leveraged lending exposure after the guidance especially in the riskier section of leveraged loans. They did so by increasing their share in risky leveraged loans instead by increasing the number of issued leveraged loans. This finding is very important since it indicates that the risky part of the financial system may not be inside the regulatory environment but may have shifted outside of the regulatory environment to non-banking Financial Intermediaries. These are, as the BoE (2019b) states, less transparent, less

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experienced with financial crises and an incalculable factor during recessions and eco-
nomic downturns. As Skinner (2019) argues, these non-banking Financial Intermediaries also have a countercyclical function during an economic crisis. Our finding confirms the concerns of the ESRB (2019) that existing risks may shift from regulated financial in-
stitutes to non-regulated non-banking Financial Intermediaries. Fink and Haiss (1999) add the important perspective to the literature that during periods of economic trouble, many institutes act "in herds" which, especially in the absence of regulation, increases risks, delays the recognition of losses and may even lead to a significant economic shock. Our findings can also be interpreted as a form of banks’ herd behaviour by filling riskier syndication tranches with non-banking Financial Intermediary provided capital.
8 Conclusion and Discussion

During the financial crisis between 2007 and 2009 banks’ lending activity dropped sharply, but recovered rapidly thenceforth. Especially the market for leveraged loans dropped significantly in 2007 and recovered to a new record height in the aftermath of the crisis. Regulators, academics as well as international institutions recently observed increasing risks in the market for leveraged loans and called for supervisory actions (e.g. ESRB (2019)). The ECB reacted with the guidance on leveraged transactions for all significant ECB supervised credit institutions. As Kane (1981) states, every regulation triggers intended as well as unintended consequences. Using microlevel loan data from Thomson Reuters DealScan (LPC (2019)) between January 2014 and May 2019 and by applying Kane (1981)’s “regulatory dialectic” framework we estimate the impact of the guidance on leveraged transaction on treated and non-treated institutes in Europe. At least to our knowledge we are the first to do so. Our investigations are very important for regulators, auditors as well as market participants for understanding the intended as well as the unintended consequences of an institutional regulation in the market for leveraged loans. By requiring all credit institutions in the EU to have a definition of leveraged transactions in place as well as to define their respective risk appetite, the EBA (2019) Draft Guidelines on loan origination and monitoring, which are to be implemented by June 2020, underline the importance of this thesis.

Using a difference-in-difference approach we investigate the question, if there has been a “shift of risk” from strongly regulated ECB supervised entities to less regulated and less supervised entities. We find that, whereas the guidance did not have a reducing impact on affected ECB supervised institutes, especially non-banking Financial Intermediaries increased their average monthly volume of leveraged loans in the aftermath of the guidance. By several Logit model regressions we investigated how non-banking Financial Intermediaries increased their average monthly volume of leveraged loans and find, that
non-banking Financial Intermediaries increased their leveraged lending activity especially in the riskier part of leveraged loans. This finding indicates, that the trend of non-banking Financial Intermediaries to increase their risk taking, which is mentioned by the ECB (2019a), could have enhanced in aftermath of the ECB (2017)'s guidance on leveraged transactions.

Is the increasingly large share of non-banking Financial Intermediary participation in riskier leveraged loans a crucial risk factor for the overall financial stability? On the one hand non-banking Financial Intermediaries play an increasingly important role in the market for corporate loans and, as Skinner (2019) finds, often serve as lenders of the last resort during times of economic volatility and therefore have a stabilizing impact on loan markets. On the other hand, as the BoE (2019b) recognizes, non-banking Financial Intermediaries engage in more risky loans, are less transparent, less regulated, less experienced with financial crises and an incalculable factor during economic downturns. The ECB (2016) adds, that banking institutes are subject to regulatory requirements such as minimum reserves and may also rely on public backstops like Central Bank liquidity assistance during a crisis. In contrast, non-banking Financial Intermediaries do neither face strong regulatory requirements nor a public backstop, which could protect them during a crisis. Since, as Kim et al. (2017) find, non-banking Financial Intermediaries on the one side are less likely to demand covenants and on the other side more likely to require dividend restrictions, the question of the overall impact of increasing non-banking Financial Intermediary leveraged lending stays ambiguous and will be left for future research.

With recourse to literature on the impact of regulations, corporate finance and economics (e.g. Kane (1981) and Minsky (1992)), we investigated the principles behind the observed event (i.e. the publication of the ECB’s guidance on leveraged transactions) and suggest, that this phenomena could arise out of regulatory arbitrage or regulatory dialectic. We also draw a line to alternative cooperation-based models where more constrained lenders,
as a consequence of the regulation, act simultaneously and increase their syndication activity with non-banking Financial Intermediaries. In this model non-banking Financial Intermediaries carry over the riskiest part of leveraged loans and banks, who are constrained in taking on risky loans, keep the remaining less risky part. We complement the theoretical part by Minsky (1992)'s financial instability hypothesis in a context of leveraged loans. Non-banking Financial Intermediaries, which take on an increasingly large share in the leveraged loan market accelerate the transformation of monetary policy to the real economy and therefore lead to more short-terminism and as a consequence create instability in the market. Even though what we find may be unintended consequences, their impact could have worsened overall financial stability after the guidance instead of improving it. Our finding is in line with Deslandes et al. (2019), from the Economic Governance Support Unit of the European Parliament, who ascertain, that the ECB Guidance on leveraged transactions was less effective than expected.

What is our conclusion from these findings? Even though we note cautiously, that our model may need further refinements in order to draw a definite conclusion, especially regarding "shift of risk"-triggering variables, we contribute with the findings. We conclude, that the risk in the market for leveraged loans did not decline; we rather observe a "shift of risk" from regulated, well supervised, towards less regulated and less supervised institutes after the guidance on leveraged transactions was released. We interpret these findings in the following way: Either non-banking Financial Intermediaries profited from adverse regulations on ECB supervised institutes (regulatory arbitrage). Or, by using arguments of Kane (1981)'s regulatory dialectic framework, since, as Kane (1981) mentions, regulations can be seen as direct taxes on the regulated business, banks may have incentives to circumvent this regulation. In the context of regulatory dialectic we argue, that banks eventually changed their lending practice and increased their leveraged lending activity together with non-banking Financial Intermediaries in order to circumvent the guidance on leveraged transactions. Since riskier leveraged loans may be more profitable,
banks have incentives to find ways how to circumvent the adverse regulation. If all banks simultaneously act in the same way this reaction can be characterized as "herd behaviour".

Comparable papers found a similar "shift of risk" and emphasized especially the importance of regulatory clearness (e.g. Schenck and Shi (2017)). We add to this literature the need to consider intended as well as unintended consequences. Using the theoretical framework by Minsky (1992) and using arguments of Kregel and Papadimitriou (2012) we add to the current discussion on banking regulation that we should try to regulate structures instead of moments. Following this arguments, we endorse a product instead of an entity based regulation and are of the opinion, that financial markets are fragile by itself and should therefore be regulated with regard to an underlying theory of instability. Haiss (2005) as well as Santos (1996) argue, that the cost-benefit equation of a regulation is incomplete until one considers regulations’ hidden costs and unintended consequences. We argue in the same direction by concluding, that before issuing a legislation, regulators should also include non-intended effects into their cost-benefit estimation. This includes broadening the way of thinking also beyond the scope of the regulation and to include other not-directly impacted market participants, related products, which may be used as substitutes, as well as incentives for regulated entities. A regulation should maximize financial stability while minimizing costs for treated entities in order to keep incentives of regulatory avoidance low and at the same time prevent regulatory arbitrage. We thus argue in favor of a level playing field which, as Morrison and White (2009) find, beside downsides of rewarding weaker regulators, resolves the problem of regulatory cherry picking, rewards most efficient business models and, in a context of leveraged loans, would affect non-banking Financial Intermediaries in the same way as ECB supervised entities when issuing leveraged loans.
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