

ACTA UNIVERSITATIS GOTHOBURGENSIS
ACTA PHILOSOPHICA GOTHOBURGENSIA 40

Weapons of Mass Destruction

Financial Crises from a Philosophical Perspective

Richard Endörfer



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Abstract

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Financial crises are severely destructive events. The Global Financial Crisis of 2008 sent sovereign states into a spiral of political unrest and caused millions of people to lose their homes, their jobs, their life savings, their health, and in many cases even their lives. But financial crises are not unavoidable natural events. They are the consequences of intentional human behaviour. To be more precise, they are unfortunate side-effects of everyday financial practices. If these practices are not carefully monitored and reined in, they can, in words borrowed from Warren Buffet, become “weapons of mass destruction”.

This thesis is an attempt at an interdisciplinary investigation of financial crises. It combines arguments from normative ethics, political philosophy, economics and law in order to discuss three questions at the heart of the public debate on financial crises: “Who is responsible for bringing about financial crises?”; “What precisely is wrong with practices that contribute to the risk of financial crises?”, and “What can be done to mitigate the risk of financial crises?”

A few key insights offered in this thesis are as follows: First, financial crises do not emerge because of the misbehaviour and greed of a few “bad apples”, rather, they are the result of “business as usual” within financial markets. Second, there are strong reasons for states to regulate financial markets heavily in order to prevent severe harm. Third, there are few good reasons to believe that consumers can be held morally responsible for contributing to financial crises.

List of Papers

- I. Endörfer, Richard. 2022. On the Wrongfulness of Bank Contributions to Financial Crises. Forthcoming in: Joakim Sandberg and Lisa Warenski (eds.): *The Philosophy of Money and Finance*. Oxford: Oxford University Press.
- II. Endörfer, Richard. 2022. Are Retail Borrowers Morally Responsible for Financial Crises? *Manuscript*.
- III. Endörfer, Richard. 2022. Should Market Harms be an Exception to the Harm Principle? *Economics & Philosophy* 38 (2): 221-241.
- IV. De Bruin, Boudewijn and Richard Endörfer. 2019. Freedom in Finance: The Importance of Epistemic Virtues and Interlucent Communication. In: Christopher Cowton, James Dempsey and Tom Sorell (eds.): *Business Ethics after the Global Financial Crisis: Lessons from the Crash*. London: Routledge.
- V. Endörfer, Richard. 2022. Contractualism, Risk and Compensation in Bank Resolution. An Application. *Manuscript*.

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This thesis has been a labour of love and hate. The love part should be fairly obvious: I love philosophy. I fell in love with the discipline way back in my teens and my adoration for it grows stronger every day, mostly thanks to having the opportunity of meeting all the people who contribute to it and share my passion.

The hate part I should explain. Writing a thesis is a process that stretches over several years. I ran out of energy more times than I care to admit. Whenever this happened, what always gave me the drive to go back and continue writing was finding out about how broken many aspects of our capitalist economic system are. Straightforward cases of fraud – such as the prominent Wirecard, CumEx, and Panama Papers scandals – share important features with the Global Financial Crisis of 2008. They all demonstrate how some people feel entitled to impose severe harms onto others and to abuse a potentially beneficial system for their own purposes. Moreover, the harm and abuse are typically hidden under a thick layer of opaque practices and even more opaque terminology. Thinking about these issues really gets me going. This is what gave me the energy to continue whenever I was in a slump.

The supposed justification of our capitalist system – which some hope will appease the public despite continuous problems of lack of oversight – is that free markets will lift everyone up. This type of narrative must be scrutinized to the fullest extent, and it must be done correctly. It must be done through a thorough and sustained analysis of the best evidence and arguments in favour of free markets, as well as the best evidence and arguments against them. Because it is only through an intellectually fair and maximally careful analysis that we can build a robust counternarrative to the prevailing ideology. This thesis is my attempt at a contribution to this counternarrative.

Before leaving you to the remainder of this book, I would like to take the opportunity to thank all the people that accompanied me throughout the process of writing it. I should perhaps apologize in advance for opening with a few pages of inside jokes, more informal language, and a tad of drama. Whoever may read this can rest assured that the rest of the thesis is more serious and ambitious.

First of all, I would like to thank Minerva Heintze, my mother. There is a very good reason for this. She will be extremely mad if I don't. So, dear Mama, thank you for 1) giving birth to me (which was very obviously a necessary step in producing this thesis), 2) for your (typically) unconditional love (see above, I'm glad I put you first here) and 3) for being a person that I do not consciously choose to look up to (I am a grown man after all) but who always leaves me in awe due to your sheer mental and emotional strength. There are few people like you, and I love you from the bottom of my heart.

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1. Introduction

In *Fairness in Practice*, Aaron James asks us to consider the case of a powerful bio-agent, which serves as a cheap source of energy, enabling economies worldwide to generate large savings and grow at an unprecedented rate. Unfortunately, the bio-agent is also highly dangerous: Long-term use will in regular intervals spread a debilitating disease, which does not only cause millions of lives to end prematurely, but also renders a large part of the socio-economically less well-off population unable to work. Economies contract, unemployment rates spiral out of control, and a whole decade of economic growth is lost. For three decades, the usage of the bio-agent was under strict regulation; an outbreak of the disease was prevented. But recently, international controls on the bio-agent weakened. As a result, outbreaks of the disease are expected to happen much more frequently. James ends the presentation of the case as follows: “Few would take the horrific view that we should tolerate continued substantial risk of disease pandemic just for a cheap energy source. The allegory, however, is more or less the story of recent financial globalization [...] and the disease is financial crises” (James 2012, 253).

Financial markets serve an important function in capitalist economies: They match market participants in need of resources for consumption or investment, i.e. borrowers, with market participants with excess resources, i.e. lenders. In essence, their function is to channel credit, i.e. debt, to its most efficient uses within the economy. This is where financial institutions enter the picture. What almost all financial institutions, including banks, money market funds, credit rating agencies etc. have in common is that they are intermediaries of credit. They guide where credit ought to be allocated by helping to reduce information asymmetries and transaction costs.¹ Credit rating agencies, for example, reduce information asymmetries by assessing borrowers’ creditworthiness. If a borrower is unlikely to repay

1 This is also known as the “intermediation theory of finance”. For discussion, see Bhattacharya and Thakor (1993) and Allen and Santomero (1997). To be more accurate, the financial system as we know it provides four types of services: Banking services, which include the acceptance of deposits and the provision of credit to households and firms; insurance services, which collect premiums and make payouts to policyholders; securities services, which structure transactions of financial claims and financial market infrastructure services, which provide, for example, clearing and settlement services for transactions (Congressional Report Service 2020, 1).

her debt, it is more efficient to allocate lenders' resources elsewhere.² Banks are institutions that reduce transaction costs by engaging in maturity transformation: They take in short-term credit in the form of deposits and use these deposits to provide loans to creditworthy firms in need of long-term financing. Without the bank as intermediary, it would be very costly for firms to find and obtain credit from depositors.³ At least, this is the simplified, standard story found in many economic textbooks that explain the function of financial markets and institutions. During the course of this thesis, it should become clear that financial markets are not mere vehicles for intermediation, they are also drivers of volatile credit expansions and contractions that have the potential to cause significant harm.

Financial markets can fail fatally in performing their central function of allocating credit. We refer to such grave failures as "financial crises".⁴ More explicitly, a financial crisis is a state of affairs in which the financial system catastrophically fails to match borrowers and lenders in an efficient manner.⁵ According to Laeven and Valencia (2008), no less than 124 financial crises occurred between 1970 and 2008. The arguably most prominent example is the infamous Global Financial Crisis of 2008 (GFC). The simple version of its story went like this: The crisis originated in the US subprime mortgage market. Due to easily accessible financing, US home prices nearly doubled from 1996 to 2006 (Tooze 2018, 44). The focal problem was that this increase in home prices was debt-fueled: Many Americans took out highly risky, so-called "subprime mortgages" to finance their homes. Subprime mortgages amounted to approximately 20% of newly issued mortgages in 2008 in the US (Jarrow et al. 2008, 4). These new types of mortgages were cheap early on but grew excessively expensive towards maturity. As a result, many subprime borrow-

² See also Diamond (1984) on the monitoring function of financial intermediaries.

³ This is the standard view on bank maturity transformation due to Hicks (1946). Recent commentators consider this view as highly controversial. For discussion, see Pettifor (2016, ch. 2).

⁴ There are various types of crises that can befall financial and economic systems. For examples, see Reinhart and Rogoff (2009). I would like to note here that not all economic crises are financial crises (even though the distinction might not be clear in most real world cases). An illustrative example is the economic crisis resulting from the Covid pandemic: Here, an event external to the global economy and more specifically, financial markets, was the main driver of a severe decrease in global output. Contrary to other economic crises, financial crises as understood here emerge primarily due to endogenous developments within the financial system.

⁵ This definition is taken from Mishkin (1991). Some economists prefer to provide quantifiable definitions of financial crises. Laeven and Valencia (2018), for example, speak of a financial crisis "when either (i) a country's banking system exhibits significant losses resulting in a share of nonperforming loans above 20 percent of total loans or bank closures of at least 20 percent of banking system assets or (ii) fiscal restructuring costs of the banking sector are sufficiently high, exceeding 5 percent of GDP" (Laeven and Valencia 2018, 5). For the purposes of this thesis, however, quantifiable definitions of financial crises are not necessary.

ers were unable to pay their mortgages back. These defaults on their own, however, were insufficient to bring about a financial crisis.

The real problem was that many parts of the global financial market were linked to the subprime mortgages via an alphabet soup of complex financial products (CDS, RMBS, synthetic CDOs, and so on). The link between these mortgages and the rest of the global financial market was securitization: Securitization is the process of creating new bond-type financial products based on assets that could otherwise not directly be transacted in the market, including mortgages (Admati and Hellwig 2012, 57). The total value of such bundled mortgage products, also known as mortgage-backed securities (MBSs), reached \$13.4 trillion in 2008 (FCIC 2011, 22). These products were sold all over the globe, offered high returns and were thought to be extremely safe. They were not. The underlying issue was that correlations between subprime mortgage default risks were significantly underestimated. Almost nobody in the world of professional finance (including the infamous credit rating agencies) assessed the risks thoroughly (White 2010).

By May 2008, 25% of all US subprime mortgages were missing payments (Bernanke 2008). As a result, many of the complex financial products whose cash-flow depended on subprime mortgages collapsed in value and left investors with the unexpectedly high losses. Additionally, the market for insurance on MBSs, so-called credit default swaps (CDSs), had grown excessively large: The world's largest insurer in this market, American International Group (AIG), held a \$2.7 trillion dollar portfolio of these insurance contracts. The degree of interconnectedness within the global financial system was unprecedented. Because financial firms both in the banking and shadow banking sector (financial firms that serve no depository function) standardly operated with too little capital to absorb the losses (FCIC 2011, xviii), panic spread quickly: With sufficient exposure to the subprime market, any financial firm could become insolvent and spread losses onto its various counterparties. Credit markets dried up, leaving many firms that depended on secure access to short-term credit without their life support. As a result, US financial sector profits fell from \$428 billion in 2006 to \$128 billion in 2008, and by 2010, 860 US banks ended up on the Federal Deposit Insurance Corporation's (FDIC) list of troubled institutions, the highest number since 1933 (FCIC 2011, 401). The panic that started in the US spread quickly throughout the entire global financial system and caused gigantic losses.

Going back to James' analogy of financial crises as diseases, in terms of economic losses, the only event comparable with the GFC in recent memory was an actual pandemic. The IMF estimates that global costs of the Covid pandemic will

rise to approximately \$12.5 trillion (Reuters 2022). Early conservative estimates of the costs of the GFC in terms of potential output loss in the US alone ranged from \$6 to \$14 trillion (Atkinson et al. 2013); more recent estimates reach approximately \$9 trillion (Barnichon et al. 2018), equivalent to a lifetime present-value income loss of \$70,000 for each US household. But these are merely the costs that can be straightforwardly expressed in monetary terms. There were other costs; costs that affected the trajectory of human lives. Around 35 million people globally lost their jobs (ILO 2009), 84 million people were forced into extreme poverty (World Bank 2010). Experts suggest that the GFC led to more than a quarter million excess cancer related deaths (Maruthappu et al. 2016) and a rise of 5% and 6.4% in suicide rates in European and American countries, respectively (Chang et al. 2013). On top of that, it has by now become clear that the GFC and early responses to it caused a dangerous shift in the political landscape that threatens Western democracy until today (Tooze 2018).⁶

The main takeaway message is simple: If misused, financial markets can transform into “weapons of mass destruction”.⁷ This is less of an allegory than one might initially think. Actual weapons of mass destruction have the potential to threaten the sovereignty of democratic states and kill people. The same can be said of financial markets that produce financial crises. Nonetheless, even given the threat of reoccurring financial crises, our financial markets provide services we have good reason to preserve. To function well, capitalist economies must be supplemented with important financial services such as depository services, insurance, central clearing and, most centrally, access to credit that permits participants in capitalist economies to build wealth and meet their basic needs during times of hardship.⁸ Given that we have reason to promote capitalist economies in general, we ought to reform financial markets and their regulatory environment, rather than abandoning them altogether.

There is a common presumption that financial crises are a proper subject of economics and economics alone. The presumption is understandable. Superfi-

⁶ This is famously not the first time that a global financial crisis threatens Western democracy. In an interview with Playboy, Paul Krugman reminded readers how the Great Depression of the 1930s ended: “The fact is the Great Depression ended largely thanks to a guy named Adolf Hitler. He created a human catastrophe, which also led to a lot of government spending” (Playboy 2012). On a sidenote, the very next day (I suspect in a desperate attempt at justification), Business Insider ran an article with the headline: “PLAYBOY: We Read It For The Paul Krugman Articles” (Ro 2012).

⁷ This is the term that Warren Buffet famously used to describe the destructive potential of so-called “derivatives” (Shen 2016).

⁸ For a defense of the right to credit, see Meyer (2018).

cially, financial crises are primarily economic events: Most salient explanations of financial crises will involve references to economic jargon, such as credit, demand, derivatives, investment, inflation, yield spreads etc. Yet, for a surprisingly long time, mainstream economics lacked awareness of how frequent national and global financial crises really are. Empirical research on financial crises in mainstream economics only grew to a respectable size in the aftermath of the GFC: Two early attempts at providing a conclusive database on financial crises that are particularly worthy of acknowledgment are due to Laeven and Valencia (2008) and Reinhart and Rogoff (2009).

Economic theories of financial crises have been with us for much longer. To oversimplify matters a bit, we can distinguish two camps: The neoclassical camp, which sees financial crises as short-term disruptions of otherwise well-functioning capitalist markets and the Keynesian camp, which sees financial crises as necessary by-products of capitalist markets.⁹ Both camps have provided invaluable insights into the interconnections between financial and real markets.

An early starting point for neoclassical economic theories on financial crises was Fischer's debt-deflation theory (Fischer 1933), according to which financial crises occur when overindebted economies experience sharp price decreases (i.e. deflation). To name a more current example, building partly on Fischer's debt-deflation theory and partly on Schwartz's and Friedman's monetaristic approach (Schwartz and Friedman 1963), Bernanke hypothesized that financial crises are essentially the result of monetary contractions, i.e. a lack of money in circulation within an economy (Bernanke 1995).¹⁰

Keynesian approaches take on Keynes' insight that capitalist economies are characterized by a pattern of borrowing and lending that is vulnerable to the overall ability of borrowers to pay back their loans. In turn, this ability depends not (as the aforementioned monetarists would have it) on the amount of money within the economic system, but rather on the economy's aggregate demand for goods and services (Keynes 1936). The two most well-known (Neo-) Keynesian theories of financial crises are due to Minsky (2008) and Kindleberger (2005), the difference being that Kindleberger provided more of a history of financial crises building on Minsky's Financial Instability Hypothesis (FIH). Both Minsky and Kindleberger locate the origin of a financial crisis in capitalist economies' tendency towards in-

⁹ One particularly important exclusion here is Schumpeter's theory of economic crises, which is in essence based on the idea that crises are driven by spontaneous and discontinuous periods of innovation and accompanying credit expansions (Schumpeter 1939).

¹⁰ Ben Bernanke later on became the acting chairman of the Federal Reserve during the GFC.

stability, which then, in accordance with Fischer's debt-deflation theory, leads to a debt contraction and deflation (Minsky 2008, 192). Minsky's FIH remains the most influential theory of financial crises in the economic literature to this day. Contrary to its neoclassical competitors, the FIH explains how financial crises emerge not as a mere afterthought, but as the focus of a fleshed-out theory of capitalist markets. I shall not say much more on the FIH here since I return to it at great length later in this introduction.

Given the intuitive connection to the economic discipline, it is surprising to most people that philosophers show interest in financial crises. Despite initial appearances, philosophers have done their share to contribute to theories of financial crises. To name just a few examples, already Adam Smith warned that "overtrading" could lead to crisis-like phenomena (Kindleberger 2005, 28); Marx was aware that "fictitious capital", which effectively corresponds to financial assets, could at periods be highly inflated in value and cause decreasing profit rates (Marx 1975), and Mill devoted an entire chapter of his *Principles of Political Economy* on "the influence of credit on prices", in which he notes that during periods of stable economic growth "a great extension of credit takes place", which under specific circumstances then unravels into "a panic as unreasoning as to the previous overconfidence" (Mill 1965, 542).

Besides serving as early precursors to economic theory, philosophers have the tools to investigate topics related to financial crises that are closed off to economic analysis. By its own self-understanding, the economic discipline has little to offer when it comes to normative ethical analysis (Mäki 2009; Reiss 2017). Economists are not interested in the wrongs and rights that coincide with the emergence of financial crises. Yet, financial crises bring up deeply normative problems. To begin with, financial crises are man-made catastrophes caused by the actions of states, regulators, private firms and individual persons and lead to large-scale harms. In other words, financial crises are produced by moral agents, who have morally relevant interests that ought to be protected and moral duties that they ought to act in accordance with. Normative ethical theories provide us with reasons for considering their actions permissible or impermissible and assess the degree to which we hold agents morally responsible for contributing to certain outcomes. At the core of any normative analysis of financial crises is the fact that some of these agents impose risks onto third parties. Financial crises are thus prime examples of what economists refer to as "externalities". As Admati and Hellwig state:

The risks that bankers take affect not just themselves but also those other people whose money they use, and many others besides. The ‘other’ people, however, do not have a say in the bankers’ decisions (Admati and Hellwig 2012, 216).

To what degree we should consider, for example, the involvement of bankers in financial crises as morally problematic cannot be answered by employing economic theory on its own. The analysis of the respective reasons that explain why it is problematic for certain parties to impose risks onto others belongs squarely into the field of normative ethics.

Besides normative ethics, financial crises are also interesting from the perspective of political philosophy. Important questions for political philosophy warrant investigation, such as on what grounds it is justifiable for the state to intervene in the build-up of a financial crisis, and how gains and losses of risky financial practices should be distributed. While these questions do belong to the realm of political philosophy, normative ethical theory and political philosophy can inform each other. Much of this thesis (with the explicit exception of **Paper 3**) is focused on normative ethical analysis, but in general, some insights from the ethical analysis apply to questions of political philosophy and vice versa. For example, there is a long-standing tradition in the utilitarian literature on state intervention (Bourcier 2021; Goodin 1995). Similarly, contractualist theory has also recently been recognized as a guide to public policy (Fried 2020). Conversely, some authors argue that the literature on business ethics would profit much from insights in political philosophy, considering important similarities between states and businesses (Moriarty 2005). Thus, some reasons to permit or prohibit certain types of conduct related to the emergence of financial crises also arguably apply in both the normative ethical and the political context.

There are, however, significant shortcomings in the general philosophical debate on financial crises. More specifically, many contributions fail to appreciate economic theory sufficiently. To the best of my knowledge, there is not a single contribution to the philosophical literature that discusses economic theories of financial crises in detail. This is quite surprising, given that philosophers have otherwise acknowledged the importance of economic theory for the investigation of normative issues in capitalist economies. Outstanding examples of such interdisciplinary work are the literature on the ethical justification of markets (see for example Sen 1985 and Buchanan 1985), the literature on exploitation (see for example Wertheimer 1996 and Steiner 1984), as well as the market failures approach to business ethics (Heath 2014). In light of the prominent role that financial crises

inhabit within capitalist economies, it is astounding that philosophers have thus far denied financial crises the courtesy of an interdisciplinary investigation. In this thesis, I aim to fill this gap in the literature by employing arguments and methodologies from normative ethics, political philosophy, law and economics.

2. Scope and Methodology: The Instruments

There are important questions in connection to financial crises that economics alone cannot answer. These are questions that are at the core of not only public, but also academic debates of immediate importance. To begin with, financial crises are man-made events, thus someone, not merely something, is culpable for their emergence. When a financial crisis occurs, agents performed actions that caused the crisis. Consequently, there is a need to investigate whether and if so, to what degree, those who caused a financial crisis can offer justification for their actions. Furthermore, financial crises are undisputedly deeply undesirable events: We need not only evaluate the actions that lead to them and point out who is to blame, we also need to understand the incentives that motivated those who contributed to the crises if we aim to mitigate the damage they cause in the future. Therefore, I believe that there are three questions of central importance that necessarily require us to employ the tools of philosophical analysis:

- 1) Who is morally responsible for financial crises?
- 2) Why are individual actions that lead to a financial crisis morally impermissible?
- 3) What can the state or others justifiably do to mitigate the risk of financial crises?

A large part of the public debate surrounding the last great financial crisis, the GFC, indicates widespread agreement with the assessment that these questions are of focal importance. Titles such as “House of Debt: How They (and You) Caused the Great Recession and How We Can Prevent It From Happening Again” (Mian and Sufi 2015), “Makers and Takers: How Wall Street Destroyed Main Street” (Farooq 2017), “The Financial Crisis - Who is to blame?” (Davies 2018), “Unfinished Business: The Unexplored Causes of the Financial Crisis and the Lessons Yet to be Learned” (Bayoumi 2018), and a dedicated issue of *Midwest Studies in*

Philosophy on “Moral Responsibility and the Financial Crisis” (French et al. 2018) provide clear support for this claim.

We may refer to the questions above as the grand questions of the field, pertaining to responsibility, wrongfulness, and appropriate responses. This thesis is an attempt at answering these questions on the basis of an interdisciplinary discussion. Nonetheless, it is not possible within the confines of a doctoral thesis to provide an exhaustive analysis of all relevant phenomena. For example, many parties could be held (at least partially) morally responsible for financial crises: regulators, financial firms, credit rating agencies – the list is excessively long. What precisely rendered responsible parties’ actions wrongful also permits for a broad range of plausible answers: was their behavior fraudulent, reckless, greedy, or just harmful, yet justifiable? Similarly, there are many suggestions on how financial crises could be avoided in the future: increasing capital requirements, improving fiduciary duties, breaking up excessively large financial firms – yet another very long list. Rather than to provide an exhaustive discussion of all these possible points of contention, the aim of this thesis is to provide some definitive answers to the three grand questions in specific contexts to develop and test a general methodology that could be used on a broader scale in future research.

Questions about responsibility are tackled in **Paper 2**, where instead of answering the question of who is responsible for financial crises, I investigate the much more focused question whether retail consumers can be held morally responsible for financial crises. Nonetheless, the methodology developed in this article, which builds on the Aristotelian conception of moral responsibility and clarifies how to assess three sufficient conditions for moral responsibility, could in principle be adapted to investigate the moral responsibility of other parties involved in the build-up of a financial crisis.

Similarly, questions regarding the wrongfulness of contributions to a financial crisis are limited to the wrongfulness of *bank* contributions to a financial crisis in **Paper 1** and are presented in the more general context of collective risk impositions in **Paper 5**. Here, I combine insights from both the literature on collective harm cases as well as risk ethics, which could be adapted to investigate other kinds of contributions to financial crises, such as faulty credit ratings.

Lastly, questions regarding responses to a financial crisis are approached from two angles: First, via a general discussion on state intervention in the case of pecuniary externalities in **Paper 3**. Second, via a more focused discussion regarding two concrete policy measures that attempt to, first, enhance consumers interests in financial markets (**Paper 4**) and, second, mitigate the impact of bank failures

qua trigger events of a financial crisis (**Paper 5**). The discussion on state interventions to prevent market harms in **Paper 3** could be extended to provide a valuable argument in discussions on the justifiability of free trade in financial markets more generally, while **Paper 4** lays the groundwork for a discussion of epistemic obligations for lenders in retail banking. **Paper 5** provides a general theoretical account for the compensation of risk impositions within and outside of the context of capitalist economies.

Answering questions regarding responsibility, wrongness and appropriate responses to financial crises requires an interdisciplinary methodology. In light of this, as stated earlier, I draw on different strands of literature on risk ethics, political philosophy, law (or, more concretely, banking regulation) and economics. More specifically, I gather arguments from these diverse literatures which might help answering questions regarding responsibility, wrongness and appropriate responses to financial crises. In what follows, I refer to these arguments as “background instruments”, because they are instrumental in providing answers to the aforementioned questions.¹¹ The rest of this introduction will be devoted to describing these background instruments in greater detail. Before that, I provide a short overview.

The first background instrument is Minsky’s FIH. The FIH serves not only to gain an understanding of the parties at the causal epicenter of a financial crisis, but also to provide a macroeconomic causal explanation of how these parties interact with each other and thereby bring about a financial crisis. Roughly, the FIH states that financial crises are the result of macroeconomic cycles of lending and borrowing. These cycles start with the period after a financial crisis, when lenders only extend credit to the most secure borrowers. When repayment obligations are consistently met, lenders become less careful and extend credit to other less secure borrowers. This is known as the “boom” phase. The boom phase ends when more and more borrowers find themselves unable to service their debt. The result is a widespread contraction in lending that triggers a financial crisis. I provide a more in-depth discussion of the FIH in **section 3**.

¹¹ A similar discussion of “challenges” in the business ethics literature on financial crises can be found in Moggia (2019). Moggia identifies three methodological challenges related to risk, overdetermined outcomes and limited knowledge that need to be met in order to satisfactorily address questions of moral responsibility in financial crises. The list of instruments proposed here is of a similar structure, albeit adapted to the questions I aim to answer in my thesis.

The second background instrument is the Aristotelian conception of moral responsibility. It is self-evident that in order to assess whether a particular agent can be held morally responsible for an outcome, we first need an account of moral responsibility. Aristotle's conception of moral responsibility is not the only plausible conception of moral responsibility on the market. However, other than its rivals, it is particularly apt to track features of moral responsibility that are at the core of public debates. More specifically, the Aristotelian conception of moral responsibility focusses on three jointly sufficient conditions for moral responsibility: The causal condition, the control condition and the epistemic condition. The causal condition states that a person can only be held morally responsible for the consequences of her action if her action is actually causally connected to its purported consequences. The control condition states that in order for a person to be morally responsible for a specific outcome, the person must have had control over the performance of the action that led to the outcome she is being held responsible for. The epistemic condition states that in order for a person to be morally responsible for a specific outcome, the person must have known or should have known that her action would lead to the outcome she is being held responsible for. I provide a more in-depth discussion of the Aristotelian conception of moral responsibility in **section 4**.

The third background instrument is an approach to collective harm cases. Financial crises are typically overdetermined events, i.e. events that come about because of collective, sustained action by a group of contributors that could not have been avoided even if any individual contributor had not contributed to the financial crisis in question. This particular causal structure generates a number of problems for both assessments of moral responsibility and impermissibility. After all, if it is true for each agent that their contribution was causally irrelevant for the emergence of a financial crisis, we have no reason to consider any individual agent morally responsible for her actions and even if we did, we would have no reason to consider those actions wrong. In order to resist this conclusion, we need to disaggregate the impact of individual actions on a financial crisis. The FIH qua macroeconomic theory is not suited for this task. Indeed, insofar as it is meaningful to utter sentences like "Bank A is partly morally responsible for the emergence of a financial crisis", we require a fine-grained explanation of how individual contributions can be morally wrong even though they contribute to an overdetermined outcome. In **section 5**, I present and defend the solution from "vectoral causation" to collective harm cases, which not only helps establishing causal responsibility for

individual contributions, but also states that we have reason to consider contributions to collective harm cases, including financial crises, as wrong under normal circumstances.

The fourth background instrument is a contractualist theory of risk imposition (or in short, a contractualist theory of risk). The emergence of a financial crisis is never certain; it is not subject to known laws of nature that permit us to determine beyond a doubt when a financial crisis will occur and how it will spread to other markets. Most established theories in normative ethics focus on the evaluation of actions that have certain consequences. In order to acknowledge the uncertain nature of financial crises, we hence need a theory of risk ethics. In **section 6** of this introduction, I provide a short overview over several candidates and eventually defend a contractualist approach to risk ethics.

The fifth and final background instrument is an overview of recent developments in banking regulation, which I present in **section 7**. The aim of this section is to clarify how banking regulation shapes practices in financial markets that carry a risk of bringing about a financial crisis. Here, I explain which measures have been taken since the GFC to stabilize the financial system. Furthermore, I present some criticisms from the economic and philosophical literature with regard to these changes in banking regulation. To reach ahead a bit, most critics agree that even if recent developments mark an improvement over previous banking regulation, numerous large blind spots and principled problems remain.

Those are the five background instruments which I will explore in this introduction. In a final concluding section, I summarize the insights developed throughout this thesis and provide an outlook on how they can help to provide answers to the aforementioned three grand questions: Who is responsible for financial crises; why contributions to financial crises are wrongful; and what can justifiably be done to prevent future financial crises.

3. The Minskyan Model of a Financial Crisis

Minsky's constant presence in current debates on financial regulation and financial stability is undeniable. Even though Minsky is still widely viewed as a heterodox economist, major figures in the economic mainstream (including Bernanke, Summers, Eichengreen and Samuelson) took notice of his work even before the GFC (Lavoie 2020, 87). Unsurprisingly, it was the GFC that gave Minsky his posthumous moment in the spotlight: Regulators, bankers, fund managers and commentators prophetically referred to the crisis as a "Minsky Moment". In September 2008, the chief commentator of the *Financial Times*, Martin Wolf, summarized his insights into the emerging crisis as follows: "What went wrong? The short answer: Minsky was right" (Wolf 2008). In June 2009, Paul Krugman gave a lecture on depression economics at the London School of Economics with the title "The Night They Reread Minsky" (Krugman 2009). *The Economist* (2016) mentioned Minsky thirty times since the GFC. Even as late as 2017, the former governor of the Chinese central bank, Zhou Xiaochuan, warned that the Chinese economy might soon be susceptible to a "Minsky Moment" (Rhodes 2019).¹²

Minsky's reputation is largely due to the fact that few mainstream economists saw the GFC coming.¹³ The main reason for their failure is simple at its core: Mainstream economists believe in the dictum of the "invisible hand", i.e. the idea that markets contain equilibrating forces that, over time, move demand and supply to a social optimum. According to the mainstream view, financial markets are no different: Financial markets simply coordinate the supply and demand of financial assets. In more simple terms, financial markets match lenders with excess savings, with borrowers who require funds for investment or consumption. Because finan-

¹² Another prominent regulator who explicitly referred to Minsky is Peter Praet, former member of the Executive Board of the European Central Bank (Praet 2014).

¹³ A particularly noticeable piece of evidence to this effect is the letter published by the British Academy attempting to answer the question posed by Queen Elizabeth II as to why British economists did not see the crisis coming, see Besley and Hennesy (2009).

cial markets are ultimately markets like any other (at least according to the mainstream view), they will on their own generate a social optimum in which borrowers and lenders are matched with each in an efficient manner (Wray 2017, ch. 1). Or so the story goes.

Financial crises do not fit in this theoretical framework, because financial crises are prolonged states of disequilibrium in financial markets. Minsky's FIH starts from a fundamentally different assumption than its mainstream competitors, namely, that "stability is destabilizing" (Minsky 2008, xii) – if it turns out by some miracle that financial markets do generate temporary equilibria, they simultaneously stimulate destabilizing forces that will ultimately, if not interfered with, lead to a crisis. There is no invisible hand that will on its own correct this destabilizing tendency if financial markets are left to their own devices. The systematic exclusion of destabilizing forces in mainstream economic theory thus explains why mainstream economics offers no fully developed theory of financial crises. Because of its lack of competitors in mainstream economics, the FIH remains the most potent and insightful explanatory theory of the emergence of financial crises in macroeconomics until today (Wray 2017, Claessens and Kose 2014).

At its core, Minsky's FIH is a Neo-Keynesian theory. As the name suggests, Neo-Keynesian theories build on the work of John Maynard Keynes. Most centrally for this thesis, Neo-Keynesian theories share Keynes' view that "the behavior of an economic system with respect to the real variables is not independent of the financial system of the economy" (Minsky 1964, 175). Contrary to mainstream economics, Keynesians (including Neo-Keynesians) hold the view that the impact of financial markets on the real economy is anything but neutral. Minsky's FIH in particular is an addition to Keynesian economics, zooming in on the impact of financial markets on major economic variables such as employment and output. It is a theory of how financial instability emerges and impacts the entirety of a closed economy. More precisely, the FIH states that capitalist financial markets contain "within-the-system disequilibrating forces that lead to business cycles" (Minsky 2008, 113). The focal characteristic of these business cycles are alternating periods of financial stability and instability. For Minsky, periods of financial stability breed periods of financial instability and vice versa (Minsky 2008, 11). In what follows, I offer an extensive overview of the central tenets of the FIH. I do so in two sections: The first explains the FIH on the macroeconomic level, the second explains the FIH's implications on the level of an individual bank.

3.1 FIH: The Macroeconomic Level

The cycle begins with the end of a financial crisis. The economy's liability structure, i.e. the particular mix of internal (equity) and external (debt) funding firms use to finance production, is typically characterized by low debt-to-equity ratios in this period. Each firm in the economy has a particular liability structure, which describes the sources of a firm's funding. Broadly speaking, firms can fund their activities in three manners. First, some firms acquire funding by generating profits, i.e. income. Retained income increases the firm's equity. Equity, in turn, can be used to pay wages, buy new machinery etc. Second, firms might issue shares. The funds they receive from issuing shares also increase their equity. Third, firms can borrow money to acquire funding, which will not grow their equity, but their debt. The choice of the source of funding in turn determines the liability structure of a firm. Firms' liability structures are of central importance in Minsky's FIH, because the economy's overall liability structure in Minsky's model is determined by the proportion of firms that have a corresponding liability structure.¹⁴

Minsky specifies three such structures: First, firms that constitute "hedge units" are able to pay off both interest payments and principal via their income. Second, "speculative units" are able to meet only their interest payments out of their income but are unable to meet payments of principal. They are thus forced to regularly roll over their debt. Third, "Ponzi units" are neither capable of paying down their interest nor their principal. Their outstanding debt hence constantly grows, unless they sell off assets to meet payments (Kindleberger 2005, 28).

Low debt-to-equity ratios at the end of a financial crisis indicate that debt is hard to come by, since lenders are excessively cautious of who they borrow to. Lenders express their caution to extend credit via high risk premia, i.e. high interest rates as well as high margins of safety. These margins of safety are by and large constituted by prospective borrowers' expected profits and liquid assets, i.e. cash or money-like assets that can be sold quickly to pay off debts during turbulent times. Borrowing is hence only available to low-risk firms which are able to reliably generate profits and have access to liquidity. Since most firms with instable liability structures are wiped out by the end of a financial crisis, the only firms which do survive are stable hedge units. Thus, at the end of a financial crisis, the entire eco-

¹⁴ This assumption is one of the less convincing aspects of the FIH, since Minsky apparently completely ignores fallacies of composition in the FIH: Just because most firms are stable, it need not be the case that the economy as a whole is stable (Lavoie 2020, 92).

conomic system is dominated by hedge units and characterized by a period of conservative credit expansion, or “tranquility” (Minsky 2008, 197).

Tranquility, however, spurs investment. Because only projects with very little risk find external funding, default rates start to decline, and past debt commitments are almost consistently validated by profits. As a result, lenders adjust their risk premia and firms grow more confident in their ability to service external funding. Minsky writes:

Over a period in which the economy does well, views about acceptable debt structure change. In the deal making that goes on between banks, investment bankers, and businessmen, the acceptable amount of debt to use in financing various types of activity and positions increases. This increase in the weight of debt financing raises the market price for capital assets and increases investment. As this continues, the economy is transformed into a boom economy (Minsky 1982, 65).

When credit is easily accessible, investment increases. The increase in investment leads to an increase in profits.¹⁵ In turn, an increase in profits leads to an increased ability of firms to validate their payment commitments. Debt is ever more available, and the conservative margins of safety required by lenders from the tranquil period are abandoned. This is the beginning of the boom period.

But as the demand for debt increases, so does its price: Interest rates rise (Minsky 2008, 239). Consider now the case of a speculative unit faced with higher interest rates. Higher interest rates enter the production function as any other cost factor (such as labor and capital). Assuming that earnings are constant while costs increase implies that profits must be decreasing. Decreasing profits entail that a firm will have to rely even more on external funds to complete its projects, because retained profits are a focal source of internal funding. Additionally, the firm’s margins of safety erode because profits decrease. As lenders lose confidence in the ability of the firm to repay its debts, they require higher interest rates, shifting the ratio of debt to equity towards the former. Borrowing becomes more expensive. To cover the increased cost of borrowing, the firm might have to roll over its debt. Over time, the firm will be pushed from a hedge to a speculative and finally into a Ponzi structure (Minsky 2008, 241).

At this point, it pays to zoom in on the liability structure of a single firm that expands in its investment projects. Two things are worth mentioning here: First, hedge units are highly resilient to deteriorating financial market conditions. The

¹⁵ Minsky derives this statement from Kalecki’s formula for profits. For details, see Minsky (2008, 162).

same is not true for speculative or Ponzi units, who must constantly find new sources of external funding. Second, a fragile economic system consists to a large proportion of speculative and Ponzi units that are vulnerable to financial market conditions (Minsky 2008, 231). When short-term debt is widely available at low interest rates and the final products of the investment process yield high profits, hedge units have a strong incentive to use cheap, short-term debt to increase their investments and grow their profits. If their hunger for debt increases sufficiently, they transform from hedge to speculative units (Minsky 2008, 235).

When sufficiently many firms have transformed from hedge into speculative and Ponzi units, the economic system is ripe for crisis. According to Minsky, the (“upper”) turning point at which a crisis emerges is marked by present value reversals. The term “present value reversal” denotes a state of affairs in which investment costs (i.e. both internal and especially external funding which has grown constantly during the boom) are greater than the value of the goods produced (Minsky 2008, 239).¹⁶ When present value reversals occur, Ponzi units are hit particularly hard and are forced to sell of their assets in order to meet their payment commitments. This process is also known as a “fire sale”. However, by desperately selling off their assets, Ponzi units can drive asset prices down throughout the market and thereby erode the expected profits of other firms.

Eventually, some Ponzi units are likely to become bankrupt due to a comparatively small trigger event (such as a few correlated defaults in a subsection of the mortgage market). This, in turn, induces lenders to require higher margins of safety – which, by this point, are eroded throughout the larger part of the economy. As margins of safety will typically not be met, lenders refuse to extend credit as willingly as they did before. The end result is a sharp debt contraction, i.e. a credit crunch, in which speculative and Ponzi units (which by now dominate the economy) find themselves unable to roll over their debt as they used to during the boom phase (Minsky 1982a, 33).

But the cyclical nature of capitalist economies is not necessarily unavoidable. Minsky points out various remedial policies that, if in place, can stabilize capitalist economies. Most centrally, these are “lender-of-last-resort” and “big government” policies (Minsky 1982a, 33). I will only sketch out the basic idea of these policy measures here since I return to the topic of policy measures later in this introduction.

¹⁶ To illustrate, phenomena similar to a present value reversal occurred during the run-up to the GFC, when subprime borrowers defaulted in high rates on their mortgages as their houses went “underwater”, i.e. as the market value of their homes fell below the principal of their mortgage.

Lender-of-last-resort policies entail that the government, primarily through its central bank, provides credit when private credit markets dry up. This implies that the immediate impact of a crisis is dampened, because firms do not have to engage in fire sales, which in turn stabilizes asset values. It should be obvious that merely providing a lender of last resort does not, however, target the underlying problem of the endogenous tendency of capitalist markets to create instability. In Minsky's view, what is needed to ensure that this dangerous tendency is mitigated, is a permanent government deficit. This is what Minsky means by "big government". The tendency of firms to shift from hedge to speculative to Ponzi units is entirely dependent on their inability to consistently generate profit. But profit margins can be upheld if demand is secured. Governmental deficit spending, for example on job guarantee and social security programs, can ensure that demand is stabilized and thereby guarantee the profit rate of hedge units in the economy (Minsky 1982a, 28).

To sum up: According to the FIH, market participants in financial capitalism are induced to perpetually promote the tendencies that allow financial crises to emerge. This cycle starts in a period of tranquility, which gives rise to a credit expansion as the past, highly conservative risk averseness ebbs away. Hedge units are incentivized to exploit profit opportunities by taking on more debt and their financial structure shifts more and more towards speculative and Ponzi finance. As a result, the entire liability structure of the economy becomes highly vulnerable to financial market developments. A small trigger event suffices to induce a credit crunch, leading the way into the next financial crisis. In the next section, I will zoom in on how financial firms figure into the FIH.

3.2 FIH: The Bank Level

Credit expansions, which are an essential part of the boom phase of the business cycle, are driven by financial firms which provide credit. As is usual in the literature, I refer to all such financial firms as "banks", even though strictly speaking many non-depository financial institutions (e.g. mutual and hedge funds, universal banks and insurance companies) similarly provide credit. Furthermore, what type of financial firm is legally classified as a bank differs from jurisdiction to jurisdiction. For our purposes here, any financial firm that provides credit is classified as a bank.

Minsky describes the activity of bank lending somewhat polemically: "Banking is not money lending; to lend, a money lender must have money. The fundamental

banking activity is accepting, that is, guaranteeing that some party is creditworthy” (Minsky 2008, 256). In financial capitalism, banks are the gatekeepers of debt.¹⁷ However, banks also generate profit via their lending operations. Excessive bank lending can generate a serious risk of a financial crisis. In what follows, I discuss in which manner banks’ profit-seeking activities destabilize an economy.

Just as for any other firm, banks’ profits are the difference between the income they receive and the costs they incur. Banks generate profits from earning more on assets, i.e. loans and investments, than they pay for external funding, i.e. their own debt. Hence, there are fundamentally only two ways in which a bank can increase profits from its lending operations: First, if their net earnings per unit of assets increases or, second, if their net assets per unit of equity increase (Minsky 2008, 265). The first option ultimately requires banks to extend riskier loans, the second requires the bank itself to take on more debt. Let us consider both options in turn.

First, a bank can increase its net earnings by increasing the spread between interest received from loans and interest paid on debt. In other words, the bank can provide riskier loans. Particularly risky loans include long-term loans or loans to borrowers with doubtful creditworthiness, from whom higher risk premia can be extracted as compensation for the higher default risk assumed by the bank. Specifically during boom phases, banks are prone to overlook the liability structure of their borrowers. Another class of risky loans are loans which are not based on the expected future income of the borrower, but instead the underlying collateral or increasing asset prices (for example, so-called land loans, which are collateralized via claims to land that the borrowing party owns; this is the central example in **Paper 1**). In such cases, banks approve the loan not because they expect repayment, but because they expect that the collateral will have risen sufficiently in value to cover both principal and interest. Because the value of such loans is entirely dependent market conditions, they tend to increase a bank’s vulnerability to financial distress (Minsky 2008, 261).

Second, a bank can also choose to pursue profitability by increasing its net assets to equity. In other words, rather than taking on riskier loans, the bank takes on more loans. The central concept here is leverage. Leverage is the ratio of debt

¹⁷ Whenever a depository financial institution, i.e. a commercial bank proper, makes a loan, it creates a corresponding bank deposit. According to the Bank of England (2014), these bank deposits amount to 97% (as of 2013) of the broad money supply in the UK. In other words: the creation of money, and thereby corresponding loans, is by and large under the control of commercial banks, rather than the central bank. For discussion, see Pettifor (2016).

to equity funding. A high leverage ratio allows banks to grow faster than their competitors. Consider the following example: Bank A manages \$100 billion in total assets and has \$3 billion in equity. At the end of the fiscal year, the bank has made a profit of \$1 billion. Assume that A pays out \$250 million in dividends to its shareholders and retains the remaining \$750 million, then the bank's equity grows by 25%.¹⁸ Now consider bank B, who also manages \$100 billion in total assets, but holds \$10 billion in equity. Similar to A, B makes a profit of \$1 billion and decides to pay out \$250 million in dividends, retaining the rest. The rate at which B's equity grows is then 7.5%.

The example illustrates a powerful market signal to potential shareholders. The signal is captured in the concept of the "Return on Equity" (RoE). Banks with higher growth rates promise higher returns per dollar of equity from their investors. Even if dividends paid out by A and B are equal, A's share price rises much faster than B's (by 25%, rather than 7.5%). This means that a shareholder who has invested \$10 million in A will see the value of their investment increase by \$2.5 million, while a shareholder who invested the same amount in B will see an increase of merely \$750,000. The focus on RoE as a measure of profitability of a firm creates an incentive for banks to rely disproportionately on debt (Admati and Hellwig 2012, 107).¹⁹ This reliance on debt entails that banks themselves are typically speculative units.

Additionally, even though this point is, to the best of my knowledge, not explicitly discussed by Minsky, banks doubly profit from taking on debt via implicit government guarantees, also known as "Too-Big-To-Fail" (TBTF) subsidies (Admati and Hellwig 2012). Fragile, but systemically important banks can expect government assistance in the event of a crisis. If lenders expect a bank to be TBTF, they are far less reluctant to lend to the bank, which in turn amounts to a lower risk premium required by lenders. A study conducted by the Federal Reserve Bank of New York estimated that these implicit subsidies amount to \$42 billion dollars for 23 of the largest US banks in the period from 2009-2016 (Cetorelli and Traina 2018). Banks hence have an incentive to rely on leverage in order to become systemically relevant and attract even more external funding via implicit subsidies.

Banks' attempt to generate profits introduces destabilizing tendencies into the economy, because stabilizing fiscal and monetary policies are in tension with excessive bank lending. One illustration of this phenomenon is financial innovation.

¹⁸ \$750 million divided by \$3 billion gives us the growth rate of equity from the first to the second period.

¹⁹ See also Minsky (2008, 265).

The rate of credit expansion is constrained by the money supply growth rate as set by the central bank.²⁰ In boom phases, financial innovation emerges which enables private firms to circumvent the limited money supply. Financial innovation effectively creates new types of money, which permit credit to become more widespread (Minsky 2008, 199). If the targeted growth rate of GDP is 3%, the authorities will attempt to constrain the growth of bank loans to 3%. Banks, in turn, try to grow at a much faster rate in an attempt to keep up with the returns guaranteed by alternative investment opportunities. They employ financial innovations to generate new types of credit in order to grow their net assets. This entails that the supply of external financing in the economy rises. As argued earlier, credit financing then ultimately raises the price of capital assets, thereby increasing the price of investment and consumption output (read: inflation). These inflationary tendencies then incentivize non-bank firms to rely even more heavily on credit (Minsky 2008, 263). Via this spiral, an economy dominated by hedge finance is likely to shift into speculative and eventually Ponzi finance.²¹

In conclusion: Banks have a special place in the FIH. Due to their lending function, they are the main catalyzer for financial instability. By their nature, banks can only increase profits by injecting more credit into an economy, thereby rendering the economy more and more vulnerable to financial market developments. Over time, the economy is dominated by Ponzi units that could default on their debt at the proverbial drop of a pin.

3.3 Relevance for this Thesis

The FIH features most prominently in **Paper 1**. In this article, I argue that banks primarily contribute to financial crises via promoting credit expansions. As demonstrated in the previous section of this introduction, this insight follows directly from the FIH. If the FIH is correct in its assessment of the impact that the banking business model has on financial crisis, it follows that much of the philosophical literature on financial crises focusses on fringe phenomena. An outstanding example of this is the overwhelming number of authors who discuss the lack of virtue

²⁰ This is an illustrative oversimplification. Central banks typically do not set a binding constraint on the money supply, rather, they indirectly influence the money supply by determining the interest rate on central bank reserves (Bank of England 2014, 15).

²¹ The arguably most popular policy proposal to combat excessive equity-to-debt ratios are capital requirements, i.e. a prescribed minimum equity-to-debt ratio. One of the most powerful defenses of capital requirements is due to an open letter to the Financial Times by Admati et al. (2010).

(e.g. in the form of “greedy” bankers) as one of the main explanatory forces of financial crises.²² As Moggia notes, this focus falsely suggests that financial crises could be avoided if those who lack virtue simply “behaved well” (Moggia 2019, 2).

The FIH states that this picture is fundamentally mistaken. Financial crises do not erupt because of a few “bad apples”, they are the consequence of market forces that are integral to the capitalist economy. With regard to banks specifically, it is not greedy bankers who bring about financial crises, it is the very business model of banks that requires banks to destabilize economies to generate profits. If this is correct, it follows that by focusing exclusively on failures of virtue, we provide a false diagnosis to the central problem of financial crises and run the risk of eventually turning to the wrong remedy. To state the point more polemically, financial crises will not disappear if we ensure that bankers embrace a professional code of ethics and regularly attend professional ethics seminars. Financial crises are part and parcel of capitalist economies, and while they are unavoidable, their impact can be mitigated with suitable regulation of financial markets. This illustrates one particularly important aspect of how the philosophical literature on financial crises could have profited from an interdisciplinary approach.

The FIH, similar to other macroeconomic theories, provides us with a coarse-grained causal model of how financial crises emerge. This is helpful for the ethicist insofar as it helps to determine which types of actions can *ex ante* reasonably be expected to constitute contributions to financial crises. In **Paper 1**, I argue that bank contributions, i.e. the expansion of credit via banks as presented in the FIH, are *pro tanto* wrongful because they constitute unjustifiable risk impositions. But as the FIH makes clear, it is not only banks that causally contribute to financial crises. Similarly, regulators, financial firms that do not classify as banks (i.e. the shadow banking sector), financial service providers (such as credit rating agencies) and borrowers such as non-financial firms and consumers all causally contribute to financial crises.

More generally, even though the FIH is explicitly an attempt to do so, I believe it is pointless to provide a taxonomy of types of actions that contribute to financial crises. There is a multitude of contributions that the FIH qua macroeconomic theory will not pick up on. For example, the head of a delegated financial supervisory authority might die in a car accident on her way to work. We can presume that events like these will have a causal impact on whether the risk of a financial crisis

²² To name a few, Graafland and van de Veen (2011), Scharding (2019), Sison and Ferrero (2019), Smith (2010) and Madrick (2011). A more sophisticated virtue-based explanation of the emergence of the GFC can be found in de Bruin (2015).

increases or not, but we likely will not know of their causal impact until they come to pass (that is, if we ever know). An action counts as a causal contribution towards the risk of a financial crisis precisely if it increases the risk of a financial crisis – it does not count as a contribution in virtue of being part of a set of actions that we could have reasonably expected *ex ante* to contribute to a financial crisis.

Nonetheless, the FIH provides us with a sense of what kind of actions we can expect to have an impact on the emergence of a financial crisis. In turn, peeking ahead into the next section of this introduction, it is the consequences of these actions, i.e. raising the risk of a financial crisis itself, that agents can be held morally responsible for. In **Paper 2**, I investigate whether consumers can be held morally responsible for taking advantage of stability-threatening credit expansions. The FIH gives us an indication that consumers, qua participants in financial markets, do causally contribute to financial crises. But whether consumers are ultimately morally responsible for the consequences of their contribution is a separate question.

Similarly, by identifying which types of actions can constitute contributions to financial crises, the FIH also indirectly helps contemplating what types of regulatory interventions could mitigate the impact of financial crises. In **Paper 4** and **Paper 5**, I discuss the justifiability of two specific regulatory interventions for financial crisis mitigation.

Unfortunately, as indicated earlier, the FIH's helpfulness has its limits. As a macroeconomic theory, the FIH is not concerned with individual causal contributions to financial crises, which is why a much more fine-grained account of causality is required to identify which individual actions are the causally efficacious ones. I discuss this issue in **section 5** of this introduction. Furthermore, the FIH is clearly neither concerned with questions regarding moral responsibility nor permissibility. Moral responsibility for financial crises is the subject of the next section.

4. Moral Responsibility: The Aristotelian Account

The literature on moral responsibility for financial crises is vast (see for example Scalet 2018, French 2018, Reiff 2017, Graafland and van de Veen 2011, de Bruin 2018). However, many contributions to the debate suffer from two shortcomings: First, much of the literature in fact does not focus on moral responsibility, but on moral wrongdoing in financial crises (see for example Moggia 2019 and Graafland and van de Veen 2011). Second, the literature that does in fact focus on moral responsibility has, to the best of my knowledge, not offered any thorough discussion of individual moral responsibility according to the standard conception of moral responsibility: the so-called “Aristotelian conditions” (Fischer and Ravizza 1998, 12).²³ Because of the centrality of the Aristotelian conditions throughout the broader literature on moral responsibility (see for example Fischer and Ravizza 1998 and Wieland 2017), I believe this to be a serious deficiency. In this introduction (as well as in **Paper 2**), I discuss moral responsibility for financial crises with a view to the Aristotelian conditions for moral responsibility.

Before discussing the Aristotelian conditions, I would like to state explicitly that throughout this thesis, I treat groups of persons, such as banks, as moral agents. At first glance, it might thus seem that I commit myself to realism about group agency, which among other things entails that we can truthfully make statements about the moral responsibility of group agents for certain outcomes and identify actions that have been performed by group agents, rather than individual persons that we assign to a specific group agent (Pettit and List 2011; French 1979). While I am somewhat sympathetic to this view, I remain agnostic to whether it is correct or not. Readers who do not share my sympathies are invited to interpret terms referring to group agents as short-hands for more complex collective actions performed by and responsibility assignments referring to individual persons.

²³ To be fair, most of these authors at some point refer to the Aristotelian conditions but discard them in favor of an alternative discussion on, for example, collective moral responsibility (Scalet 2018) or criminal responsibility (Reiff 2017).

Back to the conditions. The Aristotelian conditions specify under which circumstances an agent can fail to be morally responsible for the consequences of her action. There are three conditions: the causal condition, the epistemic condition, and the control condition.²⁴ Agents can be fully morally responsible for the consequences of their action, or only partially morally responsible, depending on the degree to which they fulfill the Aristotelian conditions (Coates and Swenson 2012). Let us specify the conditions a bit further.

First, according to the causal condition for moral responsibility, an agent can only be held morally responsible for the consequences of her actions if her action is causally connected to the consequences we hold her responsible for. Here, I assume a fine-grained counterfactual account of causation, which roughly states that an agent is causally responsible for the consequences of her action if it is the case that had she not performed her action, a different event would have come about (Lewis 2000). The fine-grained counterfactual account of causation, contrary to a standard counterfactual account of causation, distinguishes between fine-grained token events. This implies that any minute difference in spatiotemporal location or the manner in which two events came about suffices to establish their non-identity. In short, causal responsibility will typically be a low bar to clear, since most actions that we intuitively causally connect to some set of consequences (and many others we do not connect causally in such an intuitive manner) will have some minor impact on this set of consequences.²⁵ Because I expand on issues of causation in detail in **section 5**, my discussion on the Aristotelian conditions in this section will focus only on the so-called control and epistemic condition.

Second, the control condition states that an agent cannot be held morally responsible for the consequences of her action if she could not have done otherwise than to perform the action. The literature on the control condition is split in two strands, one of these strands focusses most centrally on whether an agent must have free will in order to be able to do otherwise and another which focusses on the availability of alternative actions. The first strand of literature encompasses debates among compatibilists, who maintain that an agent can be morally responsible even in a deterministic world (see for example Smith 2003 and Clarke 2009) and incompatibilists, who maintain the view that agents can only be morally re-

²⁴ The causal condition is often treated as a separate notion of responsibility (so-called “causal responsibility”) but is typically acknowledged to be a necessary pre-condition for moral responsibility. For discussion, see Fischer and Ravizza (1998, ch. 4).

²⁵ Fischer and Ravizza also seem to prefer some version of a fine-grained account of causation in their reason-responsive conception of moral responsibility. See Fischer and Ravizza (1998, ch. 4 and 5).

sponsible in a non-deterministic world (see for example Kane 1999). The second strand of literature sets aside questions of free will and determinism and instead focusses on the “eligibility” of alternative courses of action (see for example Braham and van Hees 2012; Benn and Weinstein 1971; Glover 1970; McKenna 1997). The central idea here is that an agent cannot be held morally responsible for the consequences of her action if no reasonable alternative course of action was available to her (think for example of the bank clerk who is forced to empty a safe at gunpoint). I focus on the latter aspect of the control condition because it is central to evaluating the culpability of individual agents for contributing to a financial crisis: Did Bob really have no other choice than to take out a risky mortgage? Did ColossalBank have no other choice than to structure and sell their own CDOs? All things equal, what specific consequence we hold an agent morally responsible for and the degree to which we do so is partly determined by the control condition.

Third, the epistemic condition states that an agent cannot be held morally responsible for the consequences of her action if she did not know or had no obligation to know about the consequences of her action (see Wieland 2017 and Sher 2009). In the first case, we cannot hold agents morally responsible for the consequences of their action, unless they have a duty to know about the consequences of their action. We might, for example, state that Bob is not morally responsible for contributing to a financial crisis by defaulting on his mortgage if he did not foresee the default. In the second case, agents may have a special obligation to know about the consequences or the wrongfulness of their actions. For example, we might insist that credit rating agencies have such an obligation not to severely misvalue certain financial assets, even if they fail to discharge this obligation. If agents have such an obligation but fail to actually be in possession of the required knowledge, we can hold them morally responsible, nonetheless.²⁶

On a final note, it is worth pointing out that the Aristotelian conditions convey a conception of moral responsibility that is backward-looking. This perspective is not without competition. Indeed, some authors, such as Herzog (2019), indicate

²⁶ Note that the epistemic condition is typically stated in terms of knowledge, which means that only if an agent’s belief that they would do harm was true and justified (plus potentially some other condition, see Gettier 1963), we could hold the agent morally responsible for their action resulting in harm. However, this is an extremely strong interpretation of the epistemic condition. As Ginet points out, in most cases, it suffices that the agent had a belief (or should have formed a belief) about what consequences would be caused by her actions and that this belief was justified, i.e. that she had reasons (or should have had reasons) to hold her belief (Ginet 2000, 270). For simplicity, I nonetheless refer to the kind of justified beliefs that are required as “knowledge”, even though strictly speaking, this is not correct.

that in complex “systemic” cases, in which many agents collectively, but perhaps unwittingly, bring about a catastrophic outcome, assigning backward-looking moral responsibility is neither possible in principle nor practically helpful. I beg to differ. In what follows, I argue that backward-looking assignments of moral responsibility are in principle possible. Furthermore, they are far from practically irrelevant: In order to understand how our institutions and organizations ought to function in the future, we need to set the right incentives for the relevant agents – in all likelihood, agents that have already played a role in bringing about a catastrophic crisis in the past. The analysis from the Aristotelian conditions can help us understand where and how we need to adjust our social practices and institutions to ensure that these agents do not become unfit targets of moral obligations in the future.

To sum up, the Aristotelian conditions constitute the jointly sufficient conditions for moral responsibility. They state that an agent is not morally responsible for the consequences of her actions if a) her action was not causally connected to the consequences we hold her morally responsible for (causal condition), b) she had no reasonable alternative course of action available (control condition), or c) if she failed to know or if she had no obligation to know the consequences of her action (epistemic condition). In the remainder of this section, I discuss the control and epistemic condition in more detail and provide some suitable examples from the context of financial crises for illustration.²⁷

4.1 Control Condition

The point of the control condition is that we cannot hold agents responsible for bringing about some (potentially undesirable) outcome if they could not have done otherwise than to bring about the outcome. In other words, an agent can only be held morally responsible for being the “author” of her actions’ consequences if she could have chosen otherwise (McKenna 1997). To exercise this type of control, she must have some reasonable alternative to the course of action that leads to the consequences she is being held morally responsible for. All things equal, we can only hold an agent morally responsible for the consequences of her action if she has reasonable alternatives available to her.

²⁷ It is worth pointing out that one’s moral responsibility for contributing to a specific outcome might also be sensitive to strategic considerations by others. For example, I might contribute to a financial crisis given that I know that others will not contribute. I suspect that such strategic aspects can affect the control condition, especially if they amount to duress. I discuss the excuse from duress below.

In order for an agent to have some reasonable alternative course of action, two minimal conditions, one expressing a scope and the other a degree perspective, must be ascertained:

First, a course of action only counts as a genuine *alternative* if it permits the agent to bring about a different outcome than the original course of action. This condition will typically be satisfied.²⁸ For illustration, imagine that ColossalBank could either approve or not approve a large, highly risky corporate loan. If ColossalBank approves the loan, a devastating financial crisis will follow; if ColossalBank does not approve the loan, the financial crisis will be avoided. Each course of action thus leads to very different consequences. If ColossalBank approves the loan, the bank fulfills the control condition, and we can hold the bank morally responsible for the resulting crisis. However, if ColossalBank does not approve the loan, we cannot hold ColossalBank morally responsible for the resulting financial crisis. Having an alternative, then, simply means that one has the option to avoid being an “author” in a causal chain that leads to a particular event (Zimmermann 2002). The important point to note here is merely that the *scope* regarding what we can (at least in principle) hold ColossalBank morally responsible for will alter depending on which course of action the bank pursues.

A small caveat is in order: Strictly speaking, it might be unavoidable for some agents to become a causal author of some outcome-type in many cases. Imagine a case in which one of two slightly different financial crises will occur (for example, one occurs a couple of seconds after the other would have counterfactually occurred), no matter what ColossalBank does. It seems plausible that ColossalBank will become an author of whichever crisis will actually occur: If ColossalBank approves the loan, the first crisis occurs; if ColossalBank does not approve the loan, the second crisis occurs. Assume that ColossalBank does not approve the loan. *Prima facie*, we can hold ColossalBank morally responsible for authoring the second crisis, which would not have occurred had ColossalBank approved the loan. But this conclusion might be too quick: ColossalBank might not be morally responsible overall if the bank could not have foreseen that a financial crisis would occur even if it did not approve the loan. In this case, the epistemic condition would not be satisfied. I return to this issue in greater detail in **section 5**.

Second, a course of action only counts as a *reasonable* alternative if its performance does not entail excessive costs to the agent (Braham and van Hees 2012, 622). More precisely, if an agent is coerced or strongly incentivized to choose one

²⁸ See Fischer and Ravizza’s discussion of the “Divide and Conquer” approach (Fischer and Ravizza 1998, 97).

action over another alternative, the *degree* to which we hold them responsible for bringing about an associated outcome might decrease (Miller 1983; Zimmermann 2002). We can easily conceive of intuitively plausible cases in which agents lack reasonable alternatives to action: The aforementioned bank clerk who is forced at gunpoint to open a safe; the whistleblower who is forced to stay silent unless she is willing to lose her job etc.

The lack of reasonable alternatives, i.e. the failure to satisfy the control condition, is a powerful excuse that permits agents to evade moral responsibility (and blame). A particularly important example relating to the issue of excessive credit expansion is the competitive pressure faced by banks in financial markets. Promoting excessive credit expansions is an important means for banks to increase profits. An apparently effective excuse available to banks hence states that if their competitors engage in excessive and risky lending, they must similarly engage in risky lending. Not to do so would mean foregoing profits and scaring off potential investors, thus limiting the banks' ability to acquire funding; in a worst-case scenario, the end result might be bankruptcy.²⁹ In short: Competitive pressure amounts to duress. The same way that a bank teller is under duress when threatened at gunpoint to open a safe, banks are under duress due to competitive pressure. Not providing highly risky loans during a boom phase amounts to duress because it is too costly to be considered a reasonable alternative. Call this the excuse from duress.

There are, however, two important qualifications to the excuse from duress. First and most importantly, different costs imposed onto different agents must be weighed differently. If a person accepts a highly risky loan to avoid starvation, they might justifiably claim that they had no other reasonable course of action than to take on the loan. But if a bank claims that it needs to extend a large, highly risky loan to avoid bankruptcy over the short-term, it is less immediately clear that bankruptcy constitutes an unreasonable alternative to extending a risky loan. The "survival" of a bank is at best instrumentally valuable – and this instrumental value needs to be weighed against the instrumental value of a marginal decrease in financial stability for those affected in order to assess the net cost of bankruptcy. Only the interests of natural persons are of immediate moral relevance. The interests of

²⁹ As I explain in section 7, in the case of systemically relevant banks, bankruptcy is not only a threat to the firm itself but to financial stability at large. However, due to this reason, systemically relevant banks are not under threat of bankruptcy; instead, they are protected by implicit TBTF government guarantees (Cetorelli and Traina 2018). The threat of bankruptcy might thus not be a viable excuse for systemically relevant banks.

artificial group agents such as banks whose entire reason for existence is to promote interests held by natural persons, typically have no moral relevance on their own. In general, the validity of the excuse from duress is not as straightforwardly assessable in cases involving trade-offs between different objects of instrumental value as in cases that involve direct threats to a person's well-being (such as the starving borrower or the threatened bank clerk).³⁰

Second, following Heath (2019), the validity of the excuse from duress is conditional upon whether the banks in question undertook action to avoid finding themselves under duress in the first place. Whether competitive pressures are effective in pushing banks towards excessive credit expansions is a matter of incentives. Banks can shape these incentives, for example, by colluding amongst each other to drive destructive business models out of the market. Even if collusion in the form of self-regulation within the financial industry fails, banks have the opportunity to engage with regulators at low cost and inform them about the destructive side effects of excessive credit expansions. This potential for collusion with other banks or regulators entails that the control condition is also subject to a deeper level of strategic considerations. Heath thus argues that whether the excuse from competitive pressures is available to a specific firm is conditional on whether the firm attempted to change destructive incentives in the market for itself and its competitors. As Heath puts it:

If the claim is that ‘Everyone else is doing it’, and so ‘I had no choice’, the correct response is naturally to ask ‘What have you done to stop the others from doing it?’ If the answer is ‘nothing’, then the excuse is not clearly available, and so the conduct remains both unjustified and morally blameworthy (Heath 2019, 533).

This line of reasoning applies similarly to the case of credit expansions: Insofar as a bank has done nothing to prevent others and itself from engaging in destructive credit expansions, the excuse from duress is simply not valid. Hence, the validity of the excuse from duress is conditional. Referring to duress as an excusing circumstance requires not only that there are strong incentives to contribute to an excessive credit expansion right now; it also requires that the contributing bank in question earlier has engaged in respectable efforts to better its current strategic position.

³⁰ In section 6, I indirectly discuss one manner of justifying trade-offs between various objects of (uncertain) instrumental value, the so-called contractualist approach to risk ethics.

The upshot is that the excuse from duress is legitimately available only to a few banks. With regard to self-regulation, banks have a horrific track record. As the FCIC report illustrates, the degree to which banks of high reputation in the industry (and not individual employees turned whistleblowers) warned regulators of the developments that led to the GFC was negligible to non-existent (FCIC 2011). Worse yet, even current regulatory efforts to promote financial stability face consistent resistance by bank lobbying groups.³¹

To sum up, the control condition states that an agent cannot be held morally responsible for the consequences of her action if she had no reasonable alternative to performing the action. Which alternatives were available to an agent determines the scope of the consequences we can hold her morally responsible for. How costly each of these alternatives is determines the degree to which we can hold an agent morally responsible for the consequences of her action. In cases involving trade-offs between instrumental values, the assessment of what constitutes a reasonable cost becomes much more complicated than in cases in which persons' immediately morally relevant interests are at stake. Additionally, in causally complex cases involving a multitude of agents, further strategic considerations become important to assess whether any excuses are indeed applicable.

4.2 Epistemic Condition

Various types of ignorance can undermine the epistemic condition for moral responsibility. Most prominently, agents can be morally or factually ignorant. Moral ignorance entails, among other things, that an agent is fully aware of the causal consequences of their action, but unaware of the badness of the consequences (Wieland 2017, 2). Even though moral ignorance can in some cases undermine moral responsibility, in the context of financial crises, the more important type of ignorance is factual ignorance. Factual ignorance entails that an agent does not know or has no obligation to know about the causal consequences of her action (Smith 1983). This kind of ignorance is what is ultimately at stake when financial professionals are charged with “tunnel vision [...] that makes it impossible for them to assess risks” (Tett 2018). In the context of financial crises, the relevant content of knowledge concerns whether an agent knew whether her actions causally contributed to a financial crisis and if alternative courses of action could have brought about a different, perhaps less harmful, set of consequences.

³¹ An excellent example of current lobbying efforts by the banking industry are ongoing attempts to water down the capital requirements for large banks in the EU, see Brenton (2021).

The epistemic condition is somewhat more complex than the control condition because it is bundled up with role-specific duties of the agent (de Bruin 2018; Scalet 2018; Warenski 2018). In order to alleviate an agent from their moral responsibility for contributing to a financial crisis, it is not sufficient that an agent fails to actually know about the consequences of her action, it must also be the case that she had no role-specific epistemic duty to know about the consequences of her action. Role-specific epistemic duties specify which causal effects of her actions an agent ought to be aware of (Goldberg 2017). Some actions might have unpredictable effects.³² But often, agents occupy roles that require them to be knowledgeable with regard to at least some types of consequences of their actions. The literature on moral responsibility for financial crises overwhelmingly agrees that financial professionals typically do have role-specific epistemic duties. The generally accepted claim is that financial professionals “have moral obligations to their clients, employers, and colleagues to form judgments that are based on evidence and which reflect their expertise” (Warenski 2018, 197). As a result, these role-specific duties will render financial professionals morally responsible for their contributions, even if they did not actually know they contributed.

However, epistemic duties vary widely with the specific fields of expertise of financial professionals. Different types of financial professionals will have different types of expertise; therefore, the scope of their epistemic duties will differ.³³ In what follows, I provide a particularly illustrative example of how financial professionals can fail to fulfill their epistemic duties: Credit rating agencies’ failure to accurately assess MBSSs.

Credit rating agencies provide information (or, in their preferred terminology, “opinions”) that indicates how likely it is that the issuer of a particular debt-related financial product will default. A short glance at the history of credit rating agencies illustrates their purpose: In the aftermath of the Great Depression of the 1930s, US regulators aimed to prohibit banks from investing in “speculative” securities, i.e. highly risky financial assets. In order to do so, a decree from 1936 prohibited affected financial firms from investing in securities which were not verified by

³² For example, you might not know that the person you ran over with your car is the CEO of a large bank who will be replaced by a much more reckless manager. In this case, you would fulfill the epistemic condition with regard to running someone over with your car, but you would fail to fulfill the epistemic condition with regard to contributing to a financial crisis.

³³ Agents with the widest scope of epistemic duties will often turn out to be supervisory authorities that have mandates to safeguard financial stability. Simultaneously, these supervisory authorities have little control over the day-to-day operations of individual financial firms, which comparatively limits their potential to be morally responsible for financial crises.

“recognized rating manuals”. These rating manuals were the rating systems used by those credit rating agencies that are by now known as the “big three”: Standard&Poor, Fitch and Moody’s (White 2010). To this day, the market for credit ratings is constituted by only a handful of firms approved by regulators.³⁴

A central point of criticism launched against credit rating agencies in the aftermath of the GFC was that they provided investors with unduly optimistic credit ratings of complex financial products, such as MBSs. Roughly, MBSs are financial assets that receive their cashflows from various bundles of mortgages (so-called “tranches”). Depending on their risk appetite, an investor might buy a share in a tranche that is defined by higher (“junior”) or lower (“senior”) default risks. Investors in a particular tranche receive payment flows from the mortgages in the tranche they bought into. The job of credit rating agencies is to provide a rating for these tranches, ranging from, on Moody’s rating scale, “Aaa”, for the lowest default risk, to “C”, for the highest default risk. Investors were heavily incentivized to pay attention to these ratings (in some cases because they were required to do so by law).³⁵ In the words of de Bruin, the epistemic expertise to assess the creditworthiness of complex financial products such as MBS tranches was “outsourced” (de Bruin 2015, 165).

Problems appeared when a steady deterioration of mortgages took hold of the US mortgage market in the early 2000s. Underwriting standards were lowered and highly risky mortgage types were introduced (e.g. so-called “NINJA mortgages” and adjustable rate mortgages with “teaser rates”) and thus, the default rates of these “subprime” mortgages started to increase. Credit rating agencies failed to reflect this development in their ratings for various reasons: First, credit rating agencies did not perform due diligence on the loan data provided by the sponsors of MBSs. While they were under no legal obligation to do so, it is a standard in the industry to verify key information about underlying assets. Credit rating agencies failed to conform with this standard (Warensky 2018, 207). Second, credit rating agencies failed to be transparent about the methodology by which they arrived at ratings. Particularly frustrating instances of intransparency include apparently unmotivated “out of model” adjustments to loss expectations (Warenski 2018, 207) and Moody’s reliance on assessing credit risks via the average mortgage in a par-

³⁴ For the list of authorized credit rating agencies in the EU, see European Securities and Markets Authority (2022). For the list of authorized credit rating agencies in the US, see US Securities and Exchange Commission (2022).

³⁵ A legal requirement to rely on the ratings of credit rating agencies, in turn, arguably diminishes the degree to which the control condition for moral responsibility is fulfilled by investors subject to this requirement. For discussion, see de Bruin (2015, ch. 7).

ticular tranche, rather than a representative sample (de Bruin 2015, 10). Third, the “issuer-pays” model entailed that credit rating agencies are paid by those whose products they rate. The primary source of worry was that the issuer-pays model created a conflict of interest, in which it was profitable for credit rating agencies to provide the highest ratings for issuers (such that issuers would not simply buy their rating at another agency). But the issuer-pays model thereby created an incentive for credit rating agencies to provide inaccurate information to investors (Scalet and Kelly 2010, 482). In summary, credit rating agencies, first, failed to conform with best epistemic practices in the industry, second, failed to permit investors to comprehend and verify how ratings were generated, and third, operated under a structure that undermined the reliability of their testimony.

The ratings provided by the credit rating agencies increased the likelihood of a financial crisis, because they suggested to investors that MBSs were effectively as safe as treasury bonds, while offering a much higher return on investment. Knowing this not to be true was within their expertise. Credit rating agencies should have been aware that they generated a significant incentive for overinvestment in MBSs and similar products. They arguably also should have known that this level of overinvestment was unsustainable in the long-term and could eventually lead to a financial crisis. In other words: they should have known their false ratings contributed to a financial crisis.³⁶ Had they acted in accordance with this knowledge and corrected or perhaps even withdrawn their ratings (Scalet and Kenny 2012, 483), we would have no grounds to hold them morally responsible for causally contributing to the GFC. Yet, they failed to provide accurate ratings for highly complex financial products, despite the fact that the provision of ratings was their designated area of expertise.³⁷ Financial professionals, including credit rating agencies, provide expert services within financial markets. This provision of expert services entails that they have role-specific epistemic duties. In many cases, these role-spe-

³⁶ Yet another issue is the degree of precision required for agents to satisfy the epistemic condition. For example, should Moody's have known the precise expected losses due to their inaccurate credit ratings? Here, I assume that such specific knowledge is not required to satisfy the epistemic condition. What is needed is merely the belief that one's actions might lead to harmful consequences. For discussion of this issue, I refer to Nelkin and Rickless (2017) and Fischer and Tognazzini (2009).

³⁷ There are various ways in which authors express this point. Warenski, for example, insists that credit rating agencies failed to live up to their duty to abide by “best epistemic practices” in the financial sector (Warenski 2018). Scalet and Kelly (2012) speak of an “institutionalized mismatch of investor expectations and rating agency pronouncements”, while de Bruin observes a failure on both the regulators' and agencies' side to exhibit epistemic virtues such as “love”, “generosity” or “justice” (de Bruin 2015, ch. 7).

cific duties require of them to be at least roughly aware of whether their actions might misallocate financial resources in a manner that could lead to a financial crisis.

In conclusion, the epistemic condition for moral responsibility states that we can hold agents morally responsible for the consequences of their actions only if they knew or should have known about the consequences of their actions. In the context of financial crises, the latter condition is of particular importance, because it determines the range of consequences that professionals in the financial sector should be aware of in accordance with their role-specific epistemic duties. The actual failure to know of the relevant consequences of their actions constitutes insufficient grounds to relieve them of their moral responsibility for contributing to a financial crisis.

4.3 Relevance for this Thesis

In order to settle questions regarding the moral responsibility for financial crises, we need an account of moral responsibility. Here, I argued that according to the Aristotelian conditions for moral responsibility, an agent is morally responsible for an outcome if:

1. Control condition: The agent has a reasonable alternative course of action available which would have brought about a different set of consequences from the one that she is being held morally responsible for.
2. Epistemic condition: The agent knew or should have known that her action would causally contribute to a set of consequences that she is being held morally responsible for.

I argued in this section that different types of agents can be held morally responsible for contributing to an event that qualifies as a financial crisis to different degrees, depending on the degree to which they had reasonable alternatives to action and depending on their role-specific epistemic duties.

Questions of moral responsibility directly or indirectly figure into multiple articles in this thesis. The most direct reference to moral responsibility can be found in **Paper 2**, where I discuss whether consumers can be held morally responsible for their contributions to a financial crisis. More specifically, I argue that some retail borrowers do not fulfill the control condition because they face a lack of reasonable alternatives to contributing to a financial crisis via taking out a risky

loan. This is the case when they are unable to satisfy their basic needs by any other means than taking out credit. But the excuse that is generally valid for retail borrowers is that under normal circumstances, there is no role-specific epistemic duty for retail borrowers to know about the effect that their acceptance of a loan has on financial stability. This entails that consumers fail to fulfill the epistemic condition for moral responsibility and are thus not morally responsible for their contributions to a financial crisis.

Questions of moral responsibility also figure into the moral evaluation of contributions to financial crises. All things equal, if an agent cannot be held morally responsible for their contribution to a crisis, we cannot truthfully say that the agent did something impermissible by contributing to the crisis. Moral responsibility, as I understand it here, is a precondition of permissibility. I argued earlier that in some cases, irrespective of what the agent does, a financial crisis-type event will occur. Agents will typically fulfill the control condition irrespective of whether they contribute or not. We thus have, *prima facie*, reason to consider both action and omission impermissible. But these reasons are outweighed if agents fail to know (or have no obligation to know) about the consequences of their action (or omission). I discuss questions relating to the permissibility of contributing to a financial crisis in **Paper 1** and **Paper 5**, where I focus on bank contributions and duties to compensate for wrongful contributions, respectively.

In the next section, I discuss the issue of collective harm cases. I explain why it is useful to understand financial crises as collective harm cases and go on to explain how we should evaluate contributions to collective harm cases.

5. Collective Harm Cases

Consider again the FIH as a causal model of how financial crises emerge. If the FIH is correct, it is not the case that financial crises result from the conduct of one single agent. Financial crises are the result of collective and unbroken behavioral patterns. Capitalist markets with complex financial systems generate incentives to steer banks towards increasing their profit and thereby increasing the risk of a financial crisis. Without counteracting forces, such as stringent financial market regulation, automatic fiscal stabilizers via big government-type policies and lender-of-last-resort policies, this tendency will likely generate a financial crisis.

The fact that financial crises are typically not the product of a single agent's conduct has an impact on the conditions under which contributions to such crises are permissible. Superficially, it seems as if even if an agent contributes to a crisis, we cannot fault her for her contribution. In all likelihood, a causally complex event such as a financial crisis would have occurred even if the agent had not contributed to it. Put differently, financial crises are typically overdetermined events: It is true for each individual agent who contributes to a financial crisis that the crisis would have occurred with or without her specific contribution. In overdetermined cases, individual agents' contributions are neither causally necessary nor sufficient to "make a difference" to the occurrence of an overdetermined event. This goes for financial crises, too: Consumers do not "make a difference" to the occurrence of a financial crisis by abstaining from taking on risky loans, large banks do not "make a difference" to the occurrence of a financial crisis by abstaining from providing highly risky corporate loans. The causal link between individual contributors and the collective harm that seemingly emerges from their conduct is broken. This, in turn, has important implications for the permissibility of contributing to a financial crisis: If no individual agent makes a difference to the occurrence of a financial crisis by accepting or providing risky loans, issuing overly optimistic credit assessments etc., what precisely makes it wrong for them to engage in these types of actions?

Prima facie, it seems that because financial crises are events with an overdetermined causal structure, no agent does wrong by contributing to a financial crisis.

This puzzling conclusion is known by various names, such as “the problem of many hands” (Thomson 1986) or the “problem of inconsequentialism” (Sandberg 2011).³⁸ Here, I refer to it as the “problem of collective harm cases”.

The literature on solutions to the problem of collective harm cases can be roughly categorized into two strands. The first strand either seeks to re-establish the causal link between individual contributions and collective harms or simply accepts that this link is broken and that therefore, no individual contribution is impermissible. The second strand attempts to solve problem of collective harm cases by finding solution that does not emphasize this causal link.

This following section differs from other parts in the introduction. Instead of merely providing an overview of the relevant literature, I present an original argument in favor of a schematic solution of the problem of collective harm cases. I call this solution “vectoral causation”. But before I that, I first sketch out some of the most prominent and well-developed solutions attempting to answer either one of the above questions.

5.1 Solutions to Collective Harm Cases

Different attempts of dealing with the problem of collective harm cases will shift their focus either towards or away from the causal link between individual contributions and collective harms.³⁹ Let us first consider the strand of literature that is focused on the causal link.

The simplest solution within to the problem of collective harm cases within this strand of literature is to accept that individual contributions to overdetermined events (such as financial crises) are not causally efficacious and, therefore, we have no reason to consider them impermissible. Prominent proponents of this solution are Sinnott-Armstrong (2005) and Sandberg (2011).

³⁸ Although the distinction is not clean-cut, there are two further aspects under which the problem of collective harm cases is discussed in the literature: The “vagueness” aspect (Kagan 2011, Parfit 1986, Spiekermann 2014), which is usually in focus in discussions revolving around Parfit’s classic case of the “Harmless Torturers”, and the “causality” aspect (Sinnott-Armstrong 2005, Nefski 2011, Sandberg 2011), which is often in focus in debates on climate ethics. Here, I focus on the latter.

³⁹ Due to space constraints, I discuss only those responses to the problem of collective harm cases that are, to the best of my knowledge, the most developed or most frequently represented in the literature. For an overview of various responses from Kantian generalization, virtue ethical solutions and the appeal to imperceptible harms and their various shortcomings, see Sandberg (2011).

Both Sinnott-Armstrong and Sandberg begin from the observation that it is impermissible to cause someone else harm. But, they continue, no individual contribution to a collective harm is a cause of the collective harm, because each contribution will fail a simple counterfactual test. For illustration, assume that four million unsecured corporate loans of equal size are required to bring about a financial crisis. The crisis, however, is overdetermined because five million such loans have been approved, one of which was approved by GiantBank. Whether GiantBank approves their loan or not does not change the fact that a financial crisis will follow, because the threshold of loans required for a financial crisis will be reached anyway. In other words, whether GiantBank approves the loan or not does not “make a difference” causally.

Behind the claim that individual contributions do not make a causal difference is a specific account of causation, the simple counterfactual account. Gunnemyr characterizes the account as follows:

Simple Counterfactual Account of Causation. C causes E if and only if it is the case that if C had not occurred, E would not have occurred (Gunnemyr 2019, 401).

GiantBank’s approval of the loan is only a cause of the financial crisis if it was the case that had GiantBank not approved the loan, the financial crisis would not have taken place. This reasoning extends to each contributing bank, such that no bank causally contributed to the emerging financial crisis.

While convincing at first glance, it is well-known that the simple counterfactual account of causation fails to explain overdetermined events.⁴⁰ The simple counterfactual account of causation requires for individual contributions to be both necessary and sufficient, all other things equal, to bring about the outcome in question. To see why simple counterfactual causation does not handle overdetermination cases well, consider a case in which both X and Y shoot me and I die as a result (Sandberg 2011, 240). While either X’s or Y’s shot was sufficient to kill me, neither X’s nor Y’s shot was necessary to kill me. Had X not shot, Y would have and vice versa. I would have died either way. The upshot is that neither X’s shooting nor Y’s shooting is the cause of my death on the simple account of counterfactual causation. The prima facie conclusion is that I seemingly died causelessly,

⁴⁰ Due to its inability to handle preemption and overdetermination cases, Lewis, the original proponent of the simple counterfactual account, adjusted the account (Lewis 2000). The result of the adjustment is the so-called “fine-grained counterfactual account of causation”, which I describe in the next section.

which is self-evidently false (Moore 1999, 49). Sinnott-Armstrong's arguments specifically build on the false simple counterfactual account of causation. It follows that Sinnott-Armstrong's conclusion that no individual contribution to a collective harm case is causally efficacious is also false.

A similar conclusion can be obtained for Sandberg's adjusted proposal, i.e. that only all individual contributions taken together are the cause of a collective harm, rather than any individual contribution on its own (Sandberg 2011, 242). This conclusion is similarly unsatisfying. Consider again the shooter case: Even on the simple counterfactual account of causation, it is not true that the collective of X-and-Y is necessary to bring about my death. Each shot is sufficient, which entails that both shots fired by the collective of X-and-Y are not necessary. If only X shot, rather than the collective of X-and-Y, I would have died, too (and vice versa for Y). Hence, it cannot be true on the simple counterfactual account that it is only the collective contribution by the collective of all agents that constitutes the cause of a harm. On the simple counterfactual account of causation, neither any individual shooter nor the collective of shooters causes my death. This is implausible. Perhaps it is therefore better to abandon the simple counterfactual account altogether.

Other solutions in the same strand start from a similar point as Sandberg and Sinnott-Armstrong, namely the assumption that it is impermissible to cause others harm. Yet, they insist that individual contributions to collective harm cases do cause others harm. One example of such a solution is Braham's and van Hees' NESS account (Braham and van Hees 2009, 2012).⁴¹ Contrary to the simple counterfactual account, the NESS account states that an action is a cause of an outcome if the action is a necessary element in a set of sufficient conditions that need to be satisfied for the outcome to obtain. Thus, it is not the simple counterfactual test that any action needs to pass to count as a causally efficacious contribution to a collective harm, but rather the fact that the action must be an element in at least one potentially sufficient set that generates the collective harm. For example, assume that it is sufficient for two out of three very large banks - GiantBank, ColossalBank and EnormousBank - to provide highly risky corporate loans on a perpetual basis to bring about a financial crisis. These sufficient sets are [GiantBank lends; ColossalBank lends], [GiantBank lends; EnormousBank lends] and [ColossalBank lends; EnormousBank lends]. According to NESS, GiantBank's lending

⁴¹ For an application in climate ethics, see Baatz and Voget-Kletschin (2019).

is a cause of the ensuing financial crisis, because GiantBank is an element in two of the three sufficient sets (Baatz and Voget-Kletschin 2019, 578).

The NESS account has a crucial weakness, though: If all three banks contribute and the NESS account is correct, it remains metaphysically indeterminate which of the three sufficient sets was the one that *actually* caused the financial crisis. NESS suggests that in the presence of such indeterminacy, we simply judge that all three banks are causally contributing to the financial crisis, because each bank is part of at least one sufficient set of actions that generates a financial crisis. This is unsatisfying given the assumption that the contributions of two banks are causally sufficient to bring about the financial crisis. We should not jump to the conclusion that all three banks are causally contributing to the financial crisis simply because we cannot determine what the *actually sufficient* set of bank contributions is that brought about the financial crisis.

Let us now move on to the second strand of literature, which does not centrally emphasize causation.⁴² The solutions presented here do not start from the assumption that it is impermissible to cause others harm, rather, they maintain that other factors explain the impermissibility of contributions to collective harms. An example of such a solution comes from expected consequences. This solution has most famously been defended by Kagan (2011). According to Kagan, collective harm cases are usually “threshold cases”. In threshold cases, most causal contributions do not make a difference to the occurrence of the collective harm. However, there will be one particular individual contribution that crosses a morally relevant threshold – and this contribution will certainly be wrongful because it makes a causal difference to the occurrence of the collective harm. In cases in which a large number of individual contributions is required to cross the morally relevant threshold, we do not know which individual contribution will cross the threshold. Hence, there is only an infinitesimal probability that any individual contribution is impermissible. But if the collective harm is sufficiently significant, the expected value of each individual contribution (i.e. the product of the probability that the *i*-th contribution is the threshold-crossing contribution times the magnitude of the collective harm) is negative (Kagan 2011, 120 ff.). For illustration, consider again the case in which five million unsecured corporate loans are issued, while four million

⁴² It is worth pointing out that all the solutions that I discuss here do implicitly subscribe to some account of causation. For example, although he is never explicit about this point, Kagan (2011) seems to commit himself to some version of the simple counterfactual account. However, the central objective of the solutions discussed from here on is not to restore the causal link, as was the case for the solutions discussed thus far.

of these loans are sufficient. Kagan would argue that there is a one-in-five-million probability that the four-millionth loan (i.e. the threshold-crossing loan) is issued by GiantBank. We can furthermore safely assume that the resulting financial crisis will have negative value. The upshot is thus that the (miniscule) positive probability that GiantBank will perform the threshold-crossing contribution times an enormous negative value of the resulting financial crisis will together entail that GiantBank's loan approval will yield a negative expected value. If it is impermissible to perform actions that yield a negative expected value, it must be impermissible for GiantBank (and any other of the contributing banks) to approve their loan.

Unfortunately, the solution from expected consequences also faces a severe problem: The expected disvalue associated with each contribution will likely yield only a small negative value. However, individual agents do not contribute to financial crises without incentive. Both consumers and banks often benefit from contributing to financial crises. The crucial point here is that it is plausible to assume that in each individual case, the miniscule negative expected value generated from an individual contribution to a financial crisis is outweighed by whatever benefits the agent gains from contributing. Hence, it is not the case that each individual contribution on its own yields a net negative expected value. Because individual contributions to collective harms are easily outweighed by countervailing benefits from contributing, they are likely often not impermissible on the expected value view (Nefsky 2011).⁴³

A last solution to the problem of collective harm cases is Kutz's participatory intentions account (Kutz 2000). Contrary to the other solutions presented thus far (with the exception of the NESS account), Kutz does not subscribe to the view that an action must make a causal difference to the occurrence of a collective harm in order to be impermissible. In fact, Kutz argues more generally that it does not ultimately matter for the permissibility of a contribution whether it is causally efficacious or not (Kutz 2000, 125). What matters is the intention with which the contribution is performed. Kutz insists that individual agents can be held accountable for their contribution to a collective harm in virtue of shared "participatory

⁴³ In the case of financial crisis, the problem might be somewhat more complicated due to the presence of amplification mechanisms that are not under the control of any individual agent. For example, selling a particular asset in a fire sale might marginally devalue similar assets on the books of other financial firms, thereby amplifying the probability that this particular contribution will cross the threshold to a financial crisis. However, it remains an open question whether these amplified effects a) actually count towards the agent's contribution and b) whether they are nonetheless not offset by large benefits accrued to the agent. At best, the solution from expected value still stands on shaky grounds.

intentions”): Each individual contributor is part of a collective that together brought about the collective harm in pursuit of some shared objective (Kutz 2000, 142).⁴⁴

The focal problem with Kutz’s solution is that it does not fit the context of financial crises well. As Moggia (2019, 5) points out, it is generally not true that financial market participants share the goal to intentionally bring about a financial crisis. Individual contributors to a financial crisis constitute a severely disparate group with interests that are often diametrically opposed to each other (for example, borrowers typically profit from low interest rates and lenders profit from high interest rates). It is unlikely that some shared participatory goal unites all individual contributors to a financial crisis. It is much more plausible to consider financial crises as unintended, yet foreseeable side-effects of complex collective actions.

5.2 Vectoral Causation

In what follows, I present a sketch of my favored solution to the problem of collective harm cases, which attempts to explain how contributions are both causally efficacious and why we have reason to consider them impermissible.

Let us begin with whether individual contributions to collective harms are causally efficacious. The problem of collective harm cases starts out from the simple observation that no individual contribution to an overdetermined outcome is causally efficacious because no individual contribution on its own makes a difference to the occurrence of the outcome. Yet, it seems intuitively plausible that individual agents are doing wrong by contributing to a harmful outcome, even if the outcome is overdetermined. If we want to capture this intuition, we need to explain how an individual contribution is causally efficacious with regard to a specific outcome.

What is required is a counterfactual test that demonstrates that each individual contribution is both necessary and sufficient for bringing about a collective harm. The *fine-grained counterfactual account of causation* delivers this result (Lewis 2000). The fine-grained account builds on the simple counterfactual account but specifies that both cause and effect in a causal relationship are fine-grained. It is hence congruent with the simple counterfactual account insofar as it states that C causes E if and only if it is the case that if C had not occurred, E would not have occurred. The difference to the simple account is that the fine-grained account distinguishes be-

⁴⁴ Strictly speaking, Kutz does not explicitly contemplate issues pertaining to impermissibility, but rather to accountability. For discussion, see Kutz (2000, 143). What I am presenting here is hence merely a Kutz-inspired solution, but not one explicitly defended by Kutz himself.

tween fine-grained types of events. For example, even if C causes E, it is not the case that C* (which is identical to C, except that it takes place a split second later) causes E. Instead, the fine-grained account maintains that C* causes E* (which is identical to E, except that it takes place a split second later). The crux is that E* is not identical to E and C* is not identical to C, which they are on the simple counterfactual account of causation (Lewis 2000, 188).

Two observations are important here. First, the fine-grained account of causation delivers on a central desideratum of theories of causation: It is mind-independent in the sense that what is acknowledged as a cause is not dependent on specific mental states of those who assess causal chains, but merely on counterfactual dependencies. In other words, it is an “egalitarian” account of causation (Hall 2004, 228). Lewis states his interest in developing an egalitarian account of causation as follows:

We sometimes single out one among all the causes of some event and call it ‘the cause’, as if there were no others. [...] We may select the abnormal or extraordinary causes, or those under human control, or those we deem good or bad, or just those we want to talk about. I have nothing to say about these principles of invidious discrimination. I am concerned with the prior question of what it is to be one of the causes (Lewis 1973, 558).

The focal issue with collective harm cases is that individual contributions seem to be only causally efficacious if they “make a difference” to some morally relevant feature of the outcome they result in. But it should be clear that in general, causal relations are independent of moral relevance; that the forest burnt down because of the lightning, the presence of sufficient oxygen, the absence of rain etc. in itself is of no moral relevance. The forest fire counterfactually depends on each of these factors, yet none of them make the forest fire better or worse. If the fine-grained counterfactual account of causation is correct, a contribution to a collective harm might thus be causally efficacious even if it does not “make a difference” in any morally relevant manner.

Second, the crux of the fine-grained account is that there are (for all practical purposes) no genuinely overdetermined events. Every fine-grained outcome is highly sensitive to changes in the causes it counterfactually depends on. If lightning strikes the forest a second later than it counterfactually had, the resulting forest fire is non-identical to the forest fire that would have occurred if lightning struck a second earlier. The possibility of genuinely overdetermined events is thus negligible. This is a metaphysically respectable intuition, as Bunzl (1979) points out: Given the physics of our world, it is highly unlikely that any event is ever genuinely

overdetermined. In the case of collective harm problems, and financial crises in particular, the implication is that any financial crisis counterfactually depends on a very large number of actions that will shape its precise materialization. All of these actions constitute causes of the actual financial crisis that emerges. No approved (or in fact, denied) loan is too small, no mortgage defaulted on (or fully repaid) is too insignificant to count as a genuine cause of the financial crisis that actually emerges. In short: The fine-grained counterfactual account of causation suggests that any individual contribution that a (fine-grained) financial crisis is counterfactually dependent on counts as a cause.

Let us now move onto why precisely individual causal contributions to a financial crisis might be considered impermissible. In what follows, I take Nefsky's solution (2017, 2019) as a starting point to provide a schematic answer. Roughly, Nefsky suggests that contributions are impermissible because by avoiding contributing to a harmful outcome, we make "a non-superfluous move" towards a different, better outcome. In Nefsky's words, we "help" to bring about another outcome, even if we do not make a morally relevant difference (Nefsky 2017, 2746): Every highly risky loan that is denied *prima facie* constitutes a non-superfluous causal move towards avoiding a financial crisis, even if the denial were insufficient to prevent a financial crisis on its own.

However, if the fine-grained counterfactual account of causation is correct, a fine-grained event that qualifies as a financial crisis will counterfactually depend on a wide range of actions. Not all of these actions are contributions. By denying a loan, an agent inserts themselves in the fine-grained causal chain that brings about the fine-grained financial crisis that actually emerges. Had the agent approved the loan, a different fine-grained financial crisis would have emerged. In either case, the agent's approval or denial of the loan will be a cause of the financial crisis that actually emerges. We hence need to adapt Nefsky's solution to the fine-grained account of causation in order to explain why only contributing to financial crises is wrong, even though omitting one's contribution might also have a causal impact on the crisis that emerges. I refer to the adaption I propose as "vectoral causation".

Schematically, there are three types of actions that an agent can perform in order to have a causal impact on an emerging financial crisis: First, actions that the subsequent financial crisis is not counterfactually dependent on, i.e. actions that under normal circumstances have no causal impact on the emergence of a financial crisis type event. Call these actions "neutral actions" (for example doing the dishes). Second, actions that under normal circumstances make it more likely that an event will occur that is of the financial crisis type, i.e. "contributions" (for ex-

ample providing a risky corporate loan). Third, actions that under normal circumstances make it less likely that an event will occur that is of the financial crisis type, i.e. “omissions” (for example refusing to provide a risky corporate loan or providing a loan that is highly likely to be paid back).

Contributions and omissions are best illustrated as vectors (Goldman 1999, 210). Contributions are positive vectoral forces that, under normal circumstances, generate a movement towards a type of event. Omissions are vectoral forces that, under normal circumstances, generate a movement away from that type of event.⁴⁵ The crux is that actions which, under normal circumstances, generate a movement towards an event-type will typically necessarily feature in a salient explanation of how the specific event came about. For example, the forest fire caused by (among other things) a lightning strike in April might counterfactually depend on rainfall in December. Had it not rained in December, the forest would have caught fire in December due to a faulty gas cooker. Therefore, according to the fine-grained counterfactual account of causation, the rain caused the forest fire. But this is not a *salient* explanation of how the forest fire came about. The rain is a vectoral force that, under normal circumstances, will prevent forest fires. It generates a movement away from a forest fire event type. A salient explanation of the forest fire will identify the lightning strike as the salient cause of the forest fire in April, because the lightning strike is the type of event that will under normal circumstances (sufficient oxygen, the absence of rainfall etc.) cause a forest fire type event (McGrath 2005).

Back to financial crises. In order to apply the solution from vectoral causation to financial crises, we can assume that normal circumstances, in the case of financial crises, are circumstances in which it is at least not yet settled whether a financial crisis will come about. In other words, the crucial mass of contributions required to bring about a financial crisis-type event has not yet been reached. After all, financial crises are by definition an abnormal state of affairs for a financial system to be in. The reason why contributions to financial crises are impermissible, but omissions are not, is that contributions are a necessary element in a salient explanation of how a financial crisis came about. Which kinds of actions saliently constitute contributions towards (and vice versa, omissions away from) a financial crisis is, in turn, informed by our best economic theories on financial crises (for example, the FIH). Financial crises cannot, under normal circumstances, come about if too many agents engage in omissions. Under normal circumstances, omissions

⁴⁵ The vectoral impact of omissions roughly corresponds to what Nefsky (2017) refers to as actions that “help” to bring about a better outcome via omitting to contribute.

only generate movements away from financial crisis type events. Contrarily, under normal circumstances, financial crises necessarily require additional contributions qua vectoral causes towards a financial crisis type event. Both contributions and omissions might be actual causes of a token financial crisis, but only contributions are *explanatorily salient* causes of a financial crisis type event.

Explanatory salience, in turn, indicates what kind of actions we can foresee to be causes of a financial crisis. The same way that we do not foresee that rainfall causes the forest fire, we do not foresee that omissions cause a financial crisis. What makes contributions to financial crises impermissible is that they are the elements in the actual chain of causation which would *foreseeably* lead to a financial crisis (Hart and Honoré 1985, 257).

For illustration, let's assume that a financial crisis occurs because of the following elements in a causal chain: [ColossalBank contributes; GiantBank contributes; Bob contributes; you omit your contribution; ...].⁴⁶ You are in the causal chain that leads to the financial crisis that actually occurred. Had you contributed (e.g. by taking out a mortgage that you will default on), another token financial crisis would have occurred. *Prima facie*, if it is wrong to causally contribute to a harmful outcome, then you have done wrong by omitting to contribute to a token financial crisis. However, your omission is not a salient factor in the explanation of how the financial crisis came about. Under normal circumstances, your omission would constitute a vectoral movement away from a financial crisis type event. Hence, there was no way for you to foresee that your omission would be an element in the causal chain that led to the financial crisis that actually occurred. Therefore, we must ultimately judge that your omission was not impermissible, even if it was causally efficacious.

I should point out that the solution I have sketched out here, similar to Nefsky's solution, merely provides us with a reason to consider contributions impermissible if it is not foreseeable (or "settled", in Nefsky's terminology) that a token financial crisis with consequences that are exactly as bad as its counterfactual alternative comes about because of your contribution (Nefsky 2017, 2757). To see why this is important, assume that a bank considering giving out a risky loan foresees a financial crisis-type event will occur. However, the bank has no way of knowing whether one more or one less person will become unemployed in the ensuing financial crisis. Unless such knowledge can be attained, it would be pru-

⁴⁶ It should be clear that if you were not in the chain of causation, i.e. if all your actions had a neutral vectoral impact, we would have no reason to consider your action morally wrong because the resulting event will not be counterfactually dependent on your actions.

dent of the bank to follow the advice of our best economic theories and abstain from providing the loan in the hope of tilting the odds towards an even minimally more favorable outcome.

Even those that are not convinced of this hopeful line of reasoning will, however, have to admit that the solution from vectoral causation offers one crucial advantage over solutions based on the easily accessible, simple counterfactual account of causation: According to the solution from vectoral causation, it is not (quite implausibly) *a priori* settled that no individual contribution will make a causal difference once sufficiently many willing contributors are available. Solutions building on the simple counterfactual account of causation will usually simply state that the emergence of a crisis is overdetermined, hence no individual contribution can be impermissible. Instead, the solution from vectoral causation requires us to evaluate for each contributor whether they could have reasonably foreseen whether normal circumstances apply or whether the emergence of a financial crisis-type event was already “settled” in their eyes.

On a related note, let me point out how the solution from vectoral causation and moral responsibility are linked: In many cases, only some agents with role-specific epistemic duties will have an obligation to be sufficiently informed about the salient explanations of a financial crisis. Most likely, these agents will be either financial firms, regulators, or individual financial professionals. If an agent does have an epistemic obligation to know about salient explanations for financial crises, we can hold her morally responsible for her contribution to a financial crisis. The epistemic condition for moral responsibility hence in many cases predetermines the type of agent that has the capacity to contribute impermissibly to a financial crisis.

In summary, the solution from vectoral causation for the problem of collective harm cases I schematically defended here consists in two claims: First, the fine-grained counterfactual account of causation is correct and there are no overdetermined events. Every action that an actual financial crisis is counterfactually dependent on is a cause proper. Second, only contributions, i.e. actions that constitute vectoral causes *towards* a financial crisis type event, can in principle be impermissible because they are the kind of actions the effects of which foreseeably lead to financial crises under normal conditions. What makes contributions wrong, then, is that they constitute foreseeable causes of a harmful financial crisis. Only specific types of agents, i.e. financial firms in the banking or shadow banking sector, regulators and individual financial professionals typically have an epistemic obligation to know about the salient causes of financial crises.

5.3 Relevance for this Thesis

From what has been said thus far, it should be clear that the problem of collective harm cases looms over the entirety of this thesis. Because the articles contained in this thesis are focusing on very specific questions that are only partly related to the problem of collective harm cases, such as the moral responsibility of consumers for financial crises (**Paper 2**) or the wrong-making factors of contributions to financial crises (**Paper 1** and **Paper 5**), the correct place to sketch out and defend a solution to this important problem is this introduction.

Financial crises are collectively brought about harms, and the problem of collective harm cases suggests that no contribution to a financial crisis made by any individual agent – financial firm, regulator or natural person – can be impermissible. This result is problematic insofar as we are prone to evaluate individual contributions by individual agents as wrong: In the aftermath of the GFC, individual financial firms, such as Lehman Brothers, Goldman Sachs and AIG were singled out in public debate for their wrongful contributions to the GFC (FCIC 2011, xix). Even individual regulators (most prominently Alan Greenspan)⁴⁷ were accused of wrongdoing. However, these judgments can only be correct if the problem of collective harm cases can be solved. In this part of the introduction, I defended one such solution, the solution from vectoral causation which states that at least foreseeable causal contributions to financial crises are impermissible.

The problem of collective harm cases features most prominently in this thesis in **Paper 1** and **Paper 2**. In **Paper 1**, a causal connection as well as the condition of foreseeability is required to establish whether individual contributions to financial crises can in principle be impermissible. In **Paper 2**, we require a causal connection to assess whether consumers can in principle be morally responsible for financial crises. Even though I do not commit myself to any specific solution to the problem of collective harm cases in these articles, it is clear that some solution must be provided in order to establish that some individual agents can both be held morally responsible for financial crises and that their contributions to financial crises can in principle be impermissible. If the solution from vectoral causation is successful, it follows that individual contributions can be impermissible and individual agents can be held morally responsible for their contributions to financial crises.

⁴⁷ Alan Greenspan was the chairman of the Federal Reserve from 1987 until 2006. For discussion of his involvement in the GFC, see FCIC (2011, xviii).

However, I have thus far made an important simplification in order to illustrate the philosophically deep problems underlying the moral analysis of financial crises. I assumed that the collective harm that individual agents contribute to is a financial crisis that emerges with certainty. This assumption is not warranted. Whether financial crises emerge or not is, at least *ex ante*, a matter of uncertainty. Thus, the collective harm that individual agents are typically contributing to is the *risk* that a financial crisis will emerge. In the next section, I discuss how risk-sensitive ethical theories can determine what levels of risk imposition are permissible.

6. Systemic Financial Risk and Contractualism

Financial crises are hard to predict. Typically, at the time when they perform their contributions to a financial crisis, agents do not know with certainty whether a financial crisis will occur or not.⁴⁸ More precisely, individual actions – be they contributions or omissions – typically merely affect the *objective risk* that a financial crisis will occur. The notion of objective risk is contrasted with subjective risk, where the former states that risks characterize “objective facts about the physical world”, namely, that some future outcomes are not yet determined (Hansson 2010, 232). Subjective (or epistemic) risk characterizes a person’s knowledge about the world, i.e. what credence a person assigns to a particular outcome obtaining (Steuer 2021, 115).⁴⁹

The objective risk that a financial crisis will occur is also known as Systemic Financial Risk (SFR). SFR is a highly contested concept in economics. Economists offer no unified definition of SFR, even though there is broad agreement that SFR denotes “the risk that a shock will result in such a significant materialization of [...] imbalances that it will spread on the scale impairing the functioning of the financial system and [...] adversely affect the real economy” (Smaga 2016, 1).

It should come as no surprise that economists hence also offer various methods to measure SFR. Examples include CoVaR, proposed by Brunnermeier and

⁴⁸ The literature on risk often acknowledges the rather technical distinction between risk and uncertainty (Knight 1921). According to the distinction, risk is reserved for outcomes that occur with known probabilities, while uncertainty is reserved for outcomes that occur with unknown probabilities. Strictly speaking, in most real world cases (except for dice rolls, roulette and so on), we do not know the probability with which an outcome will occur. Hence, most real world cases involve uncertainty. However, in Hansson’s words, “there is a strong tendency in decision-supporting disciplines to proceed as if reliable probability estimates were available for all possible outcomes” (Hansson 2013, 14). Economics and normative ethics are part of such decision-supporting disciplines. Throughout this thesis, I follow the standard approach in these disciplines and treat all relevant cases discussed here as cases involving risk.

⁴⁹ Some authors insist that there is no morally relevant distinction between objective and subjective risks (Rüger 2018). I merely choose to conduct the following discussion in terms of objective risk and abstract from potential related difficulties for simplicity of presentation. For a discussion on the moral relevance of the distinction between objective and subjective risks in connection with contractualist theories of risk, see Steuer (2021).

Adrian (2016), which roughly measures the potential losses within a financial system conditional upon the stability of a single financial firm and SRISK, proposed by Brownlees and Eagle, which measures the potential losses of a firm conditional on a severe market decline (Brownlees and Eagle 2017). These measures are ultimately proxies that aim to track SFR, but are of no practical viability for ethical analysis, which can proceed with a much simpler conception of SFR.

In the risk ethics literature, risks are standardly understood as expected values (Frick 2015; Kumar 2015; Thompson 1986; Nozick 1974). For our purposes here, it is useful to understand SFR as the expected value of being impacted by a financial crisis. Under this conception, SFR denotes the probability of a specific person being impacted by a financial crisis times the harm that person stands to suffer from a financial crisis, such as significant monetary losses, bankruptcy, long-term unemployment, the erosion of life savings or even health hazards.⁵⁰

The FIH suggests that capitalist systems with sophisticated financial markets generate strong incentives for some agents to produce SFR. High levels of SFR constitute a significant burden for those affected in the same manner that other man-made risks do, such as the risk of suffering harm due to climate change, air pollution or antibiotic resistance. When sufficiently many individual agents bring about high SFR levels, they together engage in causing a *collective harm*. Exposing others and potentially themselves to a severe risk of suffering from the consequences of a financial crisis. I focus here on how theories of risk ethics can help determine a justifiable level and distribution of SFR and thus signal when SFR-reducing policies are justified.

However, some positive level of SFR exposure might be justifiable even to those who stand to suffer from a potential financial crisis. Contributions to SFR often do not only increase SFR, but also yield benefits. This entails that even though each agent has a reason not to contribute to SFR under normal circumstances, these reasons might be outweighed by other considerations. For example, access to cheap credit can significantly relax a person's budget constraint or increase a firm's profitability. This, in turn, entails that what level of SFR is justifiable depends on the distribution of costs and benefits produced by the underlying SFR-

⁵⁰ For discussion of how aggregate risks translate into risks imposed onto individuals, see Frick's "argument from the single person case" (Frick 2015, 186). I assume a simple frequentist conception of probability here, which entails in this context that the probability of an aggregate risk (e.g. the risk of a financial crisis) reflects the frequency with which a specific burden might affect individual agents in the relevant reference group within a specified timeframe. The higher the frequency, the more agents will be affected. For discussion of various conceptions of probability, see Hájek and Hitchcock (2016).

generating practices. In this section, I defend a contractualist approach to determining how high justifiable SFR levels can be and how costs and benefits of SFR-generating practices ought to be distributed. To avoid tedious repetition, I intentionally kept the discussion of the contractualist approach to risk ethics comparatively short. More fleshed out versions of the topic and its various implications in the context of permissibility and policy, respectively, can be found in **Paper 1** and **Paper 5**. Here, I begin by giving a short overview over the two most prominent rival accounts, rights-based and consequentialist approaches to risk ethics, and discuss why they are not suitable in the context of financial crises. I then present the contractualist approach and argue that it is much more capable of providing a satisfying principled solution to the problem of justifiable SFR levels.

6.1 Rights-Based and Consequentialist Approaches to Risk Ethics

“Risk ethics” is an umbrella term that subsumes various normative ethical theories that evaluate actions with uncertain, but potentially severely negative outcomes. Risk ethical theories typically aim to evaluate actions with uncertain consequences from the *temporal ex ante perspective*, i.e. actions are evaluated when they are performed and thus before their consequences materialize. This ex ante evaluation implies that a bundle of various potential consequences must be appraised. Each of the elements in the bundle are then weighted by their probability. The sum of weighted elements provides us with the expected value yielded by the action (Hansson 2013, 23). However, the expected values on their own are insufficient to evaluate the action in question. This task requires a theory of risk ethics.

There is widespread consensus among risk ethicists that there are three particularly important approaches: The rights-based, the consequentialist, and the contractualist approach.⁵¹ Let us begin with the rights-based approach. The rights-based approach insists that in the same manner that persons have a moral claim right (i.e. a right that entails that others have a duty to perform or omit a specific action) not to be subjected to certain harm without their explicit consent, they have a moral claim right not to be subjected to risks of harm (Wolff and Hayenhjelm 2012; Holm 2016). An important problem with the rights-based approach to risk ethics is that virtually all conduct imposes some risk of harm onto

⁵¹ I should note that all three approaches are not as unified as I present them here. Consequentialist, rights-based and contractualist approaches to risk ethics can vary widely in detail. I provide a thorough discussion of various contractualist theories of risk ethics in **Paper 5**.

others. My conduct often imposes risks onto others on its own, for example when I eat dinner with cutlery or when I drive to work by car or by bike. Similarly, my actions might also generate large risks in conjunction with the actions of others. They might foreseeably become part of a causal chain that brings about a collective risk imposition, for example, when I buy meat that has been produced using antibiotics or when I generate emissions by going on a joyride in my Hummer. Imposing trivial risks on others, alone or together in a structured or unstructured group, is unavoidable in the world we live in. If rights-based theories are correct, it is impermissible for me to impose any such risks (or contribute to collective risks) onto others without their consent, which in most cases I will not be able to obtain. This problem is known as the “Problem of Paralysis”: If we consistently respected the claim right of others not to be exposed to any miniscule risks, society would become “paralyzed” (Wolff and Hayenhjelm 2012, e26).

In the context of financial crises, the Problem of Paralysis poses a serious problem: As noted earlier, all capitalist economic systems with functioning, sophisticated financial markets will have the tendency to produce *some* positive level of SFR. The production of SFR is an unintended side-effect resulting from actions undertaken by individual agents in financial markets (and potentially other spheres within and outside of the market). This means that these agents routinely, merely by participating in financial markets, violate the rights of others not to be exposed to any positive risk of suffering harm due to a financial crisis. *Prima facie*, if the rights-based approach is correct, we must conclude that it is impermissible for agents to interact in sufficiently sophisticated financial markets at all.

Defendants of the rights-based approach can respond in two ways: First, they can argue that only non-trivial risk impositions constitute rights violations, while trivial risk impositions do not (Holm 2016, 920). Second, they can insist that all risk impositions constitute rights violations, but that some risk impositions are permissible insofar as compensation is offered (Nozick 1974, 66; Holm 2016, 925). Both options are ultimately unsatisfying. First, determining a threshold separating trivial from non-trivial risks is particularly problematic in the case of financial crises: Even if SFR levels are low, the risk is spread over such a large population that we must reasonably expect that if a financial crisis materializes, some will suffer significant harm. But if rights theorists insist that imposing harms onto others with certainty constitutes a rights violation, it remains unclear why imposing foreseeable, yet uncertain harms onto others does not constitute a rights violation. If, in response, the threshold is set so low that no foreseeable harms are to be expected, we are just left with another Problem of Paralysis (see **Paper 5**).

Second, compensation does not square well with the spirit of rights-based theories, because “compensation is nothing but a price attached to the pursuit of one’s own ends” which permits one to take “an instrumental view of others” (Railton 1985, 215). If one would be permitted to violate someone else’s right not to be exposed to risks by simply offering some form of compensation, then the “right” in question is no longer a proper right – we have put a price on people’s autonomy which was supposed to be priceless.⁵² Compensation as a principled response to risk impositions thus threatens the value of autonomy and is at odds with the Kantian notion of persons as ends-in-themselves. All in all, the rights-based approach seems to have no satisfying response to the Problem of Paralysis.

Consequentialist approaches to risk ethics are characterized by three main components: First, a focus on consequences, which implies that an action is to be evaluated exclusively based on the consequences it yields. Second, welfarism, which means that only those consequences that have an impact on the welfare of those affected by a risk matter morally. Third, sum-ranking, which means that an action is ranked in terms of permissibility in accordance with a sum of some specific variables (Sen 1983). Typically, consequentialist theories of risk state that a risk imposition is permissible insofar as it yields the best expected value in terms of welfare for the total sum of those affected by the action (Wolff and Hayenhjelm 2012, e33).

The central problem of these theories, however, is that they are insensitive to fairness concerns regarding the distribution of risks. This problem is due to the aggregative nature of consequentialist theories: Small benefits provided to a majority can outweigh large costs imposed onto a minority.

An interesting illustration of consequentialism’s indifference to distributions in the context of finance is the phenomenon of “derivative time bombs”.⁵³ Derivatives are essentially complex financial products whose value is dependent on some underlying asset (MBSs are an example of derivatives). They are notoriously difficult to price, because there is often no existing market at the time of their issuance. Derivative pricing hence often involves various methods, depending on what type of derivative is to be priced (Hirsa and Neftci 2014). When a derivative is severely overpriced (typically because its appraisal is overly optimistic), it is likely that it will abruptly lose in value the latest when its maturity is reached. Consider now the

⁵² This issue has been discussed at length by Nozick as the issue of “free floating fear” (Nozick 1974).

⁵³ For discussion of the dangers of derivatives, see the Berkshire Hathaway’s infamous chairman’s letter of 2002 (Berkshire Hathaway 2002).

chain of transactions in which such an overpriced derivative changes hands. Each of the involved parties gains as long as the true value of the derivative is not revealed. Once the correct price is revealed by the market, the final party selling the derivative takes a loss that amounts to the difference between the derivative's market value at the time of acquisition and its real, far lower value at the time of sale. In other words, a long chain of transacting parties secures minor benefits and potentially catastrophic losses stick with the final party holding the asset. The problem entailed by consequentialist reasoning in this case is not that the losses are borne by one particular party, it is rather that insofar as sufficiently many other parties benefit, the overly optimistic appraisal (even if fraudulent) is morally permissible, perhaps even required. In short, the creation of derivative time bombs is, in most circumstances, not problematic from a consequentialist point of view.

For the broader phenomenon of SFR in general, consequentialism states that insofar as the benefits granted by SFR-generating practices (e.g. securitization) spread thinly over a sufficiently large part of the population (e.g. firms and their employees in the production chain of securitized assets), these practices might be morally permissible even if they impose severe harms on a small subset of the population (e.g. subprime mortgage borrowers). In short, consequentialism simply ignores the reasonable requirement that those at risk must, at least to some degree, benefit from a risky, SFR-generating practice. To those with non-consequentialist leanings, this is arguably the most important design flaw of the consequentialist approach to risk ethics (Hansson 2013, 27).

6.2 The Contractualist Approach to Risk Ethics

The contractualist approach to risk ethics is inspired by the idea of a social contract. Social practices, including those that generate SFR, are permissible insofar as they could be part of a social contract that all those affected by their consequences could reasonably consent to.⁵⁴ In other words, contractualist theories permit social practices if they are *justifiable to each*. Notably, this entails that, contrary to what is the case in consequentialist risk theories, risks imposed onto some cannot be offset by benefits offered to others. Nonetheless, justifiability to each can be ensured even if risks are non-zero; hence, contractualist theories of risk can deal with the Problem of Paralysis that plagues rights-based theories (see **Paper 5**).

⁵⁴ Here, I focus on instrumentalist considerations for consenting to a social contract. For a discussion on instrumentalist and intrinsic considerations in contractualism, see Kumar (2015).

Of particular importance here is the Scanlonian version of contractualism (from here on, simply “contractualism”). Contractualism states that a social practice is justifiable to each if no one can reasonably reject it.⁵⁵ Reasonable rejection, in turn, is spelled out in terms of two principles: The Individualist Restriction and the Greater Burden Principle. The Individualist Restriction states that each agent can only reject a principle on her behalf. This entails that no individual is permitted to reject a risky social practice due to the particular distribution of risk resulting from the practice (Scanlon 1998, 219). To Scanlonian contractualists, it is the way in which a risk affects each agent individually that matters morally, rather than how the risk affects aggregates of agents. Second, the Greater Burden Principle dictates how we determine whether a social practice can be reasonably rejected given its impact on individual agents. According to Scanlon, it is unreasonable to reject the permission of a social practice if its prohibition imposes a greater burden onto others than its permission imposes on the agent (Scanlon 1998, 111). In combination, these principles yield that in order to determine whether a social practice is permissible, we need to compare the burden of the worst-off under permission of the social practice with the burden of the worst-off under prohibition of the social practice. If the former is greater than the latter, the social practice ought to be prohibited and vice versa.

Back to SFR. We know that some types of social practices in finance foreseeably generate SFR. Hence, permitting these practices generates burdens for some, while their prohibition might generate burdens for others.⁵⁶ The strength of a burden is ultimately determined by the risk imposed onto each affected agent. Different camps of contractualists argue in favor of different methods to calculate this strength. In what follows, I assess burdens from an Ex Post contractualist perspective, which focusses on the ex post harm that could materialize from a risk

⁵⁵ Standardly, contractualist theories evaluate actions in a somewhat roundabout manner: Instead of directly evaluating a token action, contractualists insist on evaluating a principle which would permit or prohibit the kind of action under consideration (Scanlon 1998, 197). The point of principles is that they ultimately provide reasons to perform an action of type *x* under circumstances *c*. Principles hence range over action types, rather than individual actions (Scanlon 1998, 201). In many parts of this thesis, I drop the talk about principles and instead refer to the permission (or prohibition) of conduct (for example risky financial practices) or actions of a specific type (for example bank contributions to financial crises). Not much is lost by this move: I believe that in most of the relevant passages, it should be clear to the reader that I am not evaluating token actions, but types of actions. I thus target the same object of evaluation that contractualists standardly have in mind and only discuss hypothetical token actions for illustrative purposes.

⁵⁶ To be more precise, prohibition and permission might create net burdens or net benefits for individuals.

imposition. I compare Ex Post contractualism and its main rival approach, Ex Ante contractualism, in much more detail in **Paper 5**. Here, I simply assume that the burden is determined by the potential outcome that those affected worst might eventually suffer.

By enabling us to assess the justifiability of individual SFR-generating practices, contractualist theories of risk indirectly provide us with a method to assess what levels of SFR are justifiable to each and thus permissible, given a particular set of alternative available practices. For illustration, consider the following simple case:

Risky Mortgage. GiantBank is a systemically important bank. If GiantBank becomes insolvent, a financial crisis will likely follow. GiantBank now faces the choice of issuing either secure, standardized 30-year mortgages or adjustable-rate mortgages that carry a high risk of default. If GiantBank opts for the former, the probability of insolvency for the bank over the next two years is effectively zero. If GiantBank issues the risky mortgages, the probability of insolvency rises to fifty percent over the next two years. However, because the risky mortgages are much more profitable, each employee of GiantBank stands to gain a one million dollar bonus within the next two years. If default rates on the risky mortgages spiral out of control and GiantBank becomes insolvent, each employee of GiantBank loses her job, but remains fairly wealthy. Mortgage borrowers are impacted differently by the choice: Those who do not default on their adjustable-rate mortgages within two years each have a fifty percent probability to lose their job in the financial crisis that ensues and become homeless due to foreclosure.

GiantBank's provision of the adjustable-rate mortgages generates SFR: The mortgages are structured such that GiantBank generates high profits, but they also carry high default risks which might render the bank insolvent and in turn bring about a financial crisis. The question for contractualists is whether it is justifiable to each that GiantBank issues these highly risky adjustable-rate mortgages, given that the bank could also provide much more secure mortgages.

What ultimately matters for an assessment of the respective burdens from a contractualist perspective is not the risk imposed onto each person per se, but rather the manner in which the resulting outcome could affect each person ex post. More explicitly, this means that burdens resulting from risky social practices are not discounted by their probability. Let us now consider how this all works out.

If GiantBank provides the risky mortgages, employees of the bank face a burden equivalent to the burden of unemployment, while mortgage borrowers face a burden equivalent to unemployment and homelessness. If GiantBank opts for the secure mortgages, mortgage borrowers face no significant burden, but employees of GiantBank would forego a one million dollar bonus. If we thus assume that

unemployment is cancelled out as a burden (because both those who gain the most from the issuance of risky mortgages as well as those who stand to lose the most face a burden of unemployment and the impact of unemployment is homogenous on members of both groups), we are left with the comparison of homelessness versus the loss of a million dollar bonus. Because homelessness weighs much heavier than the loss of a large bonus to a wealthy person, it is not justifiable to each that GiantBank issues the risky mortgages. It follows that because standardized mortgages entail an SFR level that is effectively zero, the justifiable SFR level in this case is hence effectively zero. On the flipside, if the choice was not between standardized and risky mortgages, but rather between risky mortgages and no mortgages and therefore (for example, in the face of an immature rental market) homelessness, issuing the risky mortgages would be justifiable to each. This is so because mortgage borrowers would face homelessness regardless of which type of mortgage is issued. In this case, the acceptable probability of a financial crisis would be fifty percent. The example hence illustrates in which manner SFR levels are dependent on the justifiability of their underlying practices.

However, *Risky Mortgage* is a highly simplified case that obscures important worries: First, SFR-generating practices are manifold, hence, justifiability to each requires assessing and comparing the burdens to the worst-off given different combinations of SFR-generating practices.⁵⁷

Second, a remaining worry is that the focus on ex post burdens might generate a contractualist version of the Problem of Paralysis (Ashford 2003): All else equal, if any individual agent is exposed to a minute, yet non-zero risk of suffering a significant burden due to a very unlikely financial crisis (e.g. a one in a million risk of becoming homeless), the practices that generate such risk are not justifiable to each (remember that contractualists as conceived of here do not discount burdens by their probability). Almost all SFR-generating practices seem to impose such minute risks of severe harm onto the worst-off, while the beneficiaries of these risky practices would not suffer any comparable losses were the practices prohibited. The upshot is that if contractualism is correct, all SFR-generating practices would have to be prohibited. Any feasible financial system would be paralyzed.

However, unlike rights-based theories of justice, contractualists can refer to compensation to solve this problem: Contrary to rights theorists, contractualists are not necessarily resistant to all attempts to “buy off” a person’s autonomy. All

⁵⁷ It might turn out that pairwise comparisons of burdens of SFR-generating practices ultimately yield no “social choice function”. Similar paradoxes are well-known in welfare economics, see for example Sen (1970). I bracket this rather technical problem throughout this thesis.

that is ultimately required is that any such deal shields persons negatively affected by a certain risk imposition from suffering severe, uncompensable harm. If such compensation is feasibly guaranteed *ex ante* (for example via an elaborate insurance scheme), then any relevant *ex post* burden is effectively eliminated and no grounds for rejecting the practice remain. In short, contractualists can at least in principle avoid the contractualist version of the Problem of Paralysis. This proposal is at the core of **Paper 5**.

In conclusion, contractualism suggests that it is not SFR levels *per se* that are of immediate moral importance, but rather the burdens that victims might suffer in case of a financial crisis. Contractualism puts the victims' burdens front and center by considering not the risk itself as the relevant standard of comparison, but rather the materialized harm that could result from the risk. When it comes to large collective risk impositions, contractualists do not weigh the benefits of each single contribution to a collective risk to the incremental addition in risk generated by the contribution. Instead, they weigh the total burden generated by a collective risk imposition for a single victim (in the form of material *ex post* harm that the victim might suffer from) against the benefit gained by an individual contribution to a collective risk for a single contributor. This entails that contractualism emerges as a highly risk-averse theory of risk ethics.

The probabilities of risks are only relevant to contractualists insofar as they partially determine the aggregate amount of compensation required to offset burdens imposed onto victims: A high probability that a financial crisis occurs means that we ought to expect many to suffer from SFR-related burdens. This, in turn, implies that a higher aggregate amount of compensation will be necessary to render the practices that generate SFR justifiable to each. In short: The riskier the practice, the higher the cost of compensation. But once we permit for compensation, the highly risk-averse nature of contractualism is somewhat dulled: In most (if not all) relevant cases, the aggregate cost of compensation will be lower than the aggregate cost of foregoing the benefits of justifiable risky practices. The feasibility of compensation should thus not be a principled worry. At least, this is by definition the case for any risky practice that yields net aggregate benefits. Risky practices which do not yield aggregate net benefits are most likely non-starters with regard to justifiability to each.⁵⁸ Once we permit for compensation, the level of SFR that is justifiable to each is hence such that it permits compensating those who stand to

⁵⁸ I explain in **Paper 5** that it is plausible to assume that SFR-generating practices are "Kaldor-Hicks-efficient". If they are, then by definition, these practices generate sufficient benefits to secure sufficient resources for compensation.

suffer significant burdens were a financial crisis to occur – again, this does not necessarily require SFR levels to be close to zero.

6.3 Relevance for this Thesis

In this section, I argued that rights-based and consequentialist approaches to risk ethics face considerable problems and are therefore unfit for assessing SFR impositions. Rights-based approaches to risk ethics are far too restrictive because of the Problem of Paralysis. Consequentialist approaches are far too permissive, because they permit offsetting a risk imposed onto one agent with a benefit to another. I thus defended a contractualist approach to risk ethics.

According to the contractualist approach, whether risky practices, including SFR-generating practices, are permissible depends on whether they are justifiable to each of those adversely affected by them. Justifiability to each requires that exposure to SFR must be offset via some form of compensation for any severe harm that victims of SFR might suffer in case of a financial crisis.

Contractualist risk ethics are most prominently featured in this thesis in **Paper 1** and **Paper 5**. In **Paper 1**, I argue that the contractualism captures a central wrong-making feature of SFR-generating practices better than alternative consequentialist or virtue ethical approaches, i.e. that these practices impose risks which could materialize into severe harms. In **Paper 5**, I discuss how risk impositions in general can be offset via compensation and apply the resulting insights to evaluate bank resolution regimes in terms of justifiability to each. Throughout this thesis, I defend the contractualist approach to risk ethics as the most plausible approach to assessing SFR-generating practices.

The notion of justifiability to each is also at the heart of **Paper 3**, albeit implicitly. Here, I argue that if we accept that the Harm Principle (i.e. the principle which roughly holds that the state has reason to intervene with harmful conduct in general) is correct, then we have reason to believe that the state can justifiably intervene in the case of market harms (i.e. price fluctuations which are harmful to either buyers or sellers in a market). Going beyond the explicit content in **Paper 3**, we can conceive of financial crises as large-scale market harms. Both the Harm Principle and contractualism attest a lack of justifiability when harmful or risky conduct threatens others. Both the Harm Principle and contractualism can promote state intervention with regard to risky or harmful conduct. Financial crises are merely a special case of harmful outcomes resulting from risky collective conduct in financial markets. Insofar as contractualists have the resources to justify state interven-

tion, they will likely agree with promoters of the Harm Principle that it is justifiable for the state to either prohibit or enforce compensation for conduct that produces SFR.

In conclusion, different bundles of SFR-generating practices effectively correspond to different structural setups of our financial system: Which practices we permit and prohibit within financial markets determines the shape of our financial system. Contractualist reasoning can guide us in assessing which of these structural setups are justifiable to each. In the next section of this introduction, I discuss various types of policy measures that aim to mitigate SFR in the attempt to render a financial system justifiable to each.

7. SFR-Mitigating Policies

SFR is a man-made risk. It emerges due to sustained, collective action organized into different practices, which are conducted by various individual agents participating in the financial system. What types of SFR-generating practices we permit or prohibit determines the capacity of our financial system to generate SFR. This capacity can be enhanced or diminished. In **section 6**, I argued that there is an ethical theory that can provide us with the tools to evaluate under which conditions contributions to SFR are wrongful. One important implication of what has been said thus far is that when contributions to SFR are wrongful, it is not permissible for agents to continue to perform them. In more concrete terms, this means either that agents must on their own cease to contribute to SFR when this is wrongful (or compensate for their contributions) or that external, qualified authorities receive permission to disincentivize or coerce them from contributing to SFR (or force them to offer compensation). Both options might be desirable and helpful, but in what follows, I focus on the latter option. More specifically, I provide an overview of state interventions that force financial market participants to reduce their tendency to generate SFR and to be prepared to absorb large financial losses without spreading contagion.

We can roughly distinguish between two main types of state interventions in this context (even though the lines will be blurred in many cases): Fiscal policies and financial regulation.⁵⁹ Fiscal policies aim to generate economic conditions that stabilize a financial market but can also provide emergency support in case of a crisis. Financial regulation determines the conditions under which SFR-generating practices are permitted within the financial market.

Over the course of the past decade or so, various emergency policy measures have been employed to dampen the impact of the GFC on the respective national

⁵⁹ I exclude monetary interventions here, because I agree with Minsky's assessment that traditional monetary policy does not work effectively as a stabilizing factor without big government spending: "Monetary policy to induce expansion operates by interest rates and the availability of credit, which do not yield increased investment if current and anticipated profits are low" (Minsky 2008, 338). Non-traditional monetary policy, including Quantitative Easing, effectively constitutes a fiscal measure.

economies.⁶⁰ But at the same time, international authorities in financial markets have attempted to redesign banking regulations with the aim of ensuring that financial crises will, in the words of the former US president, “never again” take on the same order of magnitude as the GFC (Obama 2010). My ultimate focus in this introduction will be specifically on banking regulation, since most progress has been made in this arena. Nonetheless, it might be helpful to remind readers of Minsky’s suggestion for stabilizing state intervention to complete a rough overview.

Minsky himself proposes two main policy remedies for ensuring financial stability throughout the economy: Big government spending and lender of last resort policies.⁶¹ First, by big government spending, Minsky means that government deficits must be sufficiently large to ensure that profit expectations are consistently met. Put slightly differently, one source of financial instability is that lenders are only willing to lend if they can be assured that debts will be repaid. Profit is ultimately the source of repayment. If the government generates opportunity for profit via stabilizing demand through, for example, social welfare programs or generates additional demand via, for example, large infrastructure projects, profit margins can be secured and repayment expectations can be met (Minsky 2008, 336).

Second, by lender of last resort policies, Minsky means that central banks could serve as emergency lenders when private lenders are unwilling to provide funds to distressed firms. The immediate effect is that defaults which would otherwise spread further throughout the financial system are halted at an early stage. But because there is an inherent danger that risk-friendly, Ponzi-type borrowers will expect to have perpetual access to central bank funding (a particular version of this phenomenon being TBTF), the central bank must clearly define which financial markets it is willing to protect and stick to its commitments (Minsky 2008, 359). To summarize, the combination of big government spending and lender of last resort policies yields, in Minsky’s words, that “Big Government [spending] stabilizes output, employment, and profits by its deficits, the lender of last resort stabilizes asset values and financial markets” (Minsky 2008, 43).

⁶⁰ For an early overview, see van Aaken and Kurtz (2009).

⁶¹ To be more specific, Minsky proposes five major policies to stabilize an economy, the remaining three being adjustments to the tax system, a full employment strategy focusing on access to public labor markets and the avoidance of large, capital-intensive corporations, which decrease demand for labor (Minsky 2008). I bracket the remaining policies simply because their impact on financial stability is less immediate and because Minsky himself only mentions big government spending and lender of last resort policies in the conclusion of the policy section in his book (Minsky 2008, 369).

Minsky's policy suggestions aim at stabilizing the economic system against financial instability. However, they only constitute one type of state intervention against SFR. The other type of intervention, as has been mentioned before, are financial regulations. Here, I focus specifically on banking regulation, since much regulatory effort after the GFC went into creating regulation that constrains banks' ability to take on too much risk and thereby become vulnerable to SFR. Banking regulation varies from jurisdiction to jurisdiction but is in large parts internationally determined by the input from the Basel Committee on Banking Supervision (BCBS) and the Financial Stability Board (FSB). The BCBS is a forum for representatives of various national supervisory authorities, which develops standards in banking regulation and provides (typically non-binding) suggestions on banking regulation to national supervisory authorities (Bank for International Settlements 2022). The FSB is a committee composed of representatives from various member states, which, contrary to the BCBS, focusses on advising on the implementation of banking regulation, monitors market developments and assesses vulnerabilities in the financial system (FSB 2020). Most changes in banking regulation all around the globe were based on suggestions by the BCBS and the FSB, including the introduction of the Dodd-Frank Wall Street Act in the US as well as changes to the Capital Requirement Regulation (CRR) and the Capital Requirement Directive (CRD) in the EU.

Since the GFC, a lot of focus in banking regulation has been put on TBTF institutions, or as they are known to regulators, Globally Systemically Important Banks (G-SIBs), i.e. banks that are sufficiently large in terms of total assets (or interconnectedness with other large banks) for their failure to generate a severe shock to the financial system that could on its own trigger a financial crisis.⁶² Most recent financial regulations suggested by the BCBS aim primarily at limiting these banks' capacity to take on risks and increasing their capacity to absorb losses, instead of spreading them further throughout the financial system.

In what follows, I will give a detailed, systematic overview over the developments in banking regulation since the GFC. But before that, I offer a short primer on bank balance sheets to provide the reader with an understanding of the issues targeted by recent developments in banking regulation.

⁶² The list of G-SIBs is updated yearly. For the 2021 list of G-SIBs, see FSB (2021).

7.1 The Bank's Balance Sheet

Some banks' failure, in particular G-SIBs', can create shocks that increase SFR significantly. Just like other firms, banks fail when they are no longer "going concern", i.e. if they become insolvent (or "gone concern"). A firm is insolvent if it is unable to repay its debts (i.e. "external funding"). Insolvency hence marks a mismatch between the firm's assets, i.e. the resources controlled by the firm, and its liabilities, i.e. the sources of its funding.

A bank's liabilities are roughly separable into debt (owed to other firms) and equity capital (in short, "capital"), which represents the shareholder's stake in a bank. Bank assets include for example cash, reserves, or debt owed by institutional, corporate or private borrowers of the bank. For our purposes here, it is furthermore helpful to distinguish liquid from illiquid assets: Liquid assets find a high demand in the market and can thus be sold off easily when the need to repay debts arises. Illiquid assets, for example loans with a long time to repayment (i.e. "maturity"), do not enjoy high demand and are hence less suited as readily available repayment funds. A bank as a whole is illiquid when it is unable to meet its repayment obligations in a timely manner. Contrarily, if a bank is unable to meet its obligations at any point in the future, it is insolvent.

A bank can quickly become insolvent when the value of (some of) its assets decreases drastically. In this case, the losses on the asset side must be counterbalanced on the liabilities side. This can only happen in one of two ways: Either the bank's capital is drawn down to compensate for the losses on the asset side or the bank's outstanding debt is decreased via a write-down (or "haircut"). Losses on the asset side of the balance sheet are particularly devastating to firms that operate with disproportionately high debt funding (i.e. "leverage"), which is standardly the case for banks. For example, if a bank is leveraged 33 times (i.e. if they hold 33 dollars in debt for every dollar in capital), a loss of 3% on the asset side of the balance sheet might wipe out the bank's entire capital.

If neither option is available, the resulting mismatch implies in the extreme case that the bank owns valueless assets but has significant outstanding debts which it is unable to repay from selling its assets. The bank is insolvent and will likely file for bankruptcy. In a less drastic case, the bank might attempt to recuperate its losses by selling off its assets at a significantly decreased price. The unloading of assets at a highly reduced price is, as mentioned earlier, referred to as a "fire sale" and is one of the main contagion channels of SFR.

Assets	Liabilities
Liquid assets (cash, reserves, government bonds...)	Debt
Illiquid assets (mortgages, corporate loans...)	
	Capital

Figure 1: Illustration of a bank's balance sheet

In general, there are two ways in which the failure, i.e. insolvency, of a bank can spread SFR throughout the system: First, directly via default losses and second, indirectly via price movements (de Bruin 2018). The direct channel by which SFR spreads is straightforward: The debt of the failing bank is an asset for another bank. If the borrowing (failing) bank is unable to pay off its debt, this means that the lending (healthy) bank assumes a loss on the asset side. If the loss is sufficiently severe, the lending bank could itself fail to repay its debts and so on. The indirect channel is typically far more effective in spreading SFR. It operates via correlations between asset prices. The mechanism is best illustrated with an example: Assume that the default rates of mortgages in Gothenburg have historically been co-moving with default rates of mortgages in Stockholm. GiantBank holds a large portfolio of mortgages in Gothenburg, ColossalBank holds a large portfolio of mortgages in Stockholm. For some unforeseen reason, default rates on mortgages in Gothenburg increase significantly over the span of a couple of months. As a result, their value declines, causing a severe loss on the asset side of GiantBank's portfolio. Because the default rates of mortgages in Gothenburg and Stockholm have historically been correlated, shareholders of ColossalBank now expect a similar loss to affect ColossalBank. In anticipation of these losses, ColossalBank's shareholders sell their shares in the bank, thereby taking away the bank's ability to draw down on its equity capital to cover potential losses.⁶³ In short, the mere expectation of future losses is sufficient to generate actual distress on ColossalBank's portfolio. As mentioned earlier, fire sales can similarly depress asset prices throughout the market. Fire sales entail that the price of the asset sold depreciates, which in turn means that assets that are expected to be correlated will also likely fall in price. This price decrease entails that any purportedly correlated assets lose significantly in value and thereby generate losses on the portfolios of those who hold these

⁶³ Phenomena like these are known as "bank runs". See Diamond and Dybvig (1983).

assets – unless these investors sell their assets at a deep discount themselves, which in turn might affect the value of other correlated assets and so on.

Prudent banking regulation requires not only that each individual bank avoids insolvency, it is also necessary to ensure that banks' exposure to contagion channels (such as fire sales) is monitored and minimized. In the next section, I discuss recent developments in banking regulation aimed at increasing both bank's capacity to absorb losses as well as decreasing their capacity to take on risks.

7.2 Post-GFC Developments in Banking Regulation

The GFC demonstrated forcefully that banking regulation at the time left a lot to be desired: Risks were underestimated or simply ignored, precautions focused on a few selected issues, but left others unaddressed. Post-GFC regulations, mostly established via the new regulatory catalogue developed by the BCBS, Basel III, aimed at correcting these flaws. Their target was threefold: First, ensure that banks have sufficient loss-absorbing capacity to withstand various types of stress scenarios. Second, ensure that banks are constrained in their capacity to take on excessive risks. Third, ensure that those who benefit from SFR-generating practices take on (some of) the costs of their bank's failure, instead of shifting the costs of rescue onto taxpayers. Schematically, the regulatory developments primarily extend to five measures that target the loss-absorbing capacity of banks, two further measures that target the risks that banks can take on and a new set of tools to be implemented in case of failure. The measures aimed at increasing banks' loss-absorbing capacities and decrease banks' ability to take on risks are thus of a preventative nature, because they aim at ensuring that banks are not threatened by failure and thus aim at preventing the build-up of SFR throughout the system. The new tools to be employed in case of failure, so-called "bail-in tools" are resolution schemes activated if other preventative measures fail. Resolution schemes are regulatory tools that aim to ensure that failing banks can be wound down in an orderly manner, instead of collapsing spontaneously and spreading SFR throughout the system. These tools are of particular importance for G-SIBs, because they constitute last effort measures to prevent the initiation of a full-blown financial crisis. In **Paper 5**, I provide a detailed comparison of various resolution schemes (including bail-in) from a contractualist perspective. Here, however, my objective is to provide a rough, yet comprehensive overview of the most central post-GFC developments in banking regulation.

An important point is worth noting here: One of the main concerns of banking regulators is how a bank's capacity to absorb losses can be strengthened in order to avoid both bankruptcy and wide-spread contagion effects. A shortfall of both Basel I and II, the BCBS's two previous catalogues on banking regulation, was that both operated under the assumption that if each financial firm in the system was safe from the risk of a financial crisis, the entire financial system must also be safe (also referred to as the "fallacy of composition"). The focus of regulators before Basel III was hence on microprudential regulation, i.e. regulation focusing on the stability of individual banks, rather than macroprudential regulation, i.e. regulation focusing on the stability of the entire financial system (Bank for International Settlements 2017). One of the main goals of Basel III was to establish a macroprudential framework in response to the lessons learned from the GFC. Even though the success of this shift from a micro- to a macroprudential focus is not unanimously agreed upon (Shin 2011), many recent developments in banking regulation reflect the micro- as well as macroprudential perspective. When applicable, I will point out the macroeconomic purpose of specific regulations.

Loss Absorption: Capital Requirements

Regulations aimed at strengthening the loss-absorbing capacities of a bank typically ensure that banks have sufficient capital to counterbalance potential losses on their assets. While Basel I and Basel II did already provide some standard of loss absorbing capacity, the GFC demonstrated that this standard was insufficient to prevent widespread bank failures. Most crucially, these earlier standards were built around minimum risk-weighted capital requirements. Capital requirements specify the amount of capital that must be held by a bank relative to the assets held by the bank. Depending on their inherent risk, the different types of assets receive weights. For example, domestic sovereign debt denominated in domestic currency typically has zero risk weights, which means that a bank is not required to hold any capital to counterbalance these assets.⁶⁴

Basel III improved upon its predecessors by adjusting risk weights, widely abandoning both the lenient, standardized approach to risk weights of Basel I as well as the permissive approach of Basel II which allowed banks to internally measure their achievement of the regulatory capital requirements (BCBS 2017).

⁶⁴ For discussion, see Korte and Steffen (2014).

Basel III also increased the amount and quality of the capital that could be used to fulfill minimum capital requirements. Basel III requires banks to hold roughly double the amount of high quality capital, so-called Common Equity Tier 1 capital (i.e. the capital constituted by common shares) from approximately two to four per cent. Additionally, Basel III reduced the amount of lower quality, Tier 2 capital that can be used to fulfill the minimum capital requirements (Borio et al. 2020, 17).

Loss Absorption: Minimum Leverage Ratio Requirements

Risk weights also produced another problem: It turned out that even some banks on the brink of failure during the GFC easily met regulatory capital requirements. This was due to the fact that risk weights significantly underestimated how likely losses on specific assets would be. The levels of capital that banks were required to hold were therefore insufficient. Basel III attempts to amend the far too complicated risk-weighted system with an additional simple, non-risk-weighted leverage ratio. This ratio specifies the minimal amount of Common Equity Tier 1 capital that must be held against total assets (around three per cent). In addition, the minimum leverage ratio requirements include not only on-, but also off-balance sheet assets, such as derivatives (BIS 2017).

In addition to stabilizing each individual institution, the leverage ratio also has a secondary, macroprudential effect, because regulatory risk weights historically fall during an economic boom (because market participants and regulators are sure that debts will be repaid and hence underestimate asset risks). By abandoning risk weights, the leverage ratio ensures that a larger amount of capital will be available than without it.

Loss Absorption: Capital Buffers

Capital requirements are established to ensure that in case of bankruptcy, a majority of losses can be absorbed by the failing bank without having to resort to taxpayers' funds to prevent a further spread of losses. Contrarily, capital buffers are designed to be drawn on even if the bankruptcy is remote. In other words, capital requirements are drawn on in a gone concern scenario, capital buffers are drawn on in a going concern scenario (Borio et al. 2020, 21). Basel III introduces three capital buffers: The capital conservation buffer, the G-SIB buffer and the countercyclical buffer. The capital conservation buffer is designed to be drawn on freely, but once used, restricts the bank's capacity to, for example, pay out divi-

dends (which would reduce capital further) or bonuses to management until it is re-filled. The G-SIB buffer is an additional buffer on top of the capital conservation buffer that G-SIBs are required to maintain. Similar restrictions apply as in the case of the capital conservation buffer. Last, the countercyclical buffer is one of the most important macroprudential tools of Basel III. The countercyclical buffer aims at limiting excessive credit expansions during the boom phase that precedes a financial crisis. Banks are required to build up the buffer during a boom phase and draw down on it during a downturn.

Additionally, the buffer is a cross-jurisdictional tool to limit cross-border contagion effects: If activated by a bank in jurisdiction A, regulators in B can inform banks in their jurisdiction to use the buffer in order to limit losses from exposure to A. In short, the countercyclical buffer is a macroprudential tool that mitigates the risk of losses both on a time and cross-sectional dimension.

Loss Absorption: Expected Loss Provisioning

Some losses that banks incur are expected. These losses simply amount to the going concern cost of engaging in the banking business. If losses are to be expected, banks are required to book appropriate provisions on their balance sheet, i.e. write-offs on their Tier 1 capital that are equal in magnitude to the expected loss. Before the GFC, these provisions were usually “too little, too late” (BCBS 2016). Too little, because expected losses were underestimated, too late, because they were only established when losses had already materialized. In response, new accounting standards, such as IFRS 9, require banks to increase their provisions immediately when their estimates of expected losses rise.

Loss Absorption: Total Loss-Absorbing Capacity

Before Basel III, regulators were not sufficiently focused on preserving the critical functions of failing G-SIBs (primarily depository functions). Instead, as I explain in detail in **Paper 5**, regulators’ goal was to ensure that a failing bank could be sold off to private parties as quickly as possible. For G-SIBs, with subsidiaries all around the world, it is no longer possible to find a private buyer in a timely manner. Hence, regulators require G-SIBs to hold sufficient capital at all times to ensure an orderly resolution procedure without having to finance the costs of winding down a failing bank via public funds. This reserve in capital is referred to as Total-Loss-Absorbing Capacity (TLAC) in the international context and Minimum Re-

quirements for Own Funds and Eligible Liabilities (MREL) in the EU context (Philippon and Salord 2017, 16).⁶⁵ TLAC (MREL) requirements can also be satisfied via so-called contingent convertibles (CoCos), i.e. bonds that are either transformed into shares or written down at a contractual or regulatory trigger event (Philippon and Salord 2017, 10). Later in this section, I explain how TLAC and MREL are further connected to bail-in tools.

Exposure to Risk: Liquidity-Related Reforms

Basel I and II were primarily focused on securing banks' loss-absorbing capacities (mostly via capital requirements). Unfortunately, this left potential liquidity issues unaddressed. More specifically, banks do not only need loss-absorbing capacity per se, they also need access to loss absorbing resources at specific times. If a bank is illiquid, it is not able to meet its repayment obligations in a timely manner, even though it might be able to meet them in the future. In short, banks can hold sufficient capital, but simultaneously fail to hold sufficient liquid assets to sell in order to meet repayment obligations when they are due. In response to these worries, Basel III established the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR). The LCR states that banks must at all times hold sufficient liquid assets to cover repayment obligations over the course of the next 30 days (Borio et al. 2020, 24). The NSFR addresses potential problems in maturity mismatching. Banks typically provide high-interest, non-liquid loans and fund these loans on the liability side with low-interest, short-term debt. The difference in interest rates between funds borrowed and funds lent out generates profit. The NSFR, however, requires banks to not only rely on short-term, but also long-term funding (i.e., typically debt with a maturity of up to one year). Long-term funding simply has the advantage that repayment might not be required when short-term liquidity problems arise (BCBS 2014).

The macroprudential purpose of both LCR and NSFR is both to establish a powerful signal to market participants that banks will be able to meet their payment obligations even in times of distress, as well as limiting banks' ability to expose themselves not only to asset losses, but also to liquidity shocks.

⁶⁵ Albeit similar in function, TLAC and MREL exhibit minor differences. MREL entered into force prior to TLAC and applies to all banks within the EU jurisdiction, TLAC is an international standard established by the FSB and applies exclusively to G-SIBs.

Exposure to Risk: Large Exposure Limits

When banks take on risks, it is better if these risks are not associated with one large counterparty. If the counterparty defaults, the losses might become so large that they might threaten the bank's own stability. In order to ensure that banks do not expose themselves to one singular source of risk, Basel III establishes large exposure limits. These limits are set such that the bank in question could take a maximal loss, i.e. a full default, from its largest counterparty and remain a going concern (Borio et al. 2020, 23).

Bank Failure: Bail-In

Bail-ins are resolution tools that ensure that bankruptcy can be avoided, especially in the case of precarious G-SIB failure. Most crucially, the aim of bail-ins is not only to avoid bankruptcy, but to preserve a failing bank's critical functions (e.g. depository services). Contrary to bailouts, critical losses of the bank are not to be absorbed by the taxpayer, but rather by creditors and shareholders of the failing bank.

Technically, bail-ins are set up either via bail-inable debt issued by the bank itself (e.g. via the aforementioned CoCos, which count towards TLAC and MREL) or via regulatory intervention, forcing shareholders to be wiped out (thereby absorbing the losses via the bank's capital) and debtors to write down or convert their outstanding debt into shares of the failing bank (thereby replenishing the bank's capital). Of particular importance in this context are regulations pertaining to loss-absorbing capacity (such as TLAC and MREL). Loss-absorbing capacity is a regulatory prerequisite for employing bail-in tools. But, as explained earlier, bail-in tools are more far-reaching, since they permit creditors and shareholders to be bailed in, potentially beyond whatever loss-absorbing capacity a bank de facto developed until that point. The end result when either bail-inable capital (such as CoCos) is drawn down or creditors are written down is that the bank's losses will be absorbed by either or both creditors and shareholders to some degree.

If successful, bail-ins can enable banks to recapitalize quickly via debt-to-equity transfers and write-downs, thus ensuring that the failing institution can largely remain operational (Philippon and Salord 2017).

7.2 A Few Shortcomings of Post-GFC Banking Regulation

While ambitious, these new developments in banking regulation have attracted a lot of criticism, mostly insisting that the measures are ultimately insufficient by design. I am unable to give a full overview of such criticisms here, nor am I able to discuss their validity in full length, but some major issues are worth highlighting.

To begin with, Anat Admati (2010) and twenty other finance and banking scholars argued in an open letter to the Financial Times that even under Basel III, capital requirements are far too low. Their proposal aimed for a minimum of 15% of non-weighted total assets. The background reasoning for this proposal is simple: It ensures that banks have even larger loss-absorbing capacities and thus can bear much more losses without having to be saved by the taxpayer. This proposal comes at virtually no cost in terms of economic growth at all. How much banks lend is determined by the amount of their liabilities, but not the composition of debt to equity (the composition does matter for achieving financial stability, though). Admati et al. hence claim that “banks clamoring for looser capital requirements are, in effect, clamoring for taxpayer subsidies, subsidies that perversely increase systemic risk” (Admati et al. 2010).

Kranke and Yarrow (2019) argue that regulatory bodies have wasted the potential of true macroprudential regulation due to an excessive focus on the measurability of SFR. They argue that post-GFC regulations are not genuinely macroprudential in scope, but rather put microprudential emphasis on G-SIBs in order to ensure measurability. However, this focus is misled, because potentially significant contagion effects that can arise even between banks that are not classified as G-SIBs are largely ignored.

Related to the previous point, Borio et al. (2020) point out that Basel III ignores the possibility that small banks may as a group generate significant levels of SFR. The central danger in such a scenario would be that multiple smaller banks share a common source of exposure and might thus become simultaneously distressed. As has already been stated, Basel III focuses on the potential failure of large banks and thus exhibits leniency in regulation with regard to smaller banks.

Crowther and Ertürk (2016) argue that post-GFC banking regulation has crucially failed to regulate the business model of banks itself. What Crowther and Ertürk mean specifically is that the business model of banks requires large banks to compete by the metrics of shareholder value in the stock market, typically measured in RoE. This has two detrimental effects: First, the necessity to maximize short-term metrics, such as the quarterly RoE, incentivizes bank managers to con-

sistently take on excessive risk and bypass regulatory requirements. Second, retail banks often maximize shareholder value by extracting high fees from their customers. As a consequence, the mis-selling of financial products to retail customers has become a significant problem in the industry. The authors argue that banking regulation has to this point never fully reflected these blind spots connected to the business model of banks. Crowther and Ertürk, similar to Minsky, hence identify the major threat to financial stability in the business model of banks itself, even though they emphasize a different issue.

Another issue that has largely been left unaddressed by Basel III is complexity. Within the last three decades of global financial liberalization, financial markets have grown increasingly more complex, both in terms of interconnectedness between financial institutions and in terms of the opaqueness of contracts traded on financial markets. Complexity thereby undermines accountability of financial firms and by design generates information asymmetries between sophisticated and less sophisticated financial market participants. Upholding the complexity of current financial markets requires complex regulation. In turn, this significantly raises the cost of regulation and provides opportunity for financial firms to engage in regulatory arbitrage, i.e. the activity of restructuring transactions such that they become subject to more favorable financial regulations (Preiss *forthcoming*). In **Paper 4**, we argue that especially in the case of products marketed (and mis-sold) to consumers, issues of complexity need to be addressed via appropriate regulation.

Lastly, bail-ins have also been a point of contention. Various experts have noticed that while bail-ins might be sufficient to prevent idiosyncratic bank failures, the simultaneous failure of multiple interconnected banks might require some form of a public backstop to absorb losses that could not be eliminated via bail-in tools alone (Schoenmaker 2014). In short, bail-in tools might prove insufficient to prevent taxpayers from absorbing all crucial losses of a bank. Both the US and the EU have acknowledged the need for a backstop: In the US, the treasury (via propping up the so-called Orderly Liquidation Fund) effectively functions as a backstop in case bail-ins prove insufficient (US Department of the Treasury 2018, 5). In the EU, this role is taken on by the European Stability Mechanism (European Council 2020). I discuss the important implications of backstops for bail-ins in more detail in **Paper 5**.

Despite the ambitious goals of Basel III, these worries illustrate that banking regulation is still subject to significant blind spots. In addition, the Basel III framework is at constant danger of being watered down by lobbying efforts (Finance Watch 2019; Brenton 2021; Reuters 2022). If another global financial crisis is to

be prevented, current design flaws need to be addressed and lobbying efforts cannot be permitted to weaken Basel III's aim to force banks to take on fewer risks and prepare to absorb losses any further.

7.3 Relevance for this Thesis

SFR constitutes a collective risk that various agents in the financial system bring about together. However, state interventions in the form of regulations and policies have the potential to shape the practices that define our financial system in a manner that is justifiable to each. In this section, I gave an overview of recent developments in banking regulation, the explicit goal of which was in large parts not only to prevent future financial crises, but to prevent that the overwhelming amount of costs associated with cleaning up the fallout of future financial crises does not fall on the taxpayer, as it did in the GFC (BCBS 2010, 1). In the words of Carolyn Rogers, the former Secretary General of the BCBS, banks ought to be able to “weather tough times without taxpayer support” (Rogers 2021). But there are limits to our ability to shift the costs of SFR-generating practices: Unfortunately, it is by necessity not possible to eliminate SFR via a contractual nexus between banks. If a bank offsets its exposure to losses via contractual agreements with other banks, the risk is not reduced, but merely redistributed from one firm to another. “Real money”, i.e. non-leveraged market participants, must ultimately assume SFR if the risk is to be drained from the financial system (Borio et al. 2020, 41). This is excellently illustrated by bail-in tools, which attempt to shift losses onto long-term creditors and shareholders but attempt to create various exemptions for G-SIB creditors (see **Paper 5**). If we are concerned with justifiability, the outsourcing of SFR onto non-leveraged parties must be offset somehow.

In this vein, the motivation for change in banking regulation can be understood from a contractualist standpoint: If we permit practices that generate risks for others, justifiability to each requires that these risks must be offset via compensation. Basel III partially aims at this goal. Each of the regulations mentioned in this section, despite their shortcomings, can be understood as a shift in the distribution of benefits and costs of SFR-generating practices. Capital requirements, liquidity requirements, large exposure limits etc. ultimately increase the costs of participating in the “banking game” but reduce SFR for those who have no say in how the game is played. The fact that the banking sector is at least partially forced to take on the costs of preventing another financial crisis ultimately constitutes a form of compensation.

Various types of financial regulations and stability inducing policies are discussed in this thesis. To begin with, banking regulations are state interventions. Their legitimacy thus crucially depends on whether state interventions into markets (including financial markets) can be justified at all. I address this more general issue in **Paper 3**. Because SFR-generating practices can culminate in large scale market harms, i.e. financial crises, it is *prima facie* justifiable for the state to intervene and shape the outcomes they yield to prevent the imposition of significant harms onto third parties.

Furthermore, together with Boudewijn de Bruin, we discuss yet another set of policies relating to the financial literacy of consumers in **Paper 4**. This article focusses on issues pertaining to the complexity of financial products marketed to consumers. Here, our main conclusion is that complex financial products can be beneficial to consumers if they increase what we refer to as “known freedom”, such that consumers are aware of which financial contracts could be beneficial for them. We conclude that if it should turn out that there is a general tendency among financial experts to fail to help consumers to promote known freedom, including via the sale of complex financial products, we have good reason to promote state intervention forcing the financial industry to promote consumers’ understanding of financial contracts.

Last, banking regulation specifically features most prominently in **Paper 5**. Here, I set out to develop a contractualist framework for assessing various resolution schemes. As has been mentioned earlier, resolution schemes form a particularly important part of the financial regulatory framework because they constitute the last effort interventions regulators can undertake to prevent a potentially devastating increase in SFR. I conclude that bail-ins are most likely the approach to resolution that is justifiable to each.

8. Concluding Remarks

In this introduction, I presented five “background instruments” that could help to provide answers to three focal questions in the public debate on financial crises. Here, I sum up the tentative answers provided via the instruments.

1) Who is morally responsible for financial crises?

In **section 4**, I argued in favor of the Aristotelian account for moral responsibility. The account specified that agents are morally responsible for consequences resulting from their actions if they a) performed actions that causally contributed to SFR, b) had a choice to perform another action at a reasonable cost to themselves and c) if they knew or should have known that their action constituted a contribution to the consequences it helped bring about.

Condition a) is addressed at length in **section 5**. Here, I defended the fine-grained counterfactual account of causation to establish that most actions we intuitively associate with the emergence of a financial crises (contributions as well as omissions) are de facto causally linked to such a crisis. But the mere fact that there is a causal connection between these actions and a financial crisis is on its own insufficient to establish that an agent can be held partially morally responsible for a financial crisis. Conditions b) and c) must also be fulfilled.

Condition b) is split into the scope and degree perspectives: The scope of moral responsibility only extends to actions that are causally connected to the consequence the agent is being held morally responsible for. An agent cannot have control over consequences that are not and have never been causally connected to her actions. The scope can be determined via fine-grained counterfactual tests. The degree of moral responsibility depends on the external constraints that make the performance of an action more or less costly to the agent, compared to alternative courses of action. Future research might explore, for example, whether (if at all) financial regulation constitutes an external constraint that mitigates the banking industry’s moral responsibility for financial crises or whether regulation does in

fact not qualify as a constraint, but rather as a precondition for the operation of a bank.

Condition c) established that role-specific epistemic duties also determine whether agents can be held morally responsible for their contributions to financial crises. I argued that different types of agents have different types of epistemic duties. Some, such as consumers, standardly have no such role-specific epistemic duties (see **Paper 2**), while others, such as financial firms and regulators do. For regulators, the epistemic duty to know whether they contribute to a financial crisis is often derivative of other duties, such as a duty to safeguard financial stability. In the case of private financial firms, no such straightforward link exists, but, as I argued in **section 4**, most private financial firms have a duty to allocate credit in an efficient manner. Thus, they have an associated epistemic duty to monitor whether they are successful in this task or not. Because financial firms contribute to financial crises via the misallocation of credit, their duty to monitor whether they misallocate credit or not effectively amounts to the duty to know whether they contribute to a financial crisis. Future research might explore in detail the epistemic duties of various authorities as well as the role that financial firms in the shadow banking industry have in the allocation of credit to establish whether these agents should know whether and to what degree they contribute to financial crises.

2) *Why are the individual actions that lead to a financial crisis morally impermissible?*

As I argued in **section 6**, most contributions to financial crises are wrong because they constitute foreseeable risk impositions. More precisely, we have reason to consider contributions to financial crises as wrong insofar as they collectively bring about unjustifiably high levels of SFR. I argued that the contractualist approach to risk ethics can help us determine what levels of SFR are unjustifiable. According to the contractualist approach, there is no fixed level of SFR that is uniquely justifiable to each. Rather, what matters is whether the risks generated by SFR generating practices are offset sufficiently to be justifiable to those most affected. As I explain in detail in **section 6** (and later in **Paper 5**), this can be achieved via ex post or ex ante compensation.

I explained in **section 5** and **section 6** why individual contributions to a collective risk are morally problematic. **Section 5** established that insofar as agents have corresponding epistemic duties, they ought to foresee that under normal circumstances, their individual contributions constitute moves towards unjustifiably high SFR levels. **Section 6** established that given that the effects of a contribution

to SFR are foreseeable, the benefits gained from the contribution must outweigh third parties' ex post burden of suffering from a financial crisis. The crux is that contractualists compare only the collective burden imposed onto the worst-off victim to the benefit that would accrue to *each individual contributor* if these practices were permitted (instead of implicitly aggregating these benefits across contributors). Hence, it is not the benefits of the financial system as a whole that must be weighed against individual losses suffered, but rather the individual benefits foregone that must be weighed against potential individual losses. In most cases, it follows then that the ex post burden for potential victims of financial crises will be much higher than whatever benefits could be gained for the contributing party. Contractualists will hence insist in such cases that even individual contributions to SFR are impermissible unless they are compensated for appropriately.

In this thesis, the ethical analysis of contributions to financial crises is focused on banks (see especially **Paper 1** and **Paper 5**) and consumers (see **Paper 2**). But clearly, various other parties have the potential to contribute to financial crises, primarily regulators and non-bank financial firms, but also financially sophisticated consumers. Future research might conduct contractualist evaluations of contributions to financial crises for the aforementioned types of agents.

3) *What can the state or others justifiably do to mitigate the risk of financial crises?*

In **section 7**, I provided an overview of recent developments in banking regulation since the GFC. The vast majority of these regulations focusses on constraining banks' ability to take on risks and strengthening their ability to absorb losses. However, I also pointed out that critics maintain that these regulations are insufficient and merely superficially address the underlying problems. In **Paper 3**, I argue that state interventions into markets can straightforwardly be justified via the Harm Principle. This line of reasoning holds similarly in the case of financial crises: Financial crises constitute market harms of enormous proportions. I explain in the paper that our primary concern should not be maintaining the efficiency of markets (including financial markets), but rather to prevent excessive harms from occurring.

In this context, the FIH, as introduced in **section 3**, is particularly informative. As Minsky explains, attempting to achieve efficiency as produced by the infamous invisible hand is futile: Financial markets need to be interfered with in order to prevent financial crises that generate massive inefficiencies. Minsky's proposals to prevent financial crises went beyond mere minor adjustments in financial regula-

tion. According to Minsky, what is primarily needed are large government deficits that stabilize profit rates. It is beyond my expertise as a philosopher to evaluate whether financial crises can be prevented without drastic fiscal measures. But what the arguments I develop throughout this thesis demonstrate is that we should not be timid to interfere with financial markets. Financial markets can become weapons of mass destruction. Preventing the catastrophic harm they could produce must have priority over ensuring their profitability. Good financial regulation must thus acknowledge that a “healthy banking system is the goal, not profitable banks” (Admati et al. 2010).

9. Introduction to the Papers

Paper 1: On the Wrongfulness of Bank Contributions to Financial Crises

In this article, I discuss the virtue ethical, the consequentialist and contractualist perspective on bank contributions. I begin from the observation that a central wrong-making feature of bank contributions to financial crises is simply that they constitute causal contributions to a collective harm. I then go on to argue that both the virtue ethical and the consequentialist perspective can capture this wrong-making feature, but only at a cost. The virtue ethical perspective requires that bank contributions must, in some shape or manner, be vicious. I argue in this article that it is much more plausible that bank contributions are typically, with few exceptions, not vicious. Hence, the virtue ethical approach will standardly identify too few bank contributions as wrongful. The consequentialist perspective also suffers from drawbacks: According to consequentialism, a bank contribution to a financial crisis is not wrong if the risk imposed onto victims is offset via benefits to some other party. Those with non-consequentialist tendencies will not be convinced by this line of reasoning. Finally, I discuss the contractualist perspective and conclude that it can capture the central wrong-making feature of bank contributions in a much more satisfying manner than the previous two perspectives. This article will be published in an anthology edited by Joakim Sandberg and Lisa Warenski.

Paper 2: Are Retail Borrowers Morally Responsible for Financial Crises?

This article discusses whether retail borrowers (i.e. consumers) can be held morally responsible for bringing about a financial crisis. The article begins with an explanation of how retail borrowers causally contribute to a financial crisis. From here, I discuss three excuses that retail borrowers can employ in order to exculpate their causal involvement in bringing about a financial crisis. These excuses roughly cor-

respond to the Aristotelian conditions for moral responsibility: First, “my contribution was inconsequential”, according to which retail borrowers are not even causally responsible for their involvement in financial crises upon closer inspection. Second, “I had no choice to contribute”, according to which retail borrowers fail to satisfy the control condition for moral responsibility because they are forced to take on debt. Third, “I did not know I contributed”, according to which retail borrowers fail to satisfy the epistemic condition for moral responsibility because they typically do not know and have no obligation to know that they causally contribute to a financial crisis. I conclude that the first excuse fails tout court, while the second excuse applies in many, but arguably not all relevant cases. Yet, the third excuse is typically valid for retail borrowers, because they rely upon the expertise of financial professionals. Retail borrowers thus can typically not be held morally responsible for bringing about a financial crisis.

Paper 3: Should Market Harms be an Exception to the Harm Principle?

The notion that market harms, i.e. setbacks of morally relevant interests mediated via the price mechanism, are an exception to the Harm Principle has often been endorsed by liberal political philosophy. The standard reasoning among philosophers of this strand is that if the state intervened whenever market harms emerge, markets would cease to bring about efficient allocations of goods and services. But liberal political philosophers also often admit that externalities that are not mediated via the price mechanism should be intervened with. In this article, I argue that those who endorse the Harm Principle but treat market harms as an exception to the principle face a dilemma: Either the Harm Principle does not apply in a large number of non-market harm cases or the Harm Principle must also apply in market harm cases. The main line of argument builds on Coase’s insight that ordinary externalities are, under specific circumstances, equivalent to market harms. It follows that if these circumstances apply (which they do in many conceivable cases), admitting market harms as an exception to the Harm Principle would imply that many non-market harms cannot be interfered with either. I argue that embracing this horn of the dilemma is unpalatable. Hence, those who promote the Harm Principle are better off by refusing to treat market harms as an exception to the principle. Furthermore, I discuss three responses in favor of treating market harms as exceptions (one from property rights, one from consent and one from the welfare state) and argue that neither of these responses is successful in delivering the

conclusion that market harms ought to be an exception to the Harm Principle. This article has been published in *Economics & Philosophy*.

Paper 4: Freedom in Finance: The Importance of Epistemic Virtues and Interlucent Communication (with Boudewijn de Bruin)

In this article, we argue against the conviction that complexity in financial contracts marketed to consumers is undesirable per se. Instead, our main argument proceeds from the insight that it is beneficial to consumers to increase their “known freedom”, i.e. expanding consumers’ option set of available financial contracts insofar as they maintain sufficiently detailed and justified information about these contracts. We demonstrate by way of an example from the mortgage market that in some cases, complex financial contracts can be better suited to the needs of the vulnerable than simple, plain-vanilla mortgages. Furthermore, we discuss how consumers’ known freedom can be increased by developing consumers’ epistemic virtues. We focus here on the importance of establishing common knowledge among financial professionals and consumers via interlucent communication, requiring both sender and receiver of communicative signals to keep an eye on possible failures. This article has been published in *Business Ethics after the Global Financial Crisis: Lessons from the Crash*, edited by Christopher Cowton, James Dempsey and Tom Sorell.

Paper 5: Contractualism, Risk and Compensation in Bank Resolution. An Application.

This article is an application of a contractualist theory of risk to the case of bank resolution. The article contains two parts: A first part, in which a contractualist theory of risk is defended and a second part, in which this contractualist theory is used to evaluate three types of bank resolution regimes. In the first part, I discuss two major strands in contractualist risk ethics, Ex Ante and Ex Post contractualism. I explain that both Ex Ante and Ex Post contractualism rely on compensation in order to solve the Problem of Ex Ante Rules and the Problem of Paralysis, respectively. I conclude that only Ex Post contractualism can successfully resolve the Problem of Paralysis via compensation, while Ex Ante contractualism finds no solution in compensation to the Problem of Ex Ante Rules. I then go on to elaborate the principles that shape justifiable compensatory regimes for Ex Post con-

tractualists. In particular, I argue that compensation need not offset the full burden of a risk imposition, that Ex Post contractualists will favor a combination of polluter pays and cheapest cost avoider principle, and that compensation is most justifiable to those who compensate if structured as ex ante insurance.

The second part of the article applies these insights to the case of bank resolution, evaluating three resolution regimes from an Ex Post contractualist perspective. These three resolution regimes are bailouts, shifting ownership and bail-ins. I argue that due to their structural features, some resolution regimes are more likely than others to satisfy the contractualist requirement to be justifiable to each. In particular, I conclude that bail-ins are most likely to be justifiable to each, because they force the highest compensatory burden on creditors and shareholders while protecting the most vulnerable victims, i.e. taxpayers.

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Financial crises are severely destructive events. The Global Financial Crisis of 2008 sent sovereign states into a spiral of political unrest and caused millions of people to lose their homes, their jobs, their life savings, their health, and in many cases even their lives. But financial crises are not unavoidable natural events. They are the consequences of intentional human behaviour. To be more precise, they are unfortunate side-effects of everyday financial practices. If these practices are not carefully monitored and reined in, they can, in words borrowed from Warren Buffet, become “weapons of mass destruction”.

This thesis is an attempt at an interdisciplinary investigation of financial crises. It combines arguments from normative ethics, political philosophy, economics and law in order to discuss three questions at the heart of the public debate on financial crises: “Who is responsible for bringing about financial crises?”; “What precisely is wrong with practices that contribute to the risk of financial crises?”, and “What can be done to mitigate the risk of financial crises?”

A few key insights offered in this thesis are as follows: First, financial crises do not emerge because of the misbehaviour and greed of a few “bad apples”, rather, they are the result of “business as usual” within financial markets. Second, there are strong reasons for states to regulate financial markets heavily in order to prevent severe harm. Third, there are few good reasons to believe that consumers can be held morally responsible for contributing to financial crises.



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