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TRUST, PERFORMANCE, AND COMPLIANCE DURING CRISIS TIMES

Longitudinal analysis of trust in authorities and performance evaluations as the predictors of compliance in crisis situations

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Abstract

Purpose: While the concepts of trust and performance often appear together in research, there seems to be little consensus on how they together relate to compliance. The purpose of this study is to examine this relationship, how it changes over time, and to question the common idea of trust being one of the main predictors of compliance in crisis situations, suggesting that performance evaluations might play a bigger role than often thought. This study argues for the role of performance evaluations in determining compliance and aims to test this argument through quantitative longitudinal analysis.

Theory: An extensive literature review is conducted to conclude what is already known on the relationship between trust and compliance, trust and performance evaluations, and performance evaluations and compliance. Three lines of previous research are recognised; performance evaluations as a type of trust, i.e., confidence, performance evaluations preceding trust through trustworthiness, and performance evaluations as an antecedent of reputation. The mechanisms of trust and performance evaluations affecting compliance are discussed and two main frameworks are recognised; trust affecting performance evaluations, which then affect compliance, or performance evaluations affecting trust and thus affecting compliance. The different theories are discussed and compared. Hypotheses and a conceptual model are formed based on the previous literature.

Method: A three-wave panel data collected in Sweden during the COVID-19 pandemic in 2020 is used to conduct a statistical analysis on the relationship between the independent variables of trust in authorities and performance evaluations, and the dependent variable of compliance. Logistic regression model (n= 4,187) is constructed to analyse the change in variables during the course of the three panel waves. A measure of social distancing is used as the dependent compliance variable, and the relationship is controlled with general trust, sex, age, and education level.

Results: The results of the logistic regression model show that trust in authorities remains as a significant positive predictor of compliance throughout the panel waves, even when controlled with other variables. Performance evaluations seem to have positive independent effect on compliance, but negative effect when controlled with trust in authorities and other controlling variables. As the analysis shows some irregularities in the data, further analysis on the relationship was required. Additional examination shows evidence implying that high performance evaluations have an effect on compliance only when trust in authorities is high. Thus, the study suggests that trust in authorities is the more prevalent predictor of compliance in comparison to performance evaluations. Further research on the relationship between performance evaluations and compliance is suggested.

Keywords: performance evaluations, trust in authorities, compliance, crisis management, crisis communication, longitudinal analysis, logistic regression

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- *Snoop Dogg*

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1. Introduction

Year 2020 will stay in the history books as the beginning of one of the worst pandemics during the modern times. The epidemic caused by the novel corona virus quickly spread all over the world, leading the World Health Organisation to declare the virus outbreak as a pandemic on the 11th of March 2020 (WHO, 2020). The worldwide crisis is still ongoing to this date, with new, even more dangerous mutations appearing in the population and with thousands of new deaths reported every day (WHO, 2021). The COVID-19 pandemic has left the world watching in awe. Countries have introduced different strategies on managing the crisis and applied severe restrictions on movement and everyday life to slow down the spread of the virus. The phrase "flatten the curve" has been repeated in every news outlet and every information pamphlet all around the world, while simultaneously asking people to keep distance, wash their hands, avoid public gatherings, and stay at home; to slow down the spread of the virus, it is considered essential that these recommendations are followed.

Despite the different approaches to crisis management, countries have faced similar challenges during the course of the pandemic, one of them being the question of how to communicate the restrictions and recommendations most efficiently to people to ensure public compliance. Previous studies have tried to find evidence on the predicting attributes that lead to compliance with recommendations in crisis situations. Literature recognizes the rally-around-the-flag effect, which entails that the public opinion is more favourable towards political leaders in times of crisis, suggesting favourable effects also to compliance. However, the increase in support is temporary and the government support is bound to return to normal levels after the initial crisis phase (see e.g., Kernell, 1978; Woods, 2011). Especially in a prolonged crisis, such as the COVID-19 pandemic, governments and authorities cannot trust solely on the rally effect to persuade people to comply with the recommendations.

1.1. Research questions

Compliance in crisis situations is essential, especially in cases where the threat is aimed towards the life and well-being of humans or poses a hazard for the environment. To get citizens to follow these instructions, restrictions, and recommendations in crisis, we need to

understand the mechanisms affecting the judgements of compliance. Previous research suggests that the role of trust on making decisions of compliance is high, especially during times of high social uncertainty like times of crisis (Earle et al., 2007: 9–10). The level of trust has a significant effect on the citizens' willingness to comply with the recommendations, based on several empirical studies conducted during different public health crises (see e.g., Blair et al., 2017; Devine et al., 2020; Siegrist & Zingg, 2014; van der Weerd et al., 2011). However, the generally accepted truth in crisis management research is that evaluations of performance matter when it comes to behavioural intentions. Some scholars discuss performance evaluations as a dimension of trust, i.e., performance-based trust (Earle et al., 2007; Earle & Siegrist, 2006; Seligman, 1998; Siegrist et al., 2003), while some consider performance-related evaluations to be attributions of trustworthiness, which then drives trust (Hamm et al., 2019; Hardin, 2002; Mayer et al., 1995). In organisational crisis management research, performance evaluations are often discussed within the context of organisational reputation, and alongside the judgements of the appropriateness of the organisations' choice of crisis response strategy. Reputation and the assessment of chosen crisis response strategy are both suggested to have effects on behavioural intentions. (Bowen et al., 2018; Coombs, 2007; Coombs & Holladay, 1996, 2001, 2005, 2007; Kiambi & Shafer, 2016; Lyon & Cameron, 2004). Some studies suggest that the evaluations of past performance have a rather strong effect on trust judgements and the judgements of compliance also in political context (Gesser-Edelsburg et al., 2020; Hamm et al., 2019), and the results from Blair et al. (2017: 96) imply that low trust and thus low compliance is not necessarily due to lack of knowledge or understanding as often assumed, but rather the distrust towards the capacity or integrity of the government institutions to perform in a way that mitigates the risks.

While the concepts of trust and performance often appear together in research, there seems to be little consensus on how they relate to each other and to compliance. The aspect of trust seems to be more prevalent in social sciences, whereas the focus within the organisational context is more on performance. The starting point for the current study is thus to examine how the performance evaluations of public authorities affect public's willingness to comply with recommendations in a crisis situation. And further, to examine if the effect of trust on compliance in the case of public authorities during a crisis is essentially anything else than the outcome of evaluations of said authority's ability to handle a crisis situation and their past

performance, and the assessment of how successfully the crisis has been handled. Therefore, to clarify the relationship between performance evaluations, trust in authorities, and compliance in crisis situations, this study aims to find answers to the following questions:

> **[RQ1]:** How do performance evaluations affect compliance in crisis situations?

> **[RQ2]:** How do trust in authorities and performance evaluations together affect compliance in crisis situations?

As presented above, previous studies suggest a causal relationship between performance evaluations and compliance, and trust and compliance. While being quite unanimous in their results, additional research with more suitable designs would still be required to provide evidence on if such causal relationship between the variables exists. The studies are based mostly on cross-sectional data, thus lacking the longitudinal aspect to make causal inferences. (Siegrist & Zingg, 2014: 27–28). The current study has a unique opportunity to examine compliance in crisis within a longitudinal context, having access to a three-wave panel data collected during a global health crisis. Therefore, it is in the interest of not just the current study, but the whole field of research, to analyse the relationship between the three variables over time, leading to the third and final research question:

> **[RQ3]:** How does the relationship between trust in authorities, performance evaluations, and compliance in crisis situations change over time?

These three research questions will first be examined through reviewing previous research done on trust, performance evaluations, and compliance within wide range of disciplines. The review will further argue for the academic and societal relevance of this study, by highlighting possible deficits and limitations in the existing literature. The reviewed literature will then be related to the case of the current study, and hypotheses to answer the research questions will be formed based on previous research.

1.1. Study aims

This study takes a deeper look into the antecedents of compliance in the context of a crisis situation. Opposite to what has been commonly established within the field, the current study questions the prevalence of trust as the determinant of compliance in crisis situations and examines if the effect of trust in authorities is actually just existing alongside with individual's evaluations of the performance of the relevant agency. By doing this, the current study aims to create better understanding of the interplay between performance evaluations, trust, and compliance in crisis situations. The unique case and panel data used in this study give an often-missed longitudinal perspective and insights to the discussion within the fields of crisis management and crisis communication. The current study hopes to make meaningful implications for crisis managers and crisis communicators on how decisions to comply with recommendations and restrictions by government agencies and other public institutions are made. The results of this study could be of help in defining what type of crisis information would encourage higher levels of public compliance during future crisis situations.

2. Background and Theory

This chapter focuses on the theoretical background of the current study and further elaborates on the research questions presented above. First, a short summary of the concept of trust, the field of trust research, and the relationship between trust and compliance is given. The overview is then stretched to the relationship between trust and performance, thus arguing for moving the aim towards the relationship between performance and compliance. Finally, the research questions are revisited, and hypotheses and a research model are formed.

2.1. Understanding trust

The concept of trust has been studied widely between different disciplines for decades (see e.g., Levi & Stoker, 2000; Luhmann, 1979; Rousseau et al., 1998). Despite, and perhaps due to, the various theoretical and empirical studies conducted in the field of trust research there is a lack of consensus on how exactly trust should be studied and conceptualised. This deficit of a generally accepted framework has encouraged the formation of several different models and typologies of trust. Although it is not in the interest of the current study to provide thorough analysis of the concept of trust, it is essential for the further analysis to understand certain aspects, theories, and common attributes attached to trust.

2.1.1. Trust in theory

Certain common attributes are often attached to the concept of trust. Trust is relational, involving the trusting (trustor) and the trusted (trustee) party, and trust can be conceptualized either dichotomously or in a graded fashion. The trust judgements are expected to affect courses of action, and they are often conditional over specific domains (Levi & Stoker 2000). The actual definition of trust varies between studies and disciplines; there is no consensus even within disciplines. One classic definition by Rousseau et al. (1998: 395) summarises the key elements often appearing in trust definitions: it considers trust as *a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another.* This definition has been further developed by e.g., Siegrist et al. (2003: 706), who define trust as *the willingness to make oneself vulnerable to another based on a judgment of similarity of intentions or values.* Contrary to the former definition, the latter separates similarity and behavior, thus acknowledging that trust itself does not require a certain performance criterion. This definition is based on the distinction between

trust and confidence, that will be elaborated on later in this paper. Despite the differences in these and several other definitions (see e.g., Hardin, 2002; Luhmann, 1979; Mayer et al., 1995), they all include an important factor acknowledged throughout the field of trust research. That is, trust entails risk. Trusting is an act of accepting vulnerability, thus requiring an individual to expose themselves to the unpredicted actions and decisions of others. Another often, yet not as commonly, included factor in definitions of trust is the similarity of values. That is, the trustor and trustee share similar values, and thus compatible interests.

Trust can be divided into different types, based on the objective of trust and context of study. Distinctions of e.g., interpersonal trust, institutional trust, social trust and political trust are made in research. However, several empirical studies have noted that these different types of trust are often strongly intertwined and correlated. This applies to relationships between different types of trust, e.g., social trust and political trust being strongly correlated (see e.g., Levi & Stoker, 2000: 493–495), but also within certain types of trust – e.g., within institutional trust, where high levels of trust in one institution tend to predict high levels of trust in other institutions, and high levels of distrust vice versa, thus there is a strong intercorrelation between trust in different institutions (Christensen & Lægreid, 2005: 504)

One common, although often contested, belief about trust is the principle of trust asymmetry. This principle assumes that trust is something that is hard to gain, but easy to lose, thus assuming that trust is fragile. (Slovic, 1993). However, this principle also receives criticism, as it is based on the idea of information being split to negative and positive information. That is, the distinction could only be made between trust-building and trust-destroying events. More recently, results from the line of trust research making a distinction between general trust and scepticism, or critical trust, suggest that critical attitudes are not by themselves destructive to trust: the importance of full trust for the functioning of the society is often exaggerated in research. (Poortinga & Pidgeon, 2003; 2006). To not have any trust is not critical to the functioning of most institutions, as the absence of mistrust is sufficient (Siegrist et al., 2007: 267–269).

2.1.2. Trust and compliance

A common attribute in majority of trust research is the expectation that trust judgements will affect courses of action. From the perspective of political trust this means that for example our

voting behaviour, political activity, and compliance to authorities are to some extent affected by the level of trust. (Levi & Stoker 2000). According to Mayer et al. (1995), the distinction between trust and cooperative action has been a bit unclear in the previous research. While trust often leads to acts of cooperation, the decision to cooperate does not require trust as cooperation does not necessarily involve risk. However, the role of trust seems to prevail especially in times of uncertainty, such as crises (Earle et al., 2007: 9–10). This could be partly due to the nature of trust; trust can be considered as a way to reduce complexity in the society (Luhmann, 1979).

Several empirical studies from during different public health crisis, such as the outbreaks of severe acute respiratory syndrome (SARS), avian influenza, H1N1 influenza (Siegrist & Zingg, 2014), the outbreak of the Ebola virus disease (Blair et al., 2017), and latest the current COVID-19 pandemic (Devine et al., 2020; Plohl & Musil, 2021) suggest that the level of trust on entities such as the government, authorities, and experts plays an important role in compliance with recommendations. Thus, there seems to be consensus that trust is a strong determinant of compliance in public health crises, but some results suggest that the strength of the effect may vary between expected behaviours – e.g., the effect of trust is positive and significant when the recommended behaviour is getting vaccinated, but no such effect occurs with the intention to adopt protective measures, such as extra hygienic precautions (van der Weerd et al., 2011). There are some issues with the previous trust and compliance research (see e.g., Devine et al., 2020: 7–9), as there is within the field of trust research in general. Several different types of measurements are used to measure both trust and compliance. This is somewhat troublesome when comparing studies, as there is always room for different interpretations within respondents and researchers.

There are also some differences in the implications made from the results of trust and compliance research. Some scholars are suggesting that during situations that involve risk and crisis, communicators should pay attention to the prevalent perception of the situation held by citizens. That is, the communication should try to create a correct understanding of the situation and to give more accurate perceptions on the impacts and consequences of such risk or crisis to reach higher approval and compliance for measures taken by public authorities. (Paek et al., 2008: 68–69; van der Weerd et al., 2011). However, they acknowledge alongside

with the results of other previous research on trust and compliance during public health crises, that although receiving information on the effectiveness of vaccines or the necessity of protective measures in the form of e.g., behavioural restrictions is important to citizens in the light of making deliberate choices, crisis communication should not underestimate the role of trust on those mediating the message. (Blair et al., 2017; Gesser-Edelsburg et al., 2020; Siegrist & Zingg, 2014). Thus, there is a difference in the interpretation of whether the effect of trust is based on – and whether the crisis and risk managers should focus more on – the affective side or the rational side of trust. That is, whether the decisions of compliance are made based on rationally formed risk perception or the emotional trust towards those in charge. This distinction is discussed further in the current study as the distinction between morality-based and performance-based information.

2.1. Understanding the role of performance

The level of trust is considered as a strong predictor of compliance with recommendations and restrictions, especially during crisis times (e.g., Blair et al., 2017; Siegrist & Zingg, 2014). Although the results of various empirical studies are providing evidence in support of this statement, the current research often fails to address the complexity of the concept of trust. While the multidimensionality of trust is often acknowledged in the way that survey studies and the survey questions of trust have been constructed, the different dimensions and levels of trust are usually combined into one index variable in quantitative research, thus making the analysis of trust itself difficult. What is it exactly that is considered trust by the respondents? What types or dimensions of trust actually lead to compliance? Making a distinction between the dimensions of trust is essential to further discuss the antecedents of compliance. This section focuses on the relationship between trust and performance, and how the concepts have been related to compliance in previous research. The importance of performance evaluations is further argued, suggesting that performance might play a bigger role in compliance than previous research often acknowledges.

2.1.1. Performance as a dimension of trust

Different dimensions of trust have been recognised in research, based on different definitions of and views on trust. While the definitions and conceptualisations of trust are contested between scholars, one of the main debates evolves around the question of whether trust is rational or affective, and to what extent these dimensions interact with each other. Some

scholars utilise the distinction between trust and trustworthiness, trustworthiness being judgement of the characteristics, such as e.g., ability, benevolence, and integrity, of the trustee that act as attributes for trust judgements by the trustor (see e.g., Mayer et al., 1995: 716–717). This distinction supposes that trust is different from its drivers, i.e., trust is different from the judgements of another's worthiness of trust and trust itself does not presuppose any specific drivers. Thus, evaluations of performance are separate from trust, but trust is affected by performance evaluations through the judgements of trustworthiness. (Hamm et al., 2019).

Other distinctions of trust consider the concept of trust itself being divided as either morality-based or performance-based, i.e., affective, and rational. One of these distinctions is made between trust and confidence, and it is based on the work of Luhmann (1979). It has been further developed and clarified by Seligman (1998; 2001), who claims that making a distinction between trust and confidence is critical to trust research: confidence is control you have when knowing what to expect in a situation, but trust is needed to maintain interaction when this knowledge is not available (Seligman, 1998: 391). More recently, Earle and Siegrist (2006; see also e.g., Earle, Siegrist, & Gutscher, 2007) have continued the discussion of the distinction between trust and confidence. They argue that while the social contexts in which previous trust research has been done vary, the studies have a common key element; trust judgements are critically depending on the information available. However, this factor is often unacknowledged and ignored when studying the effects of information environments on trust judgements. Thus, the distinction of morality-relevant information and performance-relevant information is applied to the distinction between trust and confidence. (Earle & Siegrist, 2006: 383–386.)

Confidence rests on the knowledge or prediction of other's actions, "predicated on knowledge of what will be" (Seligman, 1998: 392). Confidence is placed in social systems and agreements, based on either the ability to impose sanctions or familiarity, the feeling of sameness with the other. Imposing sanctions could relate to a business transaction, where both parties have clear role expectations and will face sanctions in case of not fulfilling their normative roles. Familiarity includes e.g., certain codes of conduct, certain moral evaluations, or certain ways of being and acting, to produce the feeling of being alike – hence being able to predict the actions of others. While the feeling of similarity might not be true, it helps to build

a narrative of sameness. (Luhmann, 1979: 32–38; Seligman, 1998: 391–393.) The antecedents of confidence are indicated by performance-related information. In addition to familiarity, rules and procedures, this includes e.g., experience, evidence, social roles, ability, and competence. (Earle & Siegrist 2006: 385–386.)

Trust, on the other hand, is a necessity in situations where the other is unknown. Either there is no system for imposing sanctions or there is no sense of or terms of familiarity and sameness. Thus, no predictions on the behaviour of the other can be made and confidence cannot be formed. (Seligman, 1998: 393–394.) Trust is focused on the freedom of action and the free, autonomous individual. While we do not know the other nor feel familiarity with them, trust is the expectation that the other will use their freedom in a way that is in accordance with their personality or, more precisely, the personality they have presented and made socially visible. (Luhmann, 1979: 39–47.) Trust, then, is placed in the freedom of the other to act according to shared values even if no specific acts are expected, whereas confidence has a specific performance criterion. (Earle & Siegrist, 2006: 384–386; Earl et al., 2007: 4–5.) In Luhmann's (1979: 43) words: "It is not possible to demand the trust of others; trust can only be offered and accepted". The definition of trust emphasizes that it is based on social relations, shared values, and group membership. The antecedents of trust, recognized in previous research, are indicated by morality-relevant information. (Earle & Siegrist 2006: 385–386.)

This distinction between trust and confidence argues against the often-held belief of trust asymmetry – i.e., the principle that trust is hard to gain but fragile and thus easy to lose (see Slovic, 1993). While the trust asymmetry principle only makes distinction between positive and negative information, giving performance- and morality-related information equal weight, the distinction of trust and confidence includes the assumption that trust is often dominant to confidence. That is, positive morality-based information may in some cases trump the effect of negative performance-based information – long-term general identities may be more important in some situations than specific short-term experiences (Christensen & Lægreid, 2005: 506). Trust might then be more resilient than the trust asymmetry principle assumes, surviving the decline in confidence. (Earle et al., 2007; 1–2, 21–22).

However, the distinction between trust and confidence has been criticised as being rather amorphous and being one of just semantics (see e.g., Mayer et al., 1995: 713). It could be argued that the distinction is nearly impossible made based on the definitions, and even questioned whether this distinction even exists. In the context of trust in institutions, the distinction seems to be profoundly problematic. The object of trust should be a person, but also an organisation or institution that can be considered to have person-like qualities, like values. The object of confidence, on the other hand, is an organisation or institution, but might also be a person who can be considered to have institutional qualities, like a record of performance. (Earle et al., 2007: 11–12). Thus, based on this definition, it is questionable whether one can have trust in politically and ideologically independent institutions, such as government agencies in certain countries; these institutions do not usually have certain shared personality or values. One can have trust and feel similarity on the spokesperson of said institution but would only be able to have confidence on the institution and its functions as such, based on judgements of past performance, familiarity, and the possibility to apply sanctions.

Performance-related trust and compliance

Different models of trust and compliance have been formed based on the various dimensions and typologies. In their review of previous trust research Earle, Siegrist, and Gutscher concluded that judgements of trust are dependent to the information available to individuals. To fill up the deficit in recognising the role of available information on trust and to unify, specify, and clarify the field of trust research, they propose a dual-mode model of cooperation, the TCC (Trust, Confidence, & Cooperation) model, that is formed based on the distinction between trust and confidence (see e.g., Siegrist et al., 2003; Earle & Siegrist, 2006). The simplified TCC model constructs of two pathways to cooperation: one through trust and one through confidence. In addition to what has previously been established within the work of e.g., Seligman (1998, 2001), Earle et al. (2007) claim that confidence is dependent on trust, i.e., trust precedes confidence and confidence cannot exist without trust. They argue that we as humans all describe within communities; the descriptions of our beliefs are accepted as justified only within groups and communities of trust that created them, thus leading to the blindness of potential rejection of our descriptions within other communities. Our ideas and descriptions are a consequence of being part of a certain community and, therefore, confidence cannot be formed without the existence of trust. (Earle et al. 2007: 4-5.)

In the TCC model, social trust is then supposed to have a direct effect on the perception of past performance and confidence. Although these two pathways to cooperation – i.e., trust and confidence – and the relationship between them have received support in studies conducted within the field of applied risk management (see Earle et al., 2006; Siegrist et al., 2003; Twyman et al., 2008), it is contradictory to what e.g., Rousseau et al. (1998) have concluded on the relationship between calculative trust, that is based on e.g., the other's reputation and evidence of performance, and relational, affective type of trust. That is, according to them, the rational form of trust precedes the affective form of trust, that can only be established through repeated interactions. Hamm, Smidt, and Mayer (2019) applied the MDS model of trust (see Mayer et al., 1995) in the context of political trust[1], receiving support for their hypothesis and suggesting that evaluations of performance are used to make attributions of trustworthiness that then facilitate trust. In the MDS model, trustworthiness has three different dimensions – ability, benevolence, and integrity – that would then have a mediating effect on the relationship between performance evaluations and trust, i.e., performance evaluations would affect the judgements of trust, and not vice versa.

While the assumption of the direction of the relationship between trust and confidence in the TCC model has been contradicted, it offers some interesting implications from the perspective of crisis management. According to the model, the strength of the effect of trust and confidence on compliance is conditional to the level of uncertainty, which Seligman (1998: 393-398) discusses as the idea of system limits; the limits of our ability to predict behaviour. A traditional society is built around high levels of prediction of behaviour, hence high levels of confidence based on familiarity and sanctions. While this means that the predictability is high and the system obligations and responsibilities are mutually recognized, it also assumes that everything outside the system limits is unknown, hence a risk. Therefore, trust itself implies a risk; the risk of not being able to expect reciprocal action within a relationship outside the normative role expectations. Trust can be forward looking, whereas confidence is based on familiarity and past performance; confidence cannot look forward because we are not familiar with the future. As confidence requires less from individuals, i.e., it does not

[1] The MDS model of trust was originally formed to describe interpersonal trust within organisations.

necessarily involve taking a risk and is based on previous experience, it is a more common phenomenon than trust and considered as "the normal mode of operation". (Earle et al., 2007: 5-6). Thus, during times of low uncertainty morality-based information i.e., information that is relevant to trust, is not dominant on compliance. But when the uncertainty increases, in situations such as during a crisis, the role of social trust becomes more prevalent. (Earle et al., 2007: 6-11). However, as noted earlier in the current study, the distinction between trust and confidence could be questioned in regards of if, by definition, social trust can actually exist in politically and ideologically independent agencies and institutions.

2.1.2. Performance in crisis management

Past performance is considered both in political science and in business research to be a factor affecting behavioural intentions. In political context these behavioural intentions are often considered as e.g., the willingness to vote and compliance with the regulations. In organisational context, the wanted outcome is often e.g., the purchase intention or willingness to engage with the organisation. While the outcomes of general behavioural intentions and compliance differ, the concepts still essentially refer to the same thing and the current study aims to gather the previous research conducted within the context of both, to further understand how performance evaluations affect judgements on behaviour. Within both fields, political and business research, the concept of trust is often included in the research, implicating that the evaluations of performance and trust are connected, and, in accordance to what has been previously established in the current study, trust is considered to be one of the main determinants of behavioural intentions also in the field of business research (see e.g., Bowen et al., 2018; Morgan & Hunt, 1994; Vassilikopoulou et al., 2018). However, due to disciplinary differences, what is considered trust in social sciences is often discussed also as reputation in business context.

While considered important within both fields, performance evaluations seem to be considered more salient in organisational crisis management research than in political science. One explanation to this might be the classic distinction between specific and diffuse support by Easton (1965), according to which the established democracies do not have to expect temporary poor performance to affect the continuity of such democracies, as they have a reservoir of diffuse support that by definition does not depend on people's short-term evaluations of political performance. Another possible explanation is the rally-around-the-flag

effect that supposes the public opinion being more favourable towards political leaders during times of crisis. While this increase in support might be strong, it is often not transferring into long-term support (see e.g., Kernell, 1978; Woods, 2011). That is, even if the political performance during a crisis would be lacking or objectively considered as unsuccessful with effects on the citizens' behavioural intentions after the crisis, the government and authorities can usually rely on public support and public compliance during the crisis, thus making it less interesting for scholars to focus on – instead, the focus has been placed on studying the role of trust in compliance during the crisis situations. However, there are some empirical studies that recognise and analyse performance evaluations as a factor in crisis management by political institutions, suggesting that high evaluations of performance lead to higher level of compliance during a crisis situation (Gesser-Edelsburg et al., 2020).

Nevertheless, most of the previous research focusing on performance evaluations in crisis management and the effect to behavioural intentions, i.e., the behavioural effect often discussed as either compliance or cooperation in social sciences, is conducted from the perspective of organisational communication. There are, of course, some limitations on applying the crisis research done in corporate context to a societal crisis. Political and public institutions play in a different field and with different rules than most organisations, and the nature of the crises is often essentially different; from a product-harm crisis to a natural disaster, from a crisis limited to a certain group of people to a crisis that affects the whole of society. As the focus of the current study is not related to the type of the crisis and the crisis response *per se*, but rather the individual perception of the ability of authorities to handle a crisis, if the chosen strategy was correct from the perspective of said individual, and whether they choose to comply with the recommendations, these limitations are not seen as a reason to exclude organisational research from the discussion.

Evaluating performance

It could be argued that it is a generally recognised fact that performance matters in crisis situations; there are a wide range of studies and theories on crisis management and crisis communication, i.e., managing the performance in and the outcome and effects of a crisis. However, evaluating whether performance in crisis management is a success or a failure is problematic. The evaluation of performance is subjective to the evaluator, i.e., there are often winners and losers in crisis management. Scholars debate whether success should be

measured with facts or if it is a matter of perception, and how goals and how they have been met should be assessed. What should be included in the consideration when evaluating success is also a question mark, as some boundaries will have to be set regarding the timeframe and what is included in the evaluation. Finally, one of the most prevalent problems with assessing the success of crisis management is the lack of definitive benchmarks and the knowledge of the possible alternative outcomes, i.e., the 'what ifs' of the situation. (McConnell, 2011: 64–66). Evaluating performance in a crisis is thus difficult and no generally accepted normative framework for assessing the success in crisis management has been formed.[2]

As performance itself is hard to measure, the evaluations of performance are often built into other concepts in organisational literature. One of the most prevalent of these concepts in crisis management research is the concept of reputation, which often refers to a similar concept discussed within social sciences as trust or confidence. Reputation, by definition, is the aggregation of individual's perceptions of how well organisation meets the demands and expectations of stakeholders (Wartick, 1992: 34). That is, it is an aggregate evaluation based on organisation's past behaviours, as Coombs (2007: 164) puts it. Like performance evaluations, reputation is subjective, i.e., reputation might not be common among stakeholders, and it might vary between what type of criteria and interpretations are used. While individuals are primarily focused on how organisations satisfy their own interests, they will also be interested in how other stakeholders' expectations are met, thus affecting their judgements of the organisation's reputation. (Wartick, 1992: 34–35). Reputation is also evaluative itself, meaning it requires a point of comparison, i.e., usually analysing the organisation's ability to meet the stakeholder expectations based on previous knowledge about the organisation (Coombs, 2007: 164). The level of reputation is often divided quite sharply; an organisation can have either a positive ("good") or a negative ("bad") reputation.

Crisis management research is often conducted from the perspective of an organisation, and they study how organisations themselves can affect how their performance in a crisis is evaluated, and how the crisis thus affects their reputation. A variety of different theories and

[2] For an innovative framework for assessing success in crisis management, see McConnell (2011).

frameworks for choosing the appropriate crisis responses, such as the Situational Crisis Communication Theory (SCCT) by Coombs (2007; see also e.g., Coombs, 1995), have been developed. SCCT, and theories like Benoit's Image Restoration Theory (see e.g., Benoit, 2015), are focused on the communicative actions in the post-crisis phase with a goal to restore or protect the organisation's reputation. The core idea of SCCT, for example, is to understand the crisis situation and crisis type and adapt the response to best protect the organisational reputation. In essence this means that crisis responsibility[3] should be used to determine the most effective and appropriate response strategy to protect the organisation's reputation (Coombs & Holladay, 2005: 263). From the organisation's perspective, reputation is then considered as the asset that should be protected in the course of a crisis as it comprises of stakeholder evaluations of past behaviour, crisis responsibility, and the perceived appropriateness of the crisis response (Coombs & Holladay, 2001). It could be argued that reputation is, at least to some extent, the outcome or a reflection of stakeholder evaluations of organisation's performance; a good performance history suggests a good reputation, whereas bad performance suggests a negative reputation (Coombs & Holladay, 2001: 334–335). On the other hand, good previous reputation of an organisation leads to better postcrisis reviews than those organisations with bad previous reputation (Kiambi & Shafer, 2016: 141–142).

There is some evidence from previous research that the performance evaluation should not only include the performance history of an organisation but also the relationship history, when discussing the perceptions of a crisis situation (Coombs & Holladay, 2001). A personal relationship with the organisation affected by the crisis might even trump the effect of performance evaluations when it comes to placing blame on the organisation. Those individuals with a positive relationship with the organisation are less likely to place blame on the organisation, despite the theoretical appropriateness of the chosen crisis response strategy, than those with a negative relationship. (Brown & White, 2010). A study by Bowen et al. (2018) implicates that the connection between judgement of the appropriateness of crisis response and behavioural intentions is strongly mediated by trust when the respondent feels closely associated with the brand, i.e., a domestic bias exists. The respondents with no

[3] Crisis responsibility refers to the extent to which stakeholders believe the organisation's actions caused the crisis (Coombs, 1995: 449). The concept of crisis responsibility is often discussed also as the attribution of blame (see e.g., Vassilikopoulou et al., 2018).

particular involvement or personal closeness with the brand were less likely to build trust through the crisis response and were more likely to have an immediate and direct effect on their behavioural intentions through the perceived appropriateness of the crisis response. While this domestic bias is powerful, it is not always favourable; the harmful effects of a low evaluation of the crisis response are weakened, but the bias also results in weaker positive effects of good evaluations. (Bowen et al., 2018: 233-234). However, Coombs and Holladay (2001: 335) argue that it is not a matter of positive relationship rather than avoiding a negative one; when no performance history is given, i.e., the relationship is neutral, the organisation is given the benefit of the doubt and a positive history, i.e., a more positively evaluated reputation, is assumed. A negative performance history has what Coombs and Holladay call the velcro effect, as it tends to attract additional reputational damage. Thus, previous bad performance leads to more negative judgements of the future performance.

Performance evaluations and behavioural intentions

As Coombs (2007: 169) said, *"If crises altered reputations and create affect but did not impact behavioural intentions, there would be no reason to worry about the effects of crises"*. Thus, the altered reputations and therefore the evaluations of performance are bound to have an effect on individuals' behavioural intentions. The potential supportive behaviour or other behavioural intentions of stakeholders are predominantly functions of the organisation's prior reputation and judgements of the appropriateness of the chosen crisis response strategy (Coombs & Holladay, 2001; Kiambi & Shafer, 2016; Lyon & Cameron, 2004). Thus, the stakeholders' behavioural intentions in the crisis context could be considered as the outcome of evaluations of past performance and the evaluations of how well the current crisis has been responded to, i.e., the performance during the crisis at hand. The effects of the organisational reputation on individuals' attitudes and behavioural intentions are both short- and long-term, suggesting that reputation should be maintained constantly (Lyon & Cameron, 2004: 232–233).

Many empirical studies have been conducted to explain the relationship between performance or as concluded earlier, the organisational reputation, and behavioural intentions. Similarities to the theories of cooperation and compliance presented earlier in the current study are obvious; trust is often discussed as a mediating or even prevalent variable in the relationship, and poor evaluations of performance, and therefore the declined reputation, are thought to

lead to negative behavioural intentions – e.g., behaviour that aims for revenge, avoidance of the organisation's products and services, or negative word-of-mouth (Bowen et al., 2018; Cheng & Shen, 2020; Coombs & Holladay, 2005; Lyon & Cameron, 2004) – similar to what could be considered as sanctions in the context of the trust and confidence dilemma. In addition to the previously described theories, crisis communication research includes the idea of emotions, especially anger, evoking from the judgements of organisation's crisis responsibility (Coombs & Holladay, 2005, 2007). Anger is more likely to evoke in crises where the organisation is considered to have high levels of crisis responsibility, and stakeholders feel their expectations have not been met. According to Coombs and Holladay (2007), anger is the driver of aforementioned negative behavioural intentions and the fuel for a phenomenon they call the negative communication dynamic. That is, while in most crises stakeholders forget about the crisis fairly soon and the behavioural intentions, usually the purchase intention, will return to the pre-crisis level, in crises where high crisis responsibility evokes strong feelings of anger in the stakeholders, the anger felt might lead to negative word-of-mouth by the stakeholders affected. The negative communication dynamic enables the spread of the negative emotions and behavioural intentions between people in public discussions online and in face-to-face interactions, causing potential damage to the organisation's reputation well after the initial crisis.

2.2. Trust, performance, and compliance in the current study

Taking from what we have learned from the previous studies, the research questions presented in the beginning of this study are revisited and hypotheses are developed. A conceptual model is formed and further elaborated on.

2.2.1. Hypotheses

In the light of the reviewed literature, the research questions presented in the beginning of the current study should be revisited. As described throughout the paper, the question of the relationship between performance evaluations, trust, and compliance has been studied from various perspectives and within several disciplines. While no clear consensus on the relationship has been reached, some hypotheses based on the previous research can be formed. First, based on the extensive literature reviewed, it seems evident that evaluations of performance have, to some extent, effects on people's willingness to comply with regulations, also during crisis situations. Earle et al. (2007: 5–6) see performance-information as a driver

of cooperation in the "normal mode", i.e., times of low social uncertainty, and failure to meet the normative expectations set to an organisation or an institution leads to sanctions, thus negative behaviour towards the said organisation or institution. Coombs (2007) sees performance evaluations through the organisational reputation and as a key determinant in individual's behavioural intentions during and after a crisis. Protecting organisational reputation, i.e., performing well or according to stakeholder expectations, during a crisis generates beneficial behaviour, and as Coombs (2007; see also e.g., Coombs & Holladay, 1996) further argues, bad reputation, i.e., negative evaluations of performance, affect negatively to supportive behavioural intentions. Thus, the following hypothesis is suggested:

[H1]: Performance evaluations are positively related to compliance.

The second research question referred to how trust and performance evaluations together affect compliance in crisis situations. Results from empirical studies conducted during recent pandemics imply that trust in authorities and the government affects the likelihood of adopting recommended behaviour during crisis times (e.g., Devine et al., 2020; Siegrist & Zingg, 2014) and models have been set to place to understand the relationship between trust and cooperative behaviour (see e.g., the TCC model by Earle et al., 2007). Thus, trust is assumed to affect the level of compliance in a positive manner. The relationship between trust and performance evaluations has been discussed as performance being a dimension of trust, i.e., performance-based trust (Earle et al., 2007; Earle & Siegrist, 2006; Seligman, 1998; Siegrist et al., 2003), and performance-related attributions of trustworthiness, which then drives trust (Hamm et al., 2019; Hardin, 2002; Mayer et al., 1995). Despite the way of conceptualising how performance evaluations relate to trust, both ways assume that performance evaluations eventually affect compliance; either directly as pictured in the trust–confidence based TCC model (Earle et al., 2007), or through trust, by affecting the evaluation of trustworthiness (Hamm et al., 2019). Thus, performance evaluations and trust are assumed to have positive correlation. However, trust does not equal to performance evaluations; while performance evaluations are made within the context of the current crisis situation, trust is formed over time and is not built within the crisis. The results by Bowen et al. (2018) showed domestic bias when measuring if trust mediates the relationship between perceived appropriateness of crisis response and behavioural intentions. That is, when the respondent

felt involvement or personal closeness with the brand or organisation, i.e., had a previous positive relationship with the organisation, the effect of the perceived appropriateness is mediated by trust. Borrowing from Slovic (1993) and the distinction between positive and negative information, i.e., trust building and trust destroying information; positive evaluations of performance would then build trust and the effects on compliance are thus mediated by trust, when negative evaluations of performance would be expected to destroy trust. However, as there is no clear consensus on the relationship and the results of previous studies contradict each other, the current study does not make any hypotheses on the relationship between performance evaluations and trust. Instead, based on extensive empirical evidence on how trust affects compliance, the following hypothesis is made:

[H2]: Trust in authorities is positively related to compliance.

Finally, to analyse the third research question of how the relationship between performance evaluations, trust in authorities, and compliance in crisis situations changes over time, the current study sets the following hypotheses. First, the current study assumes the existence of the rally-around-the-flag effect (see e.g., Kernell, 1978; Woods, 2011) in the data; the performance evaluations and the level of trust are assumed to appear high in the first wave of the panel, in line with what e.g., Johansson & Vigsø (2021) have noted about the changes in public opinion in Sweden during the COVID-19 pandemic. This is also in line with the organisational aspect, where Coombs and Holladay (2001: 335) suggest that in case of missing performance history, the organisation is given the benefit of the doubt and positive history is assumed. That is, when no experience in the authority's ability to handle a crisis or evidence of previous good performance exists, the authority is assumed to have the necessary experience and ability. However, the rally effect is not assumed to affect performance evaluations in the extent of which it affects trust, as studies suggest that within the relationship of trust and performance, trust prevails during times how high social uncertainty (Earle et al. 2007). As the crisis gets normalised over time, the public learns new information about the causes of the crisis and gets evidence of the authority's performance during the crisis, the rally effect will diminish. Thus, people will move back towards the "normal mode" of operation (Earle et al. 2007: 5–6) that is making cooperative decisions based on performance-related information rather than trust. The longer the crisis continues, the lower

the evaluations of performance are expected to be; if the crisis is ongoing, the organisation has not met with its stakeholder's expectations (Wartick, 1992) that would most likely to be the resolution of the crisis, or in the case of the pandemic, to slow down the spread of the virus. Declining performance evaluations lead to lower levels of compliance, and as trust destroying events, they could lead to decrease in the level of trust.

> **[H3a]:** The effect of trust in authorities on compliance is stronger during the beginning of the crisis when information of performance history is limited.
> **[H3b]:** The effect of trust in authorities on compliance is weaker later in the crisis when more information on performance history becomes available.

> **[H4a]:** The effect of performance evaluations on compliance is weaker during the beginning of the crisis when information of performance history is limited.
> **[H4b]:** The effect of performance evaluations on compliance is stronger later in the crisis when more information on performance history becomes available.

2.2.2. Conceptual model

Based on the suggested hypotheses, a conceptual model is presented. The model consists of all three waves of the study and visualises the relationship between the three main variables. In the model, compliance is the dependent variable and performance evaluations and trust in authorities are the independent variables. As suggested in H1 and H2, both independent variables are expected to have a positive relationship with the dependent variable. Thus, when performance evaluations or trust in authorities increases, so does compliance, and when performance evaluations or trust in authorities decreases, so will compliance.

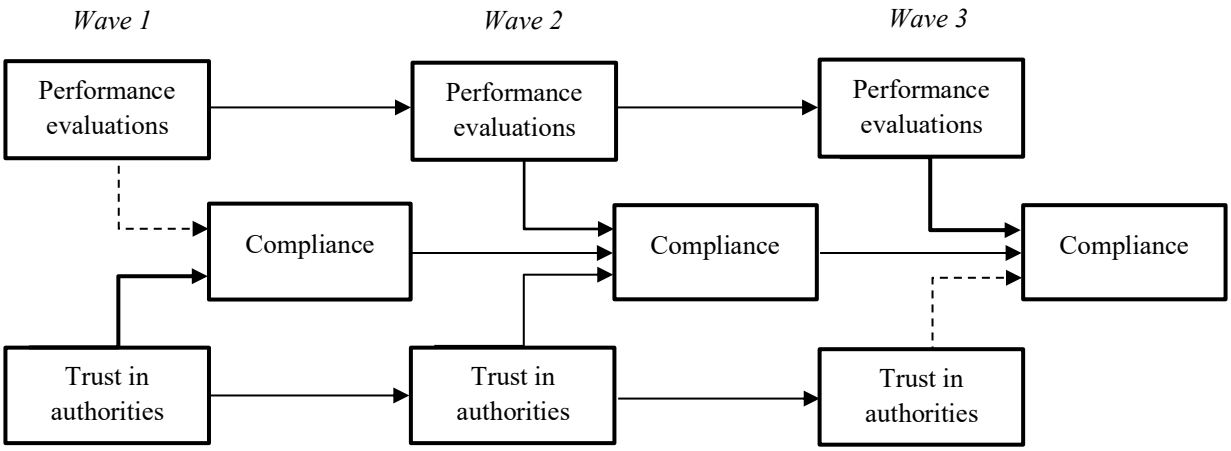

Figure 1 *A conceptual model*

The conceptual model visualises the expected change in the relationship between the dependent and independent variables over time suggested by H3ab and H4ab. That is, in the first wave, trust in authorities has a stronger effect on compliance than performance evaluations, and the effect diminishes over time and by the third wave. Performance evaluations are expected to have a weaker effect on compliance in the first wave, overruled by trust, with the effect to compliance strengthening over time and by the third wave, as the crisis gets normalised.

3. Methodology

The current chapter first presents a short summary and important background information of the case examined in the current study alongside with the data used for the statistical analysis. Further, it describes and argues for the main variables used in the study as well as analyse the data as a whole, assess its validity, and fit to the chosen research approach.

3.1. Research approach

To better understand the context of the current study and to make meaningful implications based on the analysis of the results, it is essential to note the general and individual features of the environment in which the study has been conducted. A short introduction to the political and cultural context of Sweden follows, with a concise timeline of the changes in public opinion towards the government and government agencies in Sweden during the COVID-19 pandemic, following the work of Johansson and Vigsø (2021). The data used is presented and its limitations and suitability for the analysis are assessed, and the chosen method for analysis is discussed. The regression model and the methods of data preparation are presented.

3.1.1. Sweden and the COVID-19 crisis

Sweden is by population the largest of the Nordic countries, and by Hallin and Mancini's (2004) model of media systems, considered as one of the Democratic Corporatist cluster. That is, the Swedish media environment is described as one to have a rather low level of political pluralism and a high level of journalistic professionalism, press freedom, and professional autonomy. The free flow of information is given a strong value, and there is a culture of heavy consumption of information about public affairs. Political information is usually highly valued, and while the state intervention in the media market is relatively high, the media still enjoy strong autonomy. This media system model could be seen as a starting point, a view of what could be expected, but it should not be forgotten that there have been continuous changes in the political and media environment since the publication of the model by Hallin and Mancini in 2004. However, it can still be argued that the Swedish population should by default have access to rather objective information about public affairs, have the culture of consuming this type of information, and thus be able to make relatively informed judgements on the performance of the government and public authorities.

The responsibilities of public administration are spread among different entities in Sweden, and Swedes have in general a high trust in public authorities. The political system is highly decentralised, power and responsibilities being distributed between the government, public agencies, 21 regions, and 250 municipalities. The Swedish legislation does not allow the government to take over and centralise authority during crisis time unless a war is declared. The Swedish agencies are highly autonomous, and therefore their actions cannot be directly controlled or commanded by the government, even during a crisis like the COVID-19 pandemic. (Johansson & Vigsø, 2021: 156, 162). Therefore, the management of the crisis and the public discussion around the performance of those managing the crisis has remained relatively non-politicised in Sweden, compared to many other countries even within the European Union.

Before the beginning of the COVID-19 pandemic, the support for the Swedish government, formed by a coalition between the Social Democratic party and the Green Party, was at an all-time low, with a total of 27 to 28 % support for both the parties combined[4]. (Johansson & Vigsø, 2021: 155). As the pandemic reached Sweden in late February 2020, the public opinion towards the government was strongly affected by the rally-around-the-flag effect in the following months – the support for the Social Democrats alone increased to over 30 %. This rally effect was also extended to the public opinion on government agencies. The Public Health Authority (PHA) was in charge of issuing recommendations, and their strategy was widely based on scientific evidence, leading to Sweden taking its own path in managing the pandemic. The strategy relied on the responsibility of individuals and was generally framed in media as the sensible way of handling things, even when faced with criticism from other countries. Some researchers and experts were expressing criticism towards the crisis strategy, but they were rather alone until the end of May 2020, when the choice of strategy started to receive more criticism as the death toll kept increasing. The PHA was criticised for a cold-hearted way the deaths were presented in the daily press conferences, while at the same time assuring that the strategy was working, and Sweden was moving to the right direction. The strategy described before as rational and based on scientifical evidence started to seem like an exception in a negative sense. Later on, the criticism on the crisis leadership and choice of

[4] In February 2020, the support for the Social Democrats was 23%, and the support for the Green Party was 4-5%. (Johansson & Vigsø, 2021: 155)

strategy kept increasing, and politicians started to take stands on the matter. The lack of government leadership during the crisis became a more salient topic, and thus the overall management of the crisis started to be framed in a critical light in public discussions. (Johansson & Vigsø, 2021: 155, 162–163).

3.1.2. Data

The data used in the current study is collected through The Swedish Citizen Panel run by the Laboratory of Opinion Research (LORE) at the University of Gothenburg [5]. The panel consists of around 75,000 active adult respondents all around Sweden, who take part in surveys and experiments few times each year. Most of the participants in the panel are recruited through non-probability processes. While the respondents have signed up themselves for the panels, they usually represent higher education background and political interest than the Swedish population in general. The sample is not therefore necessarily representative of the population at large, which should be taken into consideration when interpreting the results of the analysis. However, as the current study does not aim to describe the actions of the population rather than measure the variation between variables, this limitation is not considered crucial in that sense. The dataset has been successfully used in other studies (see e.g., Esaiasson et al., 2020), thus suggesting that the way the survey has been conducted and how the data has been constructed is working for the research purposes.

The dataset analysed in the current study consists of a panel survey conducted in three waves: the first wave (t^0) collected through February and March 2020 (n= 11,406), the second wave (t^1) collected through September and October 2020 (n= 10,226), and the third wave (t^2) collected in December 2020 (n= 5,267). The current study considers cases of respondents, who have started and finished all three waves (n= 4,322) and answered all the considered questions (n= 4,187), to make sure the analysis follows the change on the same individuals over time. All three waves include same questions and measures of the included variables in the study. It is, however, worth noting that the first wave of the survey t^0 included an experiment of priming effects on trust (see Esaiasson et al., 2020), leading to the questions used in this study to be separated into different variables between the groups. As the priming

[5] More information accessible in: https://www.gu.se/en/som-institute/the-swedish-citizen-panel/about-the-swedish-citizen-panel

experiment was found to have no effect, these variables in t^0 are transformed into same variables to include all cases despite belonging to the experiment group or the control group. As the surveys are aimed to Swedish respondents, the questionnaire is provided in Swedish, and the English translations presented in the current study are done by the author. Thus, it should be considered that the semantics of the questions might be interpreted differently within the languages. The original questions used in the survey are visible in Appendix 1.

3.2. Data analysis

The statistical analysis for the current study is conducted with the statistical analysis software IBM SPSS Statistics, version 27. The choice of method for analysis in the current study is presented in this section, as well as presenting the other ways the data has been analysed.

3.2.1. Choice of method

For the use of the current study, a logistic regression model is constructed based on the conceptual model presented earlier in this paper. Regression modelling can be used to the purpose of predicting the value of the dependent variable, from the knowledge of the values of one or several independent variables. Together with variance analysis, regression analysis is one of the most often used statistical technique. (Ryan, 2009: 1). Logistic regression model can be applied when the dependent variable is limited to have only certain possible values, i.e., usually that something happens or something does not happen, thus options yes or no. In this case, as the dependent variable in the model is compliance, a categorical variable measured on a two-point scale as described later, a logistic regression model should be used instead of the ordinary least squares (OLS), i.e., linear, regression model. (Ryan, 2009).

Logistic regression models produce a function graph shaped like a "S-curve" and differ from the OLS regression in the way the results can be analysed. Whereas in linear regression the R-squared (R^2) value is used to determine the value or worth of the regression model in how much of the variance in the dependent variable the independent variables cause, this R^2 value is not reliable and should not be used when analysing the worth of the model. The deviance is a logistic regression's correspondent to the SSE in linear regression, thus measuring the goodness-of-fit in the regression model. (Ryan, 2009). One way to measure the goodness-of-fit with the logistic regression model is the Hosmer-Lemeshow test (Peng et al., 2002), that will also be used in the current study as it is considered as the most reliable test to measure

the goodness-of-fit of the logistic regression model. The Hosmer-Lemeshow statistic indicates a poor fit of the model if the significance value is less than .005.

In addition to the goodness-of-fit testing, other measures used to analyse the results of the logistic regression model are the Wald statistic test and the odds ratio, i.e., the exponentiated coefficient. Due to the nature of the coefficient value in logistic regression it might be hard to interpret, thus the above-mentioned measures are used. In a simplified manner, the Wald statistic measures if the measured coefficient is significantly different from zero, thus the null hypothesis of no effects. The odds ratio or exponentiated coefficient, Exp(B), measures the likelihood of a certain value appearing when the measured variable increases by one point on the scale. That is, if the dependent variable gets values 0 and 1, the odds ratio X is how much more likely the dependent variable receives value 1 over the value 0 when the measured variable increases by one scale point.

3.2.2. Regression model

The regression model used for the current study constructs of three waves, each including five separate models. In the first model, the dependent variable is tested with the independent variable of trust in authorities. In the second model, the dependent variable is tested with the independent variable of performance evaluations. In the third wave, the dependent variable is tested with both of the previously mentioned independent variables. In the fourth wave, the dependent variable is tested with the control variables. In the fifth and final wave, the dependent variable is tested with both the independent variables of trust in authorities and performance evaluations, and the control variables. These five models are run to each of the three panel waves individually.

3.2.3. Data preparation

Before conducting the logistical regression analysis to the data, the dataset undergoes some tests and preparing. First, the dependent, independent, and controlling variables are chosen, and necessary editing is done. This includes marking the missing values, creating sum variables, and reversing measurement scales. Some general tests are run to further describe the data, and to make sure the dataset is suitable for the analysis and method chosen. Regular descriptive statistics are drawn from the variables used in the analysis and the normal distribution of the variables is tested with the Kolmogorov-Smirnov test. The relationships

between the main variables are tested and confirmed with crosstabulations and by conducting Pearson's r correlation tests. Lastly, the model is run through an OLS regression, to get an elaborate view of the model, before running the logistic regression model. The OLS regression model is run by the dependent, independent, and controlling variables to further analyse the suitability of the data for the use of the logistic regression model. The model is run for each wave, using the compliance variable of staying at home, thus social distancing, as the dependent variable. Results of the OLS regression are used to analyse the appropriateness of the logistic regression model. A short summary of the results on the OLS regression are presented in Appendix 2, however introducing similar results to the logistic regression model presented later in the current study.

3.3. Key variables

This section further describes how the key variables of the current study have been formed and presents how these variables have been measured in the survey. The choice of variables is further argued, and the formed index and dummy variables are described.

3.3.1. Performance evaluations

The independent variable of performance evaluations is formed based on the idea that the evaluation of an organisation's performance in crisis is a combination of evaluations of past performance, thus the assessment of the ability to handle a similar crisis, and the assessment of the appropriateness of the current crisis response, i.e., the evaluation of performance during the crisis. Aggregated from the review of previous research, the performance evaluation variable brings together the considerations of the importance of past performance and ability (see e.g., Earle et al., 2007; Hamm et al., 2019; Mayer et al., 1995), and the organisational view of how stakeholders perceive the chosen crisis response strategy (see e.g., Bowen et al., 2018; Coombs, 1995). Combining these aspects of performance is assumed to deliver a comprehensive view on the concept of performance evaluations.

The index variable for performance evaluations is constructed from two questions. First, the question of *"In general, what confidence do you have in the authorities' ability to handle a serious crisis or a disaster in Sweden?"* to measure the general evaluation of the ability of authorities to handle a crisis. Second, the question of *"How much confidence do you have that Swedish politicians and authorities are handling the outbreak of coronavirus in Sweden in the*

right way?", where only the answers for the second part of the question *("Authorities")* is included. The second question aims to measure the evaluation of the appropriateness of the crisis response, thus performance, in the ongoing crisis. Both questions are measured on a 5-point Likert scale where 1 is equal to "*Very high confidence*", 2 is equal to *"High confidence"*, 3 equals to "*Neither high or low confidence*", 4 equals to *"Low confidence"*, and 5 equals to "*Very low confidence*". For the sake of clarity during the analysis, the scale has been reversed, so that 1 is equal to "*Very low confidence*" and 5 is equal to "*Very high confidence*". The two variables were strongly correlated throughout the waves, measured with Pearson's r *(*t^0: r = .773**; t^1: r = .714**; t^2: r = .755**. **= p<.01, n= 4,187*)* and were therefore used to create index variables of performance evaluations for each wave.

3.3.2. Trust in authorities

Trust in authorities, the other independent variable, is measured in the survey with a question *"In general, how much do you trust the Swedish authorities?"*, and the answer options are given on a 5-point Likert scale where answer option 1 is equal to "*Very high trust*", 2 equals to *"High trust"*, 3 equals to "*Neither high or low trust*", 4 equals to *"Low trust"*, and 5 equals to "*Very low trust*". For the sake of clarity during the analysis, the scale has been reversed, so that 1 is equal to "*Very low confidence*" and 5 is equal to "*Very high confidence*". Trust in government or politicians is not included in the analysis, as the focus of the current study is on the trust for politically independent agencies. Relating to the case, including these forms of trust is not considered as fruitful, as the main responsibility of the crisis management in Sweden has been with the government agencies rather than the government or politicians.

3.3.3. Compliance

Compliance, as the dependent variable, is measured with questions regarding the protective measures taken by citizens, following the recommendations of public authorities. In this survey the question is presented in the form of *"Have you ever taken the following measures due to the coronavirus during the last month?"* with the response options like "*Become more careful with hand hygiene*" and *"Stayed at home"*. "*Become more careful with hand hygiene*" is the only option that has been consistently recommended by the Swedish authorities throughout the COVID-19 pandemic. The option *"Stayed at home"* is a bit problematic, as while avoiding public gatherings and limiting social contacts has been recommended, staying at home is actually only recommended when having symptoms of any kind

(Folkhälsomyndigheten, 2021). However, even if the current study aims to analyse the actual effect of authorities' recommendations to compliance, the current study acknowledges that there have been three generally recommended behaviours to slow down the spread of the pandemic: good hand hygiene, social distancing, and wearing facemasks. While handwashing has been recommended, it has lost salience in the public crisis communication over time, and the use of face masks has not been salient in the public discussion in Sweden during the first two panel waves. This study assumes that the option "*Stayed at home*" is interpreted measuring social distancing, which is also recommended by the authorities throughout the pandemic and has stayed salient over time. Social distancing includes avoiding social contacts and unnecessary gatherings, to which staying at home could be considered as the equivalent to. Both options *"Stayed at home"* and *"Become more careful with hand hygiene"* are considered in the pre-analysis and controlled for relationships with the independent and controlling variables, but as later argued in this paper, the current study uses the option "*Stayed at home*" as the dependent variable in the eventual regression analysis. The sample including "*Stayed at home*" as the dependent variable is slightly smaller (n= 4,187) than the one using only "*Become more careful with hand hygiene*" (n= 4,213), due to some missing answers on these questions. Only those respondents answering all the questions throughout the waves are included, as to make sure that the regression model is following the change in same individuals over time. The option "*Become more careful with hand hygiene*" is later discussed in this paper as the handwashing compliance variable, and the option "*Stayed at home*" as the social distancing compliance variable.

The variables of compliance are measured on a dichotomous scale, with answer options where 1 is equal to "*Yes*" and 2 is equal to "*No*". Due to the chosen method of analysis, dummy variables should be constructed. In these dummy variables, the answer option *"No"* is used as a control, thus coded as 0, and the option *"Yes"* is coded as 1.

3.3.4. Control and socio-demographic variables

Some control variable is included in the analysis to draw out other possible explanations when measuring the relationship between the key variables. The sociodemographic variables used in this study are sex, age, and education level. These variables are presented and argued for.

General trust

As argued earlier in the current study, different types of trust are often highly correlated. One of the main determinants of other types of trust, like political and institutional trust, is considered to be the general trust or social trust. That is, how much trust does one have in general to other humans. To control the effects of the variable trust in authorities, general trust is included in the analysis. In the survey, general trust is measured with the question "*In your opinion, to what extent is it possible to trust people in general?"*, response alternatives given on a 5-point scale where 1 is equal to *"People cannot be trusted in general"* and 5 equals to *"People can be trusted in general".*

Sex

Sex is measured on categorical scale where 1 is equal to "*Woman*", 2 equals to "*Man*", and 3 equals to "*Other*".

Age

Age is divided in six categories, where 1 consists of those "*Under 30 years*", 2 equals to "*30-39 years*", 3 equals to "*40-49 years*", 4 equals to "*50-59 years*", 5 is equal to "*60-69 years*", and 6 equals to "*70 years or older*".

Education level

Education level is measured on nine categories, where 1 is equal to "*Not finished elementary school*", 2 equals to "*Elementary school*", 3 equals to "*High school or similar, under 3 years*", 4 is equal to "*High school or similar, 3 years or longer*", 5 equals to "*Education after high school, not university or college, under 3 years*", 6 equals to "*Education after high school, not university or college, 3 years or longer*", 7 is equal to "*College or university, under 3 years*", 8 equals to "*College or university, 3 years or longer*", and 9 equals to "*Degree from postgraduate education*".

4. Results and Analysis

This chapter presents the results of the statistical analysis conducted on the previously introduced dataset and methodology. First, the data is analysed with basic descriptive tests and some pre-analysis tests are run, to create a better understanding on the features of the data. Then the results of the logistic regression are presented and analysed. Lastly, conclusive points of the results are made and discussed.

4.1. Descriptive overview

This section presents the descriptive statistics and other descriptive tests run to the test, to give better understanding on how the data is distributed and what the starting point for the regression analysis looks like. The directional correlations between variables are presented and the results from the OLS regression are summarised.

4.1.1. Descriptive statistics

Running standard descriptive statistics to the data gives general information on how the data is divided within variables. All the main variables and control variables are included in the descriptive statistics. The results of the descriptive analysis are visible in Appendix 3.

The mean of the performance evaluations seems to be decreasing in the course of the waves. During the first wave, the mean of performance evaluations is at its highest (M=3,92), but on the third wave it seems to be going down relatively lot (M=3,45). However, also the standard deviation increases from wave one (SD=.99) to wave three (SD=1,10), suggesting that the observations in the third wave are less close to the mean than in the first wave. The descriptive statistics show that the level of trust in authorities and the level of general trust are both relatively high within the respondents, even in the later waves. This is no surprise, as the level of trust in those in power in Sweden is generally high at all times. The standard deviation also stays rather same between waves. Compliance measured with the handwashing in the first wave is by mean relatively higher (M=.95), thus closer to the option "*Yes*", than in the later waves (M=.88). However, as with performance evaluations, the standard deviation of hand washing increases from the first wave (SD=.22) to the third wave (SD=.33). When compliance is measured with staying at home, thus social distancing, the mean is similarly relatively higher (M=.85) in the first wave, but then it decreases on for the second wave

(M=.65) and increases again for the third wave (M=.80). Same pattern, although vice versa, is visible in the standard deviation; in the first and third waves the deviation is relatively low (t^0: SD= .36; t^2: SD= .40) compared to the second wave (SD= .48). The mean and standard deviation thus follow the pattern of the pandemic in Sweden during the waves, as the initial crisis phase, the first wave of the pandemic, dates to the first wave of the panel study, whereas there was a calm phase during the second wave, and again another more acute phase, the second wave of the pandemic, during the third wave of the panel study.

Noteworthy is also the division between the respondents' socio-demographics. Most respondents are men (M=1,7), and the mean age is relatively high (M=4,65). Those with higher education levels, especially those with college or university level education of over three years (n=2,547), are overrepresented in the sample (M=7,07), as could be expected based on how the panel has been constructed. Thus, the results of this analysis cannot really be generalised to the society as a whole, as the respondents represent a very narrow sample. However, as argued earlier, this should not necessarily be concerned as a critical limitation, as the main object of the current study is to analyse the general relationships between variables and their changes over time.

The normal distribution of the variables was measured with the Kolmogorov-Smirnov test, as the sample size is over 50. However, as could be expected with the data at hand, all the included variables are not normally distributed, with significance level .001 on all variables. Thus, the null hypothesis, being that the variables are normally distributed, has to be rejected.

4.1.2. Correlations

The relationships between the main variables used in the analysis of the current study are confirmed with running simple Pearson's r tests on the variables within the individual panel waves. During the first wave, both the performance evaluations and trust in authorities are strongly and significantly related (r= .798**[6]), and in relation to compliance as handwashing both performance evaluations (r= .134**) and trust in authorities (r= .135**) are significantly related. Measured with compliance as in social distancing, performance evaluations (r= .042**) and trust in authorities (r= .076**) are relatively weakly correlated to compliance, the

[6] *= p<.05. **=p<.01.

relationship still being significant. The social distancing and washing hands compliance variables are also significantly correlated with each other (r= .184**), however, surprisingly weakly. From the control variables, performance evaluations significantly and positively relate to general trust (r= .395**) and education level (r= .099**), as does trust in authorities (r= .415**; r= .143** respectively). Both performance evaluations (r= -.155**) and trust in authorities (r= -.127**) are negatively and significantly related to the sex variable. Same pattern goes with the compliance variables; handwashing is significantly related to general trust (r= .071**), sex (r= -.056**), and education level (r= .120**), as is social distancing (r= .037*; r= -.047**; r= .120** respectively). Only social distancing from the main independent and dependent variables is significantly related to the control variable of age (r= .099**).

On the second wave, performance evaluations (r= .071**) and trust in authorities (r= .070**) are again significantly correlated with the handwashing compliance variable, as well as with each other (r= .748**). Same goes with the social distancing compliance variable and trust in authorities (r= .045**), but the correlation between performance evaluations and social distancing is weak and not significant (r= .018). Similar to the first wave, the social distancing and handwashing variables are significantly correlated (r= .238**) also on the second wave. The control variables relate to the independent variables relatively same as in the first wave, without major changes. However, when controlling the dependent variables, handwashing only correlates significantly with education level (r= .050**) and general trust (r= .037*), thus no longer having significant relationship with sex. Social distancing correlates significantly with education level (r= .109**), and has a negative and significant, yet rather weak, relationship with age (r= -.043**).

The third wave shows similar results with the relationship between performance evaluations and trust in authorities, with the correlation being strong and significant (r= .760**). Same goes with the relationship between the compliance variables of handwashing and social distancing (r= .226**). However, the relationship between trust in authorities (r= .021) and handwashing, same as with handwashing and performance evaluations (r= .009), seems to disappear as the correlation is very weak and insignificant. Similar pattern shows with the social distancing variable and performance evaluations (r= .024), but the correlation with trust in authorities (r= .061**), while being weak, is still significant on the significance level .01.

The relationship between the control variables and the independent variables remains rather same, except that trust in authorities collates negatively and significantly with age (r= -.060**) on the last wave. From the dependent variables, social distancing is negatively and significantly related to sex (r= -.069**) and age (r= -.048**), and positively and significantly to education level (r= .104**) and general trust (r= .055**). However, there is no significant correlation between any of the controlling variables and the compliance variable of handwashing in the third wave, suggesting that there might be some issues with the measure of handwashing during the third wave. This might be due to how the question has been phrased in the survey and the eventual ceiling effect, as the question asks if the respondents have taken the measures, in this instance if they have become more careful with hand hygiene, in the past month. That is, if a respondent has adopted good hand hygiene already in the first panel wave, they might not become "more careful" in the following panel waves. Some effect might also be from the decreased salience in public crisis information about the importance of good hand hygiene. The reasons for the dysfunction of the handwashing variable are further discussed later in the paper with the limitations of the current study. Due to the issues with the compliance measure "*Become more careful with hand hygiene*", i.e., the disappearing of significant relationship between the dependent and independent variables, the handwashing compliance variable is excluded from further analyses and the final logistic regression model, and the dependent variable of "*Staying at home*", as in the social distancing variable, is included in the final statistical analysis model.

4.2. Logistic regression

This section presents the logistic regression model used for the statistical analysis for the current study. The way the model has been formed is presented, alongside with the results from the analysis. The results are further analysed and discussed, and conclusive remarks are drawn as answers to the hypotheses presented earlier.

4.2.1. Logistic regression model

The variables included in the regression model are the independent variables of trust in authorities and performance evaluations, and the dependent variable of compliance as in the option of "*Staying at home*", interpreted as the action of social distancing. The control variables used to test the relationship between the main variables are general trust, sex, age, and education level. As discussed earlier, the compliance variable of the option "*Become*

more careful with hand hygiene" is excluded from the analysis as being problematic and considered not fitting the regression model based on the pre-analysis done on the variables.

The regression model for the current study is constructed of three waves, one equivalent for each panel wave. As presented earlier, each individual wave constructs of five different models: one for each independent variable, one for the independent variables together, one for the control variables, and one for all the included variables. Each wave is run independently, but through sample filtering it is made sure that all the waves include the same respondents (n= 4,187). The variables used include the same questions, phrased similarly, and measured on the same scales. Therefore, the results from each three regression waves can be compared with each other.

4.2.2. Regression waves

Each regression wave is independently presented, with tables included on the results throughout the five models. The results from the logistic regression models are analysed and discussed.

First wave

On the first panel wave, thus the first regression wave, the division between the compliance variable of "*Staying at home*", i.e., social distancing, is clear; in the first wave the option "*Yes*" got 3,539 responses and the option "*No*" got 648 responses. Thus, the prediction for option "*Yes*" for compliance is correct 84,5 % times. This percentage does not change during the first wave, despite the different models applied, and all the presented models seem to predict 0 % of the "*No*" responses and 100 % of the "*Yes*" responses. The comparative model in the first wave constructs of a constant with coefficient value B= 1.698 (SE B= .043***[7], Wald= 1578.625, Exp(B)= 5.461). The results of the logistic regression model during the first wave are presented in Table 1.

The first model of the first wave including the independent variable of trust in authorities has a significantly better explanatory power (X^2= 23.265***, df= 1) than the model with only the constant. The regression coefficient of trust in authorities (B=.207) is significantly different

[7] *p<0.05. **p<0.01. ***p<0.001.

from zero (Wald= 24.150***) and has an odds ratio of Exp(B)= 1.230. Thus, when trust in authorities increases with one measure scale step, the odds for "*Yes*" on the dependent variable of compliance as social distancing are 1.230 times higher than the comparison group of "*No*" responses. However, when the goodness-of-fit for the first model is measured with the Hosmer-Lemeshow test (X^2= 2.424, p= .298), it shows insignificant results, thus meaning that the first model does not adequately describe the data.

The second model including the independent variable of performance evaluations has also significantly better explanatory power (X^2= 7.340**, df= 1) than the comparison model with the constant. With a regression coefficient (B= .113) significantly different from zero (Wald= 7.529**), the independent variable has an odds ratio of Exp(B)= 1.120. Similar to the first model, the second model shows insignificant results on the Hosmer-Lemeshow test (X^2= 1.1734, p= .785), and is therefore a poor model fit.

The third model, where both independent variables of trust in authorities (B= .326) and performance evaluations (B= -.141), has again better explanatory power than the model with only the constant (X^2= 27.241***, df= 2). Trust in authorities is significantly different from zero (Wald= 19.890***), as are performance evaluations (Wald= 3.929*), with odds ratios of Exp(B)= 1.385 and Exp(B)= .869 respectively. It is noteworthy that when included in a model with trust in authorities, performance evaluations receive a negative coefficient value, whereas when controlled individually on model 2, the coefficient value is positive. That is, in the third model, when the value of the dependent variable of compliance increases, the value of performance evaluations decreases. Trust in authorities also has more power in explaining compliance when included in a model with performance evaluations. However, as in the previous models, the Hosmer-Lemeshow test value is not significant (X^2= 4.675, p= .700), but this does not mean the results in total are insignificant.

The fourth model in the first wave regression includes the control variables of general trust (B= .020), sex (B= -.266), age (B= .278), and education level (B= .182). The model has a significantly stronger explanatory power (X^2= 120.615***, df= 4) than the comparison model with the constant. Only the general trust coefficient is not significant (p= .659), with sex (Wald= 7.073**), age (Wald= 62.850***), and education level (Wald= 64.127***) being

significantly different from zero. The control variables receive odds ratio values of Exp(B)= .767, Exp(B)= .1.321, and Exp(B)= .1.199, respectively. The fourth model gets the Hosmer-Lemeshow test value of X^2= 23.070, that is significant on level .01, suggesting that the model would adequately describe the data.

The fifth model includes all the independent and controlling variables: trust in authorities (B= .307), performance evaluations (B= -.173), general trust (B= -.039), sex (B= -.263), age (B= .283), and education level (B= .174). As in the fourth model, general trust is not significantly different from zero (p= .446), are significant; trust in authorities, age, and education level on the significance level .001, sex on the level .01, and performance evaluations on the significance level .05. The odds ratio of trust in authorities decreases a little (Exp(B)= 1.359) when compared to the third model, whereas the coefficient for performance evaluations slightly increases and the odds ratio decreases (Exp(B)= .841). The exponentiated coefficients for the control variables remain relatively similar to those on the fourth model. The fifth model gets the Hosmer-Lemeshow test value of X^2= 23.653, that is significant on the level .01. Thus, the fifth model could be considered to adequately describe the data at hand.
but all other measured variables receive Wald test values that

Table 1 *Results of the logistic regression model for the first panel wave*

	Model 1				Model 2				Model 3				Model 4				Model 5			
	B	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*
Trust in authorities	.207 (.042)	24.150	.000	1.230					.326 (.073)	19.890	.000	1.385					.307 (.076)	16.334	.000	1.359
Performance evaluations					.113 (.041)	7.529	.006	1.120	-.141 (.071)	3.929	.047	.869					-.173 (.073	5.596	.018	.841
General trust													.020 (.046)	.195	.659	1.021	-.039 (.051)	.582	.446	.962
Sex													-.266 (.100)	7.073	.008	.767	-.263 (.101)	6.775	.009	.768
Age													.278 (.035)	62.850	.000	1.321	.283 (.035)	64.068	.000	1.327
Education level													.182 (.023)	64.127	.000	1.199	.174 (.023)	58.026	.000	1.190
Constant	.886 (.168)	27.861	.000	2.426	1.258 (.164)	58.697	.000	3. 519	.969 (.174)	30.953	.000	2.637	-.439 (.335)	1.710	.191	.645	-.700 (.355)	3.873	.049	.497
	χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*	
Hosmer-Lemeshow	2.424	2	.298		1.734	4	.785		4.675	7	.700		23.070	8	.003		23.653	8	.003	

Note. Unstandardized coefficients. Standard errors in parentheses. Dependent variable coded 0= No, 1= Yes. n= 4,187.

Second wave

The second panel wave and the second regression wave show a bit more even division between the respondents on the compliance variable than the first wave. The option "*Yes*" received 2,733 responses and the option "*No*" received 1,454 responses. The prediction for the option "*Yes*" is correct 65.3 % of the time. The model for comparison includes only the constant (B= .631, Wald= 377.983***, Exp(B)= 1.880). The results from the second regression wave are shown in Table 2.

The first model, just as in the first wave, includes the independent variable of trust in authorities (B= .098), that has a significant coefficient (Wald= 8.444**). The model has a significantly better explanatory power (X^2= 8.396**, df= 1) than the model with the constant only. The odds ratio for trust in authorities is Exp(B)= 1.103, and the model gets an insignificant value from the Hosmer-Lemeshow test (X^2= .265, p= .876), thus not necessarily being the best fit to describe the data.

The second model includes the independent variable of performance evaluations (B= .037), however not showing significant results (Wald= 1.311, p= .252). The second model does not have more explanatory power than the one with only the constant added, showing insignificant values for the Chi-square (X^2= 1.307, df= 1, p= .253). Thus, being no surprise, the test value from Hosmer-Lemeshow is also insignificant (X^2= 4.418, df= 5, p= .491).

On the third model, the independent variables of trust in authorities (B= .158) and performance evaluations (B= -.075) are put into the same model. The model shows significantly stronger explanatory power (X^2= 10.806**, df= 2) than the comparison model with the constant. While the coefficient of trust in authorities is significantly different from zero (Wald= 9.490**) with the odds ratio of Exp(B)= 1.172, the coefficient of performance evaluation is not significant (p= .121). However, the same pattern exists also in the second wave that was already visible in the first wave. That is, when measured individually, performance evaluations get positive coefficient values, but when controlled in a model with trust in authorities, the values turn to negative. The third model gets the Hosmer-Lemeshow test value of X^2= 6.396, which is not significant (df= 8, p= .603).

The fourth model includes again all the controlling variables used in this study. The model only gives a significant value to education level (B= .118, Wald= 41.885***), with age (B= -.050) being the closest to being significant (p= .067). Education level has the odds ratio of Exp(B)= 1.125. The model poses stronger explanatory power (X^2= 52.414, df= 4) than the comparison model with the constant, on the significance level .001. Similar to the fourth model in the firs regression wave, the model with the controlling variable produces significant results on the Hosmer-Lemeshow test (X^2= 31.829***, df= 8), suggesting that the model is adequate in describing the data. The model predicts 1.9 % of those responding "*No*" correctly, and 98.7 % of those who respond "*Yes*", whereas the previous models seem to have predicted 0 % of the "*No*" responses and 100 % of the "*Yes*" responses.

The fifth and last model of the second wave applies all the independent and controlling variables to the regression model. The model only gives significant values to the independent variable of trust in authorities (B= .120, Wald= 5.081*) and the controlling variable of education level (B= .114, Wald= 39.046***), with the odds ratios of Exp(B)= 1.127 and Exp(B)= 1.121, respectively. Despite being significant in the first wave and fifth model, performance evaluations, sex, and age show no significant results in the third wave. The model as a whole is significant compared to the comparison model with the constant (X^2= 57.671***, df= 6), and predicts 2,5 % of the "*No*" answers on the dependent compliance variable, and 98,8 % of the "*Yes*" answers. The fifth model does not get a significant result from the Hosmer-Lemeshow test (X^2= 12.224, df= 8, p= .141), thus suggesting that the model might not be adequately good fit to describe the data.

Table 2 *Results of the logistic regression model for the second panel wave*

	Model 1				Model 2				Model 3				Model 4				Model 5			
	B	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*
Trust in authorities	.098 (.034)	8.444	.004	1.103					.158 (.051)	9.490	.002	1.172					.120 (.053)	5.081	.024	1.127
Performance evaluations					.037 (.032)	1.311	.252	1.037	-.075 (.048)	2.401	.121	.928					-.063 (.050)	1.618	.203	.939
General trust													.012 (.035)	.107	.743	1.012	-.011 (.039)	.084	.772	.989
Sex													.008 (.073)	.014	.907	1.009	.005 (.074)	.004	.948	1.005
Age													-.050 (.028)	3.350	.067	.951	-.047 (.028)	2.958	.085	.954
Education level													.118 (.018)	41.885	.000	1.125	.114 (.018)	39.046	.000	1.121
Constant	.256 (.133)	3.722	.054	1.292	.495 (.123)	16.070	.000	1.640	.308 (.137)	5.043	.025	1.360	-.023 (.264)	.007	.932	.978	-.133 (.281)	.226	.875	.875
	χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*	
Hosmer-Lemeshow	.265	2	.876		4.418	5	.491		6.396	8	.603		31.829	8	.000		57.671	6	.000	

Note. Unstandardized coefficient. Standard errors in parentheses. Dependent variable coded 0= No, 1= Yes. n= 4,187.

Third wave

On the third panel wave, thus the third regression wave, shows similar results as the first wave when it comes to the division between the response frequency on the compliance variable; the option "*Yes*" has 3,361 responses, while the option "*No*" has significantly less, 826 responses. The prediction for the "*Yes*" answer is correct 80.3 % of the time, not changing over the different models applied. Thus, the models are supposedly predicting 0 % if the "*No*" answers and 100 % of the "*Yes*" answers. The comparison model for the third wave, with only the constant included, gets the coefficient value B= 1.403, significant on level .001 (Wald= 1305.894, Exp(B)= 4.069). The results of the third regression wave are presented on the Table 3.

The first model with the independent variable trust in authorities has a significantly better explanatory power (X^2= 15.325***, df=1) than the comparison model with the constant. Trust in authorities gets the coefficient value of B= .152, which is significantly different from zero on significance level .001 (Wald= 15.644***). The odds ratio for trust in authorities is Exp(B)= 1.164. As with the first two regression waves, the first model gives insignificant results on the Hosmer-Lemeshow test (X^2= 2.991, df= 2, p= .224).

The second model, with performance evaluations (B= .054) being the measured independent variable, does not show significant explanatory power over the comparison model with the constant (X^2= 2.370, df= 1, p= .124). But again, on the third model when both trust in authorities (B= .257) and performance evaluations (B= -.123) are measured, performance evaluations are significant (Wald= 5.045*) and turn from positive to negative. Trust in authorities is also significant (Wald= 18.001***), and the independent variables have odds ratios of Exp(B)= 1.293 for trust in authorities and of Exp(B)= .884 for performance evaluations. The third model is more powerful than the comparison model (X^2= 20.426***, df= 2), but the model gets an insignificant result from the Hosmer-Lemeshow test (X^2= 4.445, df= 7, p= .727).

The fourth model with the controlling variables has significantly more explanatory power in comparison with the model with only constant included (X^2= 62.336***, df= 4). From the controlling variables, only age is insignificant, with general trust (B= .094, Wald= 5.306*),

Table 3 *Results of the logistic regression model for the third panel wave*

	Model 1				Model 2				Model 3				Model 4				Model 5			
	B	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*	*B*	*Wald*	*Sig.*	*Exp(B)*
Trust in authorities	.152 (.038)	15.644	.000	1.164					.257 (.061)	18.001	.000	1.293					.188 (.063)	8.896	.003	1.207
Performance evaluations					.054 (.035)	2.386	.122	1.055	-.123 (.055)	5.045	.025	.884					-.130 (.056)	5.374	.020	.878
General trust													.094 (.041)	5.306	.021	1.099	.071 (.045)	2.414	.120	1.073
Sex													-.272 (.091)	8.933	.003	.762	-.279 (.092)	9.227	.002	.757
Age													-.062 (.033)	3.433	.064	.940	-.057 (.034)	2.913	.088	.944
Education level													.106 (.021)	26.136	.000	1.112	.100 (.021)	23.031	.000	1.105
Constant	.835 (.147)	32.239	.000	2.306	1.219 (.125)	94.825	.000	3.382	.864 (.148)	34.122	.000	2.373	1.049 (.312)	11.294	.001	2.856	.917 (.327)	7.857	.005	2.502
	χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*		χ^2	*df*	*Sig.*	
Hosmer-Lemeshow	2.991	2	.224		2.585	6	.859		4.445	7	.727		5.762	8	.674		11,182	8	.192	

Note. Unstandardized coefficient. Standard errors in parentheses. Dependent variable coded 0= No, 1= Yes. n= 4,187

sex (B= -272, Wald= 8.933**), and education level (B= .106, Wald= 26.136***) getting coefficient values significantly different from zero. The significant control variables get odds ratio values of Exp(B)= 1.099, Exp(B)= .762, and Exp(B)= 1.112, respectively. From the Hosmer-Lemeshow test, the fourth model gets insignificant results (X^2= 5.762, df= 8, p= .674), different to what has been measured in the first and second regression wave.

The fifth model has a significantly stronger explanatory power in comparison to the constant model (X^2= 71.300***, df=6). All variables excluding the controlling variables of general trust and age get coefficient values significantly different from zero. Trust in authorities gets a larger coefficient value (B= .188, Wald= 8.896**) than in the second wave, still being smaller than the value it received in the first wave. Performance evaluations (B= -.130, Wald= 5.374*) receives a significant value again in the fifth model, in comparison to the second wave where performance evaluations did not receive significant values in any of the models. Trust in authorities has the odds ratio of Exp(B)= 1.207, and performance evaluations the odds ratio of Exp(B)= .878. From the control variables, sex (B= -.279, Wald= 9.227**) and education level (B= .100, Wald= 23.031***) get significant coefficient values, with odds ratios of Exp(B)= .757, and Exp(B)= 1.105, respectively. The fifth model does not receive significant value from the Hosmer-Lemeshow test (X^2= 11.182, df= 8, p=.192), thus suggesting the fifth model is not either sufficient for describing the data.

4.2.3. Discussing the results

The results from the logistic regression model point out some interesting relations with the variables, that are now further analysed, interpreted, and discussed. Some of the relationships are taken into further examination, to try and understand the eventual mechanisms behind the results of the logistic regression model.

First, the independent variable of trust in authorities remains positive and significant over the course of the three waves. The relationship seems to strengthen when controlled with performance evaluations, thus suggesting that performance evaluations somehow support the predictive power of trust in authorities. Even when controlled with performance evaluations and the controlling variables used in the current study, the relationship between trust in authorities and compliance remains significant, and even gets stronger in comparison to the first model of the logistic regression model where trust is controlled separately with the

dependent compliance variable. Thus, the power of trust in authorities to compliance as in social distancing seems to stay significant and explains compliance even when controlled with other variables. Another interesting finding from the results is that the effect of trust in authorities does not disappear or remarkably weaken over time. Some decrease in waves two and three is visible in comparison to the first wave, but the coefficient value remains significant. The effect of trust seems to decrease on the less acute phase of the crisis during the second wave, but again, the drop is neither remarkable nor makes the effect of trust in authorities to be insignificant. The effect of trust in authorities increases again for the third wave, however staying lower than in the first regression wave.

Interesting for the current study are the results of the independent variable of performance evaluations. When measured separately, performance evaluations receive positive values throughout all the waves, but only significant in the first wave. However, when controlled with the independent variable of trust in authorities and the controlling variables used in this study, the effect of performance evaluations turns negative and receives significant values in waves one and three. The change of direction occurs even when controlled with only the controlling variables, also providing insignificant values for performance evaluations even in the first wave. This is rather unusual, thus requiring further analysis to understand the change. As performance evaluations in this regression model is an index variable, constructed from two separate questions of *"In general, what confidence do you have in the authorities' ability to handle a serious crisis or a disaster in Sweden?"* and *"How much confidence do you have that Swedish politicians and authorities are handling the outbreak of coronavirus in Sweden in the right way?"*, where only the part of the question regarding "*Authorities*" is considered, these questions are controlled separately in a logistic regression model with the dependent variable of compliance as social distancing. When the questions are controlled as separate variables, both give negative results, suggesting the issue might be of a problem with the index variables. The performance questions measured separately give significant values on the question of *"In general, what confidence do you have in the authorities' ability to handle a serious crisis or a disaster in Sweden?"* in waves one and three, and on the question *"How much confidence do you have that Swedish politicians and authorities are handling the outbreak of coronavirus in Sweden in the right way?"* in the first wave. However, when these separate performance variables are again controlled with trust in authorities in relation to the

dependent variable of compliance, they give positive coefficient values; that is, the same problem that appears with the index variable changing from positive to negative, occurs as the opposite when the performance questions are controlled as separate variables. Therefore, it cannot be concluded that the change in direction would necessarily be due to the problems of the index variable, rather than relating to the measures of performance in general, or the fact that the two independent variables are strongly correlated. As the change of coefficient direction of an independent variable might on some occasions be due to the small number of responses on a response option, thus skewing the results of a regression analysis, the independent variables of trust in authorities and performance evaluations are recoded into new variables with measurement scales of 1 equalling to "Low trust", 2 equalling to "Neither high or low trust", and 3 equalling to "High trust"[8]. But even when controlled with these collapsed independent variables, the change of direction still appears, suggesting that high performance evaluations would lead to less compliance.

While finding the reason for this unusual change of direction is not in the scope of the current study, nor does the study have the means of further examining and understanding this change, the role of performance evaluations on compliance in relation to trust in authorities stays of interest. The negative relationship between performance evaluations and compliance seems odd, and therefore the relationship is further examined through a crosstabulation, mimicking an interaction analysis. The crosstabulation is constructed in a way that it studies the relationship of the independent variable of performance evaluations with the dependent variable of social distancing, controlled with the independent variable of trust in authorities. The crosstabulations are done on each wave, to see if the results vary between waves. Exemplary crosstabulation for the first wave is visible in Table 4. Crosstabulations for waves two and three are presented in Appendix 4. The results from the crosstabulations suggest that throughout the waves, performance evaluations only have an effect on compliance within those respondents who have high levels of trust in authorities. That is, increase in performance evaluations does not seem to have an effect to compliance unless the trust in authorities is high, as demonstrated in Table 4, where the performance evaluation value 3.00 collects significant amounts of the "*Yes*" responses of compliance only when trust in

[8] Values between 1 and 2.5 equal to 1. Value of 3 equals to 2. Values between 3.5 and 5 equals to 3.

Table 4 *Crosstabulation for wave one*

Trust in authorities	Compliance		Performance evaluations			Total
			1.00	**2.00**	**3.00**	
1.00	**No**	Count	67	12	6	85
		% within compliance	78.8%	14.1%	7.1%	100.0%
	Yes	Count	265	37	15	317
		% within compliance	83.6%	11.7%	4.7%	100.0%
	Total	Count	332	49	21	402
		% within compliance	82.6%	12.2%	5.2%	100.0%
2.00	**No**	Count	30	27	32	89
		% within compliance	33.7%	30.3%	36.0%	100.0%
	Yes	Count	124	87	129	340
		% within compliance	36.5%	25.6%	37.9%	100.0%
	Total	Count	154	114	161	429
		% within compliance	35.9%	26.6%	37.5%	100.0%
3.00	**No**	Count	13	15	446	474
		% within compliance	2.7%	3.2%	94.1%	100.0%
	Yes	Count	68	124	2690	2882
		% within compliance	2.4%	4.3%	93.3%	100.0%
	Total	Count	81	139	3136	3356
		% within compliance	2.4%	4.1%	93.4%	100.0%

Note. Collapsed independent variables. Values between 1 and 2.5 equal to 1. Value of 3 equals to 2. Values between 3.5 and 5 equals to 3. 1= Low trust. 2= Neither high or low trust. 3= High trust. Pearson X^2 *= 10.015, df= 2, p= .007. r= .049, p= .002. n= 4,187.*

authorities also get the value of 3.00. Only when trust in authorities is high, does the majority of 93.3 % from those who complied have high performance evaluations, whereas from those with neither high or low trust in authorities or those with low trust in authorities only 37.9 % and 4.7 % of those who complied had high levels of trust, respectively. While making interesting implications on the relationship between trust in authorities, performance evaluations, and compliance, the analysis of the crosstabulations is, however, rather superficial, and not considering the actual interaction effects, which should be taken into consideration when interpreting the results and making generalisations based on the implications made. Only the relationship described on the crosstabulation for the first wave can also be considered significant, thus suggesting that the results should be considered and interpreted with caution.

From the controlling variables, education level seems to have the most prevalent relationship with compliance throughout the waves; education level receives positive and significant values in each wave and each model controlled. The strength of the relationship does not show any remarkable changes between the waves, suggesting that the effect of education is not dependent of the timespan or the phase of the crisis, but that the higher education level seems to predict compliance in general. When controlled alone in a logistic regression model with the dependent variable of compliance, the relationship stays positive and significant with no major changes in strength between the waves. Even when controlled separately with the independent variables, the effect of education stays significant, suggesting that the effect truly is independent from the other controlled variables.

The controlling variables of age and sex seem to both have significant effects on the first regression wave, but whereas sex is insignificant in the second wave but then again significant on the third wave, age turns out to be insignificant in both the second and third wave. When age is controlled separately together with the compliance variable, the relationship stays significant throughout the waves. Age has a positive relationship with the compliance measure in the first wave with a relatively strong predicting power but turns to negative in the second and third wave. While the change of direction is again unusual and interesting, it is not in the scope of the current study to further analyse this change in the relationship. It could be mentioned that while not necessarily the cause of the change in direction, the public discussion around older people being at the risk group of the virus has changed over the course of the waves. That is, in the beginning of the crisis, the focus was on older people being in danger and it was stressed in public crisis information that the elderly should be protected. Over the summer, i.e., before and during the second panel wave, and

even during the second wave of the pandemic and during the third panel wave, the virus spreading between younger citizens became a more salient topic in media and public discussion. However, this is in no way argued to be the sole cause of the change in direction, as it is likely there is an explanation more statistical by nature that cannot be examined within the current study.

The sex variable, as mentioned above, receives significant values in the first and third waves of the regression model. The effect of sex remains negative in these waves, however being positive but very insignificant on the second wave. When controlled separately with the dependent variable, the relationship stayed negative also in the second wave, however insignificant. This means that compliance as social distancing is likely to be more common within female respondents during the acute phases of the crisis, but when the crisis is in a less acute phase, the sex does not explain compliance in a significant manner.

The control variable of general trust shows significant values only on the third regression wave, in the fourth model. When general trust is measured separately with the dependent variable of compliance as social distancing, general trust receives positive and significant values in the first and third wave. When controlled with the independent variable of trust in authorities, the independent variable seems to eat up the significance of the general trust measure. However, the same seems to happen when controlled with the independent variable of performance evaluations. Thus, the control variable of general trust does not seem to have independent effects on compliance, as the relationship disappears when controlled with other variables.

4.2.4. Conclusive remarks

The empirical analysis in the current study was conducted as a quantitative statistical analysis with the method of logistic regression analysis. The results from the logistic regression model were further discussed and analysed, to provide deeper understanding of the interpretation of the results. The hypotheses are now revisited and either supported or rejected.

The first hypothesis, H1, assumed that performance evaluations would be positively related to compliance. The results from the logistic regression analysis provide negative values for the performance evaluations variable in relation to the dependent variable of compliance and when controlled with other variables, but positive coefficient values when performance evaluations are measured separately. When controlled with the two parts of the index variable, both variables provided negative results when measured separately with the dependent variable. These results would suggest that the relationship of performance evaluations on compliance would be negative, but as the change of direction of the coefficient values is rather unusual, probably due to multicollinearity, and cannot fully be interpreted and

evaluated within the scope of the current study, no such conclusion can reliably be made. The crosstabulation analysis done on the variables suggests that a positive relationship exists, but further suggesting that the relationship only appears and has a visible effect on compliance when trust in authorities is high. However, this cannot be reliably concluded based on the current analysis, as only the results in the crosstabulation done on wave one could be considered significant. As the results of the logistic regression model do not provide support for the hypothesis nor can the analysis of crosstabulations be considered to provide significant results either, H1 cannot be reliably rejected nor approved, thus there is a failure to reject the hypothesis.

The second hypothesis, H2, expected trust in authorities to be positively related to compliance. The results from the logistic regression analysis suggest that there in fact is a relationship between trust in authorities and compliance, as the measure of staying at home and therefore social distancing. The relationship stays positive and significant throughout the waves and does not disappear even when controlled with the independent variable of performance evaluations or the controlling variables used in the current study, i.e., general trust, sex, age, and education level. Therefore, H2 receives support from the logistic regression analysis.

The third hypotheses concern the change in the effect of trust in authorities on compliance over time. The first one, H3a, assumed that the effect of trust in authorities would be stronger in the beginning of the crisis, thus the first panel wave, and the second, H3b, that the effect would then diminish over the course of the second and the third wave. The hypothesis receives support in assuming that the effect of trust in authorities would be the strongest during the first wave; the logistic regression shows stronger coefficient values during the first wave when measured separately and when controlled with the other independent variable, in comparison to the second and third wave. However, while the effect decreases in the following waves, reaching the lowest point in the second wave, the effect increases again for the third wave and stays significant in all the models throughout the waves. Thus, it cannot be concluded that the effect of trust in authorities would diminish over time; therefore, H3a is supported and H3b will be rejected.

The fourth hypotheses assumed that the change in the effect of performance evaluations on compliance would be weaker in the beginning of the crisis (H4a) and would get stronger in the later phases (H4b). As the results of the logistic regression analysis around performance evaluations and its effects on compliance cannot be fully interpreted, no definitive conclusions of the change can be made. The results do not show increase in the values of performance evaluations, but quite the opposite; the power of performance evaluations seems to be the strongest during the first wave. Performance evaluations are going through a similar pattern to trust in authorities, meaning that the values in the first wave are the largest, with decrease in the second wave, and again increasing in the third wave, however the effect being weaker in the third wave than in the first one. The results would then suggest the existence of the rally-around-the-flag effect also with performance evaluations and contradict the assumption that performance evaluations would become more salient over time. Therefore, neither H4a or H4b receive support and are thus rejected.

In addition to the presented hypotheses, the logistic regression analysis provides evidence that education level has an independent and significant effect on compliance. The relationship appears significant when measured separately, but also stays significant when controlled with the independent variables and the controlling variables.

5. Conclusions and Future Research

The current chapter discusses the results of the research review and empirical analysis in relation to the research questions presented in the beginning of the study. Theoretical and practical implications are made. The limitations of the study are discussed and suggestions for future research are made.

5.1. Conclusions and discussion

The current study examined the relationship between trust in authorities, performance evaluations, and compliance in crisis situations. The aim was to study the interplay of the variables in relation to compliance, as to create better understanding of the antecedents of compliance. Three research questions were set in the beginning; first, to understand how performance evaluations affect compliance, second, how trust in authorities and performance evaluations together affect compliance, and lastly, how the relationship changes over time. The research questions were first approached with an extensive literature review, discussing the previous research done on trust and compliance, the relationship between trust and performance evaluations, and lastly, the relationship of performance evaluations and compliance. Hypotheses and a conceptual model were formed, which were then tested with a logistic regression analysis. The results from the regression analysis were discussed and conclusions were formed. This section revisits the research questions to conclude and discuss the results of the study in the light of what has been learned about the relationship between trust in authorities, performance evaluations, and compliance. Theoretical and practical implications based on the results are made.

5.1.1. Performance evaluations and compliance

Trust has often been concluded to have an effect on compliance in crisis times (e.g., Blair et al., 2017; Devine et al., 2020; Siegrist & Zingg, 2014). This study aimed to challenge the current consensus, by bringing performance evaluations to the equation and examining what role the individuals' perceptions of the performance of authorities during a crisis have in their decisions of compliance. Thus, the first research question focused on understanding the relationship between performance evaluations and compliance. Simple Pearson's r correlation tests suggested that the two variables of performance evaluations and compliance are only significantly and positively correlated during the first panel wave. After that, the correlation

remained positive but insignificant. The results from the logistic regression analysis suggest that the relationship between performance evaluations would be positive when measured separately, however, being significant only in the first wave. The relationship changed to negative when controlled with the control variables of general trust, sex, age, and education level, turning the effect of performance evaluations to compliance insignificant even in the first panel wave. The effect of performance evaluations on compliance turns to significant, but negative, in waves one and three only when controlled with trust in authorities. Further analysis with the crosstabulation shows that the initial positive relationship should still exist between the variables of performance evaluations and compliance, with some conditions.

The results of the current study fail to provide a definitive answer to the question of the relationship between performance evaluations and compliance. The method and means of this study are not enough to reliably understand the effect, but some concluding remarks on the relationship can be made. First, the effect of performance evaluations on compliance seems to be positive when controlled separately with the logistic regression model and analysed in the crosstabulation with compliance, however the results mostly being insignificant. Second, when controlled with other variables, the relationship of performance evaluations with compliance seems to turn to negative. Third, the effect of performance evaluations on compliance seems to be conditional to the level of trust in authorities; a relationship that is discussed next.

5.1.2. Trust in authorities, performance evaluations, and compliance

The concepts of trust and performance appear together in previous research, and both are often considered to have effects on compliance. However, there seems to be little consensus on how they together relate to compliance, as well as no consensus on how the concepts actually relate to each other. Therefore, the second research question addressed the issue, aiming to find out how trust in authorities and performance evaluations together affect compliance. The results from a simple Pearson's r correlation test suggest that trust in authorities and performance evaluations are strongly and positively correlated. As discussed earlier, the performance evaluations seem to be relatively weakly correlated with the compliance variable, the relationship being insignificant after the first panel wave. However, trust in authorities seems to be significantly and positively correlated with compliance throughout the waves.

Analysing the results from the logistic regression model, the effect of performance evaluations on compliance seems to be conditional to the trust in authorities variable; controlling with trust in authorities makes the otherwise insignificant relationship significant even on the third panel wave. Performance evaluations received negative values in the regression model, interpreted as a statistical error due to suppressed relationship or multicollinearity. The relationship was further analysed with crosstabulations, where the results implicated a positive relationship between performance evaluations and compliance, but only when the level of trust in authorities was high.

While the current study is cautious in making claims about the relationship between performance evaluations and compliance due to the contradictory results from the analysis, some conclusions on the relationship between the three variables can be made. First, trust in authorities is significantly and positively related to compliance. Second, trust in authorities is significantly and positively correlated with performance evaluations. Third, the effect of performance evaluations on compliance seems to be conditional to the high levels of trust, i.e., the relationship between performance evaluations and compliance seems to appear only within those with high level of trust in authorities, thus implying that the results would somewhat confirm the relationship suggested in previous literature where trust affects the effect of performance evaluations on compliance.

5.1.3. Change in the predictors of compliance over time

The third and final research question aimed to understand how the relationship between trust in authorities, performance evaluations, and compliance change over time, as there is a lack of longitudinal studies within the field (Siegrist & Zingg, 2014: 27–28). The results from the empirical analysis provided evidence that the expected changes did not occur; trust in authorities remained prevalent during the course of the panel waves, and throughout the changes in crisis phases. The panel waves measured the first wave of the pandemic, the less acute phase over the summer 2020 until the autumn, and then the second wave of the pandemic at the end of the year. The results thus suggest that only mild decrease in the less acute phase occurs, whereas trust in authorities remains significant even on the second wave of the pandemic and when controlled with performance evaluations. Performance evaluations seem to have a similar rally effect increase in the first wave and then a similar pattern over the

course of the waves two and three than trust in authorities, thus the relationship between performance evaluations and compliance seemingly not changing over time.

The answer to the third research question seems to be then, that the change over time is rather non-existent, or at least insignificant. Trust remains prevalent even when the crisis develops, changes phases and whether or not the individuals' perceptions on the success of performance of the authorities during the crisis times. No great changes in the strength of the effect of trust are noticed and the relationship between trust in authorities and performance evaluations remains rather similar over time. Thus, three conclusive remarks are made: First, that the role of trust as predicting compliance is resilient to the changes in the crisis situation. Second, the role of performance evaluations in predicting compliance does not seem to increase over time. Third, there are no significant internal changes within the earlier concluded relationship of trust in authorities, performance evaluations, and compliance over time.

5.1.4. Implications

The results of the current study have important theoretical and practical implications for both the society and academia. This study challenged the consensus of trust being one of the main predictors of compliance during crisis times, by comparing the effect with one of performance evaluations. Based on an extensive literature review, hypotheses were formed, and it was assumed that performance evaluations would become prevalent over trust in predicting compliance over time. However, the results showed that trust does not diminish over time, even during a crisis, and the effect of trust on compliance does not disappear even when controlled with performance evaluations, general trust, sex, age, and education level. Thus, the current study stresses the importance of trust even during prolonged crises as a predictor for compliance and confirms the often-held assumption of trust as a predictor of compliance. The effect of trust on compliance during crisis times seems to be resilient to time and performance, and therefore further arguing for the role of trust in crisis communication and crisis management research aiming to study compliance during crisis situations.

While the results for the effects of performance evaluations on compliance should be interpreted with caution, some implications could be made that higher level of performance evaluations could actually increase compliance. Thus, the effect of performance evaluations should not be ignored in research, but it should also be considered that the effect of

performance evaluations might actually be negative in some situations. More research on the topic is required, possibly relating to risk perception and political ideologies, to better understand the role of performance evaluations on compliance.

In practice and for crisis managers within the public governance, the results of the current study implicate that measures for building and maintaining trust should be taken to ensure higher levels of compliance during crisis. Even during a prolonged crisis or a crisis with several acute phases the role of trust should not be downplayed in crisis management. While trust itself is not equivalent to compliance and the role of performance evaluations should not be ignored, the results suggest that bad performance evaluations do not necessarily lead directly to less compliance, but rather that within those with high levels of trust, good performance evaluations are more likely to lead to compliance.

5.2. Limitations and future research

The limitations of the current study are addressed and shortly discussed. Recommendations for future research are presented based on the results and limitations of the current study.

5.2.1. Limitations

As any study, the current thesis has its limitations. First of all, the previous research lacks consensus on the definition of the main independent variables in the current study and thus the reliability of the measures for trust and performance evaluations is hard to assess. On the other hand, the panel data used has its limitations in the way the questions measuring the main variables used in the current study are phrased. That is, for example, the limitations of using the compliance variable of "*Become more careful with hand hygiene*" or the possibility to argue if the option "*Stayed at home*" actually is interpreted as measuring social distancing. The irregularities within the results on the relationship between performance evaluations and compliance could to some extent be due to the limitations of data and should therefore be considered when assessing the results of the regression analysis.

The data used in the current study could be argued to not be representative of the society as a whole. As discussed earlier, the panel survey is constructed from respondents who have themselves selected to join the panel. Thus, the panel tends to be over representative of highly educated and those with higher political interest than the Swedish population in general.

Therefore, generalisations based on the results of the current study should be made carefully, acknowledging the limitations of the data in describing the population at large.

As the amount of the insignificant Hosmer-Lemeshow test results in the logistic regression analysis show, the research model used in the current study is not necessarily the most appropriate to describe the data at hand. While the results from the regression analysis can be considered significant and adequate to answer the research questions posed in the beginning of the study, there is still room for a more appropriate model to be formed on the antecedents of compliance.

It should also be noted that there might be more suitable statistical methods to analyse the data and research questions at hand, and that this study might thus be limited due to the personal limitations of the author's ability to conduct such analysis. However, the current study manages, as mentioned earlier, answer the research questions presented in the beginning, thus reaching the initial goal of the study. Further analysis of the results would be desired, but due to these limitations, it is out of the scope of the current thesis.

5.2.2. Future research

While the current study presents some evidence and results on the relationship between trust in authorities, performance evaluations, and compliance, there is still room for further research. With the limitations of the data used for the current study, and with the country and crisis specific context, more research should be conducted on the topic to make reliable generalisations to full populations. Future research should also pay attention especially to the relationship between performance evaluations and compliance, more precisely if the effect of performance evaluations on compliance exists without the effect of trust and whether the relationship actually is positive or negative. The existence of some kind of relationship still seems quite likely, even if no reliable conclusions can be made based on the results of the current study on the direction and strength of the effect, or how the performance evaluations are related to trust in the context of causality. However, the irregularities noted in the results of the logistic regression model would make an interesting and highly relevant topic to discuss in future studies.

As concluded many times during the course of the current study, the question of the relationship between trust and performance evaluations is one with many answers. The literature review provided an extensive overview on the research that has been done previously to understand the many dimensions of trust, one of them being the trust that is based on performance-related information, i.e., confidence (Earle et al., 2007). Others have discussed performance as preceding trust, as the attribute of trustworthiness (Hamm et al., 2019; Mayer et al., 1995), or affecting the reputation of an organisation, the equivalent of trust (Coombs, 2007). While it is not the aim of the current study to make conclusive remarks of the direction of the believed relationship between trust and performance evaluations, it is worth mentioning that the results of the current study too support the consensus that trust, and performance are strongly related and intertwined. Even though the causal relationship between the variables would have been interesting to include in the analysis of the effect on compliance, the relationship was considered rather complicated to fit into the research model used. Thus, it is encouraged that the relationship between trust and performance is further studied in future research.

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7. Appendices

Appendix 1

The original questions in Swedish from the panel survey. Including the independent and dependent variables, and the control variable.

Performance evaluations

Question:

"Allmänt sett, vilket förtroende har du för myndigheternas förmåga att hantera en allvarlig kris eller katastrof i Sverige?"

Answer options:

Mycket stort förtroende (1)

Ganska stort förtroende (2)

Varken stort eller litet förtroende (3)

Ganska litet förtroende (4)

Mycket litet förtroende (5)

Question:

"Hur stort förtroende har du för att svenska politiker och myndigheter hanterar utbrottet av coronavirus i Sverige på rätt sätt?"

Sections:

Politiker (1)

Myndigheter (2)

Answer options:

Mycket stort förtroende (1)

Ganska stort förtroende (2)

Varken stort eller litet förtroende (3)

Ganska litet förtroende (4)

Mycket litet förtroende (5)

Trust in authorities

Question:

"Allmänt sett, hur stort förtroende har du för svenska myndigheter?"

Answer options:

Mycket stort förtroende (1)

Ganska stort förtroende (2)

Varken stort eller litet förtroende (3)

Ganska litet förtroende (4)

Mycket litet förtroende (5)

Compliance

Question:

"Har du någon gång under den senaste månaden vidtagit följande åtgärder med anledning av coronaviruset?"

Sections:

Blivit mer noggrann med handhygien (1)

Stannat hemma (2)

Answer options:

Ja (1)

Nej (2)

General trust

Question:

"Enligt din mening, i vilken utsträckning går det att lita på människor i allmänhet?"

Answer options:

Det går inte att lita på människor i allmänhet (1)

2 (2)

3 (3)

4 (4)

5 Det går att lita på människor i allmänhet (5)

Appendix 2

A summary of the results of the OLS regression model.

During the first panel wave both trust in authorities (B= .029***, SE B= .006) and performance evaluations (B= .015**, SE B= .006) give significant results, with the explanatory power of the variance in the dependent variable of R^2= .006 and R^2= .002 respectively. Controlled together, trust in authorities (B= .044***, SE B= .010) and performance evaluations (B= -.018*, SE B= .009) remain significant, with the R-square value of R^2= .007. Noteworthy is that the relationship with performance evaluations with the dependent variable changes to negative, compared to the positive relationship measured with the OLS regression ran to the first panel wave with the dependent variable of handwashing. From the control variables only general trust is insignificant, with sex (B= -.033**, SE B= .012), age (B= .036***, SE B= .005), and education level (B= .026***, SE B= .003) having significant effects on the dependent variable, explaining the variance on R-square value being R^2= .030. However, when controlled alone with the dependent variable, general trust brings a significant result on level .05 (B= .014*, SE B= .006). When measuring all the variables, the control variables excluding general trust all give significant results, and the independent variables of trust in authorities (B= .041***, SE B= .010) and performance evaluations (B= -.022*, SE B= .009) remain significant too, with the latter staying negatively affecting the dependent variable of social distancing. The explanatory power on the variance, thus the R-square value, with all the variables included is R^2= .034.

On the second panel wave, the effect of trust in authorities to social distancing remains significant (B= .023**, SE B= .008) with the R-squared being R^2= .002. However, performance evaluations are neither significantly related to social distancing independently (B= .008, p= .252) or together with trust in authorities (B= -.017, p= .121), but trust in authorities still remains significant (B= .036**, SE B= .036). Together the model has the explanatory power of R-square R^2= .003. Out of the controlling variables, only education level is significant (B= .028***, SE B= .004) in relation to the dependent variable, still making the model with only the controlling variables explain the variance in the dependent variable relatively strongly (R^2= .013). When controlling the control variables alone with the dependent variable, also age gives a significant result (B= -.017**, SE B= .006) When all the

independent and controlling variables are added to the model, only trust in authorities (B= .027*, SE B= .012) and education level (B= .027***, SE B= .004) stay significant.

The last panel wave shows significant results for trust in authorities individually (B= .025***, SE B= .006) and together with performance evaluations (B= .041***, SE B= .010), with R-square values of R^2= .004 and R^2= .005 respectively. Performance evaluations do not have significant effects measured alone in the model, but together with trust in authorities also the effect of performance evaluations increases (B= -.019*, SE B= .009). Similar to the first panel wave, the relationship between performance evaluations and the dependent variable of social distancing is negative. From the control variables only age shows insignificant results, although significant when controlled separately (B= -.016**, SE B= .005), with general trust (B= .015*, SE B= .007), sex (B= -.039**, SE B= .014), and education level (B= .019***, SE B= .004) showing significant results with the model having R-square value of R^2= .015. Adding all the independent and controlling variables to the model results with insignificant values for general trust and age, but significant results for trust in authorities (B= .030**, SE B= .010), performance evaluations (B= -.020*, SE B= .009), sex (B= -.040**, SE B= .014), and education level (B= .018***, SE B= .004). The model explains the variance in the dependent variable with R-square value R^2= .017.

Table 5 *Results of the OLS regression*

	Wave 1					**Wave 2**					**Wave 3**				
	1	*2*	*3*	*4*	*5*	*1*	*2*	*3*	*4*	*5*	*1*	*2*	*3*	*4*	*5*
Trust in authorities	.029*** (.006)		.044*** (.010)		.041*** (.010)	.023** (.008)		.036** (.012)		.027* (.012)	.025*** (.006)		.041*** (.010)		.030** (.010)
Performance evaluations		.015** (.006)	-.018* (.009)		-.022* (.009)		.008 (.007)	-.017 (.011)		-.014 (.011)		.009 (.006)	-.019* (.009)		-.020* (.009)
General trust				.003 (.006)	-.005 (.007)				.003 (.008)	-.002 (.009)				.015* (.007)	.011 (.007)
Sex				-.033** (.012)	-.032** (.012)				.002 (.016)	.001 (.016)				-.039** (.014)	-.040** (.014)
Age				.036*** (.005)	.037*** (.005)				-.011 (.006)	-.010 (.006)				-.009 (.005)	-.008 (.005)
Education level				.026*** (.003)	.025*** (.003)				.028*** (.004)	.027*** (.004)				.019*** (.004)	.018*** (.004)
Constant	.730*** (.024)	.785*** (.023)	.741*** (.025)	.537*** (.045)	.495*** (.047)	.566*** (.031)	.622*** (.028)	.578*** (.031)	.495*** (.060)	.470*** (.063)	.708*** (.025)	.773*** (.020)	.712*** (.025)	.719*** (.049)	.696*** (.052)
R Square	.006	.002	.006	.030	.034	.002	.000	.003	.013	.014	.004	.001	.005	.015	.017
N	4,187	4,187	4,187	4,187	4,187	4,187	4,187	4,187	4,187	4,187	4,187	4,187	4,187	4,187	4,187

*Note. Unstandardized coefficients. Standard error in parentheses. Dependent variable of compliance coded 0= No, 1= Yes. *p<0.05. **p<0.01. ***p<0.001. n= 4,187.*

Appendix 3

Table 6 Descriptive statistics of independent, dependent, and controlling variables.

	Min.	Max.	Mean	Std. Deviation
Performance evaluations				
- *W1*	1	5	3,92	.99
- *W2*	1	5	3,74	1,01
- *W3*	1	5	3,45	1,10
Trust in authorities				
- *W1*	1	5	3,98	.95
- *W2*	1	5	3,82	.95
- *W3*	1	5	3,79	.98
Handwashing				
- *W1*	0	1	.95	.22
- *W2*	0	1	.88	.32
- *W3*	0	1	.88	.33
Staying at home				
- *W1*	0	1	.85	.36
- *W2*	0	1	.65	.48
- *W3*	0	1	.80	.40
General trust				
- *W1*	1	5	4,03	.93
- *W2*	1	5	4,04	.94
- *W3*	1	5	4,05	.94
Sex	1	3	1,7	.46
Age	1	6	4,65	1,22
Education level	1	9	7,07	1,80

Note. n= 4,187.

Appendix 4

Crosstabulations on the relationship between performance evaluations and compliance, controlled with trust in authorities.

Table 7 *Crosstabulation for wave two*

Trust in authorities	Compliance		Performance evaluations			Total
			1.00	**2.00**	**3.00**	
1.00	**No**	Count	141	24	19	184
		% within compliance	76.6%	13.0%	10.3%	100.0%
		% within performance	38.2%	41.4%	42.2%	39.0%
	Yes	Count	228	34	26	288
		% within compliance	79.2%	11.8%	9.0%	100.0%
		% within performance	61.8%	58.6%	57.8%	61.0%
	Total	Count	369	58	45	472
		% within compliance	78.2%	12.3%	9.5%	100.0%
		% within performance	100.0%	100.0%	100.0%	100.0%
2.00	**No**	Count	84	43	75	202
		% within compliance	41.6%	21.3%	37.1%	100.0%
		% within performance	37.3%	30.5%	39.1%	36.2%
	Yes	Count	141	98	117	356
		% within compliance	39.6%	27.5%	32.9%	100.0%
		% within performance	62.7%	69.5%	60.9%	63.8%
	Total	Count	225	141	192	558
		% within compliance	40.3%	25.3%	34.4%	100.0%
		% within performance	100.0%	100.0%	100.0%	100.0%
3.00	**No**	Count	36	55	977	1068
		% within compliance	3.4%	5.1%	91.5%	100.0%
		% within performance	28.1%	31.6%	34.2%	33.8%
	Yes	Count	92	119	1878	2089
		% within compliance	4.4%	5.7%	89.9%	100.0%
		% within performance	71.9%	68.4%	65.8%	66.2%
	Total	Count	128	174	2855	3157
		% within compliance	4.1%	5.5%	90.4%	100.0%
		% within performance	100.0%	100.0%	100.0%	100.0%

Note. Collapsed independent variables. Values between 1 and 2.5 equal to 1. Value of 3 equals to 2. Values between 3.5 and 5 equals to 3. 1= Low trust. 2= Neither high or low trust. 3= High trust. Pearson X^2 *= 1.326, df= 2, p= .515. r= .008, p= .582. n= 4,187.*

Table 8 *Crosstabulation for wave three*

Trust in authorities	Compliance		Performance evaluations			Total
			1.00	**2.00**	**3.00**	
1.00	**No**	Count	118	11	9	138
		% within compliance	85.5%	8.0%	6.5%	100.0%
		% within performance	24.5%	36.7%	50.0%	26.1%
	Yes	Count	363	19	9	391
		% within compliance	92.8%	4.9%	2.3%	100.0%
		% within performance	75.5%	63.3%	50.0%	73.9%
	Total	Count	481	30	18	529
		% within compliance	90.9%	5.7%	3.4%	100.0%
		% within performance	100.0%	100.0%	100.0%	100.0%
2.00	**No**	Count	63	26	22	111
		% within compliance	56.8%	23.4%	19.8%	100.0%
		% within performance	18.0%	22.6%	19.1%	19.1%
	Yes	Count	287	89	93	469
		% within compliance	61.2%	19.0%	19.8%	100.0%
		% within performance	82.0%	77.4%	80.9%	80.9%
	Total	Count	350	115	115	580
		% within compliance	60.3%	19.8%	19.8%	100.0%
		% within performance	100.0%	100.0%	100.0%	100.0%
3.00	**No**	Count	40	49	488	577
		% within compliance	6.9%	8.5%	84.6%	100.0%
		% within performance	16.7%	18.6%	18.9%	18.7%
	Yes	Count	199	214	2088	2501
		% within compliance	8.0%	8.6%	83.5%	100.0%
		% within performance	83.3%	81.4%	81.1%	81.3%
	Total	Count	239	263	2576	3078
		% within compliance	7.8%	8.5%	83.7%	100.0%
		% within performance	100.0%	100.0%	100.0%	100.0%

Note. Collapsed independent variables. Values between 1 and 2.5 equal to 1. Value of 3 equals to 2. Values between 3.5 and 5 equals to 3. 1= Low trust. 2= Neither high or low trust. 3= High trust. Pearson X^2 *= 1.605, df= 2, p= .448. r= .018, p= .256. n= 4,187.*