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A risk governance approach to managing antitrust risks in the banking industry

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Competition law compliance has become increasingly important in the banking industry as the number of infringements and the associated fines imposed by the European Commission are rising. This article shows that not only governments and regulators, but also shareholders and managers, should be interested in managing antitrust risks in banks in order to avoid competition law infringements. Therefore, this article sets out an approach to assessing the residual risk of antitrust non-compliance as well as the costs associated with such conduct, in order to be able to identify the required intensity of risk management activities. It also shows how antitrust risk management can be implemented in banks' governance structures using the Three Lines of Defence model and the COSO ERM framework. As a result, it demonstrates how to integrate antitrust risk management activities into existing structures and processes, thus improving the efficiency and effectiveness of overall risk management, in particular antitrust risk management.

Keywords: risk management, antitrust, compliance, banks, competition

JEL Codes: G20, G30, G32, L21, K21

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1 Introduction

Considerable fines have recently been imposed on several banks for violating antitrust laws. For example, Deutsche Bank had to pay € 466 million in 2013 for participating in the Euro interest rate derivatives (EIRD) cartel. This is the fourth largest cartel fine imposed by the European Commission's Directorate General Competition on a single firm in the period between 1969 and February 2015. In fact, the sixth largest fine in this period was also imposed on a bank, Société Générale, for participating in the same cartel. Société Générale had to pay € 446 million. All in all, the total fine imposed by the European Commission on the EIRD cartel (i.e., € 1.04 billion) remains the third largest fine which has ever been imposed on a cartel according to a statistic from September 2015 (European Commission 2015). This is not an exception in the banking industry since the eighth largest fine was imposed on the Yen interest rate derivatives (YIRD) cartel, another bank cartel.

In 2002, Mario Monti, then European competition commissioner, said after fining the Lombard Club cartel: "Maintaining competition in the banking sector is particularly crucial, considering the importance of the banking sector for consumers, businesses and the efficient allocation of resources in the economy as a whole." Being aware that the banking industry enjoyed exemptions from competition laws in several countries, he added that "Banks should be in no doubt that they are subject to European Union competition rules just like any other sector" (European Commission 2002).

The importance of compliant behaviour for banks, especially with reference to competition law, is growing because prosecution has been more extensive than ever. Moreover, society increasingly demands moral behaviour in the way the economy is run (International Chamber of Commerce 2014). There is, therefore, an increased necessity for banks to implement effective compliance structures. However, by comparing PWC studies on compliance systems in use, Adam (2013) found that organisations more frequently address risks such as corruption, which occur relatively often but cause only moderate losses, rather than antitrust risks that are less common but involve greater harm for the firm (e.g., fines, damages, litigation costs). This suggests a need to improve the risk management, governance and compliance structures of banks with regard to competition law compliance.

Therefore, this article examines risk management practices to ensure compliance with competition law in the banking industry. It provides an approach to assessing antitrust risks and to implementing risk management activities in established governance structures. Much prior

literature has been concerned with analysing competition and market concentration in the banking industry (Bikker an Haaf 2002, Claessens and Laeven 2003, Goddard et al. 2007, Shaffer 2004, Tabacco 2015) and the trade-off between competition and stability in this context (Allen and Gale 2004, Boyd and De Nicoló 2005, Carletti and Vives 2009, Tabak et al. 2012, Vives 2010, Weiß et al. 2014). This literature shows why governments and regulators should be interested in promoting banks' compliance with antitrust rules. Furthermore, it deals with the question of how competition authorities and/or firms can fight anticompetitive behaviour (Abrantes-Metz and Sokol 2012, Connor 2004, Hinloopen 2006, Paha and Götz 2016, Parker and Lehmann Nielsen 2011). The present article, however, highlights the necessity for banks themselves to deal with antitrust risks. This is not only a legal requirement but also in the interest of several stakeholders, in particular shareholders and managers. Additionally, it sets out procedures to achieve this objective by combining knowledge from different fields such as antitrust, risk management, and corporate governance.

As a result, this article complements regulatory approaches for antitrust compliance by proposing internal approaches that help to reduce anticompetitive conduct in the banking industry. It shows that it is possible to manage antitrust risks by combining existing knowledge and models and adapting them to antitrust compliance. Therefore, antitrust risks can be managed with little additional effort and resources. This may enhance banks' willingness to manage antitrust risks, thus shielding them from legal and financial consequences, and in a broader sense foster economic stability.

The article is structured as follows. Section 2 demonstrates the need for antitrust risk management. It therefore provides an overview of the banking industry especially with regard to the legal requirements that must be met and the market conditions that affect employees' inclination to violate the law. It also presents European competition law infringements in the banking industry. Section 3 describes the benefits of effective risk governance and suggests an approach for assessing the residual risk and the expected costs of anticompetitive behaviour in order to being able to compare the expected costs of non-compliance to a bank's risk appetite. Section 4 establishes connections between governance structures and risk governance approaches in order to manage antitrust risk both efficiently and effectively. Finally, Section 5 concludes and makes suggestions for further research.

2 The banking industry

In the European banking industry, infringements of competition laws have been fairly frequent in the recent past. The consequences of banks' attempts to reduce competition are mostly borne by the customers, be they private or commercial, who may end up paying higher prices, fees, or receiving inferior interest rates. Since past infringements have not only been of national relevance but also of regional and even global significance, fines imposed on banks are increasing in order to bolster customer protection. This has enhanced the attractiveness of the European leniency programme, which in turn helps regulators to detect cartel activities. These developments show why it has become important for banks to undertake antitrust risk management in avoidance of infringements of competition laws and having to pay fines. In order to adjust antitrust risk management procedures it is necessary to look at the legislative situation (see Subsection 2.1) and market conditions in the banking industry (see Subsection 2.2), besides looking at past infringements as is done in Subsection 2.3.

2.1 Legal requirements for banking compliance with regard to competition law

Competition law in the European Union and in Germany covers various types of restriction of competition. Concerted practices between undertakings, for example, are prohibited by article 101 of the Treaty on the Functioning of the European Union (TFEU) and by § 1 of the German Act against Restriction of Competition (Gesetz gegen Wettbewerbsbeschränkungen - GWB). Typically, such agreements concern prices or market shares and aim at a lessening of competition. Agreements can occur either between companies on the same level of the supply chain (horizontal agreements), or companies on consecutive levels (vertical agreements). Exemptions are possible if the cooperation between the undertakings is beneficial for the market, for example, when the firms cooperate in research and development (Article 101 (3) TFEU; § 2 GWB). Another infringement of competition law is the abuse of a dominant position (Article 102 TFEU; § 19 GWB). This might concern impediments to market entry by rivals through, for example, setting dumping prices or refusing access to essential facilities even if the entrants would be willing to pay a fair compensation. Though competition rules have existed for decades and should be familiar to banks' executives and employees. Nonetheless, infringements still occur that do not only harm competition but also have considerable negative consequences for banks (see Subsection 2.3).

As infringements of competition laws can also have consequences for banks' managers, compliant behaviour is not only important for banks as entities but also for their managers and

employees. Under German legislation an infringement of competition law is an administrative offence, not a criminal offence. Therefore judgements are issued on the basis of the German Administrative Offences Act (Ordnungswidrigkeitengesetz - OWiG). In fact, managers or employees do not necessarily have to be involved directly in an infringement; the breach of their supervisory obligations is sufficient for sentencing (§ 130 OWiG). However, in Germany an infringement of competition laws cannot lead to imprisonment (§ 30 OWiG). This is in contrast to other countries, for example Great Britain, which recently sentenced Tom Hayes, former employee of UBS and Citigroup, to 14 years imprisonment for his leading role in the LIBOR scandal (Handelsblatt 2015a).

Consequences at an individual or a firm level are one main reason for antitrust compliance management systems gaining in popularity. However, the requirement to establish these compliance management systems in general is not clearly stated in German law. Neither the German Stock Corporation Act (Aktiengesetz - AktG) nor the German Commercial Code (HGB) directly refer to the term compliance. Therefore, the obligation for German undertakings to have compliance management systems in place is sometimes questioned (Kasten 2011). However, it can be argued that according to § 161 (1) AktG, corporations have to declare their conformity with the German Corporate Governance Code in which the obligation of compliant behaviour and compliance systems is stated (3.4.2 DCGK; 4.1.3 DCGK; 5.3.2 DCGK). Furthermore, § 91 (2) AktG requires the implementation of suitable measures, especially monitoring measures, to ensure the detection of developments threatening the existence of the company. Thus, there is an indirect requirement to establish appropriate governance structures and comprehensive risk management, which includes compliance measures.

Whilst the requirements for firms in general are not without controversy, the obligation for compliance in the banking industry is clearly codified in the German Banking Act (§ 25a (1) Kreditwesengesetz - KWG) and the German Securities Trading Act (§ 33 (1) Wertpapierhandelsgesetz - WpHG). Moreover, the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht - BaFin) has laid down the Minimum Requirements for Risk Management (MaRisk) as well as the Minimum Requirements for Compliance Functions (MaComp) which both are provisions that give form to the legal requirements. MaRisk specifies the design of risk management according to § 25a KWG, including a compliance function, whereas MaComp provides specific guidelines for compliance structures and processes in regard to § 33 (1) WpHG.

2.2 Banks' market situation

This section illustrates a bank's business environment with focus on the facilitating factors for collusion, for example, market concentration and entry barriers. Therefore the importance of the banking market is presented as well as the effect of, inter alia, strong competition on collusive behaviour.

Banks play a crucial role in the economic system because as intermediaries they have an effect on other market participants, for example, other financial institutions as well as customers and, conversely, can also be affected by them. Hence their stability is essential for market stability. That is why this market is subject to significant regulation by governments and why competition in the banking industry can be considered even more important than in other industries, provided that one believes that competition fosters stability. In the relevant literature there is on-going discussion of two opposing theories concerning the effect of competition on stability, namely the competition-fragility hypothesis (Allen and Gale 2004) and the competition-stability hypothesis (Boyd and De Nicoló 2005). The empirical evidence is ambiguous.

On the one hand, the competition-fragility hypothesis suggests that competitive markets increase banks' idiosyncratic risks and, thus, threaten overall stability. Competitive markets reduce profits, which means that banks are willing to take more risks to compensate. In addition, the lower profits might make banks more susceptible not only to internal failure but also to exogenous shocks. Since in less competitive markets the profit margin is typically higher, banks can accumulate higher equity to insure against external shocks and therefore increase the charter value. As a consequence, the bank's incentive to take risk is reduced and the exposure to contagion mitigated (Allen and Gale 2004; Beck et al. 2006; Vives 2010).

On the other hand, the competition-stability hypothesis states that systemic risk will be lower in competitive markets where stability thus is expected to be greater. This theory is based on the assumption that banks in less competitive or even collusive markets have market power, which enables them to become very big and important for the overall economic system. Since they know how important they are, they may take too many risks in the expectation that they will be rescued by governments if they fail. This scenario is known as the "too big to fail" problem, which leads to an increase in overall systemic risk (Weiß et al. 2014). Additionally the banks' likelihood of default rises because higher interest rates in less competitive markets make it more likely that borrowers will not be able to repay their loans (Boyd and De Nicoló 2005).

In addition to these theories, governments and regulators should consider that competition can have several positive effects on the market and its participants. As in other markets, competition is meant to foster the industry's efficiency, innovation and the quality of the services it thus improves international competitiveness (Casu and Girardone 2009). Furthermore, it leads to decreasing prices (Tabak 2012) and ensures access to capital for firms and households (Claessens and Laeven 2003), resulting in economic growth, higher productivity and consumer welfare (Liu et al. 2013).

The European Union takes the view that the positive effects of competition in the banking industry outweigh the negative ones, and that the latter can be mitigated by European as well as national regulation and supervision. Therefore, it may be important for banks to remember that the Commission's repeated announcements that it encourages competition in the banking industry and will sanction every infringement of competition law strictly (European Commission 2002, 2013b). Moreover, the European Union aims at reducing national barriers. For that reason it has tried to build an integrated financial market through the creation of the European Monetary Union, which, inter alia, aims to foster cross-border competition. Another attempt to reduce barriers was the implementation of the Single Euro Payments Area (SEPA), a supranational payment system. However, there are still some barriers that do hinder cross-border competition, for example differing laws, cultures and languages. Additionally, the crisis in 2008 started re-nationalization processes, which was a setback for European endeavours (Paul and Uhde 2010).

Banks and their regulators may find it interesting to note that in recent years market concentration, one of the most common measures of competition, has increased constantly in the European Union, which may suggest that competition is weak in this industry. The national concentration ratio (CR_5) in terms of the asset shares of the five largest credit institutions increased from 39.7% in 2003, to over 44% in 2008 and to 47% in 2013 (European Central Bank 2008, 2014). This development can be explained by waves of mergers at the beginning of the century and rationalisation processes after the crisis (Carletti and Vives 2009, European Central Bank 2014). As a consequence, the number of credit institutions in the European Union declined from 6,690 at the end of 2008 to 5,948 at the end of 2013. This is a relative decrease of 11.1% (European Central Bank 2014). These changes are quite comparable across the European market, indicating a decrease in competition. Market concentration in Germany is also on the rise. In 2003 the CR_5 was 21.6% whereas that figure increased to 31% in 2013. This is still the lowest level in the European Union however.

The stability of the German banking industry is especially important for the common European market since Germany has the biggest banking sector in the European Union with a total asset value of EUR 6.7 trillion (European Central Bank 2014). Moreover, Germany's economic system is heavily reliant on banks, which means that small and medium sized enterprises as well as households are predominantly financed by bank loans and far less by capital markets, unlike the United Kingdom or the United States. Therefore, instability in the German banking industry can have an even greater impact on the German economy than in other countries.

The banking system in Germany can be divided into universal banks and special purpose banks. The group of universal banks consists of three pillars: commercial banks, savings banks and cooperative banks that supply the whole range of financial services. The commercial banks include the big banks, such as Deutsche Bank AG, Commerzbank AG, UniCreditbank AG and Deutsche Postbank AG, as well as private credit banks and private bankers. Typically, these banks are active in the credit and securities business, and their main customers are big firms as well as wealthy private households. Only the clients of Postbank AG are typically average-income private households only. The second pillar, the savings banks, are primarily smaller regional saving banks typically owned by municipalities, and a few large, regional central institutions, called "Landesbanken". They focus mainly on retail banking services to private customers and small and medium-sized enterprises (SMEs). The focus of activity and the structure of the third pillar are similar to the second. It also consists of a few central banks and many local cooperative banks that are important for the medium-sized sector and private households.

The structure of the German banking industry may raise competitive concerns. The reasons why there is such a low market concentration in comparison with the other EU member states are the small number of big banks and also the high number of cooperative and saving banks. The savings banks as well as the cooperative banks work together in associations. Nevertheless, they are not seen as formally belonging together because of their decentralised decision-making power, thus, the comparatively low market concentration must be relativized. Savings banks and cooperative banks are divided along regional lines. Due to customer immobility in this market there is nearly no competition within these two pillars, only among them. Therefore, competition appears to be relatively weak in these regional markets (Bikker and Haaf 2002). During a competition inquiry into the retail banking sector, the European Commission found a number of obstacles that raise competitive concerns in this industry (European Commission 2007a), in particular concerning payment cards and payment systems services. They identified several barriers to entry into the market, which facilitate collusion. Economies of scale, rules

that impede access to networks and systems as well as customer immobility were the main reasons for the insufficient levels of competition. Customer immobility is assumed to exist because of low price transparency, high costs to switch to another bank and product tying which are often used by banks to create customer loyalty (European Commission 2007b).

One should not only consider the retail banking market in this context; the market for investment banking is also important when it comes to concerns of collusion. Whereas the retail banking market is considered to be regional or even local (Paul and Uhde 2010), the market for investment banking is international. As a consequence, the German banks that are active in this market segment, for example Deutsche Bank AG and Commerzbank AG, compete against banks internationally. Therefore, it is not surprising that competition in this business is fierce (Bikker and Haaf 2002, Carletti and Vives 2009). This environment can also raise competitive concerns as reflected in several competition law infringements in this market (see Subsection 2.3). Section 3.3 provides a theoretical explanation as to why intense competition can lead to collusion.

In the future, changes in banks' competitive situation can be expected due to technological improvements that are facilitating internet trading. This will play an important role particularly in retail banking. The internet may increase price transparency and lower transaction and search costs. In combination with a growing price sensitivity of customers (Paul and Uhde 2010), internet trading can enhance customer mobility, which in turn can lead to greater competition. Moreover, the efforts of the European Union to foster cross-border competition are continuing and the long-term effects of SEPA should not be forgotten. It can be assumed that these developments will foster competition not only at national level but also at European level.

2.3 Competition law infringements in the European banking industry

In the following we present former infringements of competition laws that were subject to the European Commission's investigations. Therefore we identify the circumstances that led to the non-compliant behaviour and the magnitude of the consequences for the banks involved.

In 2002 the European Commission found eight Austrian banks guilty of collusive behaviour. The Austrian banks were part of the so-called "Lombard-Club" and had participated in a price fixing cartel. A total fine of EUR 124.26 million was imposed (European Commission 2004). The agreements covered nearly all areas of business activity, in particular interest rates for loans and savings as well as fees for different services. As a consequence, households and commercial customers had to pay excessive prices over years because of the lack of competition. There had

been regular monthly meetings at the top management level and also extraordinary ones at lower management levels dealing with specific topics. The Commission discovered documents about the network that had been set up, including documents relating to meetings, memoranda, telephone conversations, and so forth. The banks said that changes in the key lending rates and in prices, as well as the change in their legal environment had led to the establishment of the cartel. In the 1980s agreements in the Austrian banking industry were legal, but even after this had changed in 1989, concerted behaviour continued until the investigations in 1998. Since Austria only joined the European Union in 1995, the official duration of the cartel was three years and fines were only set for this period.

Another infringement of competition laws occurred from 1999 to 2001 in Germany (European Commission 2003). With the introduction of the Euro, the exchange rates for European currencies were irrevocably fixed in January 1999. As a consequence, the lucrative currency selling and buying spread fell away and banks had to compensate the loss of a major source of revenue. The Deutsche Reisebank AG was particularly affected since 80% of its profits came from currency exchange (European Commission 2003). In 1997 the Reisebank AG and four other German banks agreed to charge 3% for the exchange of Euro banknotes so that 90% of the former profits of currency trading could be recovered (European Commission 2003). The European Commission found the banks, which included Commerzbank AG and the former Dresdner Bank AG, guilty of price fixing and fined the five banks involved in the cartel a total amount of EUR 100.8 million.

Several cartels were detected in the interest rate derivatives industry in the period from 2005 to 2010. Interest rate derivatives are financial products used for hedging and speculating. They are traded internationally and linked to a benchmark interest rate expressed in different currencies, for example, the Euro Interbank Offered Rate (EURIBOR). These benchmarks are supposed to reflect the costs of interbank lending and determine the value of many financial derivatives. The benchmarks are built upon the average of the quotes submitted by some banks, which are members of a panel. The banks involved in the conspiracy exchanged their submissions prior to the calculation of the benchmarks, thus, manipulating the results. This was found to have taken place in the case of the EURIBOR, the JPY London Interbank Offered Rate (LIBOR) and the CHF LIBOR. Moreover, the banks discussed their trading and pricing strategies.

The EURIBOR manipulation took place from September 2005 to May 2008 (European Commission 2013b). The cartel was discovered because of the European Commission's leniency program, meaning that one of the cartel members, in this case Barclays, provided the

European Commission with enough information to pursue the case, receiving full immunity from fines in exchange (European Commission 2011). At least four international banks were involved. Three of them were fined in a settlement procedure involving an amount of approximately EUR 1.04 billion. One of them, Deutsche Bank, had to pay an amount of approximately EUR 466 million. Another three banks were accused of the same offence. In these cases, proceedings were opened and are still on-going.

Quite similar agreements were made on the calculation of the JPY LIBOR, which is the benchmark expressed in Japanese Yen. Six banks were involved in this case and one of them made use of the leniency program (European Commission 2013b). The fines imposed in a settlement procedure amounted to EUR 670 million for the remaining five banks. The Commission established that from 2007 to 2010 there had been seven bilateral infringements of competition laws that had lasted between one and ten months. Again, Deutsche Bank was part of the collusive agreement and had to pay a fine of EUR 259 million.

Another infringement in this market affected the CHF LIBOR, which expresses the benchmark in Swiss Francs. Agreements were made between the Royal Bank of Scotland and JP Morgan in the period from March 2008 to July 2009 (European Commission 2014). Since the Royal Bank of Scotland also made use of the leniency program, only JPMorgan was fined. The fine totalled EUR 61.6 million.

The consequences of the entire LIBOR scandal were substantial for the customers as well as for the banks themselves. The LIBOR rate influences not only the interest rates for interbank trading but also for loans and savings. Therefore banks, households and companies all over the world were affected. Analysts at the US bank Morgan Stanley estimated that the damage caused by the manipulation to the global economy was worth EUR 14 billion[1] (Süddeutsche Zeitung 2012). In addition, the analysts expected the total liability costs for Deutsche Bank to be more than EUR 1 billion, consisting of the fines as well as the damages paid to other banks and investors. Not to mention the proceedings against several traders that will probably entail long terms of imprisonment, as happened in the case of Tom Hayes, who was sentenced to 14 years imprisonment (see Subsection 2.1).

The market for credit default swaps is under investigation, too (European Commission 2013a). In July 2013, the Commission informed 13 investment banks and the International Swaps and Derivatives Association (ISDA) as well as Markit, a data service provider, of its preliminary

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[1] This calculation is based on the assumption that the LIBOR was manipulated downwards by 0.1 percentage points for four years since the actual manipulation cannot be retraced.

conclusion that they had exploited their market power to prevent some stock exchanges from entering the market for credit default swaps. Deutsche Börse and the Chicago Mercantile Exchange attempted to enter the business for credit derivatives between 2006 and 2009. The Commission's preliminary findings indicate that ISDA and Markit sought to prevent this by refusing some necessary licenses for exchange trading because of the banks' pressure. In fall 2015, the proceedings were still on-going.

Table 1 provides an overview of the cases, listing among others the fines imposed on the banks and the probable causes for the infringements. Furthermore, it indicates that the utilisation of the EU's leniency program and the settlement procedure is increasing.

Table 1 Competition law infringements in the European Union

Object	Period	Number of banks involved	Leniency Program	Settlement Procedure	Fines (in EUR Mio.)	Trigger
Interest rates, fees, prices, …	1995-1998	8	No	No	124.3	Change in legislation Expected change in profits
Exchange rate	1999-2001	5	No	No	100.8	Change in political situation Expected change in profits
EURIBOR	2005-2008	4	Yes	Yes	1,042.7 [2]	Employees incentives Process / System
JPY LIBOR	2007-2010	6	Yes	Yes	669.7 [3]	Employees incentives Process / System
CHF LIBOR	2008-2009	2	Yes	Yes	61.6	Employees incentives Process / System
Credit Default Swaps	2006-2009	13 (ISDA, Markit)	No	On-going proceedings	On-going proceedings	Change in competition Expected change in profits

3 Managing antitrust risks in banks

Having established the relevance of antitrust risks in the banking industry does not necessarily imply that banks already manage these risks optimally. This is why this section examines the benefits for a bank and its stakeholders from handling these risks. The section proposes a way for evaluating a bank's antitrust risks and measuring the associated costs of non-compliance. This allows for a comparison of the costs and risks of non-compliance to the bank's risk appetite in order to identify the appropriate level of antitrust risk management.

3.1 Benefits of antitrust risk management in banks

Various stakeholders of the bank likely benefit from antitrust risk management: Mainly shareholders, managers, and state agencies as representatives of other market participants. As already outlined in Subsection 2.2, the banking industry is very important for the overall economy since banking instability can have significant effects on other market participants. In

[2] Third highest total fine until September 2015.
[3] Eighth highest total fine until September 2015.

the past, governments have initiated several public support programs for fragile banks in order to hinder contagion (Vives 2010), particularly with a view to consumer protection (Carletti and Vives 2009). Therefore, effective risk management, including the management of antitrust risk, can help to stabilise the market and reduce the need for state support. As a result, state coffers would be less burdened. Thus, society and government also benefit from antitrust risk management in banks.

Senior managers may also have a personal interest in managing (antitrust) risks (Allen and Santomero 1998). They can be seen as undiversified investors who potentially exhibit behaviour that is driven by risk aversion since they have a vested interest in the banks continued existence (Hommel 2005). This is because their total investment, meaning their work effort, is put into the bank and they are responsible for its success. That is why senior managers benefit from implementing appropriate risk management measures, including the management of antitrust risks. In addition, violations of competition law can have legal and personal consequences for a bank's senior managers. As already outlined in Section 2.1 they may be fined both for infringements carried out by themselves but also for breaching their supervisory obligations. Under German and European Law the penalties are financial but one must bear in mind that directors' and officers' liability insurances do not normally cover these fines (Kasten 2011). In addition to the financial consequences, antitrust infringements can have personal consequences as well. They can impede career advancement or lead to social embarrassment (Parker and Lehmann Nielsen 2011).

Shareholders constitute a further group that benefits from antitrust risk management. We presume that shareholders are interested in maximising a bank's value respectively the dividends they receive, which can either be done by reducing the costs of capital or by increasing the future net cash flow (Culp 2001). Antitrust risk management influences both of these variables as is shown in the following.

A bank's future net cash flow can be increased since effective antitrust risk management prevents a bank from substantial cash outflows such as fines, damages, and litigation costs arising as a consequence of antitrust infringements. Avoiding these cash outflows improves the bank's solvency, lowers the probability of financial distress, and reduces the associated costs. This is expected to be especially important in regulated industries like the banking industry (Allen and Santomero 1998). Managing antitrust risks properly may also increase future net cash flows because a better management of these unproductive risks allows taking a greater number of productive risks that are expected to generate cash inflows. In other words, if the

total risk tolerance of a bank is exhausted, the reduction of antitrust risks can release new capacities to take on productive risks. Antitrust risk management is also beneficial with regard to other factors that have the potential to increase a bank's net cash flow. Related financial institutions, for example, can be expected to make more flexible and long-term contracts (Stulz 1996) if the probability of financial distress is mitigated. Moreover, it may be easier to hire highly qualified employees and managers resulting in better services. Furthermore, customers, who are aware of antitrust issues because of media coverage of infringements, might be more willing to buy products from banks that have obeyed the laws.

In addition to the enhancement of the future net cash flows, the costs of capital can be lowered by antitrust risk management, because financial distress is less likely to occur. As a result providers of capital can be expected to demand a lower risk premium.

A low visibility of antitrust risk management efforts may be seen as one obstacle to realising the positive effects listed above. If there is asymmetric information about compliance efforts it may be difficult for stakeholders to see which bank manages antitrust risks both efficiently and effectively. Therefore, it is relevant for banks to communicate the implemented antitrust risk management measures actively to relevant stakeholders. In this context, it is important to demonstrate that a bank does not only spend resources on these measures but to assure shareholders and stakeholders that the quality of risk management is high. Engaging in antitrust compliance and communicating these efforts pro-actively may be especially important for banks whose employees have infringed antitrust laws in the past.

Learning about a bank's investment in antitrust compliance, some shareholders might argue that banks should not waste resources on antitrust risk management because shareholders can mitigate that risk by means of diversifying their portfolios. This line of reasoning is wrong for at least three reasons.

1. Effective antitrust risk management does not only lower the variance of net cash flows but also raises the expected net cash flows and, thus, the value of the bank. Only the first effect can be achieved by portfolio diversification, but not the latter.
2. Antitrust risk management is a complement of and not a substitute for portfolio optimization strategies. Neglecting antitrust compliance efforts raises the risk that cartels are established, which by their very nature include many if not all firms in an industry. This eliminates diversification strategies where an investor buys shares of several firms in the same industry. Hence, portfolio risk can only be reduced when buying shares of firms in different industries, which requires costly information about

these industries. This is different when the banks engage in antitrust risk management that lowers (and ideally eliminates) industry-specific antitrust risks. This allows investors to diversify portfolio risks by buying shares of firms in the industries whose risk they can assess best.

3. Given the secretive nature of antitrust law violations it must be assumed that investors cannot perfectly evaluate a bank's antitrust risk (Hommel 2005). Thus, they are not able to optimize their portfolio accordingly and it would therefore seem more sensible for a bank to manage these risks.

To summarize, it is rational for potential shareholders to invest in banks that manage antitrust risks properly rather than investing in those who do not. Consequentially, it is rational for banks to invest in antitrust risk management in the first place.

3.2 Costs of non-compliance

The purpose of defining a bank's costs of non-compliance is to determine a bank's exposure to antitrust risks in order to determine the appropriate risk response, that is, the optimal composition and intensity of compliance activities. Therefore, the calculation should be as precisely as possible. These costs, which we will refer to as the costs of non-compliance (CN), consist of fines (F), damages (D) and litigation costs (L) that a bank has to pay in the case of external detection and conviction. Antitrust infringements also cause additional costs (C_{ad}) which will be explained later on. The costs of non-compliance can be expressed by the following equation (Paha and Götz 2016).

(1) $$CN = F + D + L + C_{ad}$$

Fines (F) for non-compliant behaviour are calculated on the basis of the duration of the infringement and the annual sales of the product concerned by the infringement. In the European Union certain aggravating factors, for example, being the ringleader of the infringement, a repeated offence, or the obstruction of investigations may lead to higher fines. Conversely, limited involvement in a cartel or a legislative encouragement to commit infringements by authorities and regulators can lead to a reduction of the fine. The total amount of the fine is capped: A fine will not exceed 10% of the overall annual turnover of the company. A bank can be fully exempted from a fine if it takes part in the EU's leniency programme. The fine can also be reduced by 10% if the bank agrees to the Commission's settlement procedure (European Commission 2011). Because of the potential increases or reductions in the fine, the value of fines is subject to risk and cannot be precisely calculated in advance.

The costs of non-compliance include damages (*D*) because in the European Union any citizen and any business has the right to be fully compensated for harm caused by an antitrust infringement (Directive on Antitrust Damages Actions (2014); § 33 (3) GWB). These damages depend on the total loss incurred by the claimant, including the payment of interest for the period of the infringement until the time the damages are paid. Even if a bank is a leniency applicant and is therefore exempted from fines, it may have to pay damages. Through the Directive on Antitrust Damages Actions of 2014, the European Union has recently strengthened customers' rights in this area. Therefore, estimates of damages are necessarily imprecise because the development of judgements on damages remains to be seen. However, it is likely that damage payments will increase.

Litigation costs (*L*) are the costs that arise from being involved in a lawsuit. Among others, they consist of court and lawyers' fees. They also include the costs for internal investigation. Hence, litigation costs depend on the progress of the proceedings. The more complex and lengthy the proceedings, the higher the expected litigation costs. In the case of the Lombard cartel, for example, four years elapsed between the day of the first investigation in June 1998 and the Commission's decision in June 2002. Furthermore, the proceedings in the credit default swaps market were officially opened in April 2011 and they were still on-going in fall 2015. In contrast, in the YIRD cartel case the official opening of the proceedings was in February 2013 and due to the settlement procedure they lasted only until December 2013. This also shows that a settlement procedure is useful not only for reducing fines but also for reducing litigation costs.

In addition to fines, damages and litigation costs, a firm may face additional costs (C_{ad}). First of all, a bank's value can fall in response to the cessation of anti-competitive agreements (Aguzzoni et al. 2013). The termination of an effective cartel presumably reduces a bank's future profits. Secondly, changes in profits can also arise when a bank loses clients because of its role in the conspiracy, i.e. residual demand falls. Thirdly, additional costs may arise because of the need for internal reallocation of resources since managers and employees have to spend time on the internal investigations and analyses instead of their actual obligations (Parker and Lehmann Nielsen 2011). Fourthly, a bank's reputation may suffer. This may overlap to a certain degree with the loss of customers mentioned above. Note that measuring such reputational effects is a subjective exercise. More research on this topic is needed to substantiate both the general existence of such effects and the extent of their impact.

In the preceding paragraph, the costs of non-compliance (*CN)* were defined from a bank managers' viewpoint. Another way of defining the costs of non-compliance is to take the

owners' viewpoint and express the costs as the difference in a bank's value. As the banks participating in the cartels described in Subsection 2.3 are stock corporations one might, for example, conduct an event study and compare the value of the bank before information about its participation in the infringement has been revealed to its value after the dissemination of this information. In addition, measurement issues in the estimation of the costs of non-compliance may be affected in the following ways: Firstly, shareholders may have different and – given their information disadvantage – probably worse information than managers about the likely value of fines (*F*), damages (*D*) and litigation costs (*L*). Secondly, measuring the additional costs (C_{ad}) is even harder because its components are less clearly defined. Thirdly, shareholders may discount profits at a different rate from managers, which may lead to divergent estimates of the costs of non-compliance (*CN)*, and disagreements about the appropriate compliance response to prevent such forms of misconduct from the outset. This may also affect the bank's ability borrow on capital markets, which may potentially be added as a further component to the additional costs (C_{ad}).

The higher the costs of non-compliance (*CN*) a bank faces, the greater the motivation to manage antitrust risks and to increase the intensity of antitrust risk management activities. Additionally, the extent of activities depends on the likelihood of an infringement of competition law occurring within the bank. Therefore, a possible approach for defining a bank's antitrust risk will be presented now.

3.3 Residual risk of antitrust

An approach for identifying antitrust risks in banks can be based on the compliance audit risk model (Paha and Götz 2016). The model is based on the audit risk model, consisting of inherent risk (*IR*), control risk (*CR*), and detection risk (*DR*). By considering not only the risk of an occurrence of anti-competitive behaviour but also the risk that this behaviour remains unhampered and undetected despite all the controls in place, the residual risk (*RR*) of competition law infringements for a bank can be defined as follows:

$$RR = IR1 \cdot IR2 \cdot CR \cdot DR \quad (2)$$

IR expresses the risk of anti-competitive conduct occurring in the absence of any preventive systems or measures at the bank. It can be divided into *IR1*, which reflects the suitability of the business environment for collusion and *IR2*, which describes triggers for the occurrence of non-compliant behaviour.

In order to evaluate *IR1,* factors facilitating collusion should be analysed. Typical factors to be considered in this context are, inter alia, market concentration and product homogeneity (Motta 2009). As already pointed out in Subsection 2.2, market concentration is on the rise in the banking industry and products in retail banking are standardised with only small differences, all of which favours collusive behaviour. Another important factor for evaluating the possibility of collusion is the potential stability of a cartel. First of all, cartel stability depends on the potential financial rewards in the case of adherence, defection or whistleblowing. Since the establishment of the EU leniency programme in which the whistleblower is exempted from fines, the financial rewards of adherence to the cartel must outstrip those of choosing to blow the whistle in order for a cartel to continue. The European Union has thus reduced potential cartel stability. Other significant variables are the number of participants in the cartel and the probability of external detection. The higher the number of participants, the lower is cartel stability because it typically increases the motivation for a participant to leave or detect the cartel. The probability of external detection depends on the resources and efforts of the responsible authority, which are both increasing in the European Union as outlined before.

While *IR1* describes the market's overall suitability for collusion, *IR2* expresses the probability that changes in the market environment affect the current situation and trigger collusion. The simple fact that a business environment is suitable for collusion does not necessarily mean that collusive behaviour will actually occur. Götz et al. (2015) suggest that the emergence of specific triggers ultimately leads to collusive behaviour. In their article they distinguish between various triggers: Changes in demand, changes in competition, changes in profits, employee motivation, or information about the legal environment. By examining the antitrust infringements presented in Subsection 2.3 it can be seen that these triggers help to explain the occurrence of the infringements. The Lombard cartel can be explained, inter alia, by the change in the legislative environment. Furthermore, the cartel members feared changes in profits due to price and interest rates developments. The exchange rate cartel was formed because of the abandonment of national currencies in favour of the Euro leading to lower profits in expectation. Employee motivation can be seen as a trigger for the LIBOR and EURIBOR cartels since employees manipulated the calculations with regard to their own interests, for example, for increasing their speculative profits. Expected changes in competitive conditions and the resulting changes in profits are assumed to be responsible for the suspected non-compliant behaviour in the credit default swaps market. It should be noted that some factors, for example market entry and buyer power, which are generally expected to increase competition and therefore decrease the likelihood of collusion, can instead be triggers for collusive behaviour (Paha and Götz 2016).

An increase in competition typically leads to lower competitive profits and may thus raise the additional profits that can be earned from escaping this situation by starting a collusive agreement. In this case, competition-fostering factors would lower *IR1* and simultaneously increase *IR2*, which also shows the links between both variables.

CR expresses the risk that anti-competitive behaviour will occur despite all the compliance activities within the bank. These activities include various measures, processes and controls (e.g., hotlines, training, appropriate payments schemes), which have to be coordinated to avoid control gaps as well as overlaps. Thus, internal control systems are needed in order for compliance activities to be efficient and effective. Additionally, appropriate risk management is essential for assessing *IR1* and *IR2*, so that all control activities can be adjusted to the current risk situation. Implementing more or better control activities can lower *CR*. Implementation will depend on available resources, knowledge of potential threats, and the current risk situation. The absence or failure of necessary controls will, in turn, increase *CR*. Further recommendations on managing *CR* and implementing appropriate internal structures are provided in Section 4.

The variable *DR* represents the risk that non-compliant behaviour remains undetected even though internal audits have been implemented. This risk is, similar to *CR*, dependent on the resources available for executing these monitoring activities as well as on the quality of the risk assessment process. If a bank succeeds in adjusting its monitoring activities properly, *DR* can be decreased. However, if the implemented audits do not achieve their aim or are insufficient, *DR* will increase. When assessing *DR*, managers have to consider a trade-off between too much and too little monitoring. The latter will lead to an increase in *DR*, thus, anti-competitive conduct is more likely to remain undetected, whereas the former can create an overly intrusive business culture and reduce employees' motivation. Moreover, it will be very costly, which is why it is important to strike the right balance.

By combining the residual risk (*RR*; see equation (2)), the costs of non-compliance (*CN*; see equation (1)), and the probability *p* that the cartel is detected and convicted, it is possible to determine the expected costs of non-compliance (*EC*).

$$EC = CN \cdot RR \cdot p = (F + D + L + C_{ad}) \cdot IR1 \cdot IR2 \cdot CR \cdot DR \cdot p \qquad (3)$$

3.4 Risk appetite with regard to antitrust risks

The expected costs of non-compliance (*EC*) will be compared to a firm's risk appetite (*RA*) that can be defined as "the amount of risk, on a broad level, an entity is willing to accept in pursuit

of value. It reflects the entity's risk management philosophy, and in turn influences the entity's culture and operating style" (COSO 2004). By setting boundaries, *RA* determines the balance of value creation and value protection activities. *RA* must be defined so that aims and actions within the bank can be aligned. Therefore, it is the basis for making strategic decisions and for adjusting the internal control system. Risk-seeking or risk-neutral organisations have a higher *RA* than risk-averse organisations, and vice versa. However, a "standard" or "correct" *RA* does not exist (Rittenberg and Martens 2012); in each case it has to be defined individually by considering the bank's current overall risk situation and objectives and obligations to shareholders.

Once a risk appetite is defined it has to be communicated, monitored and updated (DeLoach and Thompson 2014). It is not an on-off event but rather an iterative and dynamic process, in which changes in the business environment should be considered. Risks will be accepted up to the level of the *RA* and they will only be reduced to this level. Therefore, the risk appetite in the case of antitrust should always be equal to or greater than *EC* otherwise the value of some of the parameters defining the expected costs of non-compliance must be reduced.

$$RA \geq EC \geq CN \cdot RR \cdot p \geq (F + D + L + C_{ad}) \cdot IR1 \cdot IR2 \cdot CR \cdot DR \cdot p \quad (4)$$

Since most of the variables are exogenous and cannot be influenced by the bank, *RA*, *CR* and *DR* are the only components that can be managed internally. Given that the *RA* of a bank will be defined on the basis of its overall risk situation, it is likely that the bank will initially concentrate on managing the components *CR* and *DR* to influence *RR* and *EC* respectively. For an effective management of *CR* and *DR* it is necessary to build a governance, risk and compliance structure that ensures coordination and a genuine focus on these risks as is explained in Section 4.

4 Integration of antitrust compliance structures

Organisational and operational antitrust compliance structures should mitigate the risk of a competition law infringement. Subsection 4.2 shows, that this can be done by implementing appropriate controls to prevent misconduct (i.e., by lowering the control risk *CR*) or by engaging in measures to detect misconduct internally (i.e., by lowering the detection risk *DR*). Therefore, it is necessary to allocate responsibilities for coordinating the risk management and

compliance efforts in order to avoid repeating or omitting activities. This can be done on the basis of the Three Lines of Defence model as is shown in Subsection 4.1.

4.1 The Three Lines of Defence model for corporate antitrust risk management

The Three Lines of Defence model sets out the structures required for managing risks in an organization and is therefore also applicable to managing antitrust risks in banks. It is a model for governance, risk, and compliance and thus seeks to coordinate activities related to risk and control. It defines clear responsibilities and roles for the First, Second and Third Line of Defence, so that gaps as well as unintentional duplications of effort are avoided. Risk-related information should be regularly collected, analysed and used for designing and implementing a bank's control and audit activities. Moreover, this information has to be documented and reported to senior management and the board of directors, which are responsible for the functioning of the governance structure, albeit without being directly part of the three lines.

The First Line of Defence is found at the operational level. Internal control processes, which are designed to identify and assess relevant risks, are implemented and adjusted to reflect day-to-day business. Responsibilities are shared by front-line and middle managers who are able to influence activities and processes directly. Since they understand everyday operations they will be able to provide valuable information with regard to the assessment of the inherent risks *IR1* and *IR2*. Therefore, it is essential that managers at the operational level should be included in the process of defining the residual risk of antitrust. Furthermore, they will also be able to assist with the design and execution of controls that respond best to the relevant risk. They should also identify inadequate processes and improve them. Thus, they are expected to work together with the Second Line of Defence.

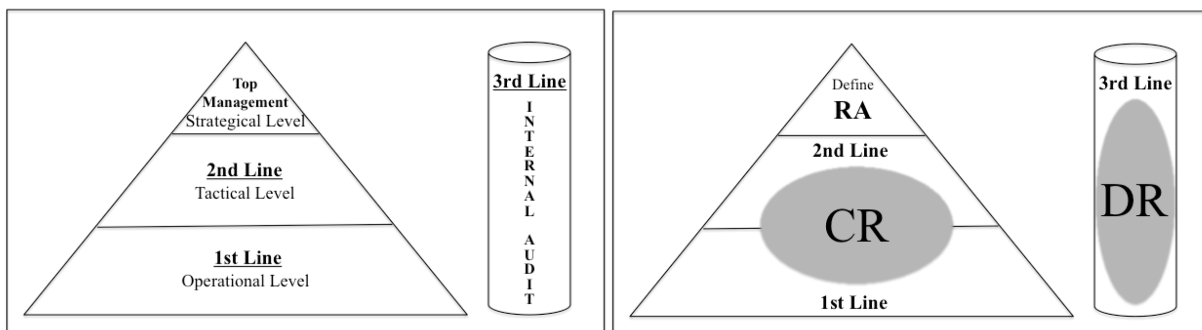
The Second Line of Defence primarily provides risk-related guidance and oversight for the First Line (Eulerich 2012). It therefore requires a certain degree of independence. That said, the First and the Second Line are not subject to strict separation. They must align their processes and work together closely in order to combine the First Line's knowledge of business operations and the Second Line's knowledge of risk management and compliance in order to increase the effectiveness of their activities (Anderson and Eubanks 2015). Managers from, for example, the risk management and compliance units are responsible for the activities of the Second Line, but they are still subject to senior management's instructions. They guide the First Line concerning risk management and compliance issues. Additionally, they monitor the controls implemented in the First Line and determine their effectiveness. They also collect and aggregate

business related information and provide it target-oriented to senior management. Together, the First and Second Lines reflect the internal control system of a bank. Designing the internal control system appropriately lowers the risk *CR* that infringements occur despite the implementation of these controls. Thus, managing *CR* takes place in the first two lines of the Three Lines of Defence model.

The Third Line of Defence has an internal assurance and consulting function (Anderson and Eubanks 2015). It shall be organisationally independent and objective in its activities. It is neither responsible for designing and implementing the controls, nor does it undertake management functions. Instead, it evaluates the processes and controls undertaken by the First and Second Line because it reviews their design, planning, supervision, documentation, and operational effectiveness. It reports its results directly to the board. Additionally, it points out how control activities can be improved. The risk that an infringement is not detected internally (*DR*) reflects the (in)effectiveness of internal audits. Therefore, management of *DR* is placed in the Third Line of Defence. It should be a priority for all organisations to establish a professional internal auditing system, since it is essential for the effectiveness and efficiency of overall risk governance (Anderson and Eubanks 2015).

The left-hand side of Figure 1 shows one way of illustrating the Three Line of Defence model. The right-hand side shows how the risk variables *CR* and *DR* fit into this model. The following analysis focuses on managing *CR*.

Figure 1 Implementing the management of *CR* and *DR* in the Three Lines of Defence model



4.2 Managing antitrust risks in an internal control system

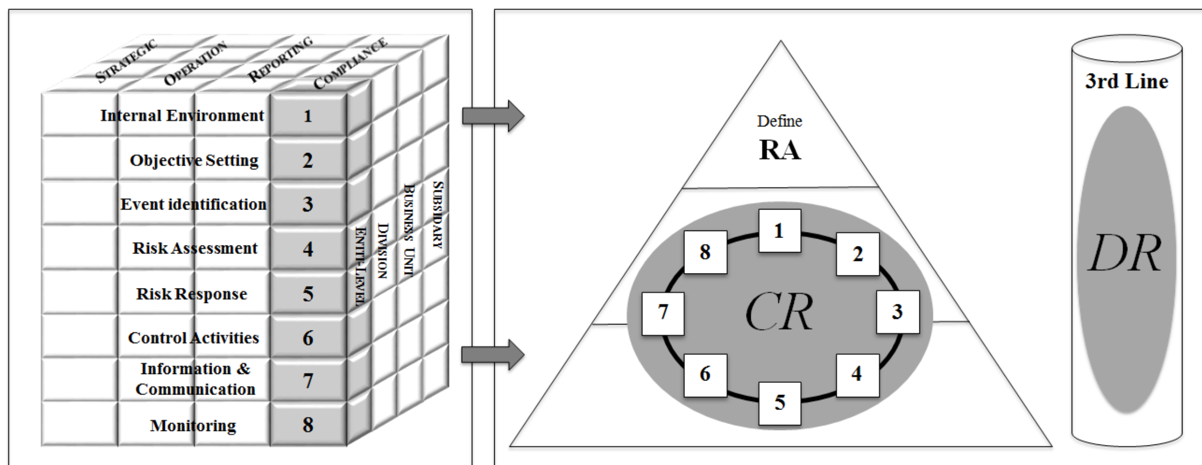
An internal control system is required to manage the control risk (*CR*). Such an internal control system consists of principles, processes and actions that are in place to implement decisions taken by senior management to ensure that business activities are efficient and effective (Melcher and Eckert 2014). The structure of an internal control system can be based on existing frameworks such as COSO I (published in 1992) and COSO ERM (published in 2004),

developed by the Committee of Sponsoring Organisation, or ISO 31000, developed by the International Organization of Standardization. In this article, activities for managing antitrust risk are presented on the basis of COSO ERM because of its enterprise-wide and strategic approach.

COSO ERM is often presented as a cube (see Figure 2). The four objectives of an entity are called Strategic, Operations, Reporting, and Compliance. These objectives are presented in the first dimension on top of the cube. According to the framework, an entity needs to consider eight components in order to achieve these objectives: Internal Environment, Objective Setting, Event Identification, Risk Assessment, Risk Response, Control Activities, Information & Communication, and Monitoring. These components are illustrated in the second dimension at the cube's front. The third dimension consists of the different business units of an entity. Thus, following this framework a bank can achieve antitrust compliance if it targets the eight components in each business unit to this objective.[4]

Antitrust risk management activities, including controls and other preventive measures, shall ideally be established in these eight components. In the following, we explain these activities, which aim at achieving antitrust compliance, and link them to the Three Lines of Defence model.

Figure 2 Managing the control risk (*CR*) with COSO ERM



The **Internal Environment** is the foundation for all the principles, processes and activities that are implemented in a bank. It is important that the bank creates an awareness of the relevance of antitrust risks within all business units and among all employees. Thus it is important for a bank to develop a strong culture of compliance with, e.g., competition laws. This is, as every

[4] The dimension of business units is not discussed in this article since the design of the units varies across entities.

change or development in corporate culture, a long-term process. A first step could be to establish a code of conduct. A code of conduct sets out the bank's attitude towards competition law infringements and supports employees' decision-making during day-to-day business by defining the desired behaviour in relevant situations, for example contact with competitors as well as behaviour in association meetings. Another important factor is the involvement of the management. The so-called tone at the top is an important signal to all employees. If senior managers personally and proactively encourage compliant behaviour then the subject is taken more seriously (International Chamber of Commerce 2014). Thus, senior managers should act as role models so that employees understand that this is the behaviour expected of them. Moreover, internal incentive schemes should not reward non-compliant behaviour. For example, in 2009 Deutsche Bank approved a bonus of EUR 80 million for Christian Bitter, who played one of the leading roles in the LIBOR scandal, for profits made by speculating (Handelsblatt 2013). When this became public the bank was heavily criticised for setting the wrong incentives. The backbone of all the efforts undertaken in this component is an organisational structure that is adjusted to the size of the company and that facilitates controlling and monitoring business activities. This also includes the provision of adequate resources according to the proportionality principle.

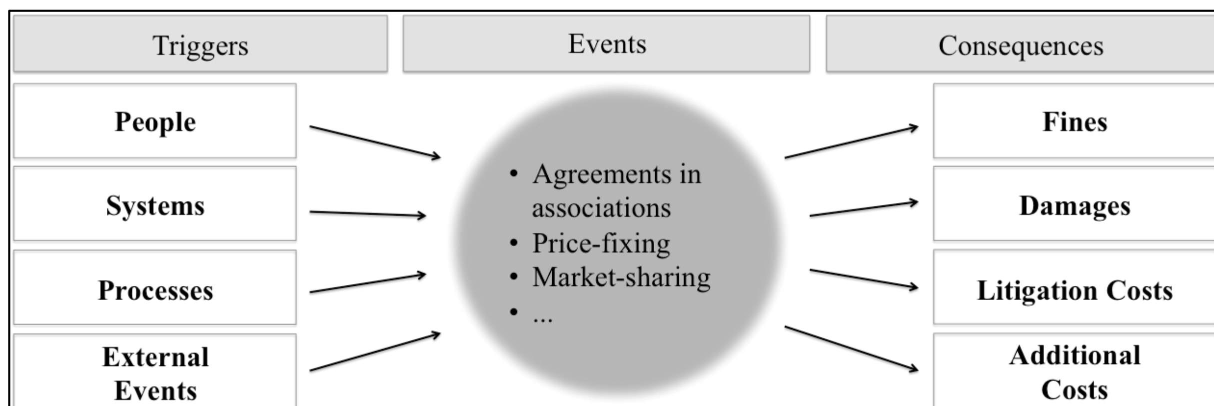
The component **Objective Setting** takes place at the Second Line of Defence. It is meant to assemble and disseminate knowledge and information to help the board of directors define the level of risk they are willing to accept, i.e., their risk appetite. This requires taking into account the organisation's aims, philosophy and ethical values. Moreover, it establishes strategic objectives, such as market entry or research and development activities, taking into consideration their influence on the risk situation and risk appetite (DeLoach and Thompson 2014). Therefore, Objective Setting has both a supportive function for the strategic level and a guidance function for the operational level.

Event Identification aims at determining potential events that prevent an organisation from achieving its objectives such as ensuring compliance with antitrust laws. Such events are all kinds of competition law violations such as different forms of agreements or information-sharing between competitors. It does not matter whether the infringement came about deliberately or unintentionally. Events that should be considered are, for example, agreements within associations, price-fixing agreements as well as agreements on market shares (see Subsection 2.1). Other events might be the exchange of information on future strategies or coordinated activities between banks to deter the entry of potential rivals into the market, as happened, for example, in the credit default swaps case (Subsection 2.3). The events should be

defined by taking into account the First and Second Lines of Defence so as to combine practical and theoretical knowledge about potential occurrences.

Risk Assessment aims at evaluating risks and their consequences. It forms the basis for the allocation of compliance efforts and resources. The Bow-Tie diagram (see Figure 3) is a useful means to illustrate the risk assessment process. It distinguishes between drivers of undesired events, which have been defined in the component Event Identification, and their consequences. One possibility for defining drivers and consequences of antitrust law violations has been proposed in Subsections 3.2 and 3.3, using the variables of the residual risk of antitrust (*RR*) and the costs of non-compliance (*CN*). It is efficient to employ an established risk assessment framework. For example, one may use the four sources of operational risks (i.e., people, systems, processes, and external events; see Figure 3) as defined by the Basel Committee. Considering the antitrust cases presented in Subsection 2.3, the trigger categories *People* and *External Events* are especially important in this context.

Figure 3 Bow-Tie diagram



With regard to the category *People*, the bank has to identify unintentional or purposeful wrongdoing by employees. The unintentional wrongdoing may be caused by a lack of knowledge or by inattention. The reasons for purposeful wrongdoing can be analysed using the Fraud-Triangle, which was developed by the US criminologist Donald R. Cressey in the 1940s to identify the causes of crime. The three sides of this triangle are Opportunity, Motivation and Rationalisation. This means that deliberate non-compliant behaviour is likely to occur if the situation allows for such behaviour (Opportunity) and if personal motives exist (Motivation), for example, the prospect of financial reward. Moreover, it must be possible for an individual to justify this behaviour to oneself (Rationalisation). The bank should strive for a mitigation of these factors in order to avoid deliberate infringements. For example, the bank should implement control activities that minimize the opportunities for wrongdoing (see below in this

section) or the bank could devise incentive schemes with the objective to align individual incentives with the adherence to competition laws.

The category *External Events* covers developments that threaten competition and events in the economic and geopolitical environment. Such triggers could be changes in interest rates, as could be observed in the Lombard-cartel, or entry into the market, as in the suspected infringement in the credit default swaps market (see Subsection 2.3). Other external events that may lead to non-compliant conduct are technological progress or changes in customer needs and expectations.

It is important to identify these potential drivers so as to counteract them and avoid competition law infringements before they occur. After identifying these *Triggers*, the *Consequences* of non-compliant behaviour have to be estimated, which can be done by considering the fines F, damages D, litigation cost L, and additional costs C_{ad} (see Subsection 3.2).

Finally, it is important to prioritise the business units as well as managers and employees with the greatest risk potential so that control activities and resources can be allocated accordingly. In general, front office will face significant risk. Moreover, the focus should be on all managers and employees who are in contact with competitors or have knowledge of future strategies and prices. In this context, the examples of cartels given in this article indicate an increased risk for traders. Senior management and members of the board of directors can be no exception, although it can be difficult to subject them to control activities. Senior managers and directors are frequently involved in any anti-competitive activities (Jäkel 2015), as was the case in the Lombard cartel (see Subsection 2.3).

In the component **Risk Response**, the organisation has to decide how to handle the risks it has identified taking into account its risk appetite. The desired risk response forms the basis for all further activities. While COSO I focuses on general risk reduction, COSO ERM states that an organisation can react in four ways (DeLoach and Thomson 2014). Firstly, it may decide to accept the risks at their current level without taking any action. This response is to be expected if the bank's risk appetite is above the residual antitrust risk. Secondly, the organisation could avoid the risk, for example by avoiding any contact with competitors or by exiting markets with great risk potential. Such a reaction is warranted if the bank's risk appetite in terms of antitrust law violations was zero. Deutsche Bank, for example, left the market of precious metal trading in 2015 (Handelsblatt 2015b). Since no official reason was announced, it is not clear whether this decision was caused by the recurrent trading scandals in this market. Maybe it is just a coincidence that only one month later the Swiss competition authority reported investigations

in the precious metal market suspecting a price fixing cartel (Handelsblatt 2015c). Thirdly, risks can be reduced to an acceptable level by Control Activities that are explained in the next paragraph. Fourthly, risks can be reduced by being shared or outsourced. This is hard to achieve in practice when it comes to antitrust risks. The latter two types of risk responses are to be chosen if the residual risk of noncompliance exceeds the risk appetite. The component Risk Response is placed in the First and Second Line of Defence. Whereas the First Line is responsible for the execution of the risk response, the Second Line decides on the right risk response at a management level.

The component **Control Activities** describes the implementation of processes and measures as well as the definition of instructions, in particular for the operational level. Thus, the component can be placed in the First Line of Defence. Training is an efficient and effective measure that is commonly used. Training courses should be tailored to different business units and levels of the bank so that only relevant information is communicated, and the intensity of training can be adjusted to the participants' risk potential. For this purpose, variations in the frequency of the training courses or in their design are possible. Course participants can be physically present or take courses online. Training can be interactive or take the form of a lecture. Furthermore, the implementation of the four-eyes principle or the rotation principle can be used to restrict the authority of individual employees. Control activities should be tailored to a bank's specific risks and needs (for more information see International Chamber of Commerce 2014, Karbaum 2010, and Kasten 2011).

The task of the component **Information & Communication** is to provide a system that gathers relevant information and ensures its timely transmission. Therefore, appropriate IT-systems are necessary. Banks are obligated to provide an annual compliance report. This annual compliance report might also be useful for communicating the compliance efforts to stakeholders. For this reason it can be considered to publish the report on the bank's webpage. In addition, it might be reasonable to create shorter, quarterly reports. These reports provide a regular overview to the board of directors and managers (International Chamber of Commerce 2014). The component Information & Communication should also develop and maintain an internal whistleblower system. Every employee should have the possibility to report antitrust activity or suspected cases internally. Thereby, confidentiality and anonymity have to be ensured. Furthermore, whistleblower systems can be expanded to business associates and competitors to broaden their scope and enhance their effectiveness.

The purpose of the component **Monitoring** is to evaluate the effectiveness of the internal control system (Melcher and Eckert 2014). The component can be placed in the Second Line of Defence, which primarily monitors the processes and measures implemented in the First Line. Processes and activities that were once appropriate can become less so due to, for example, changes in the business environment. It is therefore important to review them regularly. The most efficient monitoring activities are unexpected and ideally performed on a random basis. As a result, they not only reveal problems but also have a deterrent effect. Monitoring activities can include, inter alia, interviews with employees or reviews of documents. In order to optimise employees' behaviour in case of an official investigation, a bank can undertake so-called mock dawn raids which simulate official investigations. In this way employees' behaviour during an investigation can be tested. Feedback on mock dawn raids should be provided at subsequent training sessions for increasing their effectiveness.

In addition, the literature recommends appointing a compliance officer who is in charge of all compliance-related activities (Karbaum 2010, International Chamber of Commerce 2014). The compliance officer is the head of the compliance department, if one exists, and thus guides and monitors all antitrust compliance activities. Moreover, the compliance officer is the contact person for the board of directors, management and employees regarding antitrust issues. Alternatively, a bank can authorise a professional outside the bank, typically a lawyer, to take on the role of compliance officer (Karbaum 2010). This can be advantageous in the case of official antitrust investigations because communication with and information held by an external lawyer is protected by legal privilege. Moreover, an external ombudsman can also ensure a higher level of anonymity, which is beneficial if employees fear the personal consequences of seeking assistance.

By considering the recommended activities and aligning them to the structures of COSO ERM and the Three Lines of Defence model, the control risk (*CR*) can be managed both effectively and efficiently. This is because our recommendations ensure that the antitrust compliance process may (and should) be integrated in the bank's overall risk management activities.

5 Conclusions

Although banks are at the forefront of compliance, many of them concentrate on the prevention of financial crime, money laundering, and corruption. This article suggests that there may be an unexploited potential for managing antitrust risks that may be as important for banks as the management of these other forms of misconduct.

Our article makes three contributions. Firstly, we show that violations of antitrust laws are as prevalent in the banking industry as in other industries, and that they may have severe consequences for banks as well as their shareholders and managers. Secondly, the article proposes a framework for assessing and managing both antitrust risks and their consequences more effectively. Thirdly, it shows how this can be done most efficiently by integrating these efforts in existing risk management structures.

In terms of risk assessment, one finds that the negative impact of antitrust violations is easily underestimated. In addition to fines worth several hundreds of millions EUR, banks must also be prepared to make repayments for damages that have become increasingly important in Europe since the European Commission published its Green Paper on damages actions in 2005 (European Commission 2005) and the Directive on Antitrust Damages Actions in 2014. Moreover, case handling may take years and withdraws management resources from potentially more productive activities. Customers might additionally consider information about antitrust violations as a signal of misconduct also in other respects and possibly terminate business relationships with the bank. In the light of these costs and future cash-outflows, shareholders might consider investment in non-compliant banks more risky and demand a higher risk premium in the form of higher dividends.

Anticompetitive conduct is not only costly for the bank and, thus, its shareholders. It also has serious consequences for bank managers who are fined individually and – in jurisdictions like USA – may even go to prison. This may lead to social shunning and deteriorated career prospects. Preventing these consequences quite likely is in the interest of both the bank's managers and shareholders. Moreover, it is in line with the objectives of competition authorities and regulators who consider competition not only beneficial for banks' customers but may also regard it as a means for ensuring the stability of the banking sector.

Managing antitrust risks effectively requires a bank, first, to assess how conducive certain business segments are to antitrust violations generally and, second, what events within or outside the bank are most likely to trigger them. The risk assessment does not only require legal but also economic expertise. These inherent risks may be used to determine a bank's response to potential violations of antitrust laws. These are: Accepting the risk and the associated costs, eliminating the risk (e.g., by leaving certain markets), or managing the risk effectively. The latter can be done by implementing controls as preventive measures (appropriate payment/incentive schemes, training, guidelines, etc.) in combination with responsive measures such as the timely detection of misconduct by the internal audit function.

We point out that the costs of these measures may be low. Established frameworks such as the Three Lines of Lines of Defence model and the COSO ERM framework can be used to implement antitrust risk management most efficiently. For example, controls for preventing antitrust law violations may be implemented within the First and the Second Line of Defence. Moreover, integrating antitrust risk management into existing risk management structures establishes synergies by preventing redundancies. Using economic expertise to assess the risks of antitrust law violations thoroughly also helps to concentrate mitigating measures in the segments where misconduct is most likely to occur. This establishes an efficient allocation of resources.

More research would be desirable on the measurement of the opportunity costs of antitrust law violations. This mainly concerns non-monetary consequences like the diversion of management resources and a loss of reputation. Reputational concerns deserve greater attention because customers mainly rely on reputation with regard to product or service characteristics that cannot be observed easily; unlike prices, interest rates, or fees that are subject to the collusive conspiracies. One would need to establish that customers treat information about anticompetitive conduct as a signal about potential misconduct in other dimensions, too. These other product/service dimensions need to be identified more clearly.

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