Finance and Investment: The European Case

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Securities Trading and Lending in Banks

22.1. Introduction

European banks’ assets have grown at an extraordinary pace in the last thirty years. According to Langfield and Pagano (2016), this growth is largely accounted for by activities other than lending to the real economy. They report that the ratio of loans to GDP for European banks has increased around 2.5 times, but the ratio of bank assets to GDP has increased fivefold. In 2013, only 31% of the €42 trillion of assets held by European banks represented loans to households and firms in the Eurozone (Pagano et al. 2014). In the United States, we observe a similar trend: the percentage of securities and other trading assets out of the total banking assets was 20% at the beginning of the 1990s and increased to 26% in 2015. During the same period, the percentage of loans fell from 60% to 46% (Federal Reserve Bank of New York, 2016).

Since the beginning of the financial crisis, academics and regulators on both sides of the Atlantic have started to debate the implications of securities trading by banks. An important argument in this debate is that during a crisis, banks may allocate additional resources to buy fire-sold securities to profit from trading opportunities, in turn reducing lending to firms, thus exacerbating the credit crunch (Shleifer and Vishny, 2010; Diamond and Rajan, 2011; Stein, 2013). Another argument is that banks may take excessive risk in their security portfolio. For instance, many argue that during the European sovereign crisis, risk-shifting was the main driver of investment in securities, since less-capitalized banks in distressed countries purchased large quantities of risky sovereign debt (Acharya and Steffen, 2015; Altavilla et al., 2016; Horváth et al., 2015; Acharya et al., 2014). Furthermore, policymakers are concerned that the public policies they have implemented to support banks to start lending again to the real economy (government subsidies or softer, unconventional monetary policy) may instead be used by banks to support their security trading.
In the light of the above concerns, regulators are eager to intervene in the area of bank securities trading. In the United States, the Volcker Rule, contained in the Dodd–Frank Wall Street Reform and Consumer Protection Act, specifically prohibits banks from engaging in proprietary trading, and from owning or investing in a hedge fund or private equity fund. The Vickers Report for the United Kingdom and the Liikanen Report for the European Union do not recommend banning proprietary trading, but suggest that market-based activities should be segregated in firewalled subsidiaries. Moreover, European banking regulators are considering introducing limits on banks’ exposure towards each single sovereign or increasing risk weights on sovereign debt. The main objective of these policies is to break what Brunnermeier et al. (2016) describe as a ‘diabolic loop’. If banks are highly exposed to the domestic sovereign, a negative shock to the beliefs about government solvency which leads to sovereign debt re-pricing will inflict large losses on banks and trigger bailouts. These in turn increase the likelihood of government default. Risk-shifting is one of the many possible drivers of home bias in government holdings exposure.1

In a new paper (Peydro et al., 2016), we use a unique, proprietary dataset from the Bank of Italy that provides information on security-level holdings for all banks in Italy—a bank-dominated system—at a monthly frequency from 1999 to 2014. This allows us to examine the characteristics of the securities traded by banks, and also the timing of security trading. We exploit the changes in monetary policy to analyse whether lowly capitalized banks increase their investment in securities (instead of lending to the real sector) and whether they do risk-shifting in securities (buy securities with higher risk) in both crisis and normal times.2

We show that—during the crisis—less-capitalized banks reacted to the unconventional monetary policy measures of the ECB by investing more in securities and reducing the supply of credit to firms (i.e. lowering the granting of loan applications to the same firms in the same quarter as banks with higher capital). However, the less-capitalized banks bought securities with lower yields in comparison to better-capitalized banks, which is not consistent with weak capital banks gambling for resurrection in their security portfolio (at least relative to more-capitalized banks). Weak banks use their resources to buy securities with low yield for two reasons: (i) to increase the liquidity of their assets and to obtain assets they could post as collateral to the ECB to obtain additional funding in case of future liquidity needs; and (ii) to lower

1 We refer the reader to the chapter by Marco Pagano in the same book on the complex issue of the sovereign-bank nexus and on alternative proposals to address it.

2 Our results hold if we eliminate the few securities related to non-financial firms, i.e. securities are mainly about banks and sovereigns.

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capacity to take on high risk, so they avoid taking on high risk in the trading book and available for sale (as compared to held to maturity), marking their assets to lower prices during the crisis as in this period asset prices are volatile.

In the rest of this chapter, we present the academic debate on the costs and benefits of trading, discuss the most recent evidence based on new microdata, and draw some conclusions in the last section.

22.2. Potential costs and benefits

What are the potential costs of combining the traditional intermediation activity with proprietary trading within the same institutions? Boot and Ratnovski (2016) analyse this question in a theoretical model and highlight two inefficiencies: (i) banks may allocate too much capital to trading in securities, compromising the incentives to build relationships with firms; and (ii) banks may use trading for risk-shifting.

22.2.1. Crowding out of lending

The first inefficiency that Boot and Ratnovski (2016) describe is a problem of time inconsistency in allocating capital. In providing credit lines to firms, banks are offering a funding insurance scheme. Borrowers pay an upfront fee for a guarantee by the bank to fund the business in times of liquidity needs. However, banks have some discretion over whether or not to honour the lending commitment. Here is the source of the time inconsistency: banks ex-post have an incentive to allocate more capital to trading, which may diminish their ability to give funding to firms to honour their commitments. This undermines ex-ante borrowers’ incentives to invest in traditional banking. This is particularly true if relationship banking becomes less profitable (due to higher competition and improved access to borrowers’ information thanks to credit bureaus) and financial markets become deeper. This mechanism might explain the long-term trend, described above, of declining percentages on traditional loans in the asset side of banks’ balance sheets.

The hypothesis that trading may crowd out lending has received a lot of attention from theorists in recent years. New theoretical models, instead of trying to explain fundamental changes affecting the banking industry in the last decades, focus on the financial crisis and study whether trading opportunities have exacerbated the credit crunch. During the crisis, banks with more trading expertise or larger securities portfolios may have preferred to hold on to, or even increase, their holdings of fire-sold securities at the expense of lending to the real economy.
In the model of Diamond and Rajan (2011), in a crisis, banks have no incentives to sell illiquid securities, even though such sales, by raising cash, could make the bank safer. By selling the securities, a bank will give up the returns that it would obtain if the currently low value of the securities recovers. Since the states in which prices recover are exactly the states in which the bank survives, bank managers keep the assets, or even increase them, to get the higher return, conditional on survival. Therefore, fire sales and securities trading by banks can create a credit crunch to the real economy. Also in Shleifer and Vishny (2010), in a crisis, banks would buy or hold on to distressed securities, rather than lending to firms, in anticipation of a recovery in prices. In their model, banks increase or reduce lending according to their ability to securitize loans in a sentiment-driven market. When market sentiment falls, the returns from investing in distressed securities are higher than the returns from lending.

Also in policy circles, the potential adverse implications of trading on lending have been discussed. In a 2013 speech while a member of the Board of Governors of the Federal Reserve System, Jeremy Stein, expressed his concerns with the following words: ‘Adverse spillovers from a fire sale of this sort may also take the form of a credit crunch that affects borrowers more generally. Such a credit crunch may arise as other financial intermediaries (e.g. banks) withdraw capital from lending, so as to exploit the now-more-attractive returns to buying up fire-sold assets. Ultimately, it is the risk of this credit contraction, and its implications for economic activity more broadly, that may be the most compelling basis for regulatory intervention.’

22.2.2. Excessive risk-taking

Risk-shifting is the second inefficiency analysed by Boot and Ratnovski (2016)—banks may opportunistically use trading to increase risk to benefit shareholders at the expense of other stakeholders. The authors acknowledge that risk-shifting may also happen in traditional banking, but the short-term nature of trading and the fact that trading exposure can be quickly scaled up or down make the trading activity more prone to excessive risk-taking. To support their claim, the authors refer to the large losses on securitized debt instruments held by banks during the subprime crisis and to episodes of large trading failures (e.g. Barings Bank in 1995, Societe Generale in 2008, and JP Morgan in 2012). Moreover, there is some evidence that banks with a larger proportion of non-interest income are associated with higher risk. Demirgüç-Kunt and Huizinga (2010) look at a large sample of banks across the world and find that non-interest income activities generally increase bank risk, while they offer some risk diversification benefits only at very low levels. Brunnermeier et al. (2012), analysing only US banks, find that a
larger percentage of non-interest income is associated with higher systemic risk, which implies that higher trading is associated with a negative externality that banks impose on the financial systems. They also show that banks with higher non-interest income before the recession earned lower returns during the recession period.

Finally, several papers have analysed the investment behaviour in sovereign debt of banks during the European sovereign crisis (Acharya and Steffen, 2015; Altavilla et al., 2016; Horváth et al., 2015; Acharya et al., 2014). These papers argue that in distressed countries there was risk-shifting in security trading, since they show that less-capitalized banks purchase larger quantities of risky sovereign debt. In conclusion, the risk-shifting motive, in particular for more fragile banks during crises, is considered by many to be one of the main drivers of banks’ trading behaviour.

22.2.3. Potential benefits

An alternative, benign view of trading is one in which banks allocate capital to trading in order to diversify their sources of income and to rebalance the risk they have in their loan portfolio. Even those who are critical of the role of trading in banks, such as Boot and Ratnovski (2016), recognize this hedging motive. They suggest that, at a low scale, this motive can be important and trading may not have side effects: it is impossible to use small trading positions for risk-shifting, and there is little misallocation of capital.

In times of crisis, there are other potential benefits. When the functioning of the interbank market is not smooth, more fragile banks may want to use their cash to purchase securities with low risk (for instance, government bonds with low maturity) that can be pledged as collateral to the central bank to get additional funding in case of future liquidity needs. A final important benefit, in times of crisis, is price support. By purchasing securities, banks absorb risk and provide liquidity to the financial markets, which may increase aggregate wealth in the economy, with positive spillover effects on aggregate consumption and employment.

22.3. Recent microevidence

Despite the increasing percentage of securities holdings in banks’ balance sheets and the importance for theory and policy of understanding banks’ trading in securities, the empirical evidence is scant. The main constraint that has hampered empirical research is the lack of comprehensive micro data at the security level on banks’ trading activities. The papers cited above are either based on bank-level data or, in the best cases, on data on sovereign
bonds bought by the largest European banks or on securities pledged as collateral to the ECB. Without very disaggregated data at the security level, data may show that two banks have similar levels of securities in their portfolio, but the composition of securities may still be very different (in terms of yield, maturity, rating, etc).

Until very recently, researchers did not have access to the comprehensive security registers data that some central banks have been collecting for years for supervisory purposes. National security registers have data on all security investments of regulated institutions (bonds, ABS, equities, derivatives, and shares of mutual funds) collected at a monthly or quarterly frequency. For each security, banks report the notional amount they hold at the end of each month or quarter (stock of individual securities). Thanks to the International Security Identification Number (ISIN), at each point in time each security can be merged with commonly used databases (such as Datastream, Bloomberg, and Factset) to get data on prices, yields, residual maturity, issuer, rating, and duration. Moreover, the security registers can be matched with data from the credit registers to also obtain complete information on individual loans made by banks at each point in time.3

The first paper to use such data is Abbassi et al. (2016), which focuses on the purchases of fire-sold assets and the potential crowding out of lending in the crisis. The authors use the security register owned by the Bundesbank, which provides quarterly information on security-level holdings for all banks in Germany from 2005 to 2012. They find that, during the 2007–09 crisis, banks with stronger trading expertise increased their investment in securities to profit from trading opportunities due to fire sales and, at the same time, reduced lending to firms. The higher investment in securities was concentrated in those which had a larger price drop, with stronger effects in low-rated and long-term securities. In times of fire sales, banks whose business model is more oriented towards trading are better able to exploit the new trading opportunities, but this creates a negative spillover to lending to firms.

In Peydro et al. (2016), we have access to the security and credit register owned by the Bank of Italy from 1999 to 2014, and we tackle a different question. We analyse the impact of monetary policy on banks’ investments in financial securities and credit supply in general, and crucially depending on bank capital, and finally on security heterogeneity (reach for yield)—both in crisis and in normal times.

3 Finally, the access to security and credit registers allows for a cleaner identification since it is possible to control for unobserved time-varying heterogeneity across securities and borrowers by the inclusion of, respectively, security*time and firm*time fixed effects. The inclusion of security*time fixed effects helps to control—in each time period—for how much of each security is issued and outstanding and, therefore, isolate the demand of securities by banks. The inclusion of firm*time fixed effects in the credit regressions allows a comparison of lending by different banks to the same firm during the same period (isolating the supply of credit by banks).
Low interest rates in normal times or the softer unconventional monetary policy during the crisis may encourage banks to reach for yield, consistent with a risk-taking channel of monetary policy (Adrian and Shin, 2011; Borio and Zhu, 2012). Jiménez et al. (2014) offer evidence in support of this view during normal times for lending. Looking at loan applications, they show that when monetary policy is softer, less-capitalized banks lend more to riskier borrowers. However, banks may search for yield more easily and quickly by adjusting their portfolio of securities. Moreover, in crisis times risk-shifting incentives should be even stronger, in particular for less-capitalized banks that may want to gamble for resurrection.

We find that, during the crisis, less-capitalized banks react to the softer unconventional monetary policy measures of the ECB by investing more in securities and granting fewer loan applications.4 We show that more fragile banks (in terms of level of capital) buy more securities, but an important question is whether they buy securities with higher yield. The answer is no. We find, in fact, the opposite: banks with higher capital, given their higher risk-bearing capacity, expand more in securities with higher yield.5 To further support the risk-bearing channel, we show that this result is confined to available-for-sale and trading portfolios (not in held to maturity),6 which suggests that in crisis times, less-capitalized banks cannot afford to buy securities with high volatility, which could further damage their already fragile balance sheets.

Apart from the channel of risk-bearing capacity, we find that another important driver of security purchases in the crisis was access to public liquidity. During a crisis the central bank becomes the most important provider of funds, in particular for more fragile banks. In order to tap these funds, banks need to provide securities as collateral. In a repo contract, the amount of funding provided equals the market price of the collateral multiplied by one minus the ‘haircut’ on the loan. The ECB publishes online (and updates constantly) a list of eligible assets and the corresponding haircut—larger haircuts are associated with riskier securities. For each security-month in our database, we are able to match the haircut applied by the ECB at each point in time during our sample. In the original specification, if instead of using the security yield we use the ECB haircut as security heterogeneity, we find that when monetary policy is softer, less-capitalized banks expand their

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4 In our regressions, we include firm quarter fixed effects, which implies that we analyse the granting of loan applications by different banks to the same firm in the same quarter.

5 This result is not driven by the different regulatory risk weights attributed to different securities, because it holds in the subsample of Italian government bonds where the risk-weight is zero for any maturity.

6 While in the ‘held to maturity’ portfolio, unrealized changes in fair value are not reported on either the income statement or the balance sheet, in the other portfolios they are recognized in the income statement (‘trading’ portfolio) or in the balance sheet in the comprehensive income (‘available-for-sale’ portfolio).
investments in securities with a lower haircut. If, in the future, they find themselves in trouble, they can post these securities as collateral to the ECB and get liquidity support.\(^7\)

### 22.4. Conclusions

Is the buying of securities by banks socially undesirable? Two fears surround the combination of trading and lending in the same banking institutions: (i) security trading can crowd out lending to firms, which is considered to be more beneficial to society both as a long-term trend and, in particular, during a crisis when it could amplify the credit crunch; and (ii) trading could be more risky and lead to financial instability. The most significant regulatory initiatives to prohibit or to segregate trading activities are the Volcker Rule in the Dodd-Frank Act in the United States, the recommendations of the Independent Commission on Banking (the ‘Vickers Report’) in the United Kingdom, and the Liikanen Report to the European Commission.

In the absence of comprehensive micro data at the security level on banks’ trading activities, it has proved difficult to bring robust evidence on these issues. Only recently researchers have had access to the security registers data that some central banks have been collecting for years for supervisory purposes. Knowing exactly which securities banks are buying and selling, we can better understand bank trading behaviour.

The first papers to use these new data look at the investment in securities during the 2007–09 crisis and the transmission of monetary policy via banks during normal and crisis times. There is indeed evidence of a crowding-out of lending by trading during the 2007–09 crisis, but this does not necessarily imply that trading should be banned. A complete welfare analysis should also take into account the potential benefits of trading, such as price support to securities markets which may have increased aggregate wealth in the economy, with positive spillover effects on aggregate consumption and employment.

Moreover, when we look at the search for yield by banks after monetary policy changes we do not find evidence of risk-shifting by less- versus more-capitalized banks. More fragile banks buy securities with lower yield with respect to better capitalized ones. The larger capital buffer gives stronger banks a higher risk-bearing capacity. These results are not consistent with the view that weak banks use their security portfolio to gamble for

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\(^7\) See also Crosignani et al. (2016) who, using a security register owned by the Bank of Portugal, show that banks reacted to the announcement of the three-year Long-Term Refinancing Operations conducted by the ECB in December 2011 and February 2012 by increasing their holdings of domestic government bonds so that they could pledge them at the ECB.
resurrection. In the light of this evidence, the policy measures to limit trading on the basis of risk-shifting do not seem fully justified.

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