



---

**A Regulatory Approach to Ensuring Financial  
Resilience in the Face of Future Risks**

# A Corporate Rainy Day Fund

---

## Table of Contents

<b>Executive Summary</b>	<b>3</b>
<b>Introduction</b>	<b>5</b>
<b>Sources of Financial Resilience</b>	<b>11</b>
Cash Liquidity	12
Insurance	17
Finance	21
Contractual Exits	25
<b>Shortcomings of Relying on Bailouts as a “Policy of First Resort”</b>	<b>28</b>
<b>How Can Policies Strengthen Corporate Financial Resilience?</b>	<b>31</b>
Changing the rules around shareholder buybacks (and potentially dividend payments)	33
Mandatory Business Interruption Insurance	35
<b>Conclusion</b>	<b>38</b>
<b>Bibliography</b>	<b>40</b>

Authors: Jakob Thomä, Anne Schönauer

Contributors: Mark Fulton, Fiona Spuler

Publication date: December 2020



## ABOUT 2° INVESTING INITIATIVE

The **2° Investing Initiative** (2DII) is an international, non-profit think tank working to align financial markets and regulations with the Paris Agreement goals.

Working globally with offices in **Paris, New York, Berlin, and London**, we coordinate the world's largest research projects on climate metrics in financial markets. In order to ensure our independence and the intellectual integrity of our work, we have a multi-stakeholder governance and funding structure, with representatives from a diverse array of financial institutions, regulators, policymakers, universities, and NGOs.

## ABOUT THIS REPORT

This report is part of 2DII's long-term risk management research program, which aims to integrate long-term risks, especially those related to climate change, into financial markets and supervisory practices. The program combines a number of current and past research streams, including the Tragedy of the Horizons research project (2015-2017), 2DII's work on climate and sustainability stress-testing, and its broader research initiatives on integrating long-term risks into private sector and government practices. The program is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag. This report also received funding from EIT Climate-KIC.

Supported by:



Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety

based on a decision of the German Bundestag



Climate-KIC

Climate-KIC is supported by the  
EIT, a body of the European Union



---

# Executive Summary

## Context

The second systemic economic shock within little more than a decade – COVID-19 – has triggered what may ultimately be the largest governmental bailout of modern times. The rise of risks unlikely to happen at any given point, but highly likely to happen at *some* point, has also amplified the role of bailouts in the standard policy toolbox during crises. Additionally, due to the looming threat of climate change, there is reason to believe that these risks are set to increase in frequency and intensity in the future.

## What we did & findings

This paper answers the question of how companies can prepare for these kinds of events and strengthen their financial resilience by examining four mechanisms: cash, finance, insurance, and contracts. Following the Global Financial Crisis of 2008, financial supervisors and policymakers introduced new measures to strengthen the resilience of financial institutions. At the same time, limited to no new measures were implemented to ensure non-financial corporates' resilience. As a result, weak corporate financial resilience in the current COVID-19 crisis once again required significant governmental bailouts – meaning that bailouts have de facto become the “policy of first resort” rather than last resort.

## Recommendations

This report suggests two mechanisms to strengthen corporate financial resilience. It calls for financial supervisors and policymakers to follow the same path they did in 2009, except this time concentrating on non-financial corporate resilience and bailouts. To ensure that in the future, financial and economic policymakers use bailouts only when other options have failed, this paper recommends two specific reforms:

1. Change the rules related to shareholder buybacks and dividends to strengthen corporates' cash reserves and balance sheets, and;
2. Implement mandatory business interruption insurance.

These recommendations are intended to reduce the need and scale for bailouts, not to eliminate them entirely. This will ensure that when bailouts are used, they are consistent with wider policy goals and limit future moral hazard to the greatest extent possible.

1

---

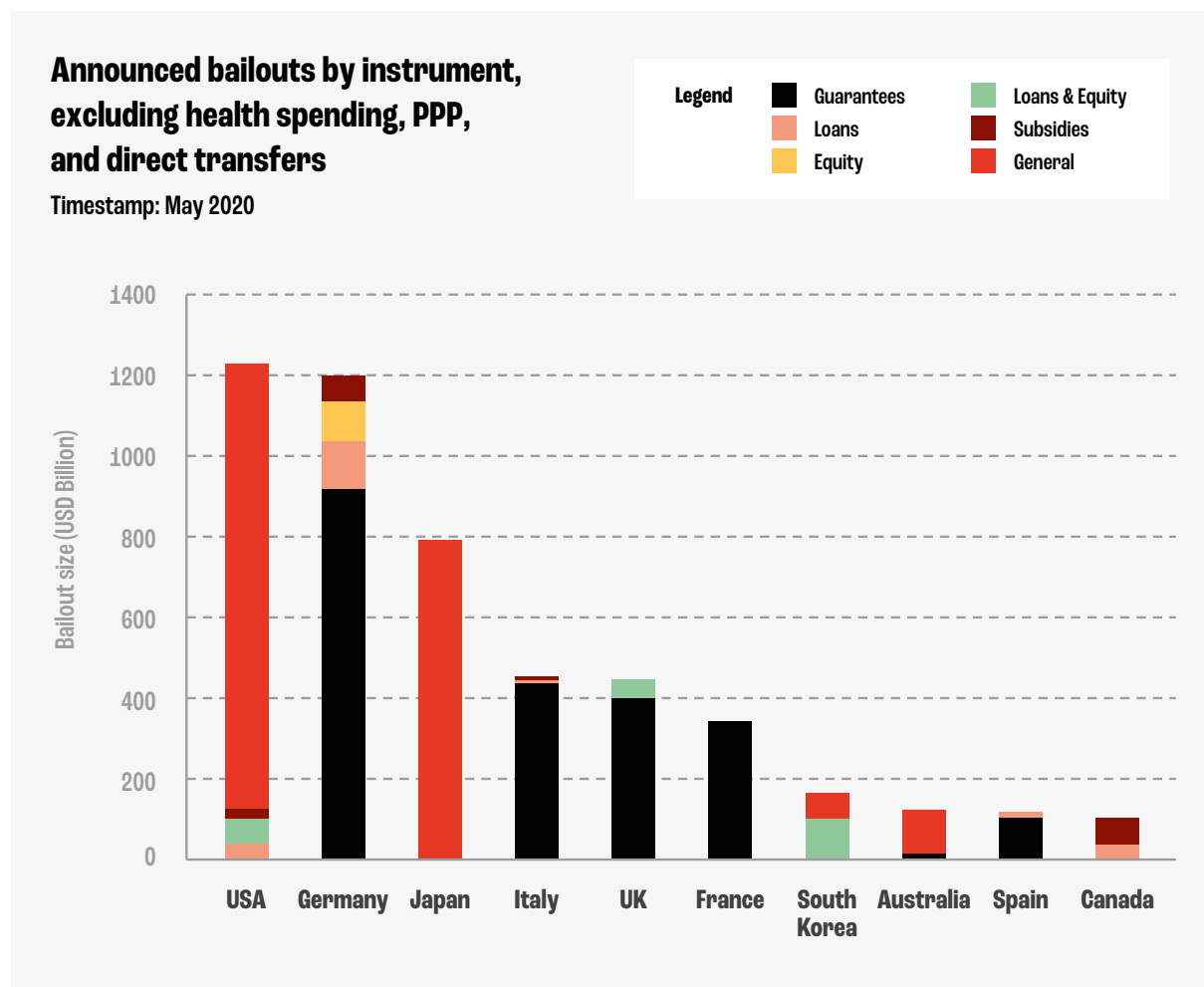
# Introduction

Private sector bailouts are increasingly becoming a permanent feature of economic crisis management.

Within little more than a decade, governments around the world have engineered two discrete multi-trillion USD bailout packages for the private sector. While estimates vary depending on scope, fiscal interventions alone during the 2008 Global Financial Crisis totaled upwards of \$5 trillion (Fratianni and Marchionne 2010). When taking into account monetary interventions, that number balloons to tens of trillions, with estimates of \$29 trillion by the US Federal Reserve alone (Felkerson 2011).

Meanwhile, the current COVID-19 economic crisis -- expected to be more dramatic than the 2008 crisis at least in short-term shock -- is also on track to exceed the \$5 trillion mark (only counting fiscal measures, see Fig. below). Arguably one of the key differences in the recent crisis vs. the last crisis is the recent focus of bailouts on non-financial corporates, whereas the last bailouts focused primarily on financial institutions.

Figure 1 Announced bailouts by instrument, excluding health spending, PPP, and direct transfers, Timestamp: May 2020 (Source: Vivid Economics 2020)



**Bailouts create significant liability for the dynamic between the public and private sector. They are truly a last resort and should be treated as such.**

Bailouts can represent a significant economic burden on government budgets, even if in some cases governments can recover a significant percentage of their outlays, depending on broader conditions. They undermine public trust in equitable policymaking. They may violate broader policy objectives, as seen during the COVID-19 crisis, where many bailout measures arguably undermined climate policy goals (Vivid Economics 2020). They may create moral hazard for businesses that are “too big to fail”. Their use should therefore only come after all other options are truly exhausted.

**While the “1 in 1,000” type of events that have shocked the global economy twice already in the 21<sup>st</sup> century may seem to be freak occurrences, there is reason to believe that the frequency and scale of these types of mega risks may increase in the coming decades. This implies that future bailouts are perhaps more, not less likely unless private sector resilience is enhanced.**

A combination of factors is amplifying the exposure of society, the economy, and financial markets to new types of risks that are likely to amplify the likelihood and scale of future economic and financial crises. These drivers include technological disruption that disrupts both our economies and ecosystems (e.g. new technologies to extract shale gas, disrupting gas markets and giving rise to seismic activity). The “democratization” of technological access will make societies more vulnerable to threats from nuclear and biological weapons. Other technologies designed to protect us, such as antibiotics, are starting to lose their luster with resistance on the rise. As globalization is on the rise, the risk that epidemics will grow into pandemics is even greater. These looming risks can collectively be considered “mega risks,” raising the likelihood of future bailouts as these “1 in 1000” events materialize.

A special note should be made here on the transition to a low-carbon economy, set to accelerate over the next decade. The industrial transformation associated with this transition is likely to lead to defaults of those companies unable (or unwilling) to adapt. Whereas COVID-19 can be described as an exogenous shock, companies that don’t adopt climate targets will likely amplify an abrupt [“Inevitable Policy Response”](#) that will in turn cause disruption and economic dislocation. Lack of financial resilience can create political pressures for governments to trigger a “high-carbon bailout” -- potentially delaying the transition. Preparing now can thus ensure that even if companies are not ready, policymakers are.

**Crucially, policy measures were put in place after the latest Global Financial Crisis to strengthen the financial resilience of financial institutions.**

After the 2008 Global Financial Crisis, a series of regulatory interventions have sought to ensure financial institutions would not need a bailout in the next crisis or at the very least that such bailouts would be more limited. The situation in the current COVID-19 crisis – although of course, that picture may still change – suggests that these regulatory interventions at first were effective, at least to a degree. Of course, some of this is a function of the non-financial bailouts that have at least for the moment mitigated private sector default rates and propped up some level of economic activity. The relative resilience of real estate prices has also avoided contagion (again, at least for now) to mortgage portfolios, the origin of the previous crisis.



At the same time, banks are significantly more capitalized than they were in 2008 and so even if bailouts will still come forward, they will likely be significantly smaller in scope for financial institutions.

**Limited measures were put in place for corporates, reducing the overall resilience of non-financial companies when the financial crisis materialized.**

While bailouts did extend to non-financial companies, such as GM and European automakers, they were not the primary focus of the 2008-2009 bailouts. Moreover, the policy toolbox put in place in response to the crisis largely ignored issues of corporate resilience, with some limited exceptions related to disclosure rules.

*As a result, as this paper will show, corporates were woefully unprepared from a financial resilience perspective for this crisis. The implication is that bailouts have transitioned from becoming the “policy of last resort” to the “policy of first resort”. Bailout policies are not the “back-up plan” once corporate financial resilience is exhausted, but rather – given the lack of such resilience – the baseline, implemented without the time and strategic perspective to ensure their optimal deployment. One notable area is the extent to which bailout policies had the time to consider broader policy goals (e.g. climate goals).*

**“Resilience” or preparedness of companies can be considered from the vantage point of “operational resilience” (that is, the resilience of the business model and the corporate assets) and “financial resilience” – the resilience of the balance sheet.**

Operational resilience includes a range of aspects across the company’s business. It extends to the *ability* of the company to produce and sell its products and services in the presence of the risk. Examples here are potential supply chain disruptions, damages to productive facilities (e.g. damages due to a weather event) and, inability to execute the functions of production (e.g. mandatory home office preventing the operation of a machine during a lockdown). They may also extend to market access (e.g. breakdown of transport links to ship goods and services). The ability of a company to produce and sell may also be inhibited by regulatory interventions, which may reinforce or mitigate the aspects just highlighted.

From another perspective, operational resilience also extends to the resilience of business viability in the face of changes in consumer demand. Such demand might either depend on the *ability* to consume, which may be impacted by increased mortality rates, breakdown of social order, or the *norms and preferences* governing consumption (e.g. desire for nuclear power in the context of large-scale nuclear disasters).

Financial preparedness or resilience, in turn, focuses on the strength of the corporate balance sheet to weather challenges to business continuity and operational resilience. Financial resilience effectively ensures the viability of a company where operational resilience breaks down temporarily. It allows companies to adjust their business and production model (e.g. investing in new supply chains, new production modes) and / or overcome business and production interruption, where the underlying model may be sound, but short-term factors create a breakdown of operational resilience (e.g. lockdown during a pandemic).

**This report focuses on the “financial preparedness” of companies. It identifies four key market sources of financial resilience (cash, finance, insurance, and contractual exits) from the perspective**

of companies. Additionally, it maps policy options to increase financial resilience, both as a mechanism to strengthen economies in the face of crises as well as to overcome the commensurate resilience on bailouts when these crises materialize.

We analyze the extent to which each of these four factors represents a source of resilience in the current COVID-19 crisis and thus the role they play in practice in mitigating / preventing bailouts.

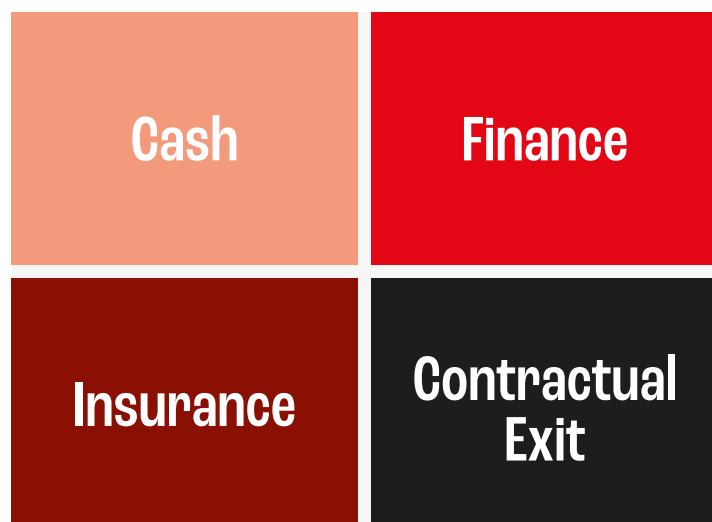
As will be shown, in principle, cash and finance are robust sources of financial resilience. However, in practice, cash reserves are not conservatively managed, used to pay for generous dividends and / or shareholder buybacks. As a result, cash balance currently does not provide the cushion in crisis as it would under a more conservative management regime, as will be shown in this report. In terms of finance, due to companies' increased indebtedness over time, companies' financial resilience is also reduced in times of shock. Both of these factors increase the need for bailouts when a crisis materializes.

Insurances and “contractual exits” provide more stable financial resilience in principle over the business cycle, but both mechanisms are generally ambiguously structured, inconsistently applied, and too ineffective and slow in response to ensure proper resilience in the face of short-term crisis.

The analysis underpinning this discussion – in particular, for the discussion of cash and finance – will rely largely on data from US companies. As a result, it will partly overstate the role of e.g. shareholder buybacks relative to, for example, European companies. However, the more general conclusions regarding the insufficient resilience requiring a cycle of bailouts are evident in Europe as well as in the United States.

Note as well that the focus of this report is on non-financial companies and the discussion is largely limited to that universe. While there are some overlaps in terms of sources of resilience, the nature of financial institutions' balance sheets is sufficiently different to warrant a separate discussion.

*Figure 2 The four key sources of financial resilience (Source: Authors)*



The report is structured as follows. Section 2-5 discusses the four key sources (cash, insurance, finance, and contractual exit) of financial resilience and their potential role in driving resilience in the context of a

crisis. Section 6 then discusses the extent to which bailouts are an unsatisfactory policy solution to addressing the lack of financial resilience provided by market measures. Section 7 discusses policy alternatives to bailouts. Section 8 provides concluding remarks.

# 2

---

## **Sources of Financial Resilience**

---

## Cash Liquidity

**There is a range of literature demonstrating the importance of strong corporate balance sheets and in particular cash for financial resilience.**

Preliminary evidence suggests that “corporate debt and cash holdings emerged as the most important value drivers” (van Horen 2020). A significant body of literature demonstrates the importance of liquidity for valuations and risk, in particular during the current COVID-19 crisis (Acharya and Steffen 2020, Fahlenbrach et al. 2020). Financial resilience concerns both the “corporate value” and of course the underlying solvency and liquidity structures of the company. Those two are not only important for investors but also for citizens engaged in pensions and insurance products, as well as a personal investment. More resilient companies reduce the destruction of human and physical capital associated with bankruptcies.

**In analyzing financial resilience related to “mega risks,” we look at cash reserves of a sample of 1,430 companies listed in the New York Stock Exchange and NASDAQ.<sup>1</sup>**

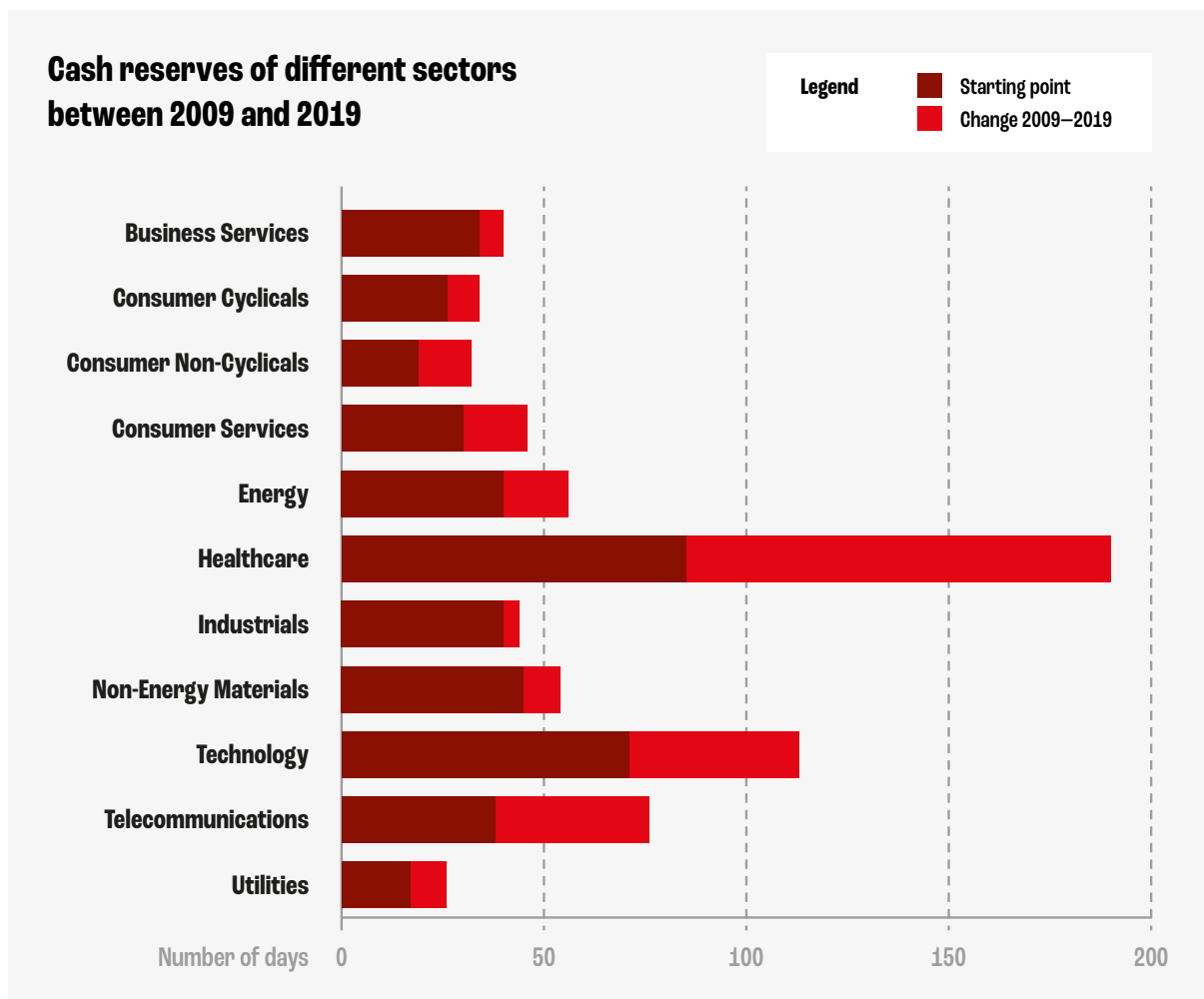
The cash reserves in this report are presented as cash over sales. This metric gives a sense of how liquid companies are in case of a “lockdown”. Of course, the indicator has some shortcomings. During a lockdown, businesses may only lose 50% instead of 100% of sales, in which case the actual cash reserves last longer than the metric would suggest. Sales may be stable but profits negatively due to unexpected costs, which create financial difficulties.

---

<sup>1</sup> Out of the global universe of companies listed on these stock exchanges, we filtered companies for which data across sales, dividends, and share repurchases was available through the 2009-2019 period. We also filtered ‘outliers’ with cash / sales ratios of more than 12 months, based on the assumption that these cash cushions are artificially inflated due to other reasons (e.g. capital injection for expansion).

Across the universe of companies analyzed, since the financial crisis, cash reserves have increased only marginally, from covering 24 days of sales to 39 days of sales, although differences are significant across sectors.

Figure 3 Cash reserves of different sectors between 2009 and 2019 (Source: Authors, based on Factset data)



The results also show meaningful differences in the starting point. Striking is the low cash buffer in the utility sector, for example, at just 17 days. Of course, some of that is likely linked both to the extent to which the sector is regulated and the general cyclicity of demand and volatility of prices associated with the product.

**When thinking about financial preparedness, this section seeks to demonstrate the counter-factual as to what would have happened if companies had been better prepared in the COVID-19 crisis.**

Each of the two scenarios analyzed obviously represents “stylized” outcomes that in practice are likely to be messier. They are compared to a “Baseline Preparedness Scenario” (BPS). They assume homogenous choices across all companies, whereas in practice, the strategy may have been implemented by some companies and not others.

Under a “Limited Preparedness Scenario”, companies do not engage in any share buybacks and maintain cash associated with these buybacks as cash reserves. This scenario assumes that the money saved from share buybacks was thus exclusively used to strengthen cash resilience.<sup>2</sup>

Under an “Advanced Preparedness Scenario”, companies both chose to forego share repurchases as well as 50% of dividend pay-outs with cash savings from both choices used exclusively to strengthen cash reserves rather than reinvest. Such additional cash buffers would likely both reduce the need / likelihood of bailouts and – even where it does materialize – the required scale of them.

**If we simulated a “pandemic preparedness strategy”, companies collectively would have anywhere between 125 to 178 extra days of cash that can cover sales.**

Under the limited preparedness strategy (LPS), cash reserves increase from 125 days of sales to 5.5 months. An advanced preparedness strategy (APS) sees that number rise to 7.3 months. Even if companies had reverted to a baseline preparedness strategy (BPS) after 2017 and had pursued a LPS or APS strategy until then, that still would have left them with 3 additional months of cash relative to the baseline.

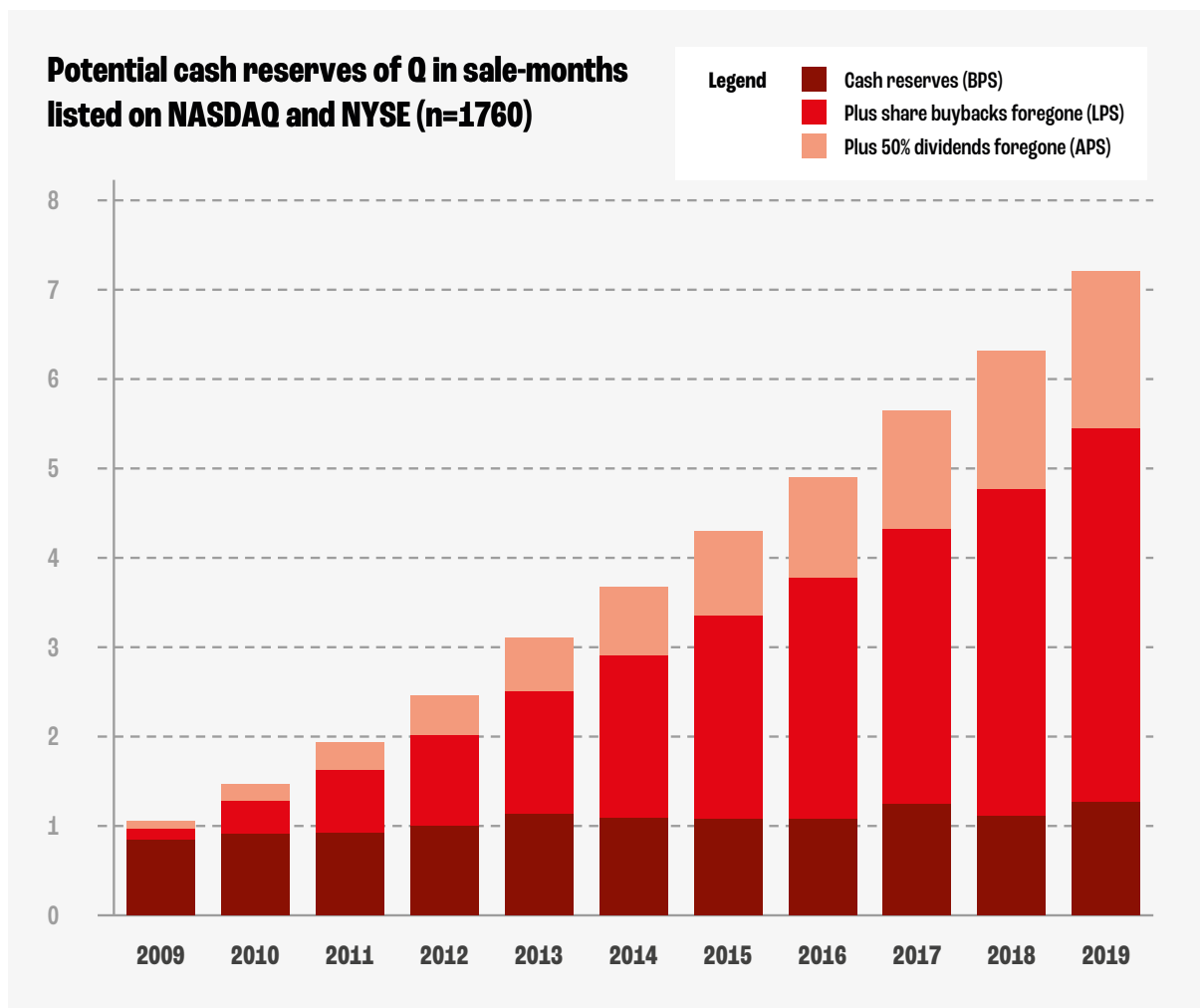
Interestingly, the analysis shows that the share buybacks strategy has a significantly larger effect on cash reserves than foregone dividends. More than two-thirds of the cash effect of the APS derives from foregone share repurchases rather than foregone dividends, despite the fact that 50% cut to dividends over an entire decade likely – at least in the subjective perception of investors – would represent a much more dramatic change to corporate strategy.

Of course, as will be outlined next, the results here show only the aggregate effects. The distribution effects are significantly different across companies and sectors of the dividend strategy versus the share repurchase strategy, with share repurchase decisions (at least in terms of size) more concentrated.

---

<sup>2</sup> This assumption can be challenged. For example, companies that are more well-off can use their extra cash reserves to realize merger and acquisition plans, as in times of crisis opportunities might emerge to take over companies that have lost value (see e.g. Gilbert and Tobin 2020).

Figure 4 Potential cash reserves of Q in sale-months listed on NASDAQ and NYSE (n=1760) (Source: Authors)



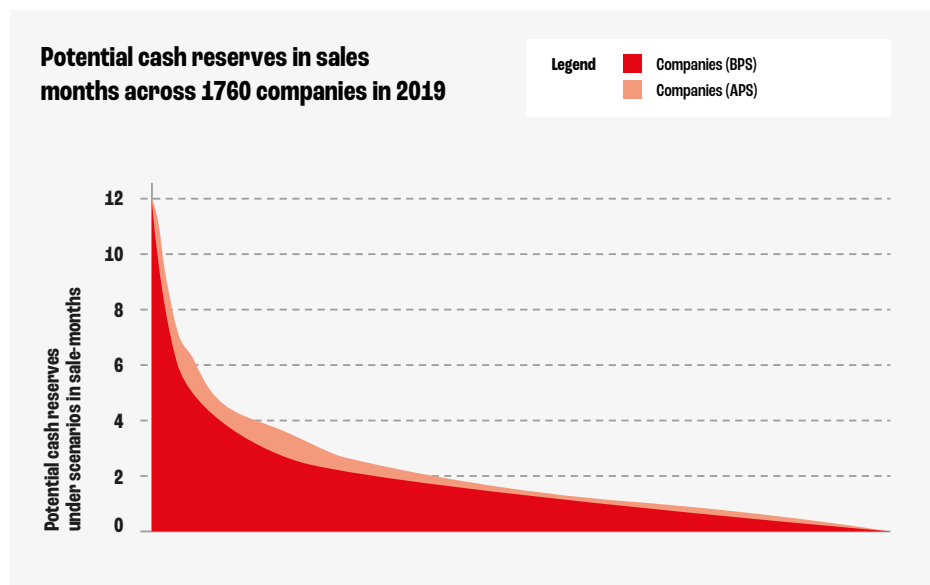
It is worth highlighting that the lessons here are US-specific, given the prominence of share buybacks in that market. However, even without share buybacks, dividends still play a material role in the Fig. above to drive increases in cash reserves, more than doubling reserves in sales-months by 2019 relative to 2009.

**Looking at the results below, most companies would have limited cash on hand in the face of a crisis even in an APS scenario. Thus, resilience is lacking.**

The figure below shows the distribution of cash reserves under an APS outcome for the sample analyzed. The results suggest that there are dramatic differences between the haves and have-nots, with a large share of companies with less than 2 months or even 1 month of cash reserves over sale months. Despite this distribution, it is important to recognize the extent to which even some additional reserves can help in the spirit of “any penny counts”.



Figure 5 Potential cash reserves in sales months across 1760 companies in 2019 (Source: Authors based on Factset data)

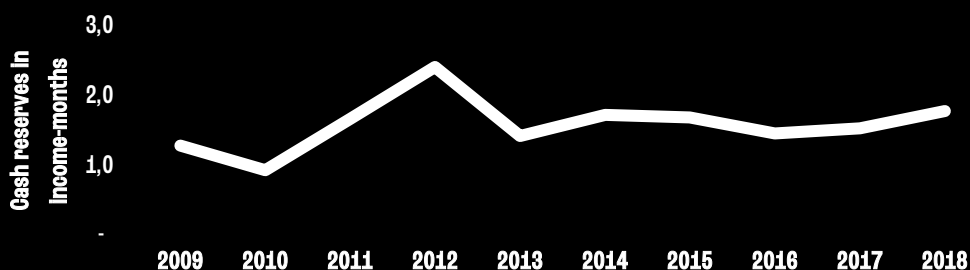


### BOX: HOUSEHOLD SAVINGS AND CASH RESILIENCE

It is interesting to compare these findings to household behavior in the United States, which also increased their savings dramatically over the past 10 years. However, in contrast to companies, they actually saved it, increasing their ‘cash buffer to wages’ by about roughly 40% since 2009.

Depending on which starting point you take,<sup>3</sup> savings increased by 38-50% since the financial crisis. By 2018,<sup>4</sup> consumers had a stronger cash buffer than companies, a fact entirely driven by companies’ decision to return the cash to their shareholders rather than save it for a “rainy day”. While this analysis is interesting, it is very hard to interpret this data, given the “noise” in the decision-making underpinning it.

Figure 6 Potential cash reserves in income-months across US households (Source: Authors)



<sup>3</sup> It may be more appropriate to take 2010 as a starting point for employees, given a more delayed bounce back relative to companies.

<sup>4</sup> Data for 2019 is not yet available.

---

# Insurance

**In principle, it is the role of insurances to provide for financial resilience in the event of “extreme events”.**

Insurance products have been specifically designed to insure against losses. The most relevant here is Business Interruption Insurance or Business Income Insurance that effectively covers the loss of income in the face of a disaster. Another type of insurance is property insurance that covers physical damage to property (e.g. buildings, factories).

Generally, business interruption insurance is supposed to offset losses but depending on the contract it may involve partial or full offset. One critical challenge – visible in particular during the current COVID-19 crisis – is the definition of what constitutes an “eligible” event in the context of the insurance policy or the “defined” event if business interruption insurance only relates to a specific type of event.

**In theory, business interruption insurance is designed to ensure financial resilience. In practice, it is unclear how usable this is for pandemic-style risks.**

A key challenge for business interruption insurance is the extent to which pandemic style events actually allow companies to trigger the business interruption insurance clauses. A particularly egregious example of how this might play out is the case of the German insurer Württembergische Versicherung. A number of insurance policies sold by this company actually list in its “additional conditions” the types of viruses and diseases covered in the case of a business interruption. By design, any new virus thus is not covered, even

if “pandemics” or disease-related events are covered (Jöhnke 2020). As a result, the insurance company advised that its business interruption insurance claims would not be paid out, since the SARS-COV-2 virus was not listed. While this case and the claims by the insurance company are still being contested, the legal uncertainty remains.

**Moreover, the majority of companies don’t actually have business interruption insurance.**

While data on the actual coverage of business interruption is limited, survey data in the United States shows that only one in three small businesses had business interruption insurance, based on a survey of 500 small businesses (Insurance Journal 2015). Of course, the coverage is likely to be much higher for larger companies relevant in capital markets, especially given the extent to which business interruption insurance is mandatory in some loan contracts.

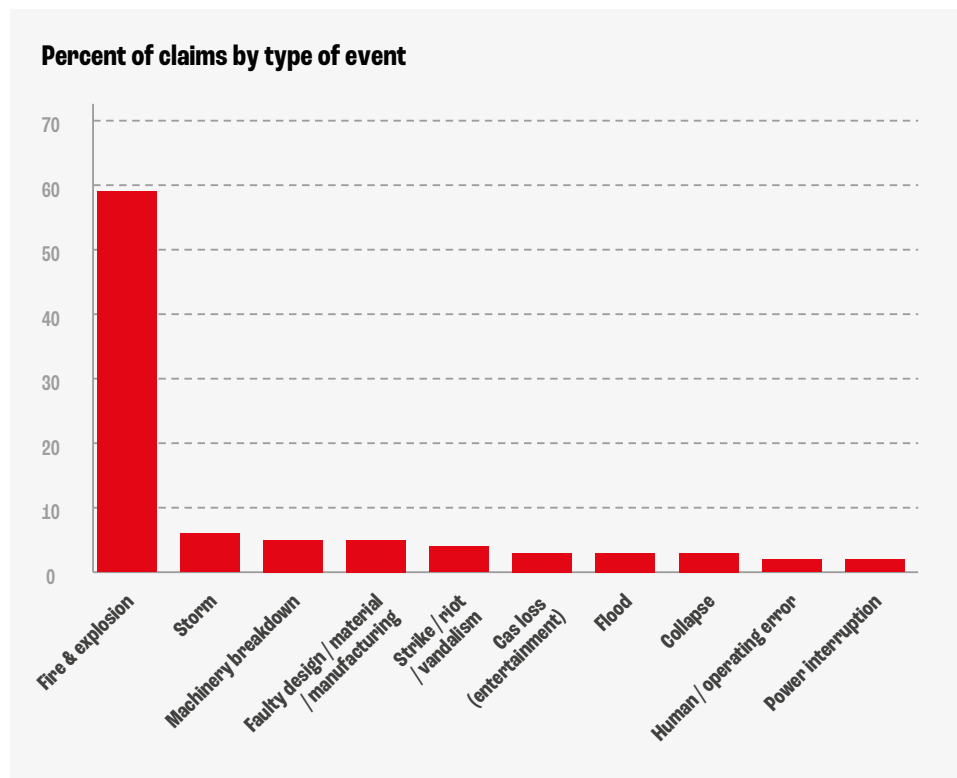
Interestingly, there is evidence from the UK that the current dynamic around this insurance makes it less attractive, given the sense that the insurance won’t pay out anyway. In a survey by McKinsey covering 500 small UK companies, one-fifth said they would stop paying for the insurance, while a quarter said they would stop buying two of them (Ralph 2020).

**On the other hand, even if business interruption insurances exist, legal ambiguities in clauses may make pay-outs complex.**

Given the lack of data on liability insurance contracts, it is difficult to impossible to measure the extent to which individual risk categories may or may not be covered by business interruption contracts. Moreover, even if they are covered, the ambiguity of language and finesse of language – as seen in the case of the German insurance company – will still potentially lead to rejection of claims.

At the point where the legal question is settled, it may be too late for many businesses requiring financial support. As outlined by Dizard (2020) in a recent Financial Times article, “*These are not really separate logical and legal arguments being crafted by skilled professionals with the dedication of master shoemakers. All the cases come down to the ambiguities in interpreting badly written business interruption insurance policies.*” According to Allianz (2015) statistics, it can already take more than 100 days from losses of the company to the payment of insurance companies in the engineering sector, for example. This, despite the fact that over 50% of these insurances refer to an apparently simple event such as fire and explosion (see figure below).

Figure 7 Percent of claims by type of event (Source: Allianz 2015).



**In summary, a review of insurance products currently suggests that they are – at least in their current form – not well adapted to mega risks.**

Ambiguous clauses lead to conflicts when settling claims, which will delay payment. These are likely to be particularly pronounced for insurance cases, with broader ambiguities on policies and when they trigger, notably business interruption. On the consumer side, “income protection insurance” ranks third in percentage of claims rejected, according to EIOPA (2017).

Delayed payments jeopardize the underlying philosophy of the insurance because they then don’t address potential liquidity issues and increase business uncertainty. In this context, these types of insurance products may in some cases strengthen operational resilience by ensuring that operations are “insured”, but not “financial resilience” given delays in payment.

That is not to say that insurance products cannot be viable as a mechanism in the context of mega risks. Indeed, most of the proposals outlined in the next section represent in one way or another an “insurance product”. However, as currently designed, they are not well suited for these risks.

**Finally, it should be noted that even if insurance products work, mega risks are systemic, which challenges the premise of insurance and the business model of insurance companies.**

The viability of an insurance sector exposed to systematic claims of business interruption insurance is a question mark. Even re-insurance may be challenged in an environment where the whole world makes a

claim. As financial resilience increases for corporates, it may come at the expense of financial resilience for insurance companies.

---

# Finance

**Finance represents a key safety net for companies as the provision of credit allows for the weathering of financial difficulties.**

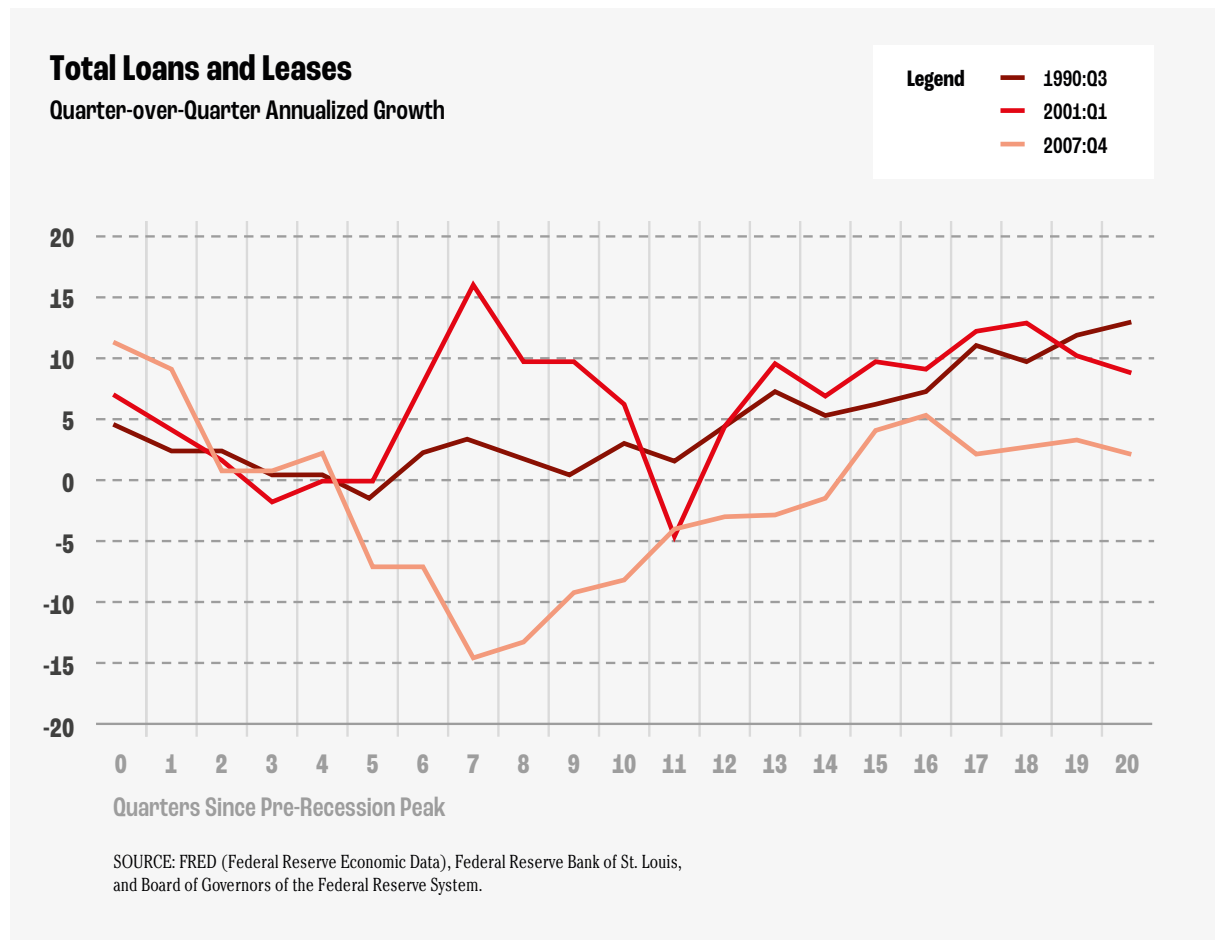
As outlined by Acharya and Steffen (2020) companies around the world sought to shore up their balance sheets through credit as the COVID-19 crisis unfolded. The strategy is intuitive and appropriate and obviously comes with advantages, as they reduce the opportunity cost of cash in good times. Companies ensure they have credit lines in place in case of crises that can be tapped.

**The challenge is that liquidity often dries up, just when it is needed the most, although of course financial supervisors and central banks can try to act as a lender of last resort.**

While credit lines and early movers still enjoy the benefits of liquid financial markets, as the crisis ramps up, financial institutions themselves start to become affected and liquidity will in many places dry up. That was the lesson of the financial crisis. Moreover, given the risk of higher defaults in the wake of the crisis, the leveraging that takes place can amplify financial disruption. This relationship is not robust, however, and is driven by other factors (e.g. strength of financial sector's balance sheet, etc.). In 2001, lending was relatively robust, whereas in the latest Global Financial Crisis, it collapsed from 10% growth to minus 15% growth of loans and leases from peak to trough (see fig. below) (Dvorkin and Shell 2016).

This shows that even in the face of strong prudential interventions, credit volumes will still drop. Moreover, integrating the “lender of last resort” logic from central banks also effectively mirrors a “bailout” mechanism as a source of resilience rather than market finance.

Figure 8 Total loans and leases under various US recessions (Source: Dvorkin and Shell 2016)



**While finance is a critical source of liquidity for individual companies, its overall collective dynamics make it poorly suited to act as a lender of last resort in crises, unless backed by governmental programs.**

The dynamic here suggests that finance is effective for individual companies facing liquidity crunches, but only healthy overall market conditions. Of course, governments and central banks can stabilize financial markets to allow them to continue operating smoothly, and that is indeed the policy that central banks have largely pursued in this crisis as well as the last one. However, such policies effectively mirror to various degrees the bailout resolution, which is not a market but a governmental mechanism of financial resilience, further discussed in the next section.

**The other factor is not just the “availability of capital”, but the actual indebtedness of companies when the crisis materializes.**

In the United States, non-financial corporate debt as a percent of GDP exceeded the peak in the Global Financial Crisis by 2017 and continued to grow by the end of 2019. It stands at the highest level in the post-war period (Rodriguez Valladares 2019).

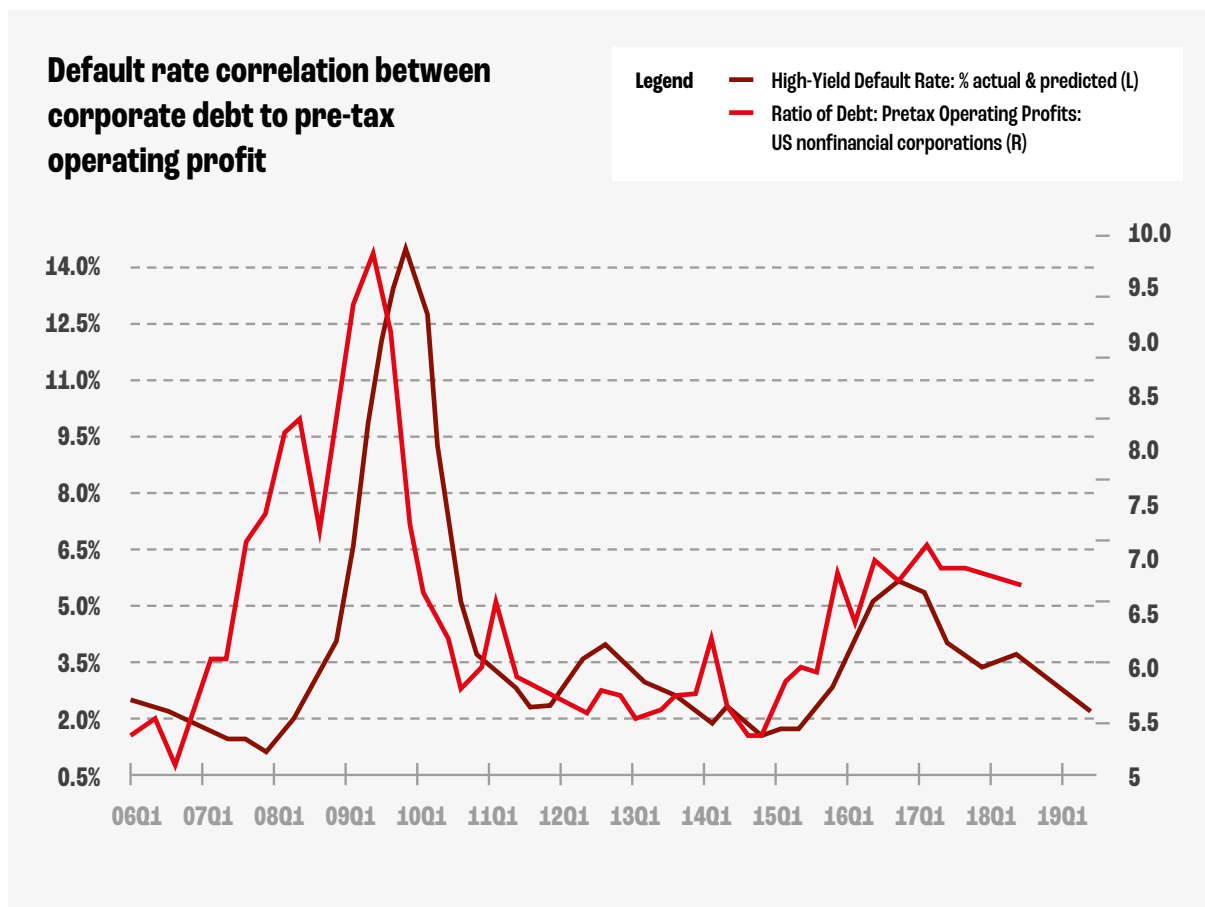
Figure 9 Nonfinancial corporate debt as a percent of GDP (Source: Taylor 2019)



As companies build up debt, their default probability increases and their access to capital decreases (all other things being equal). Analysis by Moody’s Analytics (2018) shows the close correlation of 0.83 between corporate debt to pre-tax operating profits, whereas pre-tax operating profits moves two to three quarters earlier to the corporate rate. Levels in that relationship have risen since 2015. As pre-tax operating profits collapse, it is not unreasonable to see returns of +14% high-yield default rates, levels consistent with the forecasts issued by S&P, Goldman Sachs, and Moody’s for the Coronavirus Crisis in 2020 / 2021.



Figure 10 Default rate correlation between corporate debt to pre-tax operating profit (Source: CFO Innovation 2018)



Using the correlation identified by Moody’s as a reference point, it is easy to see the benefits that more robust balance sheets would have delivered for defaults and the likely associated need for bailouts.

While the ultimate effect of the Coronavirus on pre-tax operating profit is likely to be both highly heterogenous and as of yet uncertain, some preliminary insights can demonstrate how to think of default rates and debt levels. For example, the German consultancy Roland Berger estimates that pre-tax operating profits could drop by 45% in the construction sector (CFO Innovation 2018). For the discussion here, we will take that figure to illustrate the sensitivity for the US non-financial sector (Note: this is not a forecast or a comment on the probability of that effect materializing for the sector, but simply showing what would happen if that event materializes).

By that measure, a Coronavirus-style event in Q1 2015 would have increased ratio of debt to pre-tax operating profit from around 5.5 to 8.25 – all other things being equal. In 2020, that ratio moves from 7 to 10.5. At 8, default rates were roughly 9.5% in 2009. At +10, default rates are 50% higher at +15%. Of course, this illustration is not analytically robust, but simply indicative of – taking the correlation identified by Moody’s as given – what lower debt levels can achieve for financial resilience.

---

## Contractual Exits

**Force majeure clauses or “hardship clauses” represent opportunities for contractual exits.**

According to NortonRose Fulbright (2020), and it is worth quoting at length here: *“the concept force majeure has its origins in French law where there are express provisions in the French civil code which excuse contractual performance where events have happened outside the parties’ control which could not have been foreseen at the time of contracting and which could not have been avoided by appropriate measures. It can also operate to exclude a claim for damages. However, force majeure is not a standalone concept of English law. Under English law, contractual performance will be excused due to unexpected circumstances only if they fall within the relatively narrow doctrine of frustration. This doctrine will apply by default unless the parties agree on something else in their contract.”* In other words, either the concept is not specifically defined, or parties define certain events specifically to clarify the scope of “force majeure”.

**When looking at “force majeure” clauses in contracts, their phrasing and scope suggests that the actual implementation of these clauses is highly unclear. An analysis of force majeure clauses suggests that they are to varying degrees vague and specific, and when they are specific, specific to different types of risks.**

For the purpose of this paper, we looked at a sample of 34,451 publicly available contracts from the LawInsider Database, which contain “force majeure” clauses.<sup>5</sup> The clauses were analyzed to identify the extent to which they specifically accommodate specific types of events. Across the 34,451 contracts that contained such clauses, 338 “types” of clauses could be identified. In other words, the language of “force majeure” clauses in these contracts could be clustered in a limited number of categories. That is not to say

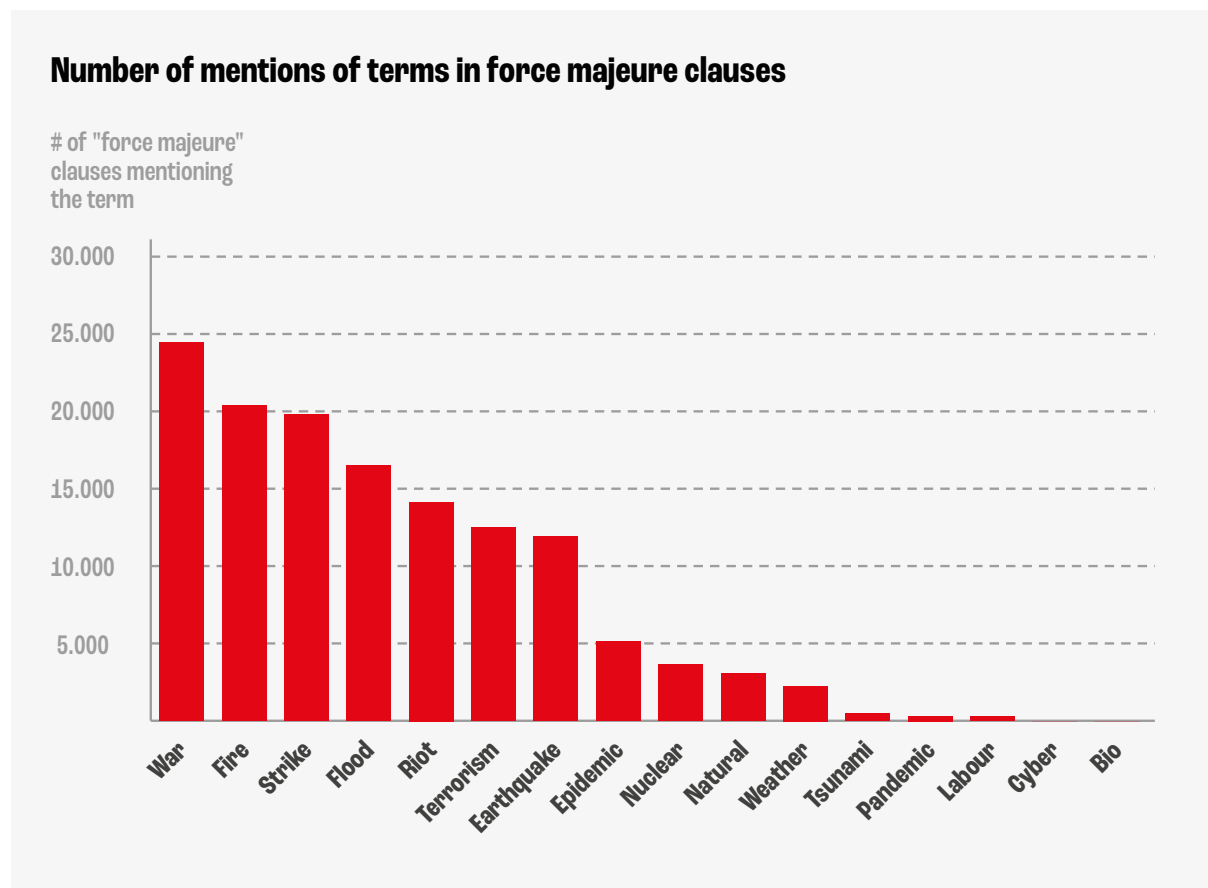
---

<sup>5</sup> The total sample was filtered due to data processing constraints from an overall sample of ~79,000 contracts in the database that were identified to have contained “force majeure” clauses.

that there isn't more divergence, the contracts were pre-filtered from the overall database based on the commonality of clauses, so there is likely a long list of thousands of variations in the non-identified sample.

The chart below highlights how many clauses mention specific events. The most frequent citation is war, represented in over 50% of force majeure clauses as a specific case. Of course, a large minority of clauses do not further stipulate which kind of events fall under the force majeure category.

Figure 11 Number of mentions of terms in force majeure clauses (Source: Authors based on LawInsider data)



The wide variety of different “standard clauses” in contracts is striking. Around 7% of clauses mention no specific risks. 53 of the 34,451 clauses mention at least twelve different types of risks. The distribution between these two extremes is roughly normal, with most clauses mentioning between 3-6 risks.<sup>6</sup>

The analysis demonstrates the ambiguity of these clauses and the extent to which they can – and will be – contested in court when these risks materialize. If a force majeure clause, for example, doesn't mention terrorism, does terrorism count as force majeure? While some argue for more detailed descriptions, they risk falling into the trap of creating lists that are exclusive rather than inclusive.

<sup>6</sup> Note, the analysis was automated and so may have understated risks not identified in the language by the software.

**The analysis suggests that the ability to exit “mega risks” may not actually exist, depending on the phrasing of the force majeure clauses.**

*As outlined by leading US law firm Paul Weiss (2020), “COVID-19’s classification as a “pandemic” by the WHO will trigger a force majeure clause that expressly accounts for “pandemics.” That said, the declaration of pandemic standing alone—without a reference to pandemics in a force majeure clause—will not automatically constitute a force majeure given the courts’ focus on whether the event is specified within the contractual language. Clauses that are silent on pandemics, epidemics, or other viral outbreaks are likely to be insufficient for a force majeure defense due to COVID-19, unless, of course, courts liberalize the force majeure analysis to account for market realities.”*

**Moreover, even if “contractual exits” exist, they at best provide incomplete support for financial resilience.**

Force majeure clauses may allow businesses to cut costs from their suppliers, rents, and other payments, but they don’t capture all types of outgoings, notably labor that – even under some layoffs – still represents a cost. Moreover, as outlined above, they also represent a risk to businesses as contractual guarantees may be lost. The contractual exit creating resilience for one company may be the death knell of another. In sum, both in the way they are currently applied and as a concrete mechanism, force majeure clauses are incomplete in driving the financial resilience of companies.

**Finally, contractual exits are a “micro” source of resilience, with a winner and a loser.**

They are thus a source of resilience for an individual company, but also a source of risk for the counterparty relying on the contractual payment commitments to operating their business. As a result, this mechanism does not seem relevant for further analysis in terms of policy support, although it seems clear that the better articulation of these clauses – also in the spirit of avoiding protracted litigation driven by poorly written clauses – is a worthwhile endeavor for private sector actors and can also reduce uncertainty. However, it is unlikely to overall address the challenge of pivoting from bailouts as a first to bailouts as a last resort.

# 3

---

## **Shortcomings of Relying on Bailouts as a “Policy of First Resort”**

**Bailouts are arguably the most prominent tool to address corporate financial resilience. They effectively represent the “fifth pillar” of resilience beyond insurance, cash, finance, and contractual exits.**

While historical comprehensive statistics on bailouts are missing, both the current and last major economic crisis have both been accompanied by a raft of explicit or implicit bailout measures by governments to prop up the corporate sector. While many of these are not properly labeled “bailout” (e.g. the German “Kurzarbeit”<sup>7</sup> policy represents an effective subsidy of companies but is not a bailout of their business), equity, loans, and guarantees represented a significant part of announced bailouts by large economies (Vivid Economics 2020).

The first obvious point is that bailouts form a core part of modern-day policymaking. They exist for companies, financial institutions, governments, and households, and have to a varying degree been used in policymaking for centuries. Some authors have argued that bailouts have played a critical role in strengthening the economic success and welfare of nations.

As argued by Soll (2015) in “The Reckoning: Financial Accountability and the Making and Breaking of Nations”, while France struggled in the wake of the Mississippi Bubble of 1718-1720, “Britain bounced back from the crash [of the South Sea Bubble]. It did so with something that no other country at the time had: a vibrant and innovative accounting culture (...). This culture allowed Walpole, in particular, to design a government bailout of the South Sea Company and of British credit markets.”

The other aspect is the sheer prominence of the instrument in the policy toolbox. The interventions in the context of the current COVID-19 crisis and the latest Global Financial Crisis show how readily bailouts are implemented. One might assume support for bailouts “by acclamation”. The serious question then is, what is wrong with sticking to bailouts as the instrument of choice when companies’ financial resilience is at risk?<sup>8</sup> Of course, the question is not whether it is wrong, but whether it should represent the primary option or whether strengthened corporate balance sheets and financial resilience can make them the “first loss taker” and either make bailouts unnecessary or the policy of last resort.

**Despite their popularity, bailouts can be considered to represent a “sub-optimal” policy instrument in the context of creating financial resilience for companies. There are a number of reasons for this, briefly described below. Note that the reader may not consider all of these reasons as a “negative”, depending on their political viewpoint:**

- **Moral hazard.** Some commentators argue that bailouts create moral hazard and even suggest the Global Financial Crisis was driven by previous bailouts creating a culture of “too big to fail” and suggesting that actors took excessive risks knowing they would be

---

<sup>7</sup> “Kurzarbeit”, in English “Short-time work” is defined as an employment relationship with reduced standard working hours. It enables companies to reduce personnel costs in times of economic crisis without having to reduce the number of employees significantly (Fachanwalt 2019). Due to COVID-19, the German government introduced the measure to support companies struggling in the crisis.

<sup>8</sup> Note this report focuses on bailouts for companies and is thus not comment on household bailouts or government bailouts, which are subject to a different political economy and cost-benefit analysis.

bailed out. A corollary of this thinking is that bailouts create a culture of “privatizing profits, socializing losses”, which create sub-optimal incentives.

- **Growing dependence on government.** The growth of bailouts has made companies both increasingly de facto reliant on governments in the face of crisis and placed a larger part of the private sector under governmental control. The Richmond Fed (2020) “Bailout Barometer” suggests that between 1999 and 2014, the share of private financial sector liabilities implicitly or explicitly guaranteed by government protection grew from losses from ~45% to over 60%. Of course, some actors may find such a trend desirable.
- **Erosion of public trust.** There is significant literature demonstrating the high degree of the unpopularity of bailouts in the public eye (Hoffman 2012). This raises two potential questions. First, what is the democratic legitimacy of this policy instrument in the face of public resistance? Second, what is the role of bailouts in eroding public trust in polity and institutions?
- **Risk of propping up dinosaurs.** The “bailout” culture tends to support large institutions that may not be at the forefront of innovation. It also risks propping up outdated business models. A number of observers have commented on the role of bailouts in supporting for example high-carbon industries during the current crisis (Carbon Market Watch 2020).
- **Loss to the public purse.** The net benefit of bailouts is contested. There is evidence suggesting that the US government may have actually turned a profit on the TARP bailout in 2009 as a result of the terms, although the accounting of such a profit remains an open question, in particular when weighed against the risk taken by the government. The moment when governments implement bailouts represents if not a loss then a risk to the public purse, competing in priorities with other use cases (e.g. education, or healthcare).

Of course, the literature on the political economy of bailouts is rich and goes beyond these elements in terms of the risks of a “bailout culture” to policymaking (Wright 2010).

The point of this discussion is not to suggest there is no place for bailouts generally, but rather to frame the premise that bailouts should be the last, not the first resort. Crucially, while not the focus of the paper, bailouts operating as last resort are also more likely to be less problematic in their implementation, given the extra time to design them effectively and with the broader policy objectives in mind.

# 4

---

## **How Can Policies Strengthen Corporate Financial Resilience?**



**This section explores how policy and regulatory interventions can increase financial resilience and the potential trade-offs associated with such interventions.**

It will look at two different policy options, having concluded that the contractual exit mechanism is not an effective systemic solution. While interventions may be effective to clarify their implementation and their mechanism, it does not necessarily reduce the need for bailouts. On the finance side, in turn, policy recommendations related to financial sector resilience, not corporate balance sheets directly. Instead, this note identifies insurance and cash as two levers for corporate resilience, with a policy proposal focused on each:

1. **Changing the rules around shareholder buybacks and dividend policies:** This policy option reviews the extent to which stricter conditions around shareholder buybacks can contribute to corporate resilience, as well as a potential extension of these policies to dividend payments;
2. **Changing the regulatory framework around business interruption insurance:** This policy option reviews changes to the rules around business interruption insurance, including options for a mandatory insurance coverage requirement for companies of a certain size and harmonizing coverage rules in the face of future crises. One variation of this policy proposal is to introduce a governmental version funded by corporates, similar to the guarantees for deposits that currently exist for banks.

Each of these will be discussed in turn.

---

## Changing the rules around shareholder buybacks (and potentially dividend payments)

*Potential policy intervention: Restrict rules around shareholder buybacks to require a minimum cash buffer before share buybacks may be triggered.*

**In aggregate, a limited preparedness strategy would have increased the cash buffer of the analyzed companies by 35% or \$4.7 trillion prior to COVID-19. This number is 10x as high as the large corporate bailout set up by the US government, at \$500 billion.**

Under an Advanced Preparedness Scenario (APS), that number increases by 50% or \$6.7 trillion. Of course, this is an aggregate pot of money. Despite the extra cash buffer in the LPS or APS outcomes at aggregate, it is not unlikely to imagine a scenario where a significant number of companies still require some governmental support.

**There is a large gap between the haves and have-nots, so a conservative assumption implies that only about 10-20% of companies would actually transition to the resilient zone from cash over sales perspective assuming a collective application.**

If this is translated one-to-one into a bailout, this would imply a reduction of the required bailout of \$50-\$100 billion, using the current large-cap US bailout as a reference point, with associated interest rate savings to the taxpayer of \$5-\$10 billion. Depending on assumptions of bailout recovery, this implies net savings benefit for the US taxpayer of around \$15-\$110 billion, or up to ~0.6% of GDP. Of course, these numbers represent some degree of uncertainty as to the actual ultimate payouts of the bailouts, to whom, and the ultimate cost / benefit of a bailout.

These numbers may understate savings as not only do a lower number of companies require bailouts, but the ones that are bailed out are more likely to pay back loans given more resilient balance sheets. Moreover,

even companies that still have limited cash buffers when pursuing an advanced preparedness strategy may increase the likelihood of repayment, given that many of the defaults may operate “at the margins”.

**There are other costs to the government which are harder to estimate and where corporate decision-making is unclear, notably unemployment benefits.**

Of course, the exact articulation of unemployment and rainy day funds is unclear. However, sound management of requirements around employee retention would likely reduce the overall cost related to unemployment, both in terms of fiscal costs, but also loss of human capital associated with unemployment (Möller 1989), and implications for long-term potential output.

**Proposals currently on the table involve a number of potential regulatory actions to restrict shareholder buybacks (Sykes 2019):**

- **Outlaw certain transactions.** One type of proposal is to simply outlaw certain types of transactions, notably open-market stock repurchases, the most common form of a buyback. This proposal has been put forward by the U.S. House of Representatives (2010) as part of the “Reward Work Act”, together with eliminating liability waivers for market manipulation by companies (Rule 10b-18).
- **Increase oversight on transactions.** An alternative policy option is to increase oversight on the transactions themselves, rather than fully outlawing them. These could be “pre-set conditions” (e.g. minimum financial buffer) or based on the requirement that financial supervisors are allowed to reject buyback plans if corporate boards can’t demonstrate that they are in the “long-term interest” of the company. This aspect in particular could also be extended to dividends potentially.
- **Disincentivizing shareholder buybacks.** A third option is to create negative incentives for shareholder buybacks through differentiated tax treatment. This could also extend to the taxation of all those shareholders who have not sold their shares. The reason for this is that shareholders not selling their shares will benefit from the shareholder buybacks as the value of the shares will increase. This benefit could be taxed in a way that the incentives to increase the value of the shares through buybacks are greatly reduced (Chirelstein 1969).

---

# Mandatory Business Interruption Insurance

*Potential Potential policy intervention: Make business interruption insurance mandatory and create a regulatory standard for the scope of business interruption insurance.*

**As outlined above, business interruption insurance is lacking in particular for many small businesses and introducing it could increase resilience (even if it is an imperfect solution).**

While comprehensive cross-country data is lacking, survey data from the UK and the US suggest that the majority of small businesses don't have business interruption insurance. Mandating such insurance could help guarantee that insurance comes before bailouts.

Broader mandates could also be considered more indirectly, by making them mandatory for certain types of activities, notably for companies with credit lines, etc. Such measures are more targeted to ensure resilience among companies e.g. interfacing with the financial sector.

**Mandatory coverage likely involves the requirement to scope insurance regulation around coverage.**

An intervention harmonizing insurance for business interruption could reduce business uncertainty and facilitate payouts. It also reduces the arbitrage risks now faced by many businesses who thought they were covered and are facing insurance companies unwilling to payout. The conceptual role model for that may be the Affordable Care Act in the United States, which created standardized categories for insurance plans (Bronze, Silver, Gold) (U.S. House of Representative 2010). Just as the Affordable Care Act drove down medical bankruptcy, so too could broader insurance for business continuity.

**The challenge of this suggestion is the extent to which coverage can be harmonized to anticipate risks and the risks such broad coverage represents to insurance companies.**

Using the Affordable Care Act as an example, a number of insurance companies have concluded that they cannot meaningfully provide insurance due to the conditions of the Act (Khazan 2017). Broader coverage can

drive up premiums, creating a larger affordability challenge for small businesses. There is an actuarial challenge of pricing these insurances in a way that ensures a mass event (e.g. lockdown due to pandemic) doesn't simply shift the bailout need from corporates to insurance companies.

In short, while the policy option appears attractive, more thinking is needed as to how to best implement it. One option that may appear relevant is to introduce governmental insurance cooperation, similar to the government guarantees for deposits that exist in many countries. Taking the example of healthcare, it represents what is considered in the US the "public option". Such a governmental fund effectively ensures that bailouts are capitalized (partially or ideally in full) by corporate contributions.

**Concretely, the policy option involves and requires developing responses to the following issues:**

- **Public or private option.** This step requires deciding whether a "public option" or "centralized option" should be implemented in the spirit of the Federal Deposit Insurance Company (FDIC), or whether the insurance should be mandated but delivered 100% through private sector insurances (as in the Affordable Care Act).
- **Determining pay-out criteria / Avoiding moral hazard.** A key criticism of the bailout mechanism is the moral hazard it creates. While almost all insurances create some form of moral hazard, the hazard is not necessarily socialized to the public purse, but rather across insurance takers. One big question then is whether all insurance takers have the right to be supported in the context of business interruption independent of the underlying viability of their business. One example that will become more and more prominent is the fate of high-carbon companies not adapting to the transition to a low-carbon economy or operating in the sectors that can be considered unable to adapt (e.g. coal mining). Related to this issue is the actual determinant around pay-outs. As outlined in the section on contractual exits, "force majeure" clauses have a wide range of language, and the exact nature of future risks is highly uncertain.
- **Structuring the insurance premium.** The third critical question is how to structure the premium. Will all companies be required or only companies above a certain size? How expensive will the insurance be if the market doesn't set the price but a public option? How can actuaries correctly anticipate the insurance needs to give the lack of historical role models for the types of risks set to materialize. And finally, can insurance premiums be tied to good corporate practice? This could include both cash resilience indicators that suggest perhaps a lower need for insurance and / or sustainability behavior.

## **BOX: PRIVATE OR PUBLIC INSURANCE SYSTEMS?**

If we opt for a private insurance system, it must be regulated.

Based on the cross-national health insurance literature, those countries that rely heavily on private health insurance systems also regulate this market heavily (Jost 2001). This seems to be particularly important when considering the events that result from the materialization of long-term risks, as these cause enormous destruction and involve vast costs. Such rules could be due to:

The unwillingness of insurance companies to cover long-term risks. Following the terrorist attacks of 11 September 2001, for example, insurance companies around the world stopped their contracts with airlines and airports and massively increased their rates. In this case, many governments provided state guarantees to airlines. As a result, governments are now heavily involved in financing terrorist attacks. Such interventions can be beneficial if the only task of governments is to increase coverage capacity. However, the danger could also lie in premium discrimination, which in turn implies a reduction in loss prevention (Nell and Richter 2015).

The unwillingness of companies to protect themselves against long-term risks. Even if the supply side is prepared to take long-term risks, the demand side must also be prepared to take out business interruption insurance. For example, in view of the floods in Germany in 2010, the number of insured victims was quite low, although flood insurance was available at that time (Nell and Richter 2015). Therefore, although the insurance system may be private, the government might consider making it compulsory for all companies. The challenge for such policy intervention lies in the potential costs for smaller companies with limited resources. An exception could be envisaged for certain types of companies (e.g. companies that are less than three years old and have fewer than 5 employees). Moreover, such exemptions could also contribute to more targeted policy interventions when rescue operations are needed. For example, looking at the case of Germany in the light of the COVID 19 pandemic, a policy has been introduced that effectively covers all small enterprises for a grant scheme. If such insurance existed, the incentive could have been targeted at those companies not covered by the coverage mandate.

The need of creating incentives for companies to avoid foreseeable fundamental losses. For example, in the case of a transition to a low-carbon economy, the government could impose conditionalities that would mean that carbon-intensive companies that do not try to meet the climate targets would be less covered by insurance than companies that implement climate targets.

In all three cases, there is a risk that governments will not have sufficient resources to supplement the private insurance system, which also carries the risk that taxpayers will end paying the subsidies (Armstrong 2016). Further debates are therefore needed here. The aim is to place as little burden as possible on the government and thus on taxpayers in terms of long-term risks when implementing the rules for private insurance schemes.

5

---

**Conclusion**

**This paper reviewed mechanisms to increase the financial resilience of companies in the face of mega risks. It highlighted that such financial resilience is currently lacking.**

The paper highlighted that the current instruments designed to ensure financial resilience have either been weakened as a result of share buybacks and increased corporate indebtedness or in the case of insurance and contractual exits are not well adapted and / or insufficiently adopted.

**In light of this conclusion, it is clear why bailouts become necessary too quickly in the face of such crises and are likely to continue to be necessary for future crises.**

The conclusions suggest that as the next generation of mega risks come our way – climate change likely to be chief among them – corporate bailouts will likely be amplified. And as mega risks proliferate in the future, this is likely to weaken resilience even further – representing a major threat to economic welfare as well as the current underlying economic system.

**In order to break out of the cycle of bailouts, policy reforms are needed to ensure that “corporate rainy day funds” are in place to prepare companies.**

These corporate rainy day funds can either take the place of a revamped insurance system that makes business interruption insurance mandatory – either through a governmental program or through the private sector – and / or measures to manage and control the rules around cash reserves and shareholder buybacks.

In addition, more clarity and standards around force majeure clauses and their use, as well as ensuring the financial system remains ready and able to provide liquidity in the face of a crisis are critical pillars of a revised policy toolbox for a “post-bailout” world.

**While policy takes center stage, investors can act now to support more resilient companies.**

While some of these actions are likely not aligned with short-term incentives, investors can drive more resilient decision-making by companies, stronger cash reserves, and ensure protections are in place in the case of a “rainy day”. Such measures should also be accompanied by focusing more on operational resilience, something not discussed in this report.

The challenge with such measures is the question of incentives. Current short-term risk management frameworks and systems that fail to capture mega risks are unlikely to send the right signals to investors and by extension companies of the economic imperative to prepare for a disruptive future.



---

# Bibliography

- Acharya, V. V., & Steffen, S. (2020). The risk of being a fallen angel and the corporate dash for cash in the midst of COVID. CEPR COVID Economics, 10.
- Allianz (2015). Global Claims Review 2015: Business Interruption in Focus. Global Trends and developments in business interruption claims. Allianz Global Corporate and Speciality. Available at: <https://www.agcs.allianz.com/content/dam/onemarketing/agcs/agcs/reports/AGCS-Global-Claims-Review-2015.pdf>.
- Armstrong, C. (2016). Pros and cons: public vs. private car insurance. Available at: <https://www.economical.com/en/blog/economical-blog/july-2016/public-or-private-who-provides-your-car-insurance>.
- Carbon Market Watch (2020). Airline Bailout Tracker. Available at: <https://carbonmarketwatch.org/our-work/aviation-emissions/aviation-bailout-tracker/>.
- CFO Innovation (2018, July 27). Forecasting Default: Ratio of Corporate Debt to EBITDA No Longer Good Predictor. Available at: <https://www.cfoinnovation.com/risk-management/forecasting-default-ratio-corporate-debt-to-ebitda-no-longer-good-predictor>.
- Chirelstein, M. A. (1969). Optional Redemption and Optional Dividends: Taxing the Repurchase of Common Shares. The Yale Law Journal, 78 (5).
- Dizard, J. (2020, June 5). How to solve the Covid-19 business interruption mess with fewer lawyers. Financial Times. Available at: <https://www.ft.com/content/f51e42bb-a92f-4def-9e96-f5b3497f9d80>.
- Dvorkin, M. A., & Shell, H. (2016). Bank lending during recessions. Economic Synopses, (2).
- EIOPA (2017). Sixth Consumer Trends Report. Available at: <https://op.europa.eu/webpub/eiopa/sixth-consumer-trends-report/>.
- Fachanwalt (2019). Kurzarbeit – welche Voraussetzungen müssen vorliegen und wie wirkt sie sich aus? Available at: <https://www.fachanwalt.de/magazin/arbeitsrecht/kurzarbeit#:~:text=Definition%3A%20Was%20ist%20Kurzarbeit%3F%20Kurzarbeit%20%28%2%A9%20Brian%20Jackson.ohne%20die%20Zahl%20der%20Arbeitnehmer%20stark%20zu%20senken.>
- Fahlenbrach, R., Rageth, K., & Stulz, R. M. (2020). How valuable is financial flexibility when revenue stops? Evidence from the Covid-19 crisis. National Bureau of Economic Research (No. w27106).
- Felkerson, J. (2011). \$29,000,000,000: A detailed look at the Fed's bailout by funding facility and recipient. Levy Economics Institute of Bard College Working Paper, (698).
- Fratianni, M. U., & Marchionne, F. (2010). The banking bailout of the subprime crisis: size and effects. PSL Quarterly Review, 63(254), 185-231.
- Gilbert and Tobin (2020). COVID-19: M+A in a time of crisis. Available at: <https://www.gtlaw.com.au/insights/covid-19-mergers-acquisitions-time-crisis>.
- Hoffman, M. E. (2012). The Political Economy of TARP: A Public Opinion Approach. Available at: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1998384](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1998384).
- Insurance Journal (2015). 66% of Small Businesses Lack Business Interruption Coverage: Survey. Available at: <https://www.insurancejournal.com/news/national/2015/09/02/380367.htm>.
- Jöhnke, B. T., (2020). Betriebsschließung wegen Coronavirus (COVID-19): Württembergische Versicherung lehnt Versicherungsschutz ab! Available at: <https://joehnke-reichow.de/2020/03/29/betriebsschliessung-wegen-coronavirus-covid-19-wuerttembergische-versicherung-lehnt-versicherungsschutz-ab/>.
- Jost, T. S. (2001). Private or public approaches to insuring the uninsured: lessons from international experience with private insurance. NYUL Rev., 76, 419.
- Khazan, O. (2017, May 11). Why so Many Insurers are Leaving Obamacare. The Atlantic. Available at: <https://www.theatlantic.com/health/archive/2017/05/why-so-many-insurers-are-leaving-obamacare/526137/>.
- Möller, J. (1989). Unemployment and deterioration of human capital: A labour market model with hysteresis implications. Discussion Paper - Serie I (245). University Konstanz, Department of Economics, Konstanz.
- Moody's Analytics (2018). Ratio of Debt to EBITDA a Poor Predictor of the Default Rate. Available at: <https://www.moodyanalytics.com/-/media/article/2018/weekly-market-outlook-ratio-of-debt-to-ebitda-poor-predictor-of-default-rate.pdf>.
- Nell, M., & Richter, A. (2005). Catastrophic events as threats to society: Private and public risk management strategies. In Risk management, pp. 321-340. Springer, Berlin, Heidelberg.
- NortonRose Fulbright (2020). Force majeure/hardship clause and frustration in English law contracts amid COVID-19. Available at: <https://www.nortonrosefulbright.com/de-de/wissen/publications/b54cf723/force-majeure-hardship-clauses-and-frustration-in-english-law-contracts-amid-covid-19>.
- Paul Weiss (2020). Update: Force Majeure Under the Coronavirus (COVID-19) Pandemic. Available at: <https://www.paulweiss.com/practices/litigation/litigation/publications/update-force-majeure-under-the-coronavirus-covid-19-pandemic?id=30881>.
- Ralph, O. (2020, May 4). UK companies to shun business interruption insurance. Financial Times. Available at: <https://www.ft.com/content/ba7b8321-73a0-442d-ac85-74ad09019223>.
- Richmond Fed (2020). Bailout Barometer. Available at: [https://www.richmondfed.org/research/national\\_economy/bailout\\_barometer/bailout\\_barometer\\_previous\\_estimates](https://www.richmondfed.org/research/national_economy/bailout_barometer/bailout_barometer_previous_estimates).

- Rodriguez Valladares, M. (2019, August 17). Investors Face Intensifying Credit Risks with U.S. High Yield Corporate Bonds. Forbes. Available at: <https://www.forbes.com/sites/mayrarodriguezvalladares/2019/08/17/investors-face-intensifying-credit-risks-with-u-s-high-yield-corporate-bonds/#49a924a87cbb>.
- Schober, K. S. (2020). What the new normal could look like in construction. Roland Berger. Available at: <https://www.rolandberger.com/en/Point-of-View/The-coronavirus-crisis-will-cause-significant-delays-to-the-construction.html>.
- Soll, J. (2015). The Reckoning: Financial Accountability and the Making and Breaking of Nations. The Accounting Historians Journal, 42 (1), 139-155.
- Sykes, J. B. (2019). Stock Buybacks: Background and Reform Proposals. Congressional Research Service. Available at: <https://fas.org/sgp/crs/misc/LSB10266.pdf>.
- Taylor T. (2019). US Corporate Debt: Warning Sign? Available at: <https://talkmarkets.com/content/us-markets/us-corporate-debt-warning-signs?post=212925>.
- U.S. House of Representative (2010). Compilation of Patient Protection and Affordable Care Act. Available at: <http://housedocs.house.gov/energycommerce/ppacacon.pdf>.
- Van Horen, N. (2020, June 9). Covid-19 Briefing: Corporate Balance Sheets. Bank Underground. Available at: <https://bankunderground.co.uk/2020/06/09/covid-19-briefing-corporate-balance-sheets/#more-6278>.
- Vivid Economics (2020). Integrating climate and biodiversity into the response to COVID-19: Bailout measures. Available at: [https://www.vivideconomics.com/wp-content/uploads/2020/05/200514-greening-COVID-corporate-bailouts-V2\\_shared.pdf](https://www.vivideconomics.com/wp-content/uploads/2020/05/200514-greening-COVID-corporate-bailouts-V2_shared.pdf).
- Wright, R. E. (Ed.). (2010). Bailouts: Public money, private profit. Columbia University Press.