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# STOP IT! YOU'RE SPOILING IT!

## The (un)desirable consequences of state aid in face of the 2008 economic crisis

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# Abstract

During the 2007-2008 global economic crisis it took not long until the crisis swapped over from affecting banks to affect the real economy. Governments saw the need to act in order to strengthen their economies facing recession. Supporting the real economy was a lower-ranking priority than saving banks, yet specific crisis state aid schemes have been implemented. Due to the single European market these measures had to be approved by the competition agency of the European Commission. The thesis uses the concept of resilience to study the coping of an economy with a crisis. Resilience is carefully deconstructed into short-term resilience, containing resistance and recovery from a crisis and long-term resilience which incorporates reorientation and renewal. Qualitative causal process tracing is applied to uncover the links between crisis impact, state aid and economic resilience in EU economies. The research finds that asking for state aid schemes at the Commission as well as granting state aid was influenced by the crisis magnitude. Furthermore, state aid had a positive effect on the resistance and recovery. However, this effect is rather measured in qualitative implications because it helped avoiding a credit crunch within an economy. The long-term effects turned out to be negative as expected. Firms that were granted aid were less likely to reorient after a crisis nor were they restructuring, because they were kept alive by state aid. Since beneficiaries of subsidies mostly opted for schemes that were not connected to sustainable provisions governments failed to foster so called smart growth.


***Word count:*** 20,293 words

# List of abbreviations

| | |
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| CAS | Complex Adaptive Systems |
| CME | Coordinated Market Economy |
| DG Competition | Directorate General Competition |
| DK | Denmark |
| EIB | European Investment Bank |
| ESPON | European Spatial Planning Observation Network |
| EU | European Union |
| FI | Finland |
| GDP | Gross Domestic Product |
| KfW | Kreditanstalt für Wiederaufbau (German development bank) |
| LME | Liberal Market Economy |
| m | million |
| R&D | Research and Development |
| SAAP | State Aid Action Plan |
| SE | Sweden |
| SME | Small and Medium sized Enterprise |
| TFEU | Treaty on the Functioning of the European Union |

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# 1. Introduction

## 1.1. State aid and the financial crisis in Europe

About ten years ago the last major economic crisis, starting in the years between 2007 and 2008, shook up markets and national economies around the globe. Originating in the United States, it did not spare Europe. People were afraid of losing their jobs and savings. Almost all national economies in Europe faced a severe downturn due to the crisis. The impact and breadth of the 2007-2008 economic crisis led to difficulties for several firms and businesses to resist turbulences. These firms were thus at risk of going bankrupt. Crises have also the potential to create vicious circles of defaulting firms leading to an even deeper recession with declining economic output and increasing unemployment rates. Thus, such circumstances will affect the stakeholders of businesses to a certain extent. In 2007-2008 the public was concerned about the crisis and government institutions which had an interest in a functioning economy took action in order not to risk the occurrence of this scenario or at least attenuate it.

Countries hit by the crisis that needed to regain control over their economies were put on the spot. Two dimensions of crisis had to be tackled. One was to fight the financial crisis where financial institutions were involved and the other was to attenuate the impact on the real economy. The latter refers to private firms and businesses that do not operate in the financial sector, for example the manufacturing or the construction sector. Though the two dimensions of the crisis are interconnected, the public is mostly concerned about the latter. This can be explained by the interest of the public to secure their jobs, as explained by Maslow's hierarchy of needs, which shows that people are not only provided security in a financial sense, but further a belonging to a group. Having employment may fulfill those needs. Jobs are mainly based in the real economy than in the – compared to the real economy – rather small financial sector. Even though the real economy and the financial sector are heavily intertwined and dependent on each other states focused on each objective separately. Among the policy measures that were used to cope with the crisis, state aid was one of them. National governments used it to keep their stressed economies afloat but had still separate budgets for financial institutions on the one side and the real economy on the other. Yet the primary objective of crisis state aid in general was to attenuate the economic shock. Therefore, the European Commission concluded in a 2011 report that "state aid, with other policy responses, has been effective in reducing financial instability and avoiding a financial meltdown affecting the whole economy" (European Commission, 2011a, p. 6). Yet states could not entirely decide on their own how much money is granted to their national economy as countries in the European Union are members of the single European market. Therefore, the European competition authority has an interest in securing a free and fair market with

the least distortion possible by national member states intervention. The supranational competition agency DG Competition (Directorate General Competition) was charged with revising the measures of national states aimed at tackling the crisis. It is a unique feature of the single European market all member states are bound to. Nevertheless, European governments could still decide, if they want to spend money in the form of state aid, since it had to be taken from their national budget.

The crisis had different effects and magnitudes in different areas and did not strike all countries to the same extent. On the other side, states spent different amounts of money on a range of aid measures. The amount spent on aid tackling the crisis should be bound on the actual magnitude of the crisis before providing aid. However, money alone may has different effects on economic recovery depending on where and how it is used. Effective policy makers and other institutional factors help to spend assets most effectively with the goal to get out of a recession. Eventually countries can prove resilient to a crisis. This is in economic terms a concept that refers to the level of resistance an entity can withstand a shock or the ability to recover from it (Simmie & Martin, 2010). How resilient an entity proofs is determined by several factors. In how far state aid contributed to economic resilience during the crisis will be analyzed in this thesis. The research theoretically links the magnitude of the 2007-2008 economic crisis with state aid and shows its effect on resilience European states demonstrated in a further qualitative analysis.

## 1.2. Scientific and societal relevance of state aid and resilience

Overall not much attention has been given to scientific research about state aid in the context of an economic crisis. Also, under non-crisis circumstances research is scarce, especially when considering the macroeconomic effects of the measure. Empirical studies focus mostly on the legality of state aid during crisis or provide an impact report of its effectiveness. Yet finding literature where state aid is put into context and not evaluated isolated from other measures in any kind of final report is a rare instance. Furthermore, is there no scientific research concerning on what grounds state aid is considered by national states and forwarded to the European Commission. Economic resilience is also a rather new approach to assess the ability of regions to cope with shocks. So far extant research on the matter is limited on uncovering traits which resilient areas possess. Yet the focus is mostly on economic factors and to some extent on institutional ones such as innovation capacity (cf. Bristow & Healy, 2017). Less so are policy and governmental institutions considered as a factor contributing to resilience. The most extensive contributions regarding the latest crisis of 2007-2008 are government reports, namely the ECR2 report on resilience of regions published by the European Spatial Planning Observation Network (ESPON) belonging to the European Regional Development Fund of the EU

(ESPON, 2014). Therefore, the contribution of scientific literature in these fields of research alone is important for other scholars in order to carry on with further research on these topics having literature to relate back to.

State aid as such is a tool for states to overcome the crisis that should not be neglected. The volume of measures such as fiscal stimulus aggregated for 1.43% of GDP (Gross Domestic Product) in France between 2008 and 2010, respectively 1.18% in Germany and 1.31% in Sweden it is considered as most important measure (Pontusson & Raess, 2012). However, state aid under the temporary framework, which excludes measures for financial institutions got aid approved in up to 0.69% of the EU GDP only between 2009 and 2010. Governments were using 0.26% of EU GDP in these two years (European Commission, 2012). This is of course less than measures used for fiscal stimuli, however it is still a significant part in dealing with the economic crisis and needs further consideration. Moreover, is the issue relevant enough for further research.

Resilience as a feature of a region is determined by several factors, including among others, the economic structure (ESPON, 2014). Yet most are not yet uncovered. In reports about the allocation or effectiveness of state aid, economic resilience is neglected. This paper highlights the theoretical interlinkages between state aid and resilience. Further shall the research question be answered based on empirical findings. The findings allow for a holistic view on the use of state aid during economic crises. Additionally, the thesis focuses on digging deeper into the black box of economic resilience and tries to unveil the mechanisms state aid has on resilience. This valuable contribution helps to gain a better understanding what factors play a role for a region to proof resilient. Furthermore, the concept of regional economic resilience is carefully deconstructed into short- and long-term resilience, which often is used as one combined concept.

The findings of this qualitative analysis aim to uncover the mechanisms at work, focusing on the provision of state aid in order to economically recover. Scientific outcomes can be used for a further mixed-method approach that can be quantified. Nonetheless, this study can produce valuable findings that can contribute to improve policy making processes. In crises where resources are limited it is vital for policy makers to allocate them in the most efficient way possible. This research can help policy makers to make use of their resources, may it be time or money, in order to get the most favorable outcome to their challenges. By looking at the bigger picture and understanding the mechanisms, practitioners can seize the full potential of allocating state aid. Also, the resource of time can be used most effectively, as policy makers may understand where to set priorities of distributing resources first, since acting in time is essential when turbulences occur. Furthermore, economic resilience is also seen “as a desired feature that should somehow be promoted or fostered” (Martin & Sunley, 2014, p. 1), and this research provides insights on how economic resilience is influenced by the support of state

aid. Therefore, this research is not only relevant to researchers in the field and interested scholars, but also very practical to policy makers involved in crisis management during an economic crisis.

## 1.3. Research question

To solve the research puzzle why certain regions showed a higher resilience than others despite being hit by the crisis to a similar extent a clear and concise research question is needed. The role state aid played for resilience is examined. Since it is strictly regulated, because of the potential to distort markets, EU regulations were softened during the crisis and states could distribute state aid with less burdens than before. The research question builds on the magnitude a country was struck by the crisis and examines its effects on the granting of state aid. This is then linked to the contribution of the subsidies and its effects on economic resilience are studied. The research aims to analyze the effectiveness of state aid for coping with shocks by the real economy. Further are intrinsic features of countries taken into account when assessing resilience. Focus will be set on the real economy because it affects most of the workforce and is thus imperative to keep on going. The thesis has a two-level approach. First the magnitude of the crisis is linked to the granting and allocation of state aid and a next step scrutinizes the effect of state aid on economic resilience. This is important in order to assess the magnitude of the crisis an economy had to overcome with state aid that was provided by the state for the domestic economy. In order to increase validity of this study the second level of this approach, being the core of this research is analyzed further in a comparative case study. To examine the effects of state aid on economic resilience all EU countries will be studied while the Nordic member states are chosen for a comparative case study and undergo further investigation. Thus, the overarching research question of this thesis will read:

**How, and to what extent, did state aid to the real economy affect economic resilience in EU countries after the 2008 economic crisis?**

To get a better picture of the research, two subsequent questions are answered:

1. How did the magnitude of the 2008 crisis in a country affect the allocation of state aid to the real economy?
2. What is the effect of state aid to the real economy on economic resilience of a country?

The thesis is structured as follows: First hypotheses are worked out by consulting different theories and extant literature on the topics. Two strong hypotheses split up into sub-hypotheses incorporate the three concepts of crisis magnitude, state aid and resilience. In the subsequent section a method is chosen fitting best to answer the research question above. Further is the case and data selection discussed. The analysis is the heart of the thesis and will answer the hypotheses developed before. Finally, the results are discussed, and limitations are highlighted. The research closes with a conclusion and a recommendation about the findings.

# 2. Theoretical framework

In this section a theoretical framework is introduced that conceptualizes the different variables. First the magnitude of the crisis on the economy is defined. In the later sections literature on state aid and economic resilience are discussed and will be used to conceptualize the two concepts. Additionally, the variables will be linked through extant scientific research and hypotheses are worked out that will be analyzed in a latter section of this research.

## 2.1. Conceptualization of crisis magnitude

A crisis affecting the economy of a state can come in several ways. Reaching from a recession in at least one sector up to a full-fledged depression that contains all sectors of the economy. These instances can moreover be limited to a certain region or have a global impact. In their paper about the evaluation of economic recessions, Mazurek and Mielcová use a quantitative technical terminology for defining a recession. This definition classifies a recession as at least two consecutive quarters of falling GDP rate (Mazurek & Mielcová, 2013). Also, other factors like "real personal income, employment, industrial production and wholesale and retail sales are used to determine whether an economy is in a recession or not" (Mazurek & Mielcová, 2013, p. 182). A deep recession can turn into depression when it is "influencing more than one country and [is] lasting for a long time" (ibid). Nevertheless, economic crises are normally hard to compare when there are several of the aforementioned factors involved to different extents and are therefore mostly described by qualitative terms (Mazurek & Mielcová, 2013). Mazurek and Mielcová however offer a quantitative measure to assess the magnitude of an economic crisis.

The thinking of recession in recurring cyclical terms is the most spread definition on that issue. Joseph Schumpeter found that "capitalist economies are characterized by a four-phase cycle of prosperity, recession (a period of economic decline following prosperity), depression (a period of below zero decline) and recovery (the return of positive growth)" (Bristow & Healy, 2017, p. 269). Furthermore, the process of recession and depression serves "[the destruction of] some outmoded or unproductive sectors through the gales of creative destruction" (ibid). This is seen as a natural process. Yet an interplay of several factors is needed to trigger a global economic crisis. How economic crises from one sector can develop and spill over to other sectors shows the evolution of the recent crisis in 2008. After the sub-prime mortgage crisis in the United States where sub-prime borrowers could not afford to pay back their mortgages and were defaulting, lenders were also defaulting. In 2007 this led to BNP Paribas as the first major European bank to freeze funds that were exposed to the turbulences in the

US. The initial financial crisis then "turned into a banking crisis and a crisis of sovereign debt, soon affecting the real economy" (European Commission, 2017). By that point, beginning in 2008 the crisis had affected all actors of the economy including the state. Therefore, it is referred to the '2008 crisis' in the following. In its press release the Commission states that "[the] European Union fell into the worst recession in its history," (ibid). It shows again what impact the course of a crisis can have on the economy, states, and citizens.

Despite the different factors mentioned above contributing to crisis magnitude, two are of special interest when determining the impact on an economy. The first is the ubiquitous measure to determine the magnitude, namely GDP levels. It measures the market value of all final goods produced in a certain time span and is thus considered as "a standard measure of economic well-being and tends to be used to measure entry and exit from recession" (Sensier, Bristow, & Healy, 2016, p. 134). The second measure that should be taken into account when measuring crisis impact is the level of employment. This is especially important for policy makers, because it has a social dimension, and has the tendency to be more inside the mind of people and politicians (Sensier, et al., 2016). Thus, these are the most important factors to determine crisis magnitude, especially for the real economy, in order to answer the underlying research question.

## 2.2. Literature review and extant research

### 2.2.1. State aid

Granting state aid describes the allocation of financial resources by national or sub-national authorities to a selected group of recipients. DG Competition is the regulating authority for state aid inquiries of EU member states. It defines state aid as having four features. These features are the intervention by the state or state resources in the free market – such subsidies can come in several forms like guarantees, grants or tax relief, giving the recipient an advantage on a selective basis. This can be aids to certain companies, sectors or companies in certain regions (European Commission, 2016). The other two features are likely to affect the European common market, since they emphasize that by an intervention competition is or may be distorted, further is this kind of aid likely to affect trade between EU member states (ibid). When following the narrative of the Commission, the two latter features have the potential to undermine a fair common European market, because national states could favor domestic companies to an extent that is distorting the market. Therefore, the EU regulates these kinds of state intervention in Article 107(1) Treaty of the Functioning of the European Union (TFEU). The provision states: "[…] any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the

production of certain goods shall […] be incompatible with the internal market" (European Union, 2008, p. 91). This is due to such measures bringing an advantage to firms on a selective basis by the national government and can be exclusive to firms. Subsidies, or other general measures granted to individuals or which are open to all businesses, do not constitute aid and are thus not considered state aid (European Commission, 2016). Due to its selectivity and ability to distort the common market state aid is strictly controlled by the Directorate General for competition at the Commission and needs approval through this institution. However, in certain circumstances state aid can be approved as in Article 107(2)(b) that allows for "aid to make good the damage caused by natural disasters or exceptional occurrences" (European Union, 2008, p. 91). This article was in fact often referred to during that economic crisis.

Historically state aid was a measure where the European Commission had initially only supervisory power. Therefore, national states were not legally bound to European treaties. State aid became a method of choice to safeguard employment, as it was used by states to support firms during the 1970s economic downturn (El-Agraa, 2011). The Commission saw the dangers that state aid may bring to the common market by supporting sectors in difficulties and wanted to restrict it (ibid). With its newly won power through a 1998 Council regulation the Commission could rely on hard law when making decisions about state aid (Kassim & Lyons, 2013). A shift in state aid spending from sectoral towards horizontal and regional aid was achieved, for example by supporting research and development (R&D) projects or the enforcement of environmental policies. Moreover, was the state aid action plan (SAAP) introduced in 2005 by the Commission that focused more the economic outcomes of aid. Permission to grant aid was thus evaluated by weighing positive and negative effects, to assess its appropriateness and proportionality and check which incentive it aims to create. These efforts resulted in a decline of sectorial state aid while the total amount remained stable, thus state aid is better targeted especially the horizontal one (ibid).

State aid rules came under great stress during the economic crisis in 2008. Before that the Commission had the guideline that "[rescue] aid must be given on a 'one time, last time' basis […] no more than a short-term holding operation and must take the form of transparent loans or loan guarantees" (El-Agraa, 2011, pp. 219) and enterprises in need of restructuring aids must show a restructuring plan first. Exemptions of state aid was grouped and contained horizontal aid, R&D, regional aid and aid falling under the de-minimis criterion as it is considered too low to have market distorting effects (ibid). State aid rules were needed when the crisis hit the economy to provide a playing field and preserve the achievements of the common European market (Lowe, 2009). First, rules for banks were established to keep them afloat, but without distorting the market (El-Agraa, 2011). In December 2008 the Commission focused more on the non-financial sector, also known as real economy. It adopted the

Temporary Framework for State Aid (Lowe, 2009). This allowed member states to develop a rescue scheme and get it approved by the Commission, without getting every individual case approved. States could grant certain types of aid to the real economy until the end of 2010 which was later prolonged until the end of 2011. State aid was necessary, since "[sufficient] and affordable access to finance is [seen as] a pre-condition for investment, growth and job creation by the private sector" (Lowe, 2009, p. 3). This allowed member states to supply companies that were not in difficulty before the 1st July 2008 to be supported. Governments could back companies in difficulties with an array of measures which were defined by the Commission (European Commission, 2008a). Eventually the temporary framework was replaced in May 2012 by the State Aid Modernization program that aimed to facilitate aid which is "efficient, well-designed and addresses a real market failure" (Kassim & Lyons, 2013, p. 13).

The extraordinary 'crisis state aid' was intended to help national economies resist a shock or recover from one. Like ordinary state aid, crisis aid supports companies. State aid that is granted in recent years goes often to research and development or training for staff personnel which enhances the competitiveness of a firm. This is a rather long-term investment since such measures need planning and time for execution. During the crisis a credit squeeze on the real economy (when not enough credit could be supplied to the real economy), the European Commission even estimated that healthy companies get into financial need (European Commission, 2008a). Ruling governments have an interest in a working national economy and therefore in healthy companies. If companies could not meet paying back their accounts receivable they have to file bankruptcy. This in turn would lead on the one hand to weakened banks due to defaulting firms and on the other hand to declining tax revenue and increased social spending for lost jobs by the state. This is then all part of a vicious circle of economic crisis (Shambaugh, 2012) and is more intense depending on the magnitude of the crisis in a country. To break out of that circle governments need to support the real economy where most of the jobs are and GDP is generated. Both ordinary notified state aid as well as crisis state aid are aimed to boost the economy (European Commission, 2016). Thus, state aid for this research refers to the measures for the real economy and leads to the first hypothesis:

***H1: A high level of crisis impact leads to a high level of state aid spending on the real economy.***

This hypothesis as such seems to be a bit self-evident and does not correspond properly to the actual events surrounding the economic crisis. Thus, it has to be refined in order to gain a stronger hypothesis.

In economic discourse is no consensus agreed on about dealing with government spending in times of crises. The most prominent clash is between the camps of neoliberalism and Keynesianism. Whereas

neoliberals believe that the market is more intelligent than any human control and states should only intervene to a minimum extent, Keynesians follow an opposite approach. The latter believe that a state should intervene when the economy is in downturn in order to support it. Keynesians promote government spending to conduct "expansionary fiscal and monetary policy, that is increasing governments' spending and inflation and decreasing the tax rate" (Maatsch, 2014, p. 98). The aim by this approach is to keep consumption high and strengthen the private sector by using inflation as a tool to "get the prices right" (ibid) and attract investors. Nonetheless neoliberals claim this as counterproductive and predict that such economies will be punished by possible investors, since these states run high deficits. Therefore, the best way to deal with a crisis from a neoliberal perspective is to reduce spending. By reducing public expenses through budgetary consolidation and policies of austerity the confidence of investors in the market can be won back. Further can high deficits and interest rates be avoided, and debts be paid back (Maatsch, 2014). The Keynesian counterargument is that, by using inflation as a tool, investors may be more likely to borrow, since the currency will be worth less (ibid).

To this long going dispute in the literature it seems "there is no consensus among empirically oriented economists as to which of the two approaches is more effective during the crisis" (Maatsch, 2014, p. 99). Therefore, it is up to the ruling party which approach to follow. Traditionally parties on the economical left favor the Keynesian approach whereas the ones on the right tend to lean towards the neoliberal approach. So, parties in power shape the course of action during the crisis. Still Hall and Soskice claim that the varieties of capitalism in different states remain polarized between coordinated (CME) and liberal market economy (LME) (Hall & Soskice, 2003). This then already predetermines the course of action of a government, since LMEs favor – as the name suggests – a more neoliberal approach, whereas in CMEs the state plays a big role, like in Keynesianism. Streeck criticized this approach and states in his response to Hall and Soskice amongst other that variety of capitalism is the variation of capitalism across space (Streeck, 2012). Parties have thus room to maneuver in determining state aid. Governments shape capitalism in their respective country and also the response to crises.

Pontusson and Raess on the other hand cite in their article about crisis response of states among other Scharpf who argues "that the Long Recession of 1974-1982 marked the end of the "Keynesian era"" (Pontusson & Raess, 2012, p. 31). The authors separate Keynesianism into a liberal and a social one. Whereas the former focuses on tax cuts to stimulate the demand, the latter builds on spending increases. Due to application of liberal Keynesian measures, the authors declare liberal Keynesian as far from dead (Pontusson & Raess, 2012). The fact that there was government spending in the economic crisis of 2008 leads to the assumption that social Keynesianism is not an issue to totally

overlook either. These implications lead to the adjustment of the first hypothesis, because ruling parties of states cannot be neglected when looking at the crisis response. The two sub-hypotheses are:

***H1a: A high level of crisis impact under an economically left government leads to a high level of state aid spending to the real economy.***

The assumption from the perspective of economic right governments looks different. It does not claim that no subsidies at all are paid, but due to the favored austerity measures of neoliberals, spending in terms of subsidies is lower in relative terms. Yet the effect for parties on the right goes only in one direction, because state aid is strictly regulated by a supranational agency and under the temporary framework for state aid to the real economy only firms that were not in difficulties before the 1st July 2008 could be supported. Thus, governments were stripped of the possibility to support firms that were not hit by the 2008 crisis. So, the second sub-hypothesis is:

***H1b: A high level of crisis impact under an economically right government leads to a low level of state aid spending to the real economy.***

### 2.2.2. Economic resilience

Economic resilience is not particularly self-explaining and is a rather new concept in the economics discipline. A 2014 report by the EU agency ESPON uses the concept in relation to the crisis and highlights its features of "resistance of a system to shocks and the speed of its return or 'bounce-back' to a pre-shock state or equilibrium" (ESPON, 2014, p. i) respectively the "capacity of a local or regional economic system to adapt to changing economic circumstances (ESPON, 2014, p. ii). Nonetheless, the working definition of the EU agency for resilience refers to the "ability of a regional economy to withstand, absorb or overcome an internal or external economic shock" (ESPON, 2014, p. 2). Simmie and Martin mention the socio-economic system that allows economies to "recover from shock […] or disruption" (Simme & Martin, 2010, p. 28). This characteristic is augmented by the definition of Foster who regards "regional resilience as the ability of a region to anticipate, prepare for, respond to, and overcome from a disturbance" (ibid) Moreover, Hill et al. see resilience as "the ability of a region … to recover successfully from shocks to its economy that either throw it off its growth path or have the potential to [do so]" (ibid). What all definitions share is the element of recovery and resistance towards events that might have a negative impact.

So far, many factors influencing economic resilience remain unclear. Some authors tried to decipher factors that play a role for an economy to prove resilient. Amongst them Bristow and Healy puzzled about the varying recovery rates after the economic crisis from 2008. According to the authors

resilience is a multi-level concept incorporating four dimensions. The first is resistance and refers to the "ability of regions to resist disruptive shocks in the first place" (Bristow & Healy, 2017, p. 268). Whereas the second dimension is recovery that contains "the speed of return to some pre-shock performance level" (ibid). The third and fourth refer to reorientation and renewal, which is "the extent to which the region adapts its economic structure" (ibid) respectively "the degree to which the region resumes its pre-shock growth path" (ibid). Yet the authors take an evolutionary approach on regional resilience. Evolutionary economic geographers make a distinction between "resilience based on *adaption* (the tendency to replicate and reproduce existing economic activities and ways of working) and *adaptability* (characterized by a dynamic capacity to develop and pursue new economic trajectories)" (Bristow & Healy, 2017, pp. 266). Adaption reflects more on resistance and recovery of the classical economic resilience definitions, while adaptability incorporates the reorientation and renewal dimensions. When coping with unexpected economic shocks, greater adaptability is a precondition for greater resilience.

The evolutionary perspective builds on the thinking that the world is composed of systems that are constantly adapting through interrelationships, interactions and interconnectivity with its environment (Bristow & Healy, 2017). Such complex adaptive systems (CAS) which can represent the economies in Europe develop in a non-linear and non-equilibrium fashion without a clear endpoint. Thus, there is no best practice a region can follow, because the development within a CAS is very much path dependent due to the non-linearity. It is therefore important to know the nature of the shock in order to understand how a region needs to adapt in order to survive (ibid). This concept does however make a distinction between "resilience as a short-term resistance and recovery, and longer-term renewal and reorientation" (Bristow & Healy, 2017, p. 271).

Simmie and Martin however define two notions of resilience, engineering and ecological resilience (Simmie & Martin, 2010). The former refers to the return of an economy to its equilibrium growth path by which it was moved off through a shock. Self-adjusting forces are believed to bring a region back to its initial economic growth path. Because of the return to the initial growth path of a region, engineering resilience "becomes difficult to reconcile […] with the idea of regional economic evolution" (Simmie & Martin, 2010, p. 29). A resilient region would be characterized by maintaining or returning its stability and structure. Ecological resilience on the other hand incorporates the idea of adaptability and focuses on whether a shock created a shift in behavior of an economy. Yet there seems to be a problem to this approach. Also, ecological resilience is measured by the magnitude of the shock that can be resisted before the system changes its structures, but this would imply that "the bigger the shock required to change a system's structure and function, the more resilient that system would be deemed to be" (Simmie & Martin, 2010, p. 30). This capacity to absorb shocks without

changes in structure would lead back to the concept of engineering resilience. Yet an evolutionary analysis is possible, by looking at structures and its changes after an economic shock. The evolutionary approach also rejects the thinking that for something highly dynamic like economic growth there exist only one growth path. Several possible states and paths exist, and regions can be switched by shocks from one such equilibrium to another. Therefore, a non-resilient region would be one that is locked-in in its outmoded structures "with a consequential lowering of its long-run equilibrium growth path" (Simmie & Martin, 2010, p. 30). Evolutionary theorists have even gone so far as to reject the concept of resilience as return to a stable equilibrium state (Simmie & Martin, 2010).

Figure 1 illustrates the different theories of resilience. Graph (a) shows the equilibrium perspective where a region recovers from a shock and moves back to its pre-existing growth path after it was thrown off it by the shock. However, a region can also fail to move back to the previous growth path and move on at an inferior path (b). The evolutionary resilience theory thinks in more dynamical terms that corresponds better to the practical reality. It therefore rejects the idea that there is one single growth path for a region with one single equilibrium. The theory considers several possible paths and equilibria. Thus, as graph (d) shows a resilient region would successfully adapt and then "either resumes, or better still improves, its long-run equilibrium growth path" (Simmie & Martin, 2010, p. 30). Non-resilient regions would be locked-in by its obsolete structures and fail to regain its previous growth path, nor being able to move to an improved path (c).

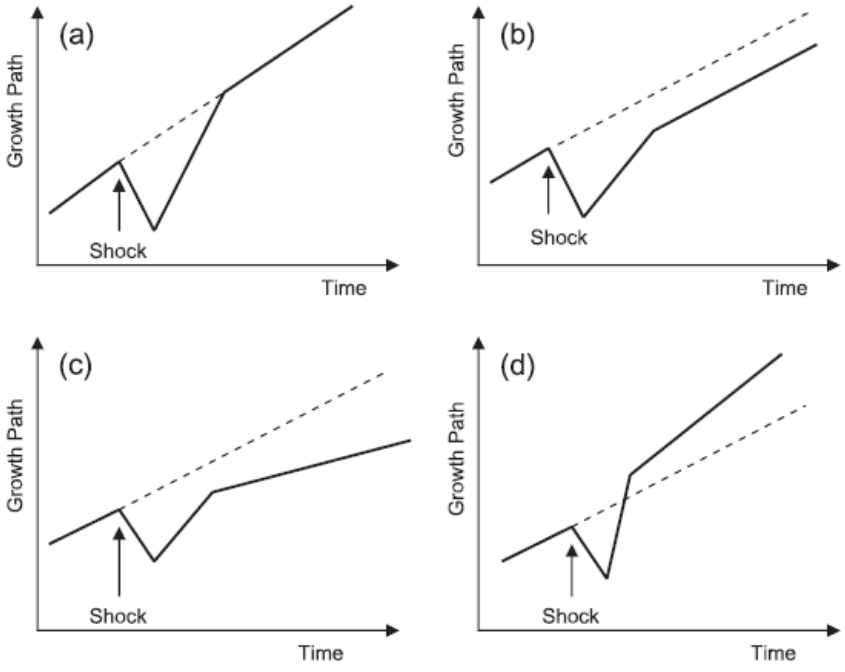


Figure 1: Stylized responses of a regional economy to a major shock (Simmie & Martin, 2010, p. 29)

The evolutionary take on regional resilience builds on the concept of creative destruction by Joseph Schumpeter. Thereby recession and depression of a business cycle serve to "destroy some outmoded or unproductive sectors through gales of creative destruction" (Bristow & Healy, 2017, p. 269). This would create opportunities for new economic sectors and new phases of growth. Sectors that do not work will be driven out by innovation or adjusted, so they are fit to withstand shocks and are more resilient. This would imply that state aid is counterproductive because state aid would help to keep sectors alive that are not strong enough to resist the crisis by own means and are deemed to go down. Following this approach state aid would have a negative impact on economic resilience, at least in the long run, as innovation and destruction of ill sectors does not happen immediately. Yet, "*in the long run* we are all dead" (Carabelli & Cedrini, 2014, p. 1069) was the criticism of John Maynard Keynes amongst other on the theory that the market will eventually regulate itself in the long run. Furthermore, is regional economic resilience a measure that is rather used to assess resilience in the short term (cf. EPSON, 2014). The distinction between the two dimensions of resilience one as short-term and one as long-term must be taken into account when hypothesizing the effect of state aid on economic resilience. Following a Schumpeterian approach on state aid, the negative effects of the subsidies do not end in the market but have also implications on the budget of a state. Governments have to free money from their budget, take on debts or come to terms with less tax revenues. This has an additional impact on recession. However, the concept of resilience is limited to the implications on the economy of a region.

Resilience depends however on the nature and depth of the recession, as well as the prior growth path of a region that is influenced by various factors amongst other "supportive measures undertaken by local or national institutions" (Martin, Sunley, Gardiner, & Tyler, 2016, p. 564). State aid belongs to the latter and is thus influencing resilience. Among the positive effects of state aid are liquidity and a reduced risk of lay-offs in a national economy. Fresh financial assets mean that firms can pay back receivables to creditors and do not need to take a bank loan if aid comes in form of a guarantee. Government subsidies can also come as tax cuts, so firms can reallocate money that additionally became available inside a company. Also, creditors from subsidized companies can benefit since they do not struggle with defaulting debtors. This will positively influence the resilience of an economy in the short-run, because in the short-run these firms have fresh credit to support their undertakings. The long-run looks different as elaborated above. However, it is difficult to assess the 2008 economic crisis in the long-run in terms of resilience. An unexpected shock or crisis which throws regions off its growth path would be needed to prove that regions have developed new resilience capacities in the long-run. Yet, since the 2008 crisis there occurred no such event inside the European market, the resilience dimension in short-term is examined, but the long-term developments are also explored. State aid has thus positive effects on resistance towards shocks. The second element of short-term

resilience is recovery after a crisis. Aid to financial institutions and the real economy is supposed to have "spared many EU countries a dramatic, long-term, recession and a sharp rise in unemployment" (Dzialo, 2014, p. 18). Recovery from a long going recession leads to the hypothesis that state aid had a positive impact on resistance and recovery of a region during the crisis, which represents economic resilience in the short-run.

***H2a: A high level of state aid to the real economy leads to a high level of resistance and recovery (short-run economic resilience).***

It is important to deconstruct the concept of economic resilience because theory shows that shocks can have different implications on various dimensions of resilience. In the short-run state aid is contributing positively to resilience because it helps to maintain structures and supports recovery to the pre-crisis growth path. Yet, there is not only one growth path and because an economy could not resist a shock it means that existing structures were obsolete or not fitting. However, what matters for the long-run success is "the ability of a region's industrial, technological, labor force and institutional structures to adapt to the changing competitive, technological and market pressures and opportunities that confront its firms and workforce" (Simmie & Martin, 2010, p. 30). State aid would hinder the process of reorientation and restructure because it would give life support to obsolete structures and sectors and would therefore hinder creative destruction. Thus, the effects of state aid on building resilient regional economies in the long-run are negative and thus separately hypothesized.

***H2b: A high level of state aid to the real economy leads to a low level of reorientation and renewal (long-run economic resilience).***

### 2.2.3. Causal model

After the literature review and theory building a causal model for the research can be constructed which is depicted in Figure 2. The magnitude of the crisis has a positive effect on the granting of state aid. In countries led by governments from the right political spectrum this effect is negative, as they allocate less assets from their budget to subsidize the real economy. On the other side ruling governments from the left increase spending if the economic shock is more severe. The second hypothesis theorizes the effect of state aid on economic resilience of a region. Since resilience is a far more complex concept which goes beyond measuring GDP it is divided into two variables. In light of CAS growth paths and its possible changes must be analyzed in order to investigate resilience Through this division in a short- and long-term resilience regions can be better analyzed in that sense. Whereas the short-run effects of state aid affect an economy proving resilient positively, the long-run effects are the opposite and affect it negatively. Nonetheless, there is also an effect of crisis magnitude

on economic resilience. Naturally the bigger the shock the more difficult it is for a region to handle it especially in the short-run. This is amongst other due to the greater number of firms involved and bigger sums of money at stake. In the causal model this relationship is not depicted, because the direct effect of the crisis in respective countries on economic resilience is later in the methodology section blocked by design to examine only the effects of state aid.

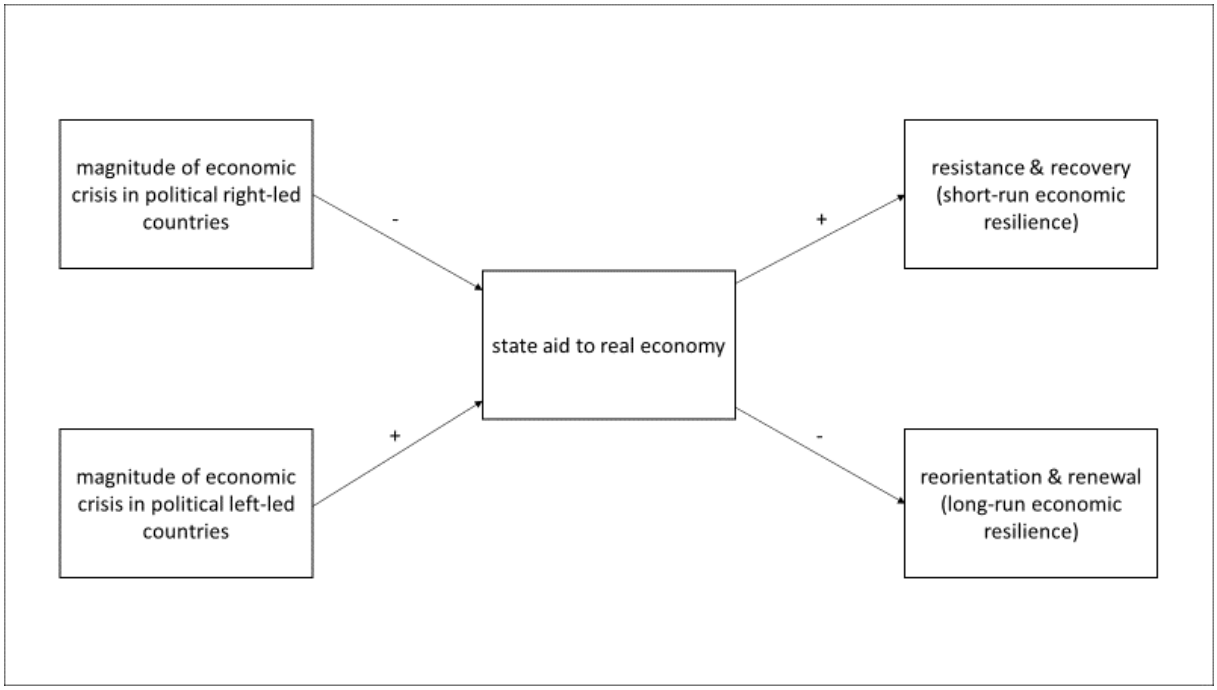


Figure 2: Causal Model

# 3. Methodology

## 3.1. Research design

Choosing the most fitting research design is essential in order to answer the research question in the best possible fashion. The underlying research covers a field without vast amounts of empirical literature in the social sciences. Therefore, it is important to understand the mechanisms at work between the magnitude of crises, state aid and regional economic resilience. Analyzing the mechanisms at play and verify or falsify the hypotheses of this research can be used in future research for example in a mixed method approach, where findings can also be quantified. This study focuses especially in the first level of the two-level approach on the effects of causes, less than the causes of effects in order to contribute with findings of this research to existing theory. A qualitative approach is most fitting to solve the research puzzle of this paper. Markets as man-made phenomena are built by human interaction, thus doing research on the micro-foundations where the mechanisms are created that shape resilience is the most suitable option to gain that understanding. A qualitative research design can approach that and has also other advantages for the underlying case. The economic shock was system-wide and had thus effects on the whole system that interlinks governments and markets. To understand these systems a qualitative study is most suitable, more specifically a qualitative case study. As resilience theory scholars emphasize the importance of the nature of the shock and its impact on industrial structures and capacities of a region, as well as the nature and source for adaptability in the resistance and recovery process (Bristow & Healy, 2017). It is crucial to choose a design that fits these requirements. Following Yin, one should opt for a case study as a research design when to "investigate a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2003, p. 13). The latter is the case for this research. Due to a lot of crisis measures one has to be careful not to blend phenomenon with context and the different nature of the regional economies have to be respected. A qualitative case study would thus fit best to the context of the research.

Opting for a quantitative approach has the advantage that stronger inferences can be made compared to qualitative methods. Measuring economic resilience through GDP in a quantitative method would not pose an obstacle. Yet it is not suitable for the elaborated hypotheses in this study, since the study is investigating the mechanisms behind state aid and economic resilience. Moreover, can long-run resilience be explored as well through process tracing and integrating it into the comprehensive storyline.

In a small-N study where the EU member states are the units of analysis not all methodologies fit when aiming for a holistic approach. Moreover, can omitted variables be identified through a case study (Bennett & Elman, 2006). Through the interconnectedness of all sectors during the crisis it is not easy to disentangle the effects of state aid from other effects. Also, direct effects of a possible confounder which is magnitude of the crisis on resilience can be blocked by design. A case study is selected in order to include variance of the independent variable through variation among the cases. The method of choice to get to the outcomes should best be through process tracing. Due to the rather complex causal model process tracing is the best option to pick. It can prove that there are two dimensions of regional resilience that are differently affected by state aid, by temporal unfolding of events and further it is able to show the actual working of causal mechanism (Blatter & Blume, 2008).

Causal process tracing creates a comprehensive storyline and aims to find for sufficient conditions that confirm the hypotheses so called 'smoking-guns' as evidence for the hypotheses. A general pattern is tried to find that corresponds then to theory. To find such evidence that can construct a storyline process tracing "requires finding diagnostic evidence that provides the basis for descriptive and causal inference" (Collier, 2011, p. 824). Diagnostic evidence refers to prior knowledge that is already existing, for example in theoretical literature. Thus, an essential requirement for proper process tracing is a careful description. The method analyzes trajectories of change which may represent necessary or sufficient conditions. Therefore, an analysis needs adequate description of events which are crucial building blocks (Collier, 2011). Descriptive inference is acquired through observing change over time. By doing 'snapshots' of moments in the studied time frame shall be taken and described to draw inference from the change over time (ibid). Yet one must not rely only on qualitative data when doing this qualitative research but also "recognize that the fine-grained description in process tracing sometimes relies on quantitative data" (Collier, 2011, p. 825). A far greater part of answering the research question with this design is through causal inference. Different tests can be performed on a hypothesis and on the rivaling hypothesis. The rivaling hypothesis is the null hypothesis in this research stating that the event did not happen as hypothesized. Four tests can be performed for causal inference. However, test mean in that case that it is tried to find evidence in the data in the storyline for necessary and sufficient conditions that support the hypothesis. Therefore, a proper description of the events in time is needed. A straw-in-the-wind test is neither necessary nor sufficient to affirm the hypothesis but adds to the storyline. A hoop test is necessary to affirm a hypothesis, failing to pass this test eliminates the hypothesis. Smoking-guns are not necessary but sufficient for affirming causal inference. It confirms the hypothesis, however rivaling hypotheses are weakened but not eliminated. If the test is failed the hypothesis is somewhat weakened, but not eliminated. The strongest test is doubly decisive which is necessary and sufficient to affirm a hypothesis. It confirms the hypothesis and eliminates all rivaling ones. However, it is hard to find doubly decisive evidence in practice especially

in the social sciences (Collier, 2011). Thus smoking-guns are tried to find in the data since it confirms the hypothesis. By discovering evidence for necessary conditions rivaling hypotheses can be eliminated and the relevance of hypotheses at test will increase.

Process tracing throughout the selected cases is conducted for all hypotheses. Further is in the second part of the analysis not only looked at the whole universe of cases, but three cases are picked in order to more thoroughly investigate the effects of state aid on resilience. For this part of the research most similar system design is chosen for the case selection. This is best fitting, because the aim is to examine, what effects state aid had on economic resilience. However, to unveil the causal mechanisms a causal-process tracing method is chosen. A reason to opt for causal-process tracing lies at hand, since it combines all the factors that need to be covered in a comprehensive storyline (Blatter & Haverland, 2012) and thus a holistic picture of effects can be drawn. Generally, to assess the impact on regional economic resilience it is looked for 'smoking guns' that highlight corresponding outcomes. If the smoking guns were subsequent to 'confessions' it is evidence for smoking guns and can be traced back to state aid to the real economy, a quiet accurate picture can be drawn of its impact. Further, this method has the advantage of being able to reveal decisive events whilst analyzing the data. Moreover, is it very convenient for validating the theory because one can choose a case on grounds of the independent variable. The different levels of state aid provide the required variation which is used as an independent variable having effects on economic resilience. Therefore, cases can be selected that have the required variation where the storyline can be created from. The causal process tracing design has also a further advantage over other research designs that could fit to this study. Long-term resilience, which is the second part of the dependent variable can be explored. Yet, because there is no treatment for this variable, like another crisis after the 2008 one, long-term resilience can only be explored in a descriptive manner.

The possible risks to this approach is for one the endogeneity problem and on the other side possible omitted variables influencing the outcome. The former threat can be excluded, because the crisis needed to be present to set up a temporary framework by the European Commission for granting state aid. Also, the crisis must have been present in order to measure economic resilience. To have a coherent storyline events have to be analyzed in chronological order. This would make any endogeneity visible. Possible feedback effects, for example the amount of state aid spent leading to a greater recession cannot be ruled out entirely, but with the developed theory at hand these effects would become visible when constructing a comprehensive storyline. The threat of omitted variables on the other hand can be minimized too. This research is based on a selection of relevant articles that were chosen in all conscience to build hypotheses. Therefore, an omitted variable cannot be ruled out

with absolute certainty, but with the strong elaborated theory as above, this research will produce reliable results.

To sum up, the advantages for choosing process tracing as qualitative method outweigh the drawbacks the method has towards other alternatives. Qualitative methods are generally inferior to quantitative ones in generalizability. Stronger inferences can be made by the latter whereas the former is case-specific, and its inferences may only be valid for the specific analyzed cases. However quantitative methods need strong theory to make strong claims. Yet there is no literature on how state aid influenced economic resilience during the crisis. That means that it must be contributed to theory building first. This research does contribute to novel theory building by testing the hypotheses and give new insights on the issue. Another weakness of the method that cannot be resolved easily is endogeneity. Especially in the first level of the approach. Through spending state aid national budgets can be strained and the money is lacking on other government expenses, thus leading an economy into recession. This would be the case for countries that were not yet in recession when the Commission introduced the state aid scheme and thus those states making use of the scheme. These cases can however be excluded. Nonetheless were only Poland and Slovakia granting aid in the timeframe of the research that were not affected by the crisis when the temporary state aid scheme was introduced. Feedback effects are a similar weakness of the method as explained above but can be tackled through building a comprehensive storyline. A further drawback is subjectivity. The researcher must interpret a lot of data, in this case it is quantitative as well as qualitative data. Nonetheless must the data be interpreted with objectivity to produce valid and reliable results. Quantitative methods would not give leeway in that sense and could also be replicated easier. However, objectivity can only be guaranteed by the researcher itself and is difficult to control. Other advantages of the chosen method are however superior to alternative methods, such as thoroughly analyzing the nature of the crisis, find intervening variables through uncovering the causal mechanisms in the storyline and explore long-run economic resilience.

## 3.2. Case selection

Possible units of analysis are the member states of the European Union at the time of the crisis, which would exclude Croatia. Choosing regions on a country level is the most suitable choice for the universe of cases for this research. Defining regions as EU member states instead of sub-national entities is possible due to the heavily integrated single European market. Countries are part of the same common market that was hit by the economic crisis and are thus regions of the same European market. The EU has a lot of competences in the domains of the European market, therefore state aid is

also regulated by a European Commission agency if it exceeds a certain amount of money. The fact that state aid schemes were posted by national authorities to the DG Competition also plays a role. Those inquiries are finally requested by the Commission from national level actors. Thus, it is more important to look at countries, as the process of allocating money to the economy is set at the national level and mechanisms can best be discovered there. Especially in unitary states the context of granting state aid can better be discovered holistically, if taking the whole country as a case. Further, only a total of eight out of twenty-seven-member states have two or less sub-division on a regional level. Choosing these regions would imply a lack in validity, because not the effects of sub-national regions would be measured, but the ones of states. Due to the interconnectedness of economic sectors and the systemic wide-crisis the shock did not spare a country, even though shocks were having different magnitudes. Through domestic institutions sub-national regions are interconnected as well on a national level. In order to take these circumstances into account that can shape resilience, states are identified to represent regions inside the common market and thus possible cases for the research.

All possible cases are selected for process tracing. Amongst them it is analyzed, if a general pattern and smoking guns that create a storyline leading to the outcomes is present. However not all cases are scrutinized in the analysis. Bulgaria, Poland and Slovakia get excluded, because of possible endogeneity issues. Cyprus is excluded as well, because there was no treatment, so no state aid under the temporary framework was spend in this country. Further are the Czech Republic, Estonia, Lithuania, Malta and Romania excluded due to a lack of accessible data. The second and more important part to this research is even deeper investigated. Effects of state aid on regional resilience are further analyzed by taking a closer look into three selected cases. Thus, implications about resilience can be made through variance in the independent variable. It is controlled for crisis magnitude, which could otherwise interfere with the dependent variable, because it has the potential to directly affect economic resilience. Therefore, only the effects of state aid on regional resilience are analyzed in the second part of the analysis.

Several variables can intervene on the effects between crisis magnitude, state aid and economic resilience. Therefore, one has to be cautious when assessing the variables under review.

For the comparative analysis in the second part, features of the regions that have an influence on the outcome must be the same or at least similar. Thus, cases are selected by a most-similar systems design and differ only in the variables at question. Variance is created in the independent variables of state aid while other possible intervening variables are held constant. Through these control variables and selecting cases on grounds of their variance in the dependent variable implications about the hypotheses can be made. Not all possible intervening variables can be excluded through control variables, but those that seem to have most influence on how state aid may affect resilience. Other

possible intervening variables can be uncovered as well during the causal analysis as mentioned above. Denmark provided no state aid in monetary terms whereas Sweden and Finland did. Accessing coherent data is utterly complicated. For Sweden €900m are calculated in the first year, but this amount consisted of two guarantees. Nonetheless would the government have paid it to the creditor, if the company defaulted (European Commission, 2010a). Together with the amount of €220m in 2010 and €660m in 2011 Sweden granted aid of about 0.51% of its 2009 GDP. Finland provided up to €500.5m depending on the source (cf. Appendix I; European Commission, 2010b; European Commission, 2011b; European Commission, 2012). Even if the highest amount is taken into account it only makes up around 0.28% of 2009 Finnish GDP (World Bank, 2018a).

Several factors influence resilience, therefore several control variables for the effect of state aid on economic resilience are chosen. All selected cases that are analyzed by the most similar systems design are Nordic countries which were hit to a similar extent by the crisis. None of them lie in the geographical center of Europe where innovation and growth are spurred. Through the location in the periphery it cannot rely on such strong interaction effects as regions in the center (Hospers, 2003). Further are regions closer to a major urban center, which represents in this study the central part of Europe, associated with higher resilience (ESPON, 2014). Moreover, are these countries all relatively small, with Finland having 5.3m, Denmark just slightly bigger with 5.5m and Sweden 9.3m inhabitants in 2009 (World Bank, 2018b). Therefore, national effects of national policy contributing to resilience that is greater in small states is held constant (ibid).

Innovation plays a role for a region to prove resilient. Economies that are innovative build more resilience and dynamic economies through establishing new products. Thus, innovation leaders are more likely to resist or recover from a crisis (Bristow & Healy, 2017). All three countries in the sample are in the highest category and were so in 2009. The category is classified as innovation leaders by the EU (European Commission – DG Enterprise and Industry, 2010).

One must be cautious as well about the economic structure of a region because it exerts some influence on resilience and recovery (Martin, et al., 2016). Sectoral effects are influencing how a region can proof resilient. Due to the nature of the crisis different regions experience the shock differently because some sectors are more involved than others. Thus, the level of resilience is also influenced by the composition of the economy. Not only does classical sectoral employment in agriculture, industry and service sector play a role in the economic structure. Further one must also take into account the qualification of the labor force and the presence of big international companies with access to financial resources (ESPON, 2014). All three countries had over 70% of their labor force employed in the service sector in 2009. Amongst them Sweden employed the most with 77.4%, but the three countries are also comparable in those categories.

All variables are presented in Table 1 with the independent and dependent variables in bold and the units of analysis Denmark (DK), Finland (FI) and Sweden (SE) - in italics. The three countries were equally hit by the crisis, nonetheless was Finland hit the hardest. Still the crisis magnitude is on a comparable level. While Denmark and Finland have not recovered, the latter was by end 2011 in an upturn. Sweden had already recovered by 2011.

Table 1: Case selection

| | **Crisis magnitude** | **State aid (real economy)** | Inhabitants | Location | Innovation | Service sector | **Economic resilience (employment)** |
|---|---|---|---|---|---|---|---|
| *DK* | 6.15 | 0% | 5.5m | periphery | leader | 77.1% | Not recovered, no upturn |
| *FI* | 6.67 | 0.28% | 5.3m | periphery | leader | 71.2% | not recovered, upturn |
| *SE* | 6.28 | 0.51% | 9.3m | periphery | leader | 77.4% | recovered |

## 3.3. Operationalization

Resilience at least in the short-run is mostly measured by employment, but also GDP (cf. ESPON, 2014). Yet, the impact of the crisis is measured by the magnitude index of Mazurek and Mielcová. The measure is based on recession levels and is the logarithm of the mean recession rate per quarter and the quarters of downturn of the countries. The applied magnitude rates are combined GDP and unemployment recession rates between 2007 and 2009. This time frame has also another advantage. Since the EU member states could hand in their state aid schemes under the temporary framework in the first half of 2009 states were familiar with these numbers. Therefore, it is adhered to the causal model, because the magnitude of crisis used by the measure was present before states handed in their schemes. Numbers of the crisis magnitude, of the zero to ten scale where higher numbers indicate bigger impacts of the crisis, are derived from research by the authors (Mazurek & Mielcová, 2013). It is important to consider the point in time a region is exposed to a shock. Even a systemic-wide shock can lead to downturn in a different point in time for different regions (Martin, et al., 2016). The magnitude index takes this into account. So, all countries having a magnitude value were already hit by the crisis.

State aid is measured by the percentage of GDP it corresponds to. When governments forwarded their state aid scheme to the DG Competition they got approved an amount of aid that eventually most

states did not use to the full extent. There are three exceptions of countries that used more state aid than DG Competition approved (European Commission, 2012). However not the granted aid, but the state aid used is the decisive factor, because governments could still decide when state aid was approved how much is actually needed.

The twofold measure of regional economic resilience is operationalized by two different measures. In the short-term it is measured in terms of employment. The pre-crisis employment level is taken as a baseline variable and compared to the level of 2011. Four outcomes are possible. Either a country was resistant towards the crisis and did not face a downturn in employment rates during the crisis or a country could not resist. If it could not resist it had either recovered by 2011 and had reached by then at least pre-crisis levels of employment. Countries could also have not recovered but facing an upturn in employment rates, or alternatively have not recovered and do not face an upturn (ESPON, 2014). The advantage of the employment measure is that "it resonates with the wider public, who tend[s] to be concerned about the ability of an economy to support employment" (ESPON, 2014, p. 3). Due to the focus of this research on the real economy this measure of regional economic resilience seems most suitable.

Through the research design a holistic picture of effects can be drawn. To assess the impact, the crisis had on state aid and aid on resilience data is investigated for 'smoking guns' that highlight corresponding outcomes. If smoking guns were subsequent to 'confessions' and can be traced back to crisis impact respectively state aid, a quiet accurate picture can be drawn about the impact of state aid measures on regional resilience. Following the comprehensive storyline, a 'confession' can be observed, if there is a 'smoking gun', in this case an increase in resilience and a previous 'confession' (Blatter & Haverland, 2012). This 'confession' has to be preceding to the increase in state aid that was eventually allocated to the real economy respectively to the increased resilience and leading to economic resilience. Further, this method has the advantage of being able to reveal decisive events whilst analyzing the data. This can also uncover possible omitted variables that have an impact on the dependent variables. Researching the long-term resilience does however follow an explorative descriptive approach where long term changes are explored, especially the change in economic structure. Because by using an evolutionary perspective, shaping the economic structure has an effect on resilience (cf. ESPON, 2014). Therefore, it is investigated out for smoking guns leading to a shift in economic structures.

## 3.4. Data

Various sources of data are consulted in order to preserve reliability of this research. For the impact of the crisis magnitude on state aid several official communications and government reports are selected. Analyzed data is quantitative as well as qualitative. Further is checked, if DG Competition granted any other state aid under the crisis provision to a country. To increase reliability data is also validated by other sources through triangulation. Government reports about companies that received aid were requested at the respective competent national authorities. However not many authorities disclosed their data and some data was not suitable for this analysis. Moreover, do figures slightly differ even in different reports from the same organization. In order not to get unreliable figures and calculations the latest figures are considered as far as possible. Figures of used state aid under the temporary framework are accumulated through the scoreboards by the Commission for the years of 2010 (European Commission, 2011b) and for 2011 (European Commission, 2012). The figures of amount available for the whole period from 2009 to 2011 are derived from the latter. For 2009 no scoreboard is available presenting crisis measure state aid. Therefore, the questionnaire has to be consulted. The Commission send out questionnaires to the member states in order to receive the state of the art about the measure in the member states. It contains questions about total available aid and aid that was used. However, one must be very cautious, because the questionnaire was filed in March 2010 and could thus contain parts of measures that is already listed in the 2010 scoreboard therefore exceeding the 2009 period. Thus, caution is advised when accumulating data. But most states indicate up to which point in time measures are declared. Further is it also likely that the questionnaires were inaccurately and inconsistent filled in. Likewise, is data selected for analyzing the effects of state aid on regional economic resilience. Especially for short-term resilience government publications or evaluation reports are consulted. Triangulation such as by analyzing newspapers is also performed in this section of the research. For the long-term effect of resilience, the focus will be more towards development reports on economic features, mostly on the development of the economic structure of the analyzed country.

Drawbacks of the analyzed data are possible confounders. It might by that there are intervening variables which are not excluded by making hypotheses or case selection. They can still be uncovered through process tracing. However, if these confounders cannot be found in the analyzed data they cannot be uncovered and will thus decrease the validity of the research. The varying availability and quality of data may reduce comparability of the cases under scrutiny. However, the strategy that tries to tackle this is mentioned in the above section. Also, the exclusion of possible cases because of a lack of data will reduce the generalizability. A decrease in analyzed cases will also result in a decrease in generalizability of this research, but still hold true for the analyzed cases.

# 4. Analysis

## 4.1. Background

In August 2007 an economic shock that was initially limited to the sub-prime mortgage market in the USA spread to Europe. Due to securitization of these mortgages funds were sold to banks globally. Because of defaulting debtors which could not pay down these loans BNP Paribas had to freeze exposed funds. These events continued and led from initially a financial crisis to a banking crisis and a sovereign debt crisis (European Commission, 2017). It did not take long until the real economy was affected as well. GDP and employment rates were plumping. Recession in employment could be observed in almost all European regions in the years after 2008 (ESPON, 2014). The European Union alongside with its member states had to implement several measures to tackle the most severe economic downturn in the history of the EU. Among these measures was also the granting of state aid to the real economy which will be analyzed in the following.

## 4.2. Causal analysis

### 4.2.1. Effects of crisis magnitude on state aid payment

After crisis measures for the financial sector was undertaken, the real economy had to be addressed as well. In late November 2008, then Commissioner Barroso emphasized the risk to enter a vicious recessionary circle if no action is taken to strengthen the real economy (European Commission, 2008b). The crisis triggered the need for finding a way out of the it. A recovery plan was worked out consisting of two parts. The first one focused on the short-term measures to save jobs, boost demand and help restore confidence in all actors of the market. A second measure was ‘smart investment’ which aimed for a higher and sustainable growth in the long-run. The EU, European Investment Bank (EIB) and national governments could fund the private sector in innovation efforts, especially clean technology. Yet, in total a fiscal stimulus was provided in the amount of €200 billion or 1.5% of the GDP in the EU out of that 1.2% of the GDP in the EU was provided by the member states (ibid). The EU also made way to accelerate already existing payments under the structural and social funds provision that would have otherwise been distributed over a longer period. Most important for the private sector was access to sufficient and affordable credit, as the lending market was drying out and firms faced difficulties to maintain business as usual. The temporary framework for state aid as part of the recovery plan was established by the EU alongside its member states as response to the crisis impact on the real economy. Until the end of 2010 EU member states could support their national

economy according to the state aid scheme that had to be approved previously by the Commission. After that procedure no further notification of single cases to the DG Competition was necessary (European Commission, 2008c). The measure contained among others a lump sum aid of €500,000 per company for 2009 and 2010 and risk capital aid for SMEs (Small and Medium sized Enterprise) up to €2.5m instead of previous €1.5m (ibid).

Providing this facility was a necessary condition for states to establish channels of funding through means of state aid. The recovery plan highlighted relief for the car and construction sector, especially because these sectors were hit hard by the crisis (European Commission, 2008b). Indeed, when the recession fully reached the real economy in the first quarter of 2009 the construction sector dropped by 10.8% in comparison to the growth in the first quarter 2008 (DG ENTR/Development of Industrial Policy, 2009). In comparison to the whole manufacturing sector that dropped on average by 19.1 percentage points in the same time, the motor vehicle industry faced the most severe drop by 40.4% and by 31.3% in the second quarter 2009 compared to the same period in the previous year (ibid).

Nonetheless, the requested amount of state aid to the real economy seems not so much dependent on the position of the party in government. Figure 3 shows the total volume of approved state aid dependent on crisis magnitude. Bulgaria, Slovakia and Poland are excluded, because they did not get a magnitude level of the crisis assigned. Among the countries that asked to provide a larger amount of resources were Hungary, Austria and Slovenia which were then led by social democratic parties, but also Belgium, Latvia and Greece that were led by the Christian democrats respectively liberal conservative parties. No evidence was found that would approve the hypothesis that state aid depends on the governing party.

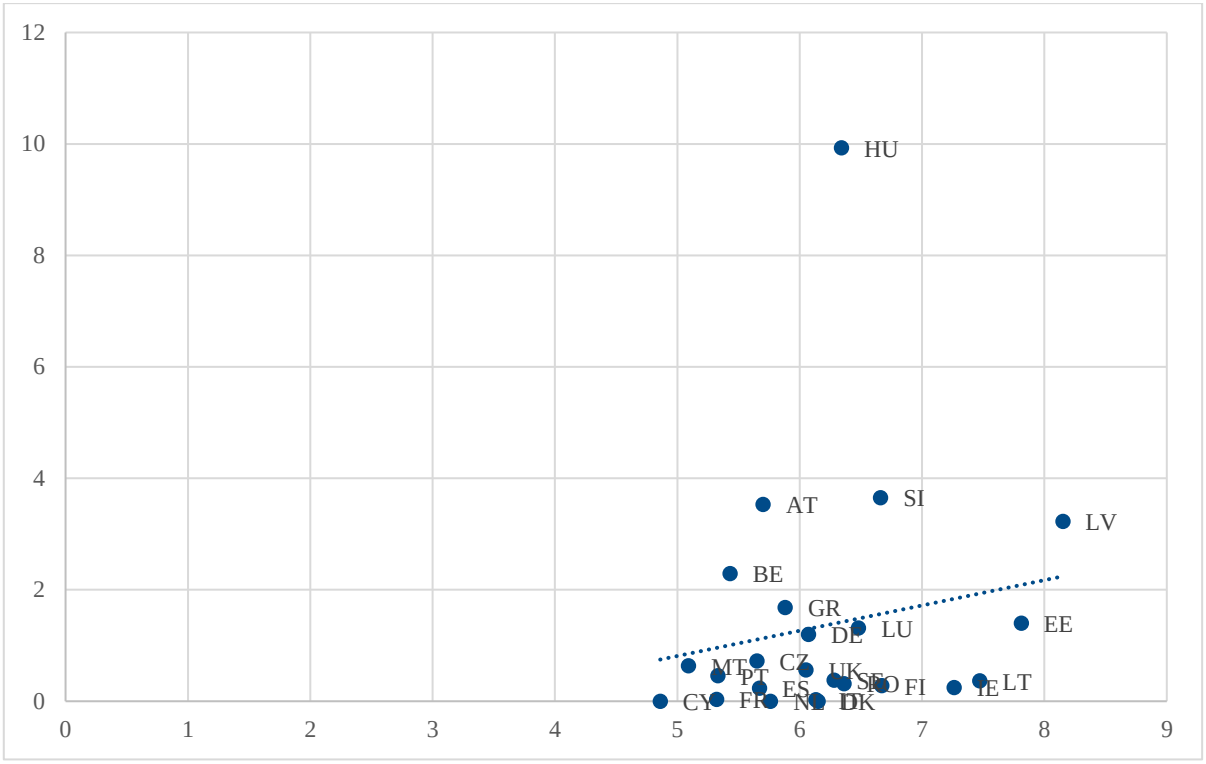


Figure 3: Available state aid as percentage of national GDP dependent on the level of crisis magnitude (data derived from: European Commission, 2012 and Mazurek & Mielcová, 2013)

Thus, the impact of the crisis seems to matter for a government when planning to provide state aid. After establishing the temporary framework, first state aid schemes were already handed in at the very end of 2008. Germany handed in its scheme requesting for reduced interest rates loans and for funding up to €500,000 per undertaking. Subsidies could in the first round only be paid in 2009 and 2010 for businesses that did not face financial difficulties before July 2008 yet due to the financial and economic crisis. The first German schemes for grants up to €500,000 also known as the '500k measure' and the one for reduced interest rate loans were approved in line with Article 107(3)(b) TFEU (formerly Article 87(3)(b) EC Treaty). This provision states that aid can be compatible with EU regulations if it helps to "remedy a serious disturbance in the economy of a Member State" (European Union, 2008, p. 91). However, the German grant scheme was requested up to the amount of €2 billion applying to SMEs and large firms without geographical limitations. However, fisheries and agriculture were excluded from that measure, but could still access certain kinds of state aid (European Commission, 2008d). The loans were provided by the KfW which is the German national development bank. Subsidized public loans were authorized with €15 billion in volume with €750m in aid. Eligible firms were only in exceptional cases allowed to exceed €500m in annual turnover. Yet beneficiaries were SMEs and also large firms from the private economy. Allowed sectors were manufacturing, handicraft and commerce and also other services when they invest within Germany (European

Commission, 2008e). For both schemes the number of beneficiaries were not expected to exceed 1000. Schemes were relatively often amended. The German 500k measure was amended three times in the 2010 period. Amendments included the means of grants distributed. The latest amendment included the granting of aid under the 500k measure as subordinated debt. Eligible beneficiaries remained the same whereas the total amount of eligible aid under that measure was increased to €2.05 billion (European Commission, 2010c). Other measures such as guarantees or subsidized low interest loans were approved as well. Both measured were allowed to include aid up to €6 billion each and were open to SMEs and large corporations without limitations to sectors (cf. European Commission, 2009a; European Commission, 2009b). The German government also filed schemes for reduced interest rate loans for green products, risk capital aid and simplification of requirements of the export credit communication. Thus, schemes for all available measures under the temporary framework were handed in. Only France did likewise while other countries handed in fewer schemes. All other member states except Cyprus handed in at least one state aid scheme.

Despite that the car and construction sectors were pointed out specifically when the recovery plan was announced, state aid was open to a wide selection of firms. States opened the measures to almost all firms in all sectors, despite some sectors experienced a lesser downturn than others for example the car industry. Even in countries such as Spain or France with a large car and construction sector, state aid was not limited to certain regions or sectors (cf. European Commission, 2009c; European Commission, 2010d). In total 73 schemes with different kinds of state aid were approved until October 2010 under the temporary framework with a total aid volume of €82.5 billion or 0.7% of the EU-27 GDP (European Commission, 2010e). In the 2010 the aid volume of the schemes was slightly increased compared to the previous year. Aid that was actually granted in 2010 rose to €11.8 billion or 0.09% of EU-27 GDP which is still a small number compared to the approved aid (European Commission, 2011c). In total aid still rose up to €32.8 billion for the 2009-2010 period (ibid). Especially in 2009 the high volume of available aid is considered more like a signal towards the market that states can meet also a great need of support to the economy (European Commission, 2010e). A Commission report found also that conditions for granting aid were very strictly applied which kept the numbers of beneficiaries on a low level (ibid).

In March 2010, member states were asked to send the Commission questionnaires about the current aid and economic situation in respective countries. After consulting member states by questionnaire, the Commission unilaterally prolonged the state aid measure for another year until the end of 2011. Nonetheless was the most granted 500k measure stripped from available measures. Furthermore, aids were directed at companies that applied for a grant before the end of 2010. No new schemes were filed by the member states, but 23 were prolonged (European Commission, 2011b). Of the additional assets,

Slovenia made extensive use. The country used by far the most state aid in 2011 for the real economy. With €200m or 0.55% of their GDP the government spent by far the most during the last year of the temporary framework (ibid). However, Slovenia was by then not yet in the recovery phase. Unemployment rates rose from 5.86% in 2009 to 7.24% in 2010 and 8.17% in 2011 (World Bank, 2018c). Austria followed a similar curve of rising unemployment rates with 4.13% in 2008 to 5.3% in 2009. Slovenia started with an unemployment rate of 4.37% in 2008. In 2007 Slovenia had even lower unemployment than Austria. Nonetheless declined the unemployment rate in Austria after 2009 to 4.82% and 4.56% in the following two years (ibid). At the same time Austria decreased its crisis spending to the real economy. In 2010 crisis aid spending was at €1.06 billion, but after the crisis attenuated that year the government only spend €4m or 0.001% of its GDP (European Commission, 2012). This highlights the importance to analyze the nature of the shock and its end and starting point. For Austria the shock – at least in unemployment terms – was overcome after 2009 while Slovenia was just at the start. Eventually all member states spend together €4.8 billion of crisis state aid in 2011. Towards the end of the granting period social democratic governed countries Portugal and Spain were still in recession. In 2011 they spend more money on state aid measures than in the previous year were unemployment rates in these countries were lower. Such countries as Spain or Portugal seem to support the hypothesis. However, also Italy with a right-led government was increasing the amount of aid compared to the previous year (cf. European Commission, 2012). The unemployment rate in Italy was also stagnating in comparison to the previous year.

When establishing the temporary framework, the goal was to support the real economy. However, there was no consultation by national decision makers with the real economy before filing the schemes. Companies could apply for funds. Eligibility was, unlike in the ordinary state aid procedure, decided by national authorities or even sub-national ones. Granting state aid had also a major psychological dimension. When signaling to investors and consumers that the state is not letting down the domestic economy. Generally state aid was open to all sectors, despite the focus of the Commission on the car and construction sector. Nevertheless, was the crisis in the car industry and construction services a necessary condition for making state aid available to the real economy. Because these sectors were especially emphasized when establishing the temporary framework. According to the process tracing design the crisis in the car and construction sector and the importance to it in the Commission forms the first building block of the story line that. Since it led to the establishing of the temporary framework. In states where the car industry employs a lot of workers state aid was targeted especially towards these firms, if they were in a crisis. In Sweden alone, the state guaranteed for two loans up to €500m for Volvo and €400m for Saab in 2009 (European Commission, 2010a). But in states like France and Germany where this sector was not that much affected state aid was open from the very start to all industries and services. The political position of

governments did not play a role in making aids available since there was no supporting proof found. Further were regulations of eligibility strictly adhered in all member states. Therefore, the magnitude of the crisis was the driving force for firms to apply for state aid and for states to grant it. Hence state aid was mostly driven by the crisis magnitude in a country.

### 4.2.2. Effects of state aid payment on resistance and recovery (short-term resilience)

Generally, the Nordic EU countries Finland, Sweden and Denmark entered into recession around the same time which was shortly after 2008. The peak level of unemployment can be observed in Figure 4 for 2011. Nonetheless by 2011 Sweden is considered as recovered, Finland as not recovered but in upturn and Denmark as not recovered and without upturn (ESPON, 2014). Due to different starting points of the crisis the authors of the ESPON study find different conclusions about the state of resilience in the respective countries (ibid). The report also ends its measure about short term resilience in 2011, so three years after the crisis onset.

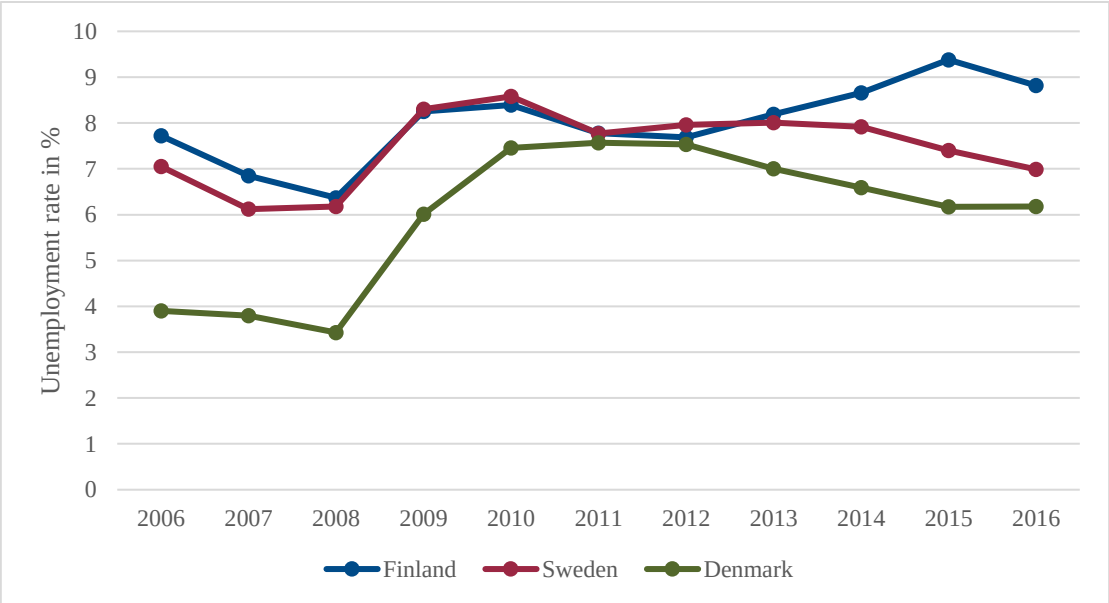


Figure 4: Development in unemployment rates in the Nordic EU countries per year since 2006 (data derived from: World Bank, 2018c)

Crisis state aid did not contribute much to the resistance of regions towards shocks. The temporary framework under the recovery plan was introduced in late 2008. By that time most economies were already hit by the crisis. Moreover, could only three EU states resist the crisis at all. One of those countries was Poland which could maintain its pre-crisis employment and GDP rates, but began

struggling first in 2010 (Sensier, et al., 2016). The other two countries that could resist the crisis were Luxembourg and Germany.

In the German case the state took a pivotal role by supporting the real economy. In 2009 when German firms started to face difficulties the temporary framework was implemented. The state guaranteed for firms applying for a loan. Thus, banks became less reluctant in providing credit and a credit crunch could be averted. State aid was open to all firms even to the agricultural sector from the beginning instead of limiting it to certain sectors that were in recession at the crisis onset. Most firms were however not in economic difficulties after July 2008, nor where they at risk of defaulting after that date. Therefore, guarantees were mostly used by firms not in difficulties. However, the state only guaranteed for loans, if the firm was assessed to be capable to pay back the loans. Similar were the United Kingdom and Ireland acting as they only provided aid to firms which were not facing bankruptcy (European Commission, 2010f; European Commission, 2010g). Further were banks integrated in state aid provision as well. With the 'Hausbank' principle firms could only access aids via the firm's bank. This avoids that firms leave their banks and change to a public business development bank. Firms could stay with their banks; the latter did not lose their clients and the state had a sound assessment by the bank of the firm about its financial standing before granting aid. Loans provided through state institutions and guarantees by the state were mostly used by SMEs. The special standing SMEs have as the backbone of German economy is also noteworthy. 2015 figures show that 99.6% of all registered firms are small and medium sized enterprises employing 58.6% of the not state-employed workforce (IfM, 2018). In total 96% of granted state loans and 99% of guarantees were issued to SMEs, but in both cases only half of the volume was granted to SMEs (Questionnaire DE, 2010h). Direct grants did however only account for 3% of all the aid in 2009. Germany did not slow down investing after 2009 and granted four billion Euro in 2010 and €650m the year after (cf. European Commission, 2011b; European Commission, 2012). Hence the German government could manage to keep up trust in the banks and continue investment on the domestic market. Thus, Germany was able through an interplay between state, banks and businesses to resist the crisis. Also did Luxembourg support nine SMEs out of eleven firms that asked for a direct grant (European Commission, 2010i). However, was the downturn in Luxembourg mostly related to shocks in the financial sector which is not covered by the temporary framework.

The economic composition of a market is not sufficient to explain resilience. Portugal which was not hit as hard by the 2008 crisis as other member states it did not recover in the short-run and was also not in an upturn. Albeit the economic structure is diversified and contains a lot of smaller businesses. Before the crisis 82.4% of Portuguese employees worked for SMEs. By that time in 2005 70.1% of added value was created in SMEs which is above the average of then 57.9% (European Commission –

Enterprise and Industry, n.d.). Almost two thirds of the €746m 2009 budget which was the lion's share of the total €906m was spend equally to manufacturing and commerce (European Commission, 2010j).

Countries like Hungary who have a large share in foreign companies granted 96% of the 2009 compatible amount of aid to SMEs (European Commission, 2010k). Further were no undertakings supported that were larger than €50m. Foreign companies in Hungary can rely on getting credit from the respective head organization. Especially SMEs could get support through the temporary framework. Nonetheless did Hungary face no recovery by 2011, but it was again in an upturn.

Denmark did not grant aid in 2009 under the temporary framework. The government focused on supporting banks in order to avoid a credit crunch. Yet, the crisis in Denmark was very much bank-centered in its nature (Erhvervsministeriet, 2013). The incentive of the government was to get firms to get bank loans. The state supported businesses by taking the guarantee for 75% of the loan (European Commission, 2010l). Under the temporary framework fell only the export credit scheme. Other state aid measures during the crisis underwent the ordinary procedure like in other countries such as aid under the de-minimis provision. Eventually no aid was granted in all three years of the temporary framework even though the export credit scheme was prolonged after 2010 (European Commission, 2012). On the other hand, Denmark never had a negative trade balance during the crisis. The worst breakdown was already over by the time the temporary framework was introduced. After 2007-2008 the trade balance started to grow again (TheGlobalEconomy.com, 2018). The government did also not see the need to establish facilities for state aid, since export credit was the only scheme Denmark handed in at the Commission.

Finland on the other hand made use of granting state aid under the temporary framework. The crisis in Finland impacted mainly the electronics industry which eventually collapsed. Alongside with concentration of paper manufacturing and falling market prices in the metal industries which led Finland into a recession (EESC, 2014). In Finland firms actually suffered from a credit crunch. Through aid measures the state sought to counteract these developments. May it be with guarantees or 500k measures. Mostly SMEs were targeted by crisis measures (European Commission, 2010b). SMEs play also a significant role in Finland. Out of all employees in the private sector 65% work for SMEs in 2016 which account for 50% of overall turnover and make up 98.8% of the companies in Finland (Yrittäjät, 2018). It is not surprising that between 2009 and 2010 €40.8m of the 500k measure was granted to SMEs while large companies received only €4.9m (Appendix I). The highest share of the 500k measure was awarded to the sectors that were highly affected by the crisis. All measures had an objective which was mostly related to maintain business operations, but in 27.8% of the cases aid had the objective to be invested in R&D (European Commission, 2010b). Software, consulting and

related activity sectors were granted most of the aid followed by manufacturing of metal products like machinery and equipment, but also traditional Finnish sectors sawn timber, wood and cork products like furniture were supported (ibid). Finland as a specialized trading country that had a positive trade balance before the crisis (Statista, 2018). Export insurance credits in order not to get indebted if an export fails, were issued by the government as well. Totaling €110m were granted in the first two years of the temporary framework. Out of this sawn and processed timber together with metal manufacturing made up over 20% each plus the paper sector with over 10% of the share in export insurance credits (Appendix I). Overall did Finland support its traditional key industries the most in order to resist the crisis.

Exports of the huge Finish wood-based industry fell drastically during the crisis. Processed timber and the paper industry alone were awarded large shares of available aid. Almost one third of export insurance credits was awarded to these sectors. Figure 5 shows the export in forestry industry as share of total Finnish exports. The breakdown in 2009 for the sector could not fully reach pre-crisis levels in the short run but was almost recovered by 2011 to the pre-crisis state. During that timeframe aid was granted to the industry through several means.

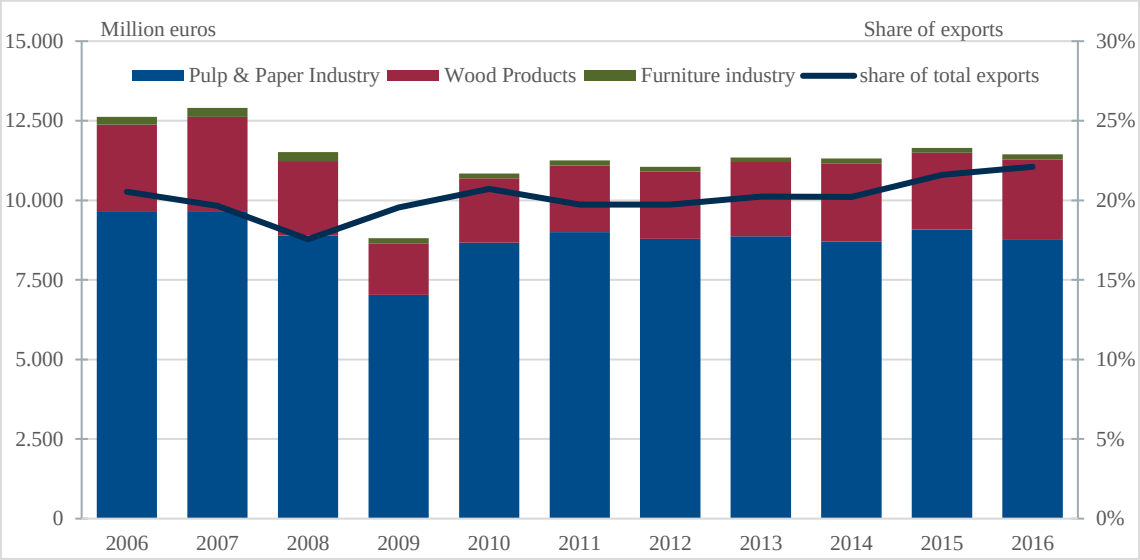


Figure 5: Value of forest industry export and share of total Finnish exports (Finnish Forest Industries, 2018)

Compared to Finland, Sweden had only two beneficiaries in 2009. The Swedish state guaranteed for a loan for Volvo with half a billion Euro in volume and for Saab with €400m. Assets for the loan were provided by the EIB. By the end of 2009 two sub-payments to Saab were already made. The solution was not sustainable and could only keep Saab alive until the end of 2011 (BBC, 2013). Eventually state aid guarantees did help resistance and recovery in the short-run but not in the long-run, since

bankruptcy of Saab could not be avoided. Just like the other two Nordic EU members the Swedish government established an export credit insurance. A positive trade balance could also be observed here before the crisis (Tradingeconomics.com, 2018). However, the trade balance was still largely positive and export insurance credits were not much used. An important task Sweden had to solve like the other countries is to support the banks in order to provide credit for the private economy. Other measures that Sweden implemented were partially not foreseen from the temporary framework. The government established funds for individuals that face employment loss. Moreover, was vocational training and adult education supported (European Commission, 2010a). In the years following Sweden invested the most of all Nordic countries under the temporary framework. 2010 the government granted €220m and in 2011 €660m as aid measures (European Commission, 2011b; European Commission, 2012).

Overall it is hard to assess the role state aid played for the real economy. Even a halftime Commission report emphasizes this (European Commission, 2011a). The general findings are, that most countries supported SMEs in their countries. In general, are the ways state aid was handled very similar. Moreover, are there no 'success-stories' how this specific state aid contributed towards resilience. Still fresh credit helped firms to resist the crisis but claims about the effectiveness on recovery could not be supported. Yet, rules on being eligible for state aid were quite harsh. Thus, mostly companies that were not in big financial trouble or at the brink of going bankrupt were awarded aids. The contribution of state aid to resilience of a region should thus not be assessed in GDP and unemployment statistics itself, but also by its psychological value it had to counteract a credit crunch. This signaling of governments to the economy is a further sufficient factor in the storyline that state aid supported short-term resilience.

### 4.2.3. Effects of state aid payment on reorientation and restructure (long-term resilience)

When the European Commission announced possible state aid schemes states can apply for, a sustainable dimension was included. The reduced interest rate loans for green products scheme was forwarded to and accepted by the Commission by Spain, France, Italy and Germany. None of the countries made actually use of it. Nevertheless, were certain measures coupled with the provision to use it for R&D. Governments had the opportunity to brace their domestic economy for the future.

The Swedish prime examples Saab and Volvo went two different ways after the crisis. Saab is the typical example for the second hypothesis and successful creative destruction by Schumpeter. After the Swedish state refused to bail out the carmaker and several negotiations of acquisition by investors

Saab had to file bankruptcy. In short term this was fatal. A huge Swedish employer stopped operating and thousands of workers were left jobless. However, half a year later the Chinese-owned investor corporation NEVS acquired the leftovers of Saab. The goal was to build electric cars on the base of Saab technology. Therefore, the old production plant was revived, and almost 400 jobs created (NEVS, 2016). The vision of NEVS in 2013 to establish a carmaker that builds solely electric vehicles was in hindsight the best take on what to do with the capacity that was still available in the area. Other investors are attracted as well to the region because of the need for electric technology. Thus in 2018 a new investor for the company was found that also announced to start the production of batteries in the area (NEVS, 2018). This is a successful example from reorientation in the business model to restructuring. However, these developments were not hindered by keeping the company alive with state aid as life support. Instead the path was open for reconstruction.

But what happens if struggling companies get subsidized? Only few firms were subsidized or granted guarantees that were high in absolute numbers. In Austria two firms were granted guarantees that exceeded €50m. One of the firms was Voestalpine which was granted €300m in aid which was the maximum that could be granted (European Commission, 2010m). However, the company was not in urgent need of liquidity, but was only having trouble finding a long-term credit on the market (Reuters, 2009). In fact, Voestalpine was even able to grow. The number of employees worldwide increased in 2011 by 3.3% compared to the previous fiscal year (Voestalpine, 2011). However, if and how many jobs were created in Austria was undisclosed. The need for reorientation or renewal was not present, because business was growing. The company started rather late to implement precarious crisis measures, because growth of the company was still fluctuating after the crisis (Voestalpine, 2017). In the case Voestalpine state aid contributed to maintain their initial growth path. Hence it prevented reorientation in simple ways like implementing scenario planning where possible effects of a recession are assessed and incorporated in the planning of operations. However, Voestalpine acted according to the principle ‘never change a winning team’, but eventually the investment protracted the crisis for the company.

State aid payments can also go wrong like the case of the other big firm Austria backed. The Austrian government supported the Alpine Bau with €150m in guarantees. Like other construction firms the Alpine Bau also suffered from the crisis. Nevertheless, was the company probably in summer 2009 in financial troubles and balance sheets were cleared to avoid bankruptcy (Die Presse, 2007). This is the counterpart to the Saab case, because a big company in one of the two most affected real economy sectors was supported. After financial troubles could not been overcome Alpine Bau filed bankruptcy. In the two and a half years period between first symptoms of going default and actually filing bankruptcy the company managed to attract investors and got guarantees from the state. Without the

aid the company would not have wasted additional money from the state and private investors, but instead could have reorganized. However, is it unlikely that the Austrian government would have granted aid, if it knew about the preexisting financial troubles that were covered up.

As for the Nordic countries, the role of state aid in Denmark cannot be assessed, because in the end no aid under the temporary framework was used. Unlike Finland that made use of the framework and supported its economy. Finland has also a unique economic composition. Whereas in many EU countries the car and construction sector suffered most from the crisis the nature of the crisis in Finland was different. The main factors that were affected were electronics and the forestry industry. Due to radical change in the technology market by the introduction of the iPhone the Finnish economy was challenged (Walker, 2016). Nokia did not keep up with the technological development and was thus left behind. The importance of this company to the Finnish economy is huge. A third of the decline in national GDP between 2008 and 2014 was due to the economic struggle Nokia faced. Further is the company responsible for 20% of the reduction in total employment (ibid). Forestry industries were also affected by the technological change, especially the paper industry was challenged by new technologies such as tablets. Reorientation was also necessary in this sector. Finland coupled a high number of subsidies to R&D measures compared to other countries. A total of 27.9% are aimed to support R&D (European Commission, 2010b). Still restructuring for example in the forestry industry took place and some firms reorganized. Hence Finland became the world leader in wood-based biomass production for energy (Investinfinland.fi, 2018). Nonetheless is the impact on R&D by state aid under the temporary framework not significant. In relation to regular aid on R&D which was 0.13% of 2010 GDP state aid through the temporary framework was almost twice at 0.25% of 2010 GDP at that time. This included investment and working capital support which made the largest part of the aid (European Commission, 2011b). Figures are more distinctive in 2011 where ordinary R&D aid makes 0.15% of GDP whereas crisis aid is only 0.014% of the GDP (European Commission, 2012).

Even though some aid measures were provided under the provision that aid has to be connected to R&D in most cases it was just used for investment or as working capital. Also, the means under the green technology provision were not used. Thus, firms prefer credit that is not linked to too many conditions. Therefore, the favored aid measure was the 500k one, as firms were not bound to any additional costs or regulations how assets could be used (European Commission, 2011a). State aid under the temporary framework did not contribute to reorganize or restructure, since beneficiaries stayed on their initial growth paths. It would have been a necessary condition for regions to move to another growth path in order to spur reorganization and restructure. Further was aid with the intention of smart growth not accepted by firms. During crises time is money even more and firms do not want to bind aid to specific objectives.

# 5. Discussion

It should be reiterated that this research does not try to explain the crisis as a whole nor draw a full and comprehensive picture of every single factor contributing to the reaction of the countries towards the crisis. Rather was the goal to analyze the influence that state aid under the crisis provision had on economic resilience. By emphasizing the mechanisms at play, policy-makers have a reference point when estimating the outcome of future state aid measures during crises.

Moreover, is it difficult to disentangle the effects of state aid under the temporary framework from other measures that were taken during the crisis or previously and were at play during the crisis through time lags. This study does however focus only on the real economy, also less so on the agricultural sector which had other regulations than industry and services and was overall low in volume. Moreover, were not only incentives given on the supply side, but also for demand to get the economy out of the recession. In Germany there was the so called 'Abwrackprämie' where the state subsidized customers with a kind of voucher that handed in their old car to buy a new one. However, such measures were used on a varying extent throughout the countries. The legal basis of this is also not as elaborated as for state aid where EU law tries to set up a fair playing field for countries granting aid. Further is the research limited on grounds of available data. Only firms that received grants exceeding €50m had to be disclosed. Firms receiving smaller amounts especially under the 500k measure were mostly undisclosed on grounds of business secrets to not give firms competitive disadvantage.

Additionally, measuring resilience in terms of unemployment rates is not without risk. Even though this suits best to measure resilience especially when taking the real economy into account. However, in order to preserve jobs different best practices were applied throughout Europe. Moreover, were actors such as the state and the market involved to a different extent. In the United Kingdom for instance, the means of wage reduction were used in order to save jobs. Jobs are preserved, but GDP declines because employees have less disposable income. Quantitative measures like short time work or temporary layoff was introduced in Germany in order to avoid dismissals. Moreover, was early retirement a tool to tackle the crisis. Workers that retire early are thus removed from the official records and make space for the unemployed to fill the gap. However, in the long-term firms may still need to downsize during crises. Qualitative measures include training or transition support of workers to other companies (Bergström, 2017). Through such measures unemployment rates can be artificially lowered, however not always sustainably. The research is limited in a way that it cannot take into account how the unemployment rate was influenced by these other measures, since this is a crucial measure to determine resilience.

What remains unsolved are the ways state aid was used on a microeconomic firm-level. For the government state aid was obviously not the main focus in stabilizing the economy. Most of the states spent combined in the three-year term less than 1% of their GDP on that measure. State aid was still a large figure in absolute terms. This leads to the big issue that was connected with crisis aid, namely control. The Alpine Bau case exemplifies the problem with checks before granting aid. Questions if the bankruptcy of the Alpine Bau could have been resolved without destroying money from the state and investors can hardly be answered, because people involved inside the company most likely cleared the accounts on purpose. The problem with large companies is also their importance for an economy. Like with Nokia in Finland a region that is very specialized can rise and fall with a single company, if it is the heart of the domestic economy. The same holds true for specialized sectors of the economy.

However, this is not the most relevant issue when it comes to control. It is in the interest of the legislator that aid will be used in order to fulfill the objective of counteracting the crisis. Through lacking monitoring for most measures, the principal-agent problem occurs where the state has minimal to no control on how aid is spent by firms. For example, €500,000 is a large amount to spend on SMEs with a low turnover. Moreover, was aid spread only across a limited amount of companies (European Commission, 2011a). Thus, the state should have a vested interest in how the money is used also to streamline distribution of aids. Furthermore, should light be shed on the possible negative effects of state aid during the crisis, especially on subsides that are not bound to many regulations like the 500k measure. Because of the lacking monitoring and large degree of latitude firms get some kind of security. This increases moral hazard where people lower their risk avoidance. During a crisis this can be fatal and if worst comes to worst mindless behavior can ruin a firm.

Another very important issue regards the long-term effects of evolutionary resilience. This may be because of the importance of other aid measures especially the ones for financial institutes that were larger in volume as the crisis aid to the real economy. After the analysis it became evident that state aid under the temporary framework has not significantly contributed to the recovery of regions. Thus, it is most important for future research to look further at reorientation and renewal. The European Commission aimed for high goals when they included the notion of smart growth into their recovery plan. Not many firms used aid that was linked to R&D or similar measures. Further, one should consider and analyze more thoroughly how firms made use of aid under the condition that it is linked to investment in innovation or research and development. Findings can grant new insights in how regions build resilience through supporting its economy with financial aid.

# 6. Conclusion

The focus of policy-makers on how to tackle the crisis was clearly not on the real economy in first place. This became evident when Angela Merkel declared German car manufacturer Opel as not systemic which would not be bailed out (Frankfurter Allgemeine, 2009). Nonetheless had the government the willingness to do so in case a financial institute was at risk. Likewise, the government in Sweden decided not to save Saab at the cost of the taxpayer. The temporary framework can thus be regarded more like a symbolic measure than one that is tangible and capable of tackling the crisis effectively even though the volume of granted aid was not low. Making grants available for the real economy was also a quite uncoordinated procedure. Germany made available grants that equaled around 1% of its 2009 GDP. Schemes were also amended often times. A right-wing government in Italy under Silvio Berlusconi made only €400m available, equaling 0.025% of GDP, compared to €29.6 billion in Germany (European Commission, 2012). Eventually Italy exceeded its available aid by far and spent alone in the last year of the grant €660m while Germany spend only a small share of its available aid (ibid). Furthermore, were regulations strictly applied to ensure that a firm was eligible to be granted aid. Nonetheless, every scheme that was filed was also approved by the European Commission.

During the crisis all kinds of measures were applied by different member states to fight the economic crisis. The analysis found that governments decided on the volume of state aid depending on the magnitude of crisis regardless of their political position. National governments from the left and from the right side of the political spectrum both allocated state aid when their economy was struggling. Out of all EU countries only three granted no state aid at all under the temporary framework. Amongst them was Cyprus the sole country that went only through a minor recession compared to other member states. Denmark was another one, but the approach there was to support the banks, so they can provide credit to the real economy. Thus, state aid to the financial sector between 2009 and 2011 equaled 65.94% of their 2011 GDP (European Commission, 2012). The only real outlier was Bulgaria. On the one hand it was not assigned a crisis magnitude level and the GDP remained stable, but on the other unemployment rates grew fast after the onset of the crisis (World Bank, 2018c). Bulgaria also did not grant crisis aid to the financial sector, and ordinary state aid remained below European average. Eventually Bulgaria showed a low resilience level and was still in recession after 2011.

Furthermore, the economic structure and the nature of the crisis have to be taken into account when evaluating resilience. Especially the presence and dependence on certain key-industries of a country is imperative to assess resilience. Finland spent less on state aid than Sweden and thus showed less resilience in the short-run. However, this is just half the story, because Sweden could regulate their

own currency (O'Brien, 2018). Sweden, not being part of the Eurozone like Finland, nor part of the European Exchange Rate Mechanism, as Denmark, had more leeway in terms of regulating its own currency. Thus, Sweden had an advantage over its Nordic neighbors by possessing an additional instrument to steer their economy during the crisis.

The effect of state aid on resilience is complex. No doubly decisive proof could be found, which would confirm the hypotheses and eliminate all other explanations totally. In the short-run it contributed to a certain degree of resistance against the crisis because firms had access to fresh credit for their undertakings. However, the number of firms that made use of aid under the temporary framework was limited. These firms could not make up for the overall decline in the regional economies. Furthermore, is the possibility of moral hazard present through state aid payments. Even though mindless spending can contribute to resistance towards a crisis due to fresh assets inside a company, it is yet dangerous for recovery over a longer period. This study found insufficient evidence that state aid under the temporary framework alone had a positive effect on recovery for the economy. Nonetheless had state aid a favorable effect on the crisis, but not in quantitative terms. The psychological effect that avoided credit squeeze must not be neglected. Introducing state aid schemes signaled banks and customers that the state was willing to keep the economy running and would even invest in it. A successful approach to it showed Germany which could resist the crisis. Germany proved to implement state aid successfully, as it incorporated the banks to real economy state aid, so the connections between the financial sector and the real economy were not estranged. Companies could further rely on their banks whereas the latter had some kind of reassurance it could rely on. Not all companies that wanted to invest however used state aid. For some investments the regulations that came with aid or the amount of aid was not suitable. Thus, in a quantitative sense the effect of state aid on resistance and recovery may be too small to be assessed, still state aid had qualitative implications.

In the long-run, resilience was negatively affected by state aid. Reorientation and renewal of firms was hindered by state aid. The research highlights a case where the absence of aid led to restructuring and renewed the company and braced it for future challenges which eventually affects the whole industry and not just one company. The study approves the hypothesis that state aid has a negative effect for a region to build resilience in the long-run. Aid without objective leads to enforced lock-ins. Nonetheless is not every crisis the same in nature, likewise are economies. Finland is a good example for that, because it devoted a share of available aids to R&D. However, overall effects on economic resilience were distorted due to the dependence of Nokia and its subsequent decline because it failed to adapt to technological change. Nonetheless change and innovation can be observed in other Finnish industries. Thus, it has to be evaluated where and with what objective aid is granted, since it can foster reorientation and renewal, especially if it is used for smart growth.

Considering the underlying research, state aid to the real economy during a crisis seems like an obsolete measure. Trends in ordinary state aid shifted years ago from sectoral specific to horizontal aids. Almost all EU countries opened their aid schemes to all sectors of the economy. Nonetheless crisis aid under most schemes were not bound to an objective. Thus, the Commission's goal of smart growth under the recovery plan failed. To grow more sustainable, the state should encourage firms to invest more in R&D and innovation. Also, green growth or training for employees should have been made a condition for getting aid granted. This would also decrease the principal-agent problem to a certain extent because the state has more control that money is used efficiently and meet the goals targeted by the government. State aid should thus be replaced by a more sustainable measure in future crises to increase resilience of an economy. This is especially the case for building strong and stable economies.

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# Appendix 1

State aid scheme Finland

TYÖ- JA ELINKEINOMINISTERIÖ
ARBETS- OCH NÄRINGSMINISTERIET
MINISTRY OF EMPLOYMENT AND THE ECONOMY

Euroopan komissio
Kilpailun pääosasto

13.5.2011

Viite: COMP/04/KV-cd HT.2333 – 28462
Rahoitus- ja talouskriisin ratkaisemiseksi toteutetut väliaikaiset valtiontukitoimenpiteet

RAPORTTI TALOUSKRIISIN TAKIA KÄYTTÖÖNOTETUISTA TILAPÄISISTÄ VALTIONTUKITOIMENPITEISTÄ 2009-2010

Työ- ja elinkeinoministeriö koordinoi Suomessa EU:n valtiontukisääntelyyn liittyviä tehtäviä. Talouskriisin takia käyttöönotettujen tilapäisten valtiontukitoimenpiteiden seuranta- ja raportointivaatimusten mukaisesti toimitamme käyttöönne asiaa koskevan Suomen kertomuksen.

Kertomus on jaoteltu erikseen rahoitusalan ja reaalitalouden osalta. Kertomus sisältää luottamuksellisia tietoja.

Ylijohtajan po.
Hallitusneuvos
Kristian Tammivuori

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## I RAHOITUSALA

### 1. Lainojen määrä ja hinnat kansallisilla pankkienvälisillä markkinoilla

Pankkien väliset rahamarkkinat eivät enää ole kansalliset Suomessa, missä kolmesta suuresta pankista kaksi on ulkomaisten rahoitusryhmittymien osia ja pienillä paikallispankeilla on oma keskusrahalaitos. Rahoitusryhmittymien osalta varainhankinta ja likviditeetin tasaus hoidetaan pääosin keskitetysti konsernitasolla.

Suomalaisten pankkien yhteenlasketut saamiset toisilta pankeilta ovat olleet jatkuvasti suuremmat kuin velat toisille pankeille. Tosin sanoen pankkien väliset markkinat eivät ole suomalaisille pankeille keskimäärin rahoituksen lähde. Kansallisilla pankkien välisillä markkinoilla tasataan lyhytaikaista likviditeettiä, mutta joillekin pankeille se voi olla myös rahoituksen lähde. Likviditeetin tasauksessa korko on EKP:n maksuvalmiusjärjestelmän talletus- ja luottokoron välisessä haarukassa. Jos pankkimarkkinoita käytetään varainhankintaan, niin korko on lähellä (+ / - muutama basis point) euriborkorkoa.

### 2. Kansallisella tasolla tehtyjen stressitestien tai vakavaraisuutta/kannattavuutta koskevien analyysien tulokset

Rahoitusmarkkinoiden valvonnasta vastaava viranomainen, Finanssivalvonta, analysoi jatkuvasti suomalaisten pankkien vakavaraisuutta ja tekee myös säännöllisesti omia stressitestejään. Vuonna 2010 tehty eurooppalainen stressitesti ei ollut siihen osallistuneelle pankille ongelmallinen, eikä meillekään Suomessa toimiville pankeille, jotka olivat testissä mukana osana ulkomaisia pankkikonserneja.

Finanssivalvonnan uusimman analyysin mukaan Suomen pankkisektorin kyky kestää toimintaympäristön lähiajan riskejä on säilynyt kohtuullisen hyvänä. Pankkisektorin yhteenlaskettu liiketulos vuonna 2010 oli 2,1 mrd. euroa, jossa on 2 % nousua edellisestä vuodesta. Korkokate supistui korkojen alhaisuuden vuoksi, mutta sitä kompensoi palkkiotuottojen ja muiden tuottojen kasvu. Pankkisektorin talosta parasti eniten luotoista kirjattujen arvonalentumisten vähentyminen. Arvonalennukset olivat vain 0,26 % luotto- ja takaus-kannasta. Järjestämättömien saamisten määrä on ollut edelleen laskussa ja se oli vuoden lopussa 0,57 % luotto- ja takauskannasta. Suurimpien pankkien vakavaraisuusvaihdeluvut (31.12.2010) ovat säilyneet likimäärin edellisen vuoden tasolla ja ne olivat 14,2 %, 12,8 % ja 15,2 %.

### 3. Reaalitaloudelle annettujen luottojen kysyntä ja tarjonta

Suomalaisten pankkien yritysluottojen määrä kasvoi vuosina 2007 ja 2008 varsin voimakkaasti (12.9 % ja 18.8 % edellisestä vuodesta). Talouden taantuman aikana yritysluottojen määrä supistui 4.8 %, mutta kasvoi jälleen vuonna 2010 (4.8 %). Yritysluottojen keskikorko oli vuoden 2010 lopussa 2.48 %. Luottokannan supistuminen vuonna 2009 johtui yhtäältä yritysten investointien huomattavasta vähenemisestä, minkä vuoksi yritysten rahoituksen kysyntä ei ollut samalla tasolla kuin talouden kasvun vuosina. Toisaalta pankit olivat luotonannossaan tavanomaista varovaisempia, jolloin pankkien luotonannon korkomarginaalit kasvoivat, mikä osaltaan vaikutti luottojen kysyntään.

### 4. Yritysten mahdollisuus saada riskipääomaa Suomessa.

Suomessa aloittavien innovatiivisten yritysten mahdollisuuden saada riskirahoitusta (sekä suoria tukia että lainoja) ovat kansainvälisesti tarkastellen varsin hyvät. Riskirahoitukseen ovat erikoistuneet valtiolliset toimijat Tekes (avustukset ja lainat) ja valtion erityisrahoituslaitos Finnvera (pääomasijoitukset) tytäryhtiöidensä (Veraventure ja Aloitusrahasto Vera) kautta. Li-

säksi Suomessa on useita pääomasijoitusrahastoja (Finnveran sijoituskohteena olevat alueelliset rahastot), jotka ovat erikoistuneet alueellisesti pienten ja keskisuurten yritysten pääomarahoitukseen. Lisäksi aikaisen vaiheen pääomasijoitustoimintaa aktivoi kansallinen yrityskiihdyttämö-ohjelma (Vigu-ohjelma).

Kasvuyritysten mahdollisuudet saada pääomarahoitusta ovat rajalliset. Yksityinen pääomasijoitusmarkkina on siirtynyt yrityksen myöhempiin elinkaarivaiheisiin vetäytyen pois aikaisen ja kasvuvaiheen rahoituksesta. Valtionyhtiö TeSi osallistuu kasvuyritysten pääomarahoitukseen yksityisiä sijoittajia täydentävänä sijoittajana. Finnveran yritysrahoitus (lainat, takaukset, takuut) on luonteeltaan muuta yritysrahoitusta täydentävää. Finnvera voi myöntää tällaisille yrityksille, jotka riskipitoisuutensa vuoksi eivät saa riittävästi rahoitusta pankeista, laottoja ja takauksia.

**5. Arvio Suomessa päämajaansa pitäviin rahoituslaitoksiin tehtyjen valtion investointien (kantaosakkeet, hybridipääoma jne.) nykyisestä arvosta**

Valtio ei ole talouskriisin vuoksi investoinut rahoituslaitosten omaan pääomaan.

**6. Tietoa tukijärjestelmien käyttöönotosta rahoitusalan osalta**

Komissiolle on tehty valtiontuki-ilmoitukset pankkien varainhankinnan valtiontakuusta sekä pääomasijoitustoimintaa koskevista tukiohjelmista (N567/2008 ja N329/2009), mutta ko. tukiohjelmia ei ole otettu käyttöön.

**7. Tukien tavoitteiden saavuttaminen**

Vaikka pankit eivät käyttäneet mahdollisuutta saada varainhankinnalleen valtiontakuusta tai parantaa vakavaraisuuttaan valtion merkitsemillä pääomatodistuksilla, pankkien näkemyksen mukaan takifasiliteetit olivat tarpeen ja merkitykselliset. Pelkästään mahdollisuus saada tarvittaessa valtiontukea auttoi pankkeja varainhankinnassaan.

Pankkien varainhankinnan onnistuminen oli keskeinen edellytys sille, että pankeilla oli mahdollisuus rahoittaa asiakkaitaan. Vaikka pankit olivat kriisin syvimpinä aikoina tavanomaista varovaisempia luotonannossaan, kannattavat yritykset eivät ajautuneet likviditeettikonkursseihin. Osaltaan tähän vaikutti Finnveran mahdollisuus myöntää suhdannelainoja terveille pk-yrityksille, jotka joutuivat taantuman takia rahoitusvaikeuksiin.

## II REAALITALOUS[1]

### 500.000 euron tukiohjelma (N224/2009)

**1. Arvio tuensaaja yritysten määrästä**

Tukea myönnettiin 9556 yritykselle.

**2. Pk-yrityksille/suurille yrityksille myönnetyn tuen osuus**

Tukea myönnettiin:

pk-yrityksille 40,8 MEUR

suurille yrityksille 4,9 MEUR

**3. Tuen jakautuminen aloittain**

Katso tuen jakautumisesta aloittain liite 1.

**4. Arvio tavoitteiden saavuttamisesta**

Tilapäisellä 500 000 euron tuella on saavutettu hyvin sille asetetut tavoitteet. Yrityksiä on tuen avulla autettu selviämään kriisin aiheuttamista markkinapuutteista. Voidaan todeta, että useiden yritysten kohdalla tuella voidaan katsoa olleen merkitystä investointien liikkeelle lähtemisen ja muun liiketoiminnan kehittämisen ja ylläpitämisen kannalta, ja tätä kautta vaikutusta myös toiminnan kasvuun ja elpymiseen taloustaantumasta. Vaikka volyymit ovat kaikkiaan olleet melko pienet, yksittäisten yritysten kannalta tuella voidaan kuitenkin katsoa olleen vaikutusta.

Tukimuodon hyöty ei ole niinkään tullut tukimahdollisuuksien laajentamisesta yli de minimis-asetuksessa (1998/2006) vahvistetun 200 000 euron kynnysarvon, vaan siitä, että tukiohjelmalla on voitu tukea vaikeuksissa olevia pohjimmiltaan terveitä yrityksiä. Ilman tätä tukimuotoa (eli vain normaalin de minimiksen puitteissa) ei ko. yritysten tukeminen olisi ollut mahdollista. Taantuman johdosta vaikeuksissa olevan yhtiön kriteerin (1.7.2008 alkaen) täytti myös moni sellainen yritys, jonka liiketoiminta on ollut tervettä ennen taantumaa ja jonka liiketoiminnalla on täydet edellytykset saavuttaa kannattavuus myös suhdanteen parantuessa. Markkinaehtoinen rahoitus korkotiedonannon[2] puitteissa olisi puolestaan ollut hinnaltaan hyvin kallista.

### Maataloussektori (15.000 euron tukiohjelma) (N141/2010)

**1. Arvio tuensaaja yritysten määrästä**

Maa- ja puutarhatalouden väliaikaista kansallista tukea on maksettu yhteensä 21,79 milj. euroa. Tukea on saanut 5 878 tuensaajaa.

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[1] Tilapäisten yhteisön puitteiden (EUVL C 83, 7.4.2011) nojalla komissiolle ilmoitetut tukiohjelmat

[2] Komission tiedonanto viite- ja diskonttokorkojen määrittämisessä sovellettavan menetelmän Tarkistamisesta (2008/C 14/02).

**2. Pk-yrityksille/suurille yrityksille myönnetyn tuen osuus**

Tukea on maksettu maatalouden alkutuotantoa harjoittaville yrityksille, jotka kaikki kuuluvat PK-yrityksiin. Tietoa yritysten työntekijämääristä tai liikevaihdosta taseesta ei ole, mutta pääosa tukea saaneista luokittuu mikroyritysten ryhmään jo työntekijöiden lukumäärän perusteella (alle 10 työntekijää). Sen lisäksi on joitakin pieniä yrityksiä ja yksittäisiä varsinaisia PK-yrityksiä. Suuria yrityksiä ei ole tuensaajina.

**3. Tuen jakautuminen aloittain**

Maa- ja puutarhatalous

**4. Arvio tavoitteiden saavuttamisesta**

Maa- ja puutarhatalouden väliaikainen kansallinen tuki kohdennettiin tiloille, joille talouskriisin vaikutusten arvioitiin voimakkaimmin kohdentuvan. Tuki on omalta osaltaan tukenut tilojen taloudellisten toimintaedellytysten säilymistä ja tuotannon jatkumista.

## Tuetut takaukset (valtion erityisrahoitusyhtiö Finnveran takausohjelma (N82b/2009))

Takausohjelmaa ei ole käytännössä tarvittu, koska väliaikainen 500.00 euron ohjelman perusteella on voitu myöntää tukea myös takauksina.

## Lyhytaikaiset vientiluottovakuutukset (N258/2009)

Luottovakuutus on toteutettu Finnveran normaalin vientitakuujärjestelmän osana Finnveran yleisiin riskiharkintaperusteisiin pohjautuen. Vientitakuutoiminta on ollut itsekannattavaa. Taatut määrät eivät ole tukea, vaan otettua riskiä, josta peritään riskinmukainen takuumaksu. Käytetyt takuutuotteet ovat olleet vientisaatavatakuu, luottoriskitakuu ja ostajaluottotakuu.

**1. Arvio tukiohjelman hyödyntävien yritysten määrästä**

Yhteensä 119 hakijayritykselle on vuosina 2009-2010 myönnetty lyhytaikainen vientitakuu väliaikaisen tukiohjelman turvin.

**2. Pk-yrityksille/suurille yrityksille myönnetyn vientitakuiden osuus**

Lyhyistä vientitakuista lännsimaihin on vuosina 2009-2010 myönnetty 38 %:a pk-yrityksille ja 62 %:a suurille yrityksille.

### 3. Jakautuminen aloittain

| TOL aro | Toimiala/TOL nimi | Myönnetty 2009-2010 | %-osuus | viejien lkm |
|---|---|---|---|---|
| 16 | Sahatav, puu- ja punontatuott. valm | 24 024 000 | 21,8 % | |
| 24 | Metallien jalostus | 23 455 135 | 21,3 % | |
| 46 | Tukkukauppa (pl. moottoriajoneuvojen ja moottoripyörien kauppa) | 15 408 793 | 14,0 % | |
| 17 | Paperin, paperi-, kartonkituott val | 11 093 034 | 10,1 % | |
| 28 | Muiden koneiden ja laitteiden valm. | 10 390 872 | 9,4 % | |
| 25 | Metallituotteiden valmistus | 6 395 449 | 5,8 % | |
| 27 | Sähkölaitteiden valmistus | 3 891 000 | 3,5 % | |
| 30 | Muiden kulkuneuvojen valmistus | 3 440 000 | 3,1 % | |
| 10 | Elintarvikkeiden valmistus | 2 390 000 | 2,2 % | |
| 23 | Muiden ei-metall. miner.tuott. valm | 1 945 809 | 1,8 % | |
| 22 | Kumi- ja muovituotteiden valmistus | 1 906 000 | 1,7 % | |
| 8 | Muu kaivostoiminta ja louhinta | 1 440 000 | 1,3 % | |
| 32 | Muu valmistus | 1 309 380 | 1,2 % | |
| 21 | Lääkeaineiden ja lääkkeiden valmistus | 550 000 | 0,5 % | |
| 29 | Moottoriajoneuv. ja perävaun. valm. | 550 000 | 0,5 % | |
| 33 | Kon. ja laitt. korj, huolto ja asen | 435 000 | 0,4 % | |
| 31 | Huonekalujen valmistus | 300 000 | 0,3 % | |
| 43 | Erikoistunut rakennustoiminta | 300 000 | 0,3 % | |
| 61 | Televiestintä | 300 000 | 0,3 % | |
| 26 | Tietokon, elektron, opt. tuott valm | 250 000 | 0,2 % | |
| 20 | Kemikaal ja kemiallisten tuott valm | 230 000 | 0,2 % | |
| 71 | Arkkit.- ja ins.palv: tekn. testaus | 80 000 | 0,1 % | |
| 15 | Nahan ja nahkatuotteiden valmistus | 45 000 | 0,0 % | |
| | | 110 129 473 € | 100,0 % | |

Toimialakohtaisessa taulukossa oleva viejien lukumäärätieto on **katsottava luottamukselliseksi**, koska joissakin toimialakohdissa on vain yksi viejä.

### 4. Arvio tavoitteiden saavuttamisesta

Tilapäisellä lyhytaikaisten vientitakuiden mukauttamisella on saavutettu hyvin sille asetettu tavoite. Viejäyrityksiä on näin autettu selviämään kriisin aiheuttamista markkinapuutteista. Monet viejäyritykset ovat kertoneet pystyneensä tämän järjestelyn turvin jatkamaan toimintaansa. Muutamat yritykset ovat myös kertoneet, että vasta tämän ohjelman avulla he ovat ylipäätään päässeet osallisiksi luottovakuutusmarkkinoista.

## Yli 50 miljoonan euron takuut

Komissio pyysi tietoa yksittäisten tapausten määrästä, joissa takuusumma on yli 50 miljoonaa euroa. Vastauksena toteamme, että Suomessa ei ole ollut tällaisia tapauksia.

**500.000 euron tukiohjelma (N224/2009)** Liite 1

| | | | suht. osuus |
|---|---|---|---|
| TOL-2-merkkiä | Tiedot | Yhteensä | % |
| 0 Toimiala tuntematon | Tuki euroa | 305 480 | 0,7 % |
| 01 Kasvinviljely, kotieläin- ja riistatalous | Tuki euroa | 493 154 | 1,1 % |
| 02 Metsätalous ja puunkorjuu | Tuki euroa | 175 779 | 0,4 % |
| 03 Kalastus ja vesiviljely | Tuki euroa | 3 370 | 0,0 % |
| 08 Muu kaivostoiminta ja louhinta | Tuki euroa | 138 662 | 0,3 % |
| 09 Kaivostoimintaa palveleva toiminta | Tuki euroa | 5 569 | 0,0 % |
| 10 Elintarvikkeiden valmistus | Tuki euroa | 1 251 427 | 2,7 % |
| 11 Juomien valmistus | Tuki euroa | 144 097 | 0,3 % |
| 13 Tekstiilien valmistus | Tuki euroa | 146 645 | 0,3 % |
| 14 Vaatteiden valmistus | Tuki euroa | 401 275 | 0,9 % |
| 15 Nahan ja nahkatuotteiden valmistus | Tuki euroa | 61 311 | 0,1 % |
| 16 Sahatavaran, puu- ja korkkituotteiden valm. (pl. huonekalut) | Tuki euroa | 2 873 046 | 6,3 % |
| 17 Paperin, paperi- ja kartonkituotteiden valmistus | Tuki euroa | 393 150 | 0,9 % |
| 18 Painaminen ja tallenteiden jäljentäminen | Tuki euroa | 147 908 | 0,3 % |
| 19 Koksin ja jalostettujen öljytuotteiden valmistus | Tuki euroa | 32 103 | 0,1 % |
| 20 Kemikaalien ja kemiallisten tuotteiden valmistus | Tuki euroa | 515 885 | 1,1 % |
| 21 Lääkeaineiden ja lääkkeiden valmistus | Tuki euroa | 4 549 | 0,0 % |
| 22 Kumi- ja muovituotteiden valmistus | Tuki euroa | 642 627 | 1,4 % |
| 23 Muiden ei-metallisten mineraalituotteiden valmistus | Tuki euroa | 1 008 404 | 2,2 % |
| 24 Metallien jalostus | Tuki euroa | 106 599 | 0,2 % |
| 25 Metallituotteiden valmistus (pl. koneet ja laitteet) | Tuki euroa | 2 931 110 | 6,4 % |
| 26 Tietokoneiden, elektronisten ja optisten tuotteiden valm. | Tuki euroa | 1 142 864 | 2,5 % |
| 27 Sähkölaitteiden valmistus | Tuki euroa | 410 477 | 0,9 % |
| 28 Muiden koneiden ja laitteiden valmistus | Tuki euroa | 2 062 252 | 4,5 % |
| 29 Moottoriajoneuvojen, perävaunujen ja puoliperävaunujen valm | Tuki euroa | 235 963 | 0,5 % |
| 30 Muiden kulkuneuvojen valmistus | Tuki euroa | 725 321 | 1,6 % |
| 31 Huonekalujen valmistus | Tuki euroa | 335 864 | 0,7 % |
| 32 Muu valmistus | Tuki euroa | 449 302 | 1,0 % |
| 33 Koneiden ja laitteiden korjaus, huolto ja asennus | Tuki euroa | 437 069 | 1,0 % |
| 35 Sähkö-, kaasu- ja lämpöhuolto, jäähdytysliiketoiminta | Tuki euroa | 47 199 | 0,1 % |
| 36 Veden otto, puhdistus ja jakelu | Tuki euroa | 5 092 | 0,0 % |
| 37 Viemäri- ja jätevesihuolto | Tuki euroa | 2 266 | 0,0 % |
| 38 Jätteen keruu, käsittely ja loppusijoitus: kierrätys | Tuki euroa | 104 725 | 0,2 % |
| 39 Maaperän ja vesistöjen kunnostus, ympäristönhuoltopalvelut | Tuki euroa | 71 453 | 0,2 % |
| 41 Talonrakentaminen | Tuki euroa | 364 039 | 0,8 % |
| 42 Maa- ja vesirakentaminen | Tuki euroa | 164 600 | 0,4 % |
| 43 Erikoistunut rakennustoiminta | Tuki euroa | 1 557 851 | 3,4 % |
| 45 Moottoriajoneuvojen ja -pyörien kauppa sekä korjaus | Tuki euroa | 766 543 | 1,7 % |
| 46 Tukkukauppa (pl. moottoriajoneuvojen ja -pyörien kauppa) | Tuki euroa | 1 791 448 | 3,9 % |
| 47 Vähittäiskauppa (pl. moottoriajoneuvojen kauppa) | Tuki euroa | 2 297 092 | 5,0 % |
| 49 Maaliikenne ja putkijohtokuljetus | Tuki euroa | 686 833 | 1,5 % |
| 50 Vesiliikenne | Tuki euroa | 68 167 | 0,1 % |
| 51 Ilmaliikenne | Tuki euroa | 59 011 | 0,1 % |
| 52 Varastointi ja liikennettä palveleva toiminta | Tuki euroa | 570 162 | 1,2 % |
| 53 Posti- ja kuririitoiminta | Tuki euroa | 6 406 | 0,0 % |
| 55 Majoitus | Tuki euroa | 240 644 | 0,5 % |
| 56 Ravitsemistoiminta | Tuki euroa | 1 088 872 | 2,4 % |
| 58 Kustannustoiminta | Tuki euroa | 384 300 | 0,8 % |
| 59 Elokuva- ja tv-ohjelmatuotanto, äänitt. ja musiikin kustant. | Tuki euroa | 264 835 | 0,6 % |
| 61 Televiestintä | Tuki euroa | 463 226 | 1,0 % |
| 62 Ohjelmistot, konsultointi ja siihen liittyvä toiminta | Tuki euroa | 3 840 836 | 8,4 % |
| 63 Tietopalvelutoiminta | Tuki euroa | 856 951 | 1,9 % |

| | | | |
|---|---|---|---|
| 64 Rahoituspalvelut (pl. vakuutus- ja eläkevakuutustoiminta) | Tuki euroa | 216 342 | 0,5 % |
| 65 Vakuutusvakuutustoiminta (pl. pakollinen sosiaalivakuutus) | Tuki euroa | 95 355 | 0,2 % |
| 66 Rahoitusta ja vakuuttamista palveleva toiminta | Tuki euroa | 74 833 | 0,2 % |
| 68 Kiinteistöalan toiminta | Tuki euroa | 243 282 | 0,5 % |
| 69 Lakiasiain- ja laskentatoimen palvelut | Tuki euroa | 178 349 | 0,4 % |
| 70 Pääkonttorien toiminta; liikkeenjohdon konsultointi | Tuki euroa | 1 712 614 | 3,7 % |
| 71 Arkkitehti- ja ins.palvelut; tekninen testaus ja analysointi | Tuki euroa | 2 355 354 | 5,1 % |
| 72 Tieteellinen tutkimus ja kehittäminen | Tuki euroa | 578 190 | 1,3 % |
| 73 Mainostoiminta ja markkinatutkimus | Tuki euroa | 691 129 | 1,5 % |
| 74 Muut erikoistuneet palvelut liike-elämälle | Tuki euroa | 598 967 | 1,3 % |
| 75 Eläinlääkintäpalvelut | Tuki euroa | 23 714 | 0,1 % |
| 77 Vuokraus- ja leasingtoiminta | Tuki euroa | 56 655 | 0,1 % |
| 78 Työllistämistoiminta | Tuki euroa | 26 958 | 0,1 % |
| 79 Matkatoimistojen ja -järjestäjien toiminta; varauspalvelut | Tuki euroa | 146 409 | 0,3 % |
| 80 Turvallisuus-, vartiointi- ja etsivätpalvelut | Tuki euroa | 134 640 | 0,3 % |
| 81 Kiinteistön- ja maisemanhoito | Tuki euroa | 294 164 | 0,6 % |
| 82 Hallinto- ja tukipalvelut liike-elämälle | Tuki euroa | 519 667 | 1,1 % |
| 84 Julkishallinto ja maanpuolustus; pakollinen sosiaalivakuutus | Tuki euroa | 219 282 | 0,5 % |
| 85 Koulutus | Tuki euroa | 1 253 762 | 2,7 % |
| 86 Terveyspalvelut | Tuki euroa | 763 744 | 1,7 % |
| 87 Sosiaalihuollon laitospalvelut | Tuki euroa | 284 195 | 0,6 % |
| 88 Sosiaalihuollon avopalvelut | Tuki euroa | 207 710 | 0,5 % |
| 90 Kulttuuri- ja viihdetoiminta | Tuki euroa | 90 234 | 0,2 % |
| 91 Kirjastojen ja muiden kulttuurilaitosten toiminta | Tuki euroa | 7 352 | 0,0 % |
| 92 Rahapeli- ja vedonlyöntipalvelut | Tuki euroa | 895 | 0,0 % |
| 93 Urheilutoiminta sekä huvi- ja virkistyspalvelut | Tuki euroa | 509 949 | 1,1 % |
| 94 Järjestöjen toiminta | Tuki euroa | 135 903 | 0,3 % |
| 95 Tietokoneiden, henk.koht. ja kotitaloustavaroiden korjaus | Tuki euroa | 73 811 | 0,2 % |
| 96 Muut henkilökohtaiset palvelut | Tuki euroa | 993 535 | 2,2 % |
| 97 Kotitalouksien toim. kotitaloustyöntekijöiden työnantajina | Tuki euroa | 1 466 | 0,0 % |
| 98 Kotitaloudet: tavaroiden ja palv. tuottaminen omaan käyttöön | Tuki euroa | 286 | 0,0 % |
| Yhteensä Tuki euroa | | **45 774 561** | **100,00** |

# Appendix 2

Personal communication with the Finnish state aid authority

Request:

Dear Sir or Madame,

I am Henrik Neth and currently writing my master thesis at the University of Gothenburg about the effects of state aid on regional resilience in the EU during the last crisis. Because Finland was granted its temporary state aid framework for the real economy by the DG Competition of the Commission (for example in the Commission case N224/2009), it was required to monitor and annually report the distribution of state aid (in the aforementioned case in paragraph 2.9. in the decision text). The records in English must be maintained for 10 years by the individual states, and the due date for these schemes was the 1st July 2008. Thus, it should still be available.

My request now is, if you can provide me with these documents? I do not need names of individual recipients, as the decision text also states that those reports do not contain any business secrets. I am therefore only interested in the supported sectors and the NUTS2 regions where aid was granted.

Kind regards,

Henrik Neth

Answer:

From: [redacted]@tem.fi

Sent: Montag, 30. April 2018 14:32

To: gusnethhe@student.gu.se

Subject: State aid monitoring report

Dear Henrik,

Please find attached Finland’s report to the European Commission regarding temporary state aid due to the financial crisis in 2009-2010. Unfortunately, the report is available only in Finnish.

The report contains confidential information (number of export enterprises) that has been hidden in the file attached.

Kind regards,

[redacted]

[redacted]

Senior Specialist

Enterprises and Regional Development Department

Ministry of Employment and the Economy

P.O. Box 32, FI-00023 Government, FINLAND

Office: Eteläesplanadi 4, Helsinki

Tel. [redacted]

[redacted]@tem.fi

# Appendix 3

Country data

| Country | Magnitude level | 2009 GDP in constant US$ | Mean Euro to Dollar Exchange rate 2009 | 2009 GDP in € | Available aid 2009-2011 | Aid as percentage of 2009 GDP |
|---|---|---|---|---|---|---|
| BE | 5.43 | 470.6 | 1.33 | 353.8 | 8.1 | 2.3 |
| BG | - | 50 | 1.33 | 37.6 | 0 | 0 |
| CZ | 5.65 | 202.9 | 1.33 | 152.6 | 1.1 | 0.7 |
| DK | 6.15 | 316.1 | 1.33 | 237.7 | 0 | 0 |
| DE | 6.07 | 3283 | 1.33 | 2468.4 | 29.6 | 1.2 |
| EE | 7.81 | 19 | 1.33 | 14.3 | 0.2 | 1.4 |
| IE | 7.26 | 218 | 1.33 | 163.9 | 0.4 | 0.2 |
| GR | 5.88 | 316.7 | 1.33 | 238.1 | 4 | 1.7 |
| ES | 5.67 | 1431 | 1.33 | 1075.9 | 2.5 | 0.2 |
| FR | 5.32 | 2596 | 1.33 | 1951.9 | 0.6 | 0.03 |
| IT | 6.13 | 2090 | 1.33 | 1571.4 | 0.4 | 0.03 |
| CY | 4.86 | 25.2 | 1.33 | 19 | 0 | 0 |
| LV | 8.15 | 24.7 | 1.33 | 18.6 | 0.6 | 3.2 |
| LT | 7.47 | 36.5 | 1.33 | 27.4 | 0.1 | 0.4 |
| LU | 6.48 | 50.7 | 1.33 | 38.1 | 0.5 | 1.3 |
| HU | 6.34 | 130 | 1.33 | 97.7 | 9.7 | 10 |
| MT | 5.09 | 8.4 | 1.33 | 6.3 | 0.04 | 0.6 |
| NL | 5.76 | 824.8 | 1.33 | 620.2 | 0 | 0 |
| AT | 5.7 | 384.5 | 1.33 | 289.1 | 10.2 | 3.5 |
| PL | - | 462.6 | 1.33 | 347.8 | 0.3 | 0.1 |
| PT | 5.33 | 233.9 | 1.33 | 175.9 | 0.8 | 0.5 |
| RO | 6.36 | 169.4 | 1.33 | 127.4 | 0.4 | 0.3 |
| SI | 6.66 | 47.4 | 1.33 | 35.6 | 1.3 | 3.7 |
| SK | - | 85.2 | 1.33 | 64.1 | 0.4 | 0.62 |
| FI | 6.67 | 240.6 | 1.33 | 180.9 | 0.5 | 0.3 |
| SE | 6.28 | 460.8 | 1.33 | 346.5 | 1.3 | 0.4 |
| UK | 6.05 | 2400 | 1.33 | 1804.5 | 10.1 | 0.6 |