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TABLE OF CONTENTS

Volume 12, Issue 3, June 2021

Pages

EDITORIAL PREFACE

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The Soundness of Financial Institutions In The Fragile Five Countries

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Abstract

In recent years, economic globalization and technological development have contributed to a substantial rise in the integration of financial markets. Research findings in this area have indicated that a financial shock in one market can easily be transmitted to other markets globally. Especially, recent experiences showed that financial markets of some developing economies may even be more vulnerable to financial shocks than the emerging markets. There are several reasons, such as current account deficits, instability of local currencies, weaker financial institutions, for this situation. Contrary to the popular perception, this may be due to the lack of knowledge and prejudices of international investors about some emerging markets. This study evaluates and compares the financial soundness of 18 countries selected on the basis of the "Fragile Five" countries. The soundness of the financial structures of these countries has been evaluated based on the soundness of their financial institutions. The findings indicate that the countries with the weakest performance in the selected period are not the "Fragile Five" countries when compared with the countries in the whole sample.

Keywords: Financial Fragility, Soundness of Financial Institutions, TOPSIS Method, Financial Crises, Fragile Five Countries.

1. INTRODUCTION

Recently, globalization and technological development have strengthened the relations between financial markets. Institutional investors include financial assets from different markets to diversify their portfolios. Studies conducted in this context have revealed that an action taken in one market quickly affects other markets globally. For instance, the effects of the financial crises experienced in Russia in 1998 were even infected the American markets. The severity of the impact is more strongly felt in the capital markets of major developing countries, rapidly spreading to other emerging markets (Bakaert et al., 2011; Kenourgios & Padh, 2012). The financial crisis of a country is transmitted to other countries through financial markets. Therefore, developing countries frequently experience currency shocks. Calvo (1986) argued that the effects of shocks could be reduced only by increasing reliability. While developed markets are less affected by such shocks due to their higher reliability in the eyes of investors, emerging markets are more affected by such shocks when they are perceived to have lower reliability by investors.

Inadequate knowledge of investors about markets is the main reason for low reliability in emerging markets.

Over the past decade, the economic and financial crises in international markets have adversely affected the global economy. (Borio, 2010; Spiegel, 2011; Barrel & Philips, 2020) The negative effects of global and local crises have been more devastating on emerging economies than on developed economies. The impact of crises is first seen in financial markets and then reflected in macroeconomic indicators. Increased borrowing costs and exchange rates in financial markets during crisis have increased production and financing costs. This increase has a disruptive impact on macroeconomic indicators such as production, employment and the overall level of prices. In addition, the severity of this impact varies from country to country. In response to this situation, central banks have applied different policies. (Cecchetti, 2008; Walsh, 2009) Overall, the severity of the impact varies depending on the soundness of the financial system of countries or their resilience to financial shocks. In financial markets, however, perception often precedes the facts. Investors' perceptions about an issue affect their risk positions, thereby affecting their trading decisions. This situation is observed among investors in both global and local markets.

The significance of perception is even more elevated in the financial markets of developing countries. (Gonzales et al., 2012; Chadwick, 2019; Johnson, 2017) In a report published by Morgan Stanley Investment Bank in 2013, Brazil, Indonesia, India, Republic of South Africa and Turkey were labelled as the "Fragile Five". These five countries have been the developing countries whose currencies have been the most depreciated after the U.S. central bank's (FED) decision to reduce monetary expansion in 2013. (Bhattarai et al., 2021) The Turkish lira is the currency with the highest depreciation against the U.S. dollar between 2015 and 2018. The list was then revised by S&P Global in 2017 as Turkey, Argentina, Qatar, Egypt and Pakistan. Although the list was initially created for other purposes, the definition of fragility mentioned in 2017 is fragility against financial shocks. Therefore, these countries are considered as the five most fragile countries against financial shocks. While over the years there are those who have been on or off the list of the "Fragile Five" countries, Turkey has been included in the two lists regularly, indicating that these countries are more susceptible to shocks. This is because changes in the value of the currency mainly indicate the state of a country's economy. The value of a country's currency impacts all macroeconomic indicators through the monetary transmission mechanism. Accordingly, the value of a country's currency must be coherent to the outcome of economic activities in the country. However, shocks in financial markets, regardless of domestic dynamics, result in increased volatility and excessive depreciation in currencies due to speculative actions. For example, the depreciation of Turkish lira against the U.S. dollar in 2020 was close to 20%. There have been similar depreciations in the currencies of countries such as Republic of South Africa, Mexico and Brazil. If their effects are permanent, these movements in the financial markets also negatively affect macroeconomic indicators (Calvo & Mendoza, 2000). Therefore, the impact is transmitted from the financial markets into the real economy. In other words, activity that begins with a speculative movement in the financial markets can cause permanent and real damage to developing economies in the form of a decline in growth rates, unemployment and an increase in inflation and interest rates. For these countries, this could be a self-fulfilling prophecy that triggers real economic crises.

Well, even if this is the reaction of the markets, are the real economies of these countries really the most vulnerable to financial shocks or does the perception in these countries precede facts? In a sense, is the perception of investors based on reliable information or is it all a big misconception? The answer to this question is of great importance in terms of its contribution to having the correct perspective of the crises experienced by developing countries. As there is a direct relation between the trading behavior of investors and their perception of risk. (Hoffmann et al. 2015; Hoffmann & Post, 2017) The higher the investors' perception of risk the higher the cost of a financial shock to the economy. When perceived risk is high, the cost of capital for risky countries -here "Fragile Five" economies- is high. Developing economies mainly depend on foreign capital investments, and lending from international capital markets. Thus, the borrowing rates-cost of capital- is crucial in their economic development and in achieving their sustainable development goals.

Since the 2000s, the International Monetary Fund (IMF) began to publish countries' data under the label Financial Soundness Indicators (FSI). When the FSI was introduced, it was designed to indicate the resilience of countries' financial systems to financial shocks, in addition to indicating the soundness of financial institutions. FSI could be used for comparing and analyzing economic and financial systems of countries. FSI is of particular importance to developing countries. As it is difficult to obtain reliable data from developing countries, these countries could not be analyzed by comparing them to each other and to other countries. Ease of access to such data will increase the number and quality of studies conducted using this data. Obtaining information this way can contribute to both national and international investors making more rational decisions thanks to the enriched set of information.

This study mainly investigates how important perception is for investors when compared with facts. For this purpose, the financial soundness of countries labelled as the Fragile Five by international investors and of other similar countries will be compared. We argue that the soundness of the financial system mainly depends on the soundness of financial institutions. Based on the financial soundness indicators proposed by the IMF, this study determines the soundness of the financial system in these countries in terms of the financial performances of their depository financial institutions. TOPSIS, a non-parametric method is used to rank the selected countries. In order to deal with the time varying effects this process will be repeated over multiple periods. In this way it expected to increase the reliability of the results obtained in this research. The following sections of the study include literature review, method, application and conclusion. The literature review section mentions the leading studies in national/international literature. The next chapter includes the research question, method and application. In the conclusion, the importance of the results obtained in terms of financial markets is discussed. The conclusion also includes recommendations for investors and regulatory bodies using the results obtained. Findings of this research directly affect the information set of the investors about the risk level of the selected countries. Based on our findings investors may need to revise their perception of risk about some countries. Therefore, a revision of investors' risk perceptions will seriously affect the borrowing costs of countries. While this effect will be positive for some countries, it will be negative for some countries.

2. LITERATURE REVIEW

Financial crises negatively effect the economic development of countries. For this reason, numerous studies are being conducted on the impact of crises on the economy. Paczynska (2010) investigated the effects of global crises reaching to the far corners of the world. Following the rise in food and fuel prices, the pressures on the states caused by the global financial crisis and fragility have caused concerns in political and social stability; accordingly, there has been a "domino effect" between countries.

The Overseas Development Institute conducted a study where a team of 40 researchers have conducted research in 10 developing countries on the impact of the global financial crisis during January to March 2009. When the global financial crisis began to be significantly felt in September 2008, developing countries were affected; however, the effects dramatically varied. Although the effects of financial crisis are similar in each of them (trade, private equity flows, workers' remittances, aid), the effects vary from country to country, and many are not yet visible. Therefore, further country-specific monitoring is required. Most findings suggest that as a result of time delays, the worst effects are yet to come (Overseas Development Institute, 2010).

Bergeijk et al. (2011) analyzed the regional and country-specific effects of financial crises in developing countries and developing markets in all continents. In addition, they examined how the crises have changed development concepts, critically evaluated mainstream approaches, analyzed governance problems (including G20) and strived to view the concept of crisis from a wider perspective. Moreover, in another study, Lin (2008) revealed that since the balance sheets of private firms have imposed serious new demands on the finances of the public sector, the crisis has crossed the threshold of public and private spheres. The reasons for concern that the crisis will adversely affect emerging markets and other developing countries and interrupt the significant economic progress of recent years have been addressed. Between 2002 and 2007, the dynamics of global growth caused mutually strengthening effects in developed and developing countries throughout the world. The study seeks to answer the question of how all this growth began to unravel in 2007–2008, starting with the U.S. housing crisis, and how to respond to the crisis to ensure that its cost to the world is as little as possible.

Kenourgios and Padhi (2012) examined the spread of three crises caused by developing markets in the late 1990s, in addition to the subprime mortgage crisis in 2008, by focusing on the financial markets of emerging economies and the U.S. as well as two global indices. Stock exchanges have been found to create a stronger transmission mechanism during these three contagious crises.

Lowell et al. (1998) examined why financial crises are contagious. In addition, they investigated why financial markets in developing countries are more vulnerable to the contagion of the effects of crises than the markets in developed countries. In this study, international crisis periods were defined between January 1989 and August 1997 and were analyzed using statistical methods. Their study results identified some indicators that could be used to take preemptive measures before the crises. The results further suggested that the indicators are functional.

Essers (2013) adopted a fragility perspective for some key development issues that have been raised in discussions following the 2008–2009 global financial and economic crises. Described as the possibility of shock (exposure - resistance), the country's vulnerability is allegedly important for future growth and reduction in poverty. Therefore, it was argued that different approaches, considering the characteristics of the country in the short and long term and combining them with roles that both developing countries will play for themselves and for international actors, are a multi-layered “therapy”.

Aizenman et al. (2016) argued that in global crises, developing countries continue to be fragile against shocks from developed economies. Just a few years after the global crisis, the state debt crisis in the Eurozone has emerged as the biggest threat to the global outlook. The authors observed that although the crisis period has negatively affected equity and bond markets in developing countries, the impact of the news on the Eurozone crisis is more complicated and limited.

The stability of the financial structures of financial institutions in a country is critical to the impact of financial crises on a country’s economy. Kasselaki and Tagkalakis (2014) examined the financial soundness indicators for financial institutions that control various macroeconomic and financial variables. Furthermore, they examined the total capital adequacy and asset quality for 20 OECD countries during financial crisis. According to their study results, the collection of loan loss provisions lagged behind past-due receivables and profitability had significantly deteriorated. Demirgüç-Kunt and Detragiache (1999) used a dataset for 53 countries between 1980 and 1995 to examine the empirical relation between banking crises and financial liberalization. The authors concluded that banking crises are more likely to occur in liberalized financial systems. However, the impact of financial liberalization on the fragile banking sector is weaker in places where the corporate environment is strong, especially those that respect the rule of law, have a low level of corruption and implement good contract practices.

Kaya and Açdoyuran (2019) identified the interaction between financial soundness and financial fragility between January 2003 and November 2018 for Turkey. In their study, the ratio of non-performing loans to total loans was used as an indicator of financial fragility and the ratio of capital adequacy and asset quality rates was used as an indicator of financial soundness. The authors used the Engle–Granger two-step co-integration analysis to investigate the co-integration relation between variables. Their findings indicated that financial soundness affects financial fragility.

Bernanke and Gertler (1990) revealed that financial soundness is an important goal of policy and indicated a relation between financial soundness and economic performance. The authors examined the effects of financial instability or fragility on entrepreneurs who evaluate investment projects and highlighted the importance of policy to combat financial fragility. Creel et al. (2020) investigated the relation between the strength of financial institutions and the economic growth in European Union countries. Their findings revealed that credit has no effect on economic performance when the fragility of financial institutions is high.

Loayza and Rancière (2004) examined the effects of financial intermediation on economic activity. For their analysis they used the data from 82 countries between 1960-2000. According to their findings, financially fragile countries, namely those that experience banking crises or suffer high financial volatility, tend to present significantly negative short-run effects of intermediation on growth. On the one hand, empirical growth literature addresses the positive impact of the financial depth measured by private domestic loans and liquid liabilities. On the other hand, banking and monetary crisis literature has stated that monetary aggregates, such as domestic loans, have been found to be the best predictors of crises and the following economic decline. The authors examined these contradictory effects by using the differences between the short-term and long-term effects of financial intermediation.

Rossi (1999) examined the relation among the liberalization of capital movements, precautionary regulation and supervision, financial crises and economic development. In the study, empirical assessments were made for a sample set of 15 economies that were developing between 1990 and 1997 in terms of capital controls, precautionary regulation, audit and deposits. The study results confirmed the importance of the regulatory and supervisory framework for financial fragility and economic performance.

In a fragile financial system, even moderate shocks, for example an exchange rate shock, can have strong negative effects on key macroeconomic fundamentals. (Cuaresma et al. 2020) Ünver and Doğru (2015) investigated the determinants of fragility in terms of long-term fiscal sustainability and sovereign ratings for Brazil, India, Indonesia, South Africa and Turkey. The dataset covers the 1980–2012 period for fiscal sustainability and 1990–2012 for sovereign ratings in these countries. The study evidenced that there is a significant relationship between fiscal sustainability and current account balance, gross domestic product (GDP), total reserves, energy imports, exchange rate, external debt and credit to the private sector.

Önder et al. (2015) used TOPSIS to rank the original "Fragile Five" countries using different macroeconomic indicators such as inflation rate, current account deficit, unemployment rate and etc. between 2001 and 2013. According to their findings Turkey is the most fragile and India is the most stable economy in the Fragile Five club.

Demirkale and Özarı (2020) used TOPSIS to measure the performance of "Fragile Five" countries and MINT countries (Brazil, India, Indonesia, South Africa, Turkey, Mexico, and Nigeria), based on macroeconomic and financial indicators between 2015-2019. According to their findings, they argued that Turkey has the lowest macroeconomic and financial performance and Indonesia was found to be the best performing country.

Chadwick (2019) searched the dependence of the financial markets of certain emerging market countries such as Brazil, Chile, Colombia, Indonesia, India, South Korea, Peru, Russia, Singapore, Thailand, Turkey, Taiwan and South Africa on US monetary policy and monetary policy uncertainty between 1995 and 2017. And she concluded that the economies of these countries are not as fragile as or as bad as it is perceived.

Marjanovic and Markovic **(**2020) assess the performance of financial sector in the European Union countries. To investigate this subject, they applied the methods of multi-criteria analysis, TOPSIS. They applied TOPSIS to the data obtained from the Global Financial Development Database published by the World Bank. According to their findings, Greece is among the last three countries among the selected countries. They left Cyprus out of the sample because of insufficient data.

In this research, we investigated the financial fragility of the selected 18 countries. In order to investigate this we use the financial institutions (Deposit Takers) as a proxy for the whole financial system. Thus, we used the Financial Soundness Indicators for Deposit Takers (FSIs) of the IMF. It is to say that if the more the financial institutions are strong the more the financial system is sound. By doing this study, we contributed to the related literature in the following ways. Previous research generally concentrate on the US or European countries, but emerging countries are largely ignored. However, in this study, our sample covers both developed and emerging countries around the world. By this way, it will be possible to make comparison between these countries. In addition, the more important point is these findings may help investors in better assessment of the country risk in the selected countries and construct portfolios that are more efficient. Second, we employed the most recent data of IMF in this research. Thus, this study is necessary and timely given the tremendous impact of a financial crisis effecting on global economy.

3. DATA, METHOD AND APPLICATION

3.1 Dataset and Selection of Financial Indicators

The stability of a country's financial structures and their resistance to financial shocks are critical to national and international investors. This is one of the key factors investors consider when determining risk premium. Therefore, it directly affects the costs for the parties in need of financing. The importance of identifying the soundness of financial structures against shocks accurately could be seen when choosing a risk-return profile from the perspective of investors and minimizing financing costs from the perspective of countries and companies. Therefore, a need emerges to reliably and objectively measure and analyze the performance of a country's financial structure for the benefit of both investors and countries. One of the main elements of the soundness of the financial structures of a country is the soundness of its financial institutions. Financial performance indicators that examine the relation between items in the balance sheet and income statements and their trends over time are required to measure the financial soundness of financial institutions in a country (Bülbül & Köse, 2011)

First of all, in order to set the relevant sample for the research question; Brazil, Indonesia, India, Republic of South Africa & Turkey were selected. These countries are the members of the original "Fragile Five" club of Morgan Stanley. Then, Argentina, Egypt, Pakistan & Qatar are included as the new members of the club. The rest of the countries in the sample were mainly selected randomly. South American countries Mexico and Colombia were subsequently added to the sample. Cyprus, Greece, Italy, Poland, Portugal, Romania & Spain from the European Union, are also selected. China and Russia were also included in the sample. Finally to complete the dataset, Nigeria is included from the African continent due to its distressed economy.[1]

As an indicator of the stability of a country's financial system, financial soundness performances of financial institutions that collect deposits were examined. Financial ratios used for financial institutions in selected countries were chosen from among the Financial Soundness Indicators published by the IMF. These financial ratios are calculated by the IMF to be a possible indicator of the financial soundness of institutions. In this study, the selected rates were obtained from the official website of the IMF and the dataset was created. Financial ratios for 2016, 2017 and 2018 were used for each country, and the countries' financial stability performances for each year were

[1] Some countries added to the dataset are excluded from the research sample due to lack of data, such as China, Egypt, Hungary, Qatar & Russia.

evaluated using the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method. The analysis was applied for three consecutive periods to achieve a dynamic structure.

No	Input/Output	Rates
1	I	Regulatory Tier I Capital to Risk Weighted Assets
2	I	Customer Deposits to Total Loans
3	I	Foreign Currency Denominated Liabilities to Total Liabilities
4	I	Non-Performing Loans to Total Loans
5	I	Net Open Position in Foreign Exchange to Capital
6	I	Spread Between Reference Lending Rate & Deposit Rate
7	O	Net Income to Total Assets (ROA)
8	O	Net Income to Total Equity (ROE)
9	O	Interest Margin to Gross Income

TABLE 1: Selected Financial Ratios.

3.2 TOPSIS Method

The decision maker should choose one of the Multi Criteria Decision Making Methods in order to evaluate the alternatives according to many conflicting criteria. The TOPSIS method, which has an analysis process that does not include complex algorithms and mathematical models, is applied by researchers due to its ease of use and easy understanding and interpretation of the results. In addition, it makes it possible to compare decision units in particular, according to the specified criteria and the ideal situation between the maximum / minimum values that the criteria can take. For these reasons, TOPSIS method was preferred as a method of research in this study.

The TOPSIS method was applied using selected financial ratios to evaluate the performance of selected countries in terms of financial stability. TOPSIS is a multi-criteria decision-making method developed by Hwang and Yoon (1981). It is based on the principle of identifying the closest positive optimum solution and the farthest negative optimum solution alternatives. The positive optimum solution comprises the best criteria attainable, and the negative optimum solution comprises the worst criteria values possible. This method assumes that each criterion has a single value that increases or decreases. The TOPSIS method is conducted through a number of steps. The steps in the study are as follows (Okay & Köse, 2015).

Step 1: Creation of the Decision Matrix

The decision matrix contains the criteria values corresponding to the alternatives.

$$X = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1j} & \cdots & x_{1n} \\ x_{21} & x_{22} & \cdots & x_{2j} & \cdots & x_{2n} \\ \vdots & \vdots & & \vdots & \vdots & \vdots \\ x_{i1} & x_{i2} & \cdots & x_{ij} & \cdots & x_{in} \\ \vdots & \vdots & & \vdots & \ddots & \vdots \\ x_{k1} & x_{k2} & \cdots & x_{kj} & \cdots & x_{kn} \end{bmatrix} \qquad \text{Eq. (1)}$$

Step 2: Normalisation of the Decision Matrix

Normalized values are calculated using the decision matrix and the formula below.

$$\boxed{r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{k} {x_{ij}}^2}}} \qquad \begin{matrix} i = 1,2, \dots, k \\ j = 1,2, \dots, n \end{matrix} \qquad \text{Eq. (2)}$$

$$R = \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1j} & \cdots & r_{1n} \\ r_{21} & r_{22} & \cdots & r_{2j} & \cdots & r_{2n} \\ \vdots & \vdots & & \vdots & \vdots & \vdots \\ r_{i1} & r_{i2} & \cdots & r_{ij} & \cdots & r_{in} \\ \vdots & \vdots & & \vdots & \ddots & \vdots \\ r_{k1} & r_{k2} & \cdots & r_{kj} & \cdots & r_{kn} \end{bmatrix} \qquad \text{Eq. (3)}$$

Step 3: Formation of the Weighted Normalised Decision Matrix

In this step, the weighted values of the components of the normalized decision matrix are calculated. For this, weights (Wj) are first determined, which express the importance of each j criterion.

$$\left(\sum_{j=1}^{n} W_j = 1 \right)$$

$$W_j = [w_1 \quad \dots \quad w_n] \qquad \text{Eq. (4)}$$

Financial ratios	Reg.Tier I Cap to Risk Weighted Ass.	Customer Deposits to Total Loans	For Curr. De.Liabil.s to Tot.Liabi.s	Non Per. Loans to Total Loans	Net Open Pos. in Forex to Cap.	Spread Btw Ref. Lend. Rate & Deposizt Rate	ROA	ROE	Int. Margin to Gross Income
Weight Values (w_j)	0,158	0,109	0,117	0,117	0,121	0,089	0,097	0,093	0,097

TABLE 2: Weight Values.

Then, the values in each row of the normalized matrix, given in equation (3), are multiplied by the weight values in equation (4) to obtain the weighted normalized decision matrix (V) as in equation (5).

$$\boldsymbol{V} = \begin{bmatrix} v_{11} & v_{12} & \cdots & v_{1j} & \cdots & v_{1n} \\ v_{21} & v_{22} & \cdots & v_{2j} & \cdots & v_{2n} \\ \vdots & \vdots & & \vdots & \vdots & \vdots \\ v_{i1} & v_{i2} & \cdots & v_{ij} & \cdots & v_{in} \\ \vdots & \vdots & & \vdots & \ddots & \vdots \\ v_{k1} & v_{k2} & \cdots & v_{kj} & \cdots & v_{kn} \end{bmatrix} \qquad \text{Eq. (5)}$$

Step 4: Calculation of Ideal Positive and Ideal Negative Solutions

The highest values of the weighted normalized values present ideal positive solutions and the lowest values present ideal negative solutions.

$$A^{+} = \{(\max v_{ij} \mid j \in \mathrm{I}), (\min v_{ij} \mid j \in \mathrm{J})\}$$ Eq. (6)

$$A^{-} = \{(min\ v_{ij} \mid j \in I), (max\ v_{ij} \mid j \in J)\}$$ Eq. (7)

Ideal positive and ideal negative solutions are obtained as follows to indicate the value of I = benefit (maximization) and J = cost (minimization) in the formulas.

$$A^{+} = \{v_1^{+}, v_2^{+}, \ldots, v_j^{+}, \ldots, v_n^{+}\}$$

$$A^{-} = \{v_1^{-}, v_2^{-}, \ldots, v_j^{-}, \ldots, v_n^{-}\}$$

Step 5: Calculation of Measures of Separation
The distance between alternatives is measured using the equations (8) and (9).

Accordingly,

- The distance of each alternative to the positive ideal solution is as follows:

$$S_i^{+} = \sqrt{\sum_{j=1}^{k} \left(v_{ij} - v_j^{+}\right)^2}, \qquad i=1, 2,..., k$$ Eq. (8)

- The distance of each alternative to the negative ideal solution is as follows:

$$S_i^{-} = \sqrt{\sum_{j=1}^{k} \left(v_{ij} - v_j^{-}\right)^2}, \qquad i=1, 2,..., k$$ Eq. (9)

Step 6: Calculation of Relative Proximity to the Ideal Solution
Relative proximity to the ideal solution is determined by the following equality:

$$C_i^{*} = \frac{S_i^{-}}{S_i^{-} + S_i^{+}}, \quad i = 1, 2,..., k$$ Eq. (10)

$$0 \leq C_i^{*} \leq 1$$

Step 7: Ranking of Alternatives and Scores
After the calculation, alternatives are ranked from highest to lowest, and ultimately, the maximum C_i^{*} value is selected. The alternative with the highest value is defined as the most similar alternative to the ideal.

3.3 Application of the Method and Results
The study includes 18 countries (decision points) and 9 financial ratios (criteria). Scoring and sorting of the results from the values obtained during the 2016–2018 period by implementing the steps described above using the TOPSIS method are indicated in the table below.

No	Scores	2016	Scores	2017	Scores	2018
1	0,6900	Argentina	0,7237	Israel	0,6387	Israel

2	**0,6008**	**Republic of South Africa**[2]	**0,5239**	**Indonesia**	0,5403	Argentina
3	**0,5949**	**Indonesia**	**0,5212**	**Republic of South Africa**	0,4306	Mexico
4	0,5696	Israel	**0,5090**	**Brazil**	**0,4192**	**Indonesia**
5	0,5631	Pakistan	0,5049	Mexico	**0,4188**	**Brazil**
6	0,5506	Mexico	0,5025	Pakistan	0,4123	Romania
7	**0,5324**	**Brazil**	0,4949	Spain	**0,4048**	**Turkey**
8	0,5269	Poland	0,4877	Poland	0,3992	Colombia
9	0,5233	Colombia	0,4846	Colombia	0,3884	Nigeria
10	**0,4970**	**India**	0,4825	Argentina	0,3883	Poland
11	0,4911	Romania	0,4772	Romania	**0,3877**	**Republic of South Africa**
12	**0,4849**	**Turkey**	0,4750	Portugal	0,3848	Pakistan
13	0,4725	Spain	0,4664	Italy	0,3529	Spain
14	0,4556	Nigeria	**0,4632**	**Turkey**	0,3421	Italy
15	0,4396	Portugal	**0,4310**	**India**	0,3214	Portugal
16	0,4298	Italy	0,3815	Greece	**0,3108**	**India**
17	0,4294	Greece	0,3649	Nigeria	0,2735	Cyprus
18	0,4247	Cyprus	0,3590	Cyprus	0,1587	Greece

TABLE 3: Countries and Scores.

** Some countries added to the dataset are excluded from the research sample due to lack of data, such as China, Egypt, Hungary, Qatar & Russia.*
***Expert opinions were used in the selection of financial rates.*
****https://www.imf.org/external/np/sta/fsi/eng/fsi.htm*

According to the results obtained by the Topsis method, Israel and Indonesia are generally on the upper ranks and Cyprus Greece of the EU are on the lower ranks in the list. When the TOPSIS scores obtained are examined, it is seen that the scores of the countries other than the countries in the first two places are close to each other. It is necessary to highlight that the difference between the scores of the countries that are ranked first and the countries that are ranked in the second place in all years is greater than the differences between the scores of the remaining countries in the sample. According to this result, it is possible to say that the financial soundness performance of the number-one country's financial institutions in the list is much better than rest of the countries in the list.

However, when TOPSIS scores are examined by years, it is seen that the maximum (0.6900; 0.7237) and minimum (0.4247; 0.3590) values of 2016 and 2017 are close to each other, while the maximum (0.6387) and the minimum (0.1587) values of year 2018 have decreased compared to the previous two years. These results could be interpreted as an evidence that the financial strength of the financial institutions of the countries has weakened in 2018 compared to the previous two years.

In 2016; according to the scores the last five countries were Nigeria, Portugal, Italy, Greece and Cyprus. In 2017; the last five countries were Turkey, India, Greece, Nigeria and Cyprus. Finally, in 2018; Italy, Portugal, India, Cyprus and Greece have the worst performing financial institutions. The scores of Cyprus and Greece, which are in the bottom of the list, should be underlined.

[2] The original "Fragile Five" countries of 2013 written in Bold letters.

Although they are at the bottom in the whole sample period, their scores worsened especially in 2018. Cyprus's score in 2018 is 0,2735, and it is nearly 12% lower than even India, which is third-to-last country in the list. And the score of Greece is 0,1587 which is even %41 lower than the second worst performing country, Cyprus.

4. DICUSSION AND IMPLICATIONS

The soundness of a country against financial shocks depends on the soundness of the financial structure of financial institutions that have the authority to collect deposits, which are the basis of its national financial system. The stability of the financial structure of a financial institution could be understood using performance measurements and assessments of whether the funds are used effectively. In addition, due to constantly changing conditions both inside and outside a country, performance measurements and evaluations at regular intervals are necessary to accurately analyze the current situation. Furthermore, for investors who want to invest their funds in different countries and markets, it is important to have access to accurate and impartial information. Thus, investors can effectively price assets by correctly conducting their risk-return analysis. This is also in the interest of the borrowers. By this means, borrowers have the opportunity to obtain financing at optimum costs. Therefore, it is a positive situation for both parties to get accurate and objective information on this matter.

In this study, the financial soundness performances of 18 countries selected on the basis of countries labelled as the “Fragile Five” were evaluated using the TOPSIS method. The nine financial soundness ratios selected as the indicators of financial soundness were ranked according to the performance of each country for each year of the IMF data obtained during the 2016–2018 period.

When examining the country rankings obtained using the TOPSIS method used in the study, it has been observed that the top five countries with the best performance in the respective periods have changed year to year. However, Brazil, Indonesia and Israel appear to be among the top five of the best performing countries in all three periods. At this point, Brazil and Indonesia are two of the countries grouped as the “Fragile Five Countries”. Republic of South Africa became one of the top five countries in 2016 and 2017. The performance of the financial institutions in Turkey, which is claimed to be the permanent member of the Fragile Five club, is also noteworthy. Turkey ranked 12th among 18 countries in 2016, 14th in 2017 and 7th in 2018. Despite being among the five poor performing countries on the list in 2017, it appears to have an average rank with its performances in 2016 and 2018.

According to the research results, among the five countries that have performed the worst in the respective period, Cyprus and Greece, who are members of the European Union, have the lowest performance in all three periods under consideration. Portugal and Italy, which are also members of the European Union, are among the worst performing countries in 2016 and 2018. The other two countries that performed the worst were India and Nigeria. It is worth emphasizing that India is a member of the “Fragile Five” countries.

Significant results have been reached in this study regarding the soundness of the financial system in countries when the financial soundness performance of financial institutions that collect deposits were examined based on the Financial Soundness Indicators issued by the IMF. The countries called the Fragile Five in global financial circles actually do not have the worst performance among the 18 countries compared using the indicators of financial soundness of their financial institutions. On the contrary, financial institutions in Israel and Indonesia and may be Rep. of S Africa have shown their highest performance in the relevant periods. In general, it is possible to say that Colombia, Pakistan and Turkey are in the middle of the list. In contrast, the performance of financial institutions in Cyprus, Greece and even Portugal and Italy have been low, compared with those of other countries, even they are European Union members.

The most interesting result of the analysis employed is that the scores of the countries have changed significantly over the years. While applying the method, repeating the analysis for a couple of years without being stuck in a single year enabled us to catch up the changes in time. Thanks to the dynamic application of the analysis, a better understanding of the sample has been achieved. These findings have shown us that when examining countries, it would be more appropriate to make a multi-term analysis without sticking to a single period.

It is necessary to evaluate these results carefully, especially for international investors. This is important for effective risk and return management. However, at this point, it is also appropriate to indicate that it is early to come to a definite conclusion. The high financial soundness of the financial institutions operating in a country is an indicator of the country's resilience to financial shocks, but it should be noted that just by itself it will not be an adequate indicator of whether a country is resilient to financial shocks. In the last two years world economy have been experiencing one of largest economic shocks in the recent past as a result of Covid 19 pandemic. The pandemic is expected to push most countries to economic distress may be for the next few years. As a result of pandemic emerging markets and developing countries could have face challenging difficulties. For this purpose, it is necessary to study the financial structure of the country as a whole and taking in consideration to all other necessary conditions, such as pandemic, especially with recent data. In addition, the number of samples and the sample period should be expanded, and analyses that are more thorough are required. The diversification of the methods used will also positively contribute to the reliability of the results to be achieved.

This study has some limitations. First, the unavailability of data for all the selected countries caused the sample of countries to be reduced. This may negatively affect the power of the study. Second, the soundness of financial institutions has been used as a proxy for the soundness of the financial system to conduct the research. This assumption was made to achieve the purpose of the study. However, in order to reach the final conclusion, the soundness of the financial system should be investigated from different perspectives. Despite its limitations, this study can still serve as a guideline for international investors when assessing the country specific risk.
When more recent data available in the future, researchers may repeat the analysis for a better assessment of country specific risk.

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The Influence of Macro factors On Residential Mortgage In Italy

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Abstract

This paper examines the role of macro-economic variables, including informal sector, on the growth of the mortgage market in Italy, from 1999 to 2019. We start testing normality, correlation (Pearson) and multicollinearity, then we apply theoretical benchmark model following the approach proposed by Wichura (2006) using a linear regression model. Based on the main findings of this study we show that there a positive and potentially high correlation between residential mortgage and informal sector. In particular, we find that a unit increase in Percentage informal sector employment will cause an increase in residential mortgage. May be counterintuitive as the informal sector magnitude should represent a weaker access to credit for borrowers; nevertheless it may also be the case that informal sector increase anticipate GDP growth signalling a subsequent positive economic downturn. Thus, financial institutions will increase residential mortgage due to the informal sector growth signalling a positive economic trend. This work may help them suggesting how to include informal sector dynamics into residential mortgage pricing, as well as policymakers to read residential mortgage market dynamics and derive informal sector insights.

Keywords: Italy, Residential Mortgage, Economic Factors, Informal Sector.

1. INTRODUCTION

Based on the World Bank’s (2012) world development indicators report, there is a clear definition of a macro-economic factor: “one that is pertinent to a broad economy at the regional or national level and affects a large population rather than a few selected individuals”. Therefore, examples of such can include economic output, unemployment, inflation, savings and investment among others. Often, in each country, macro-economic factors are centrally monitored in order to obtain a single authoritative view on key macroeconomics variables. In Italy, ISTAT is the institution, which serve this role, and provides data on various economic development indicators, like inflation, informal sector employment, national savings rate, GDP growth rate, GDP per capita among others. This study, among others, seeks to unlock the relationship between such macro-economic variables and the development of the mortgage market.

The real estate sector plays an important role in the Italian economy, thanks to the contribution it directly or indirectly provides to the production activity. Buildings are a fundamental element for calculating household wealth and, as a consequence, are directly linked to the financial credit sector. The interactions created between the real estate market and the credit market are fundamental in the transmission mechanism of monetary policy, significantly influencing the cyclical trends of the entire economy and the stability conditions of the financial system. The monitoring of the economic and financial conditions of families and in particular of their vulnerability has become increasingly important since the outbreak of the 2008-2009 financial crisis. The prolonged crisis of recent years has deeply undermined the ability to save, reducing the propensity to invest in real estate that, above all in our country, it involves the main and often unique form of indebtedness of families (Bartiloro, Rampazzi, 2013).

Literature shows that housing prices and the gross domestic product (GDP) are the main drivers to explain the amount of residential mortgages outstanding (Dajcman, 2020); but there is no clear evidence on the causal relation between the other macro-economic and demographic variables for the Italian market.

It has been widely discussed and it is now mainstream that mortgage lenders are concerned with the ability to pay by a prospective borrower. In this perspective, Gelfand (1970) suggested that lenders would prefer borrowers with stable incomes. This restricts mortgage finance to households with adequate levels of income or savings and this, by definition, excludes the poor according to De Soto (2000). Nevertheless, according to income visibility, the poor is not the only category to consider. In fact, after using a multi-clustered stratified sample data of households residing in informal settlements in Jakarta, Indonesia, Saleh (1999) found that mortgage loans were inaccessible to majority of households employed in the informal sector due to the nature of their incomes and the strict requirements of loan collateral by the formal housing finance sector. Other authors, later on, described which link might exist between mortgages and the informal sector. Demir et al., (2003) argues that employment is a factor influencing demand for housing loans. If the unemployment level in an economy is low, the potential house buyers' ability to engage with housing finance market increase. Hardt (2000) asserts that lack of job security and existence of informal employment determines the ability to access the housing loans.

This paper's original contribute is the effort to include over macro-economic factors, the informal employment sector and Informal sector in terms of value added as a percentage of GDP, in order to explain mortgage market dynamic in Italy and which role these three different drivers play in this.

Being able to efficiently analyse the underground economy is of great importance for economic research, as this phenomenon produces significant (negative) results such as: reducing the quality and quantity of services offered to citizens (due to the reduction in revenue tax levied by the state), jeopardize the effectiveness of the economic policies implemented and to crack the relationship between citizens and institutions (citizens start to question the "quality" of the institutions). For institutions, to understand whether, by applying an expansive monetary policy through increased mortgage delivery, can reduce the informal sector, it is therefore important in many respects.

The remainder of the paper's structure is as follows. Section 2 presents a detailed literature review on mortgage market in Italy, macro-economic variables that influences the residential mortgage and the role of informal sector on mortgage market. Section 3 describes the empirical analysis, presenting the sample (Section 3.1), the methodology (Section 3.2), and main results (Section 3.3). Section 4 concludes the paper, summarizing the results and presenting their implications.

2. LITERATURE REVIEW

The literature splits into three strands: the mortgage market trend in Italy, the relationship between residential mortgages and macroeconomic variables, the relationship between residential mortgages and the informal sector.

2.1 Mortgage Market in Italy

Real estate developments have very important implications for the economic cycle and financial stability (De Bandt et al., 2010). On the supply side, the sector is responsible for a significant share of the construction sector, which in turn represents about 6 percent of GDP in Italy. On the demand side, real estate accounts for over 60 percent of household wealth; eventually wealth effects linked to house price movements are reflected in consumer choices (Nobili, Zollino, 2017).

In Italy, after a period of strong expansion that began at the end of the nineties, the real estate cycle reversed the trend well before the global crisis of 2008-09 (Gobbi, Zollino, 2013). The real decline began at the end of 2006, when investments in real estate and the profits that they generated entered into their decreasing phase. In addition to the residential real estate sector, the non-residential sector suffered too, such as public works. The duration and the intensity of the crisis have had a very negative impact on the business system, characterized in the European comparison by conditions of higher economic and financial fragility (De Socio, 2010).

This turned into a very negative scenario on mortgage markets. Banks sharply increased impaired loans in their balance sheets, a factor that has subsequently influenced their ability to grant new loans. For households, the deterioration in credit quality was lower than in companies, also due to the very selective policies adopted by credit intermediaries before the outbreak of the crisis and for the adoption of measures to support families in difficulty in repaying the debt (Magri, Pico, 2012).

In particular in Italy, but this is not related to this country alone, credit related to the housing market showed large cyclical fluctuations in timing and phase similar to those observed for house prices (IMF, 2008). The annual growth rate of mortgages, after stabilizing between 1987 and 1991 at around 20%, declined rapidly until 1996. Following the gradual acceleration between late 1997 and 2006, mortgages registered a marked slowdown with the eruption of the financial crisis. The cost of credit in Italy, broadly stable between the late eighties and the start of the nineties, showed a marked increase during the financial crisis of 1992, followed by a sharp decline in the wake of Italy joining the Economic and Monetary Union. In particular, the average interest rate charged on mortgage loans to households diminished to about 5% in 1999 from 12.5% in 1995. With the establishment of the euro area, bank rates closely followed the pattern of money market rates and the effects of monetary policy decisions. A further explanatory factor behind the decline in the cost of credit in recent years stems from the common international trend of financial liberalization and product de-specialization shared by the Italian banking system, as well as from the rapid increase in the number of intermediaries, both domestic and foreign, especially in the mortgage loan market (Nobili, Zollino, 2012).

From 2008 to 2011 the new loans granted by banks to households have decreased, both in number and amount. The drop mainly concerned younger and non-younger customers originating in European Union countries. These debtors suffered the most from the recession - in particular the rise in the unemployment rate and the fall in income available - and more selective banks' policies (Felici et al., 2012).

2.2 Macro Economic Factors

Gdp: There is not a single and standardized pricing method for such an opaque asset as real estate; lending subjects need to evaluate collaterals' value maybe also affected by the overall economy trend (Bernanke et al., 1994). There is not a unique banking sector approach, across countries, for evaluating both loan application and collateral value; in particular countries where evaluation criteria is strongly linked with mark to market trend are those characterized by a solid linkage between mortgages and macro-economy trend (Tsatsaronis and Zhu, 2004). For example if we consider a credit-rationing scenario, we can observe a cyclical borrowing capability that increases when the economy is rising and falls when the economy shrinks (Kiyotaki and Moore, 1997). In fact, a GDP increase could prove to have a combined effect on the mortgage market as it both influence real estate assets technology standards as well as housing preferences for individuals. Usually, the decision to invest, like house ownership, is fundamentally based on the current and the expected permanent future individual income; nevertheless every swing in the macro-economy can have an impact on the forecast of future income and therefore influence current investment choices (Goodhart and Hofmann, 2008). This is the case when, for example, the economy is growing, as a result average current and expected wealth increase and there is a significant incentive for individuals to become homeowners, due to the perspective of a better wage and overall wealth than the current state of art (Hubbard and Mayer, 2009). Notwithstanding investing in real estate ownership for individuals does imply the necessity of borrowing money, as it is almost impossible to become an owner paying fully by cash, so an increase in the homeownership implies a growth of the mortgage lending market. On the opposite, when the economy shrinks the mortgage market decline too as consumption and investment expenses decrease and long-term investors may prefer to wait a better moment to start a new residential real estate investment (Mogaka et al., 2015).

Furthermore, the GDP growth is normally related to technology innovation, which could also affect real estate sector due to new construction techniques and/or quality of services requested for housing. For example, the higher is the quality standard of materials used for housing investment the higher is the value of the asset as collateral for a loan request and so the higher will be the amount of loans outstanding (Iacoviello and Neri, 2010). Still the linkage between the real estate market and overall economy trend cannot exempt the higher volatility housing investment suffers with respect to other assets and services produced by an economy (Davis and Heathcote, 2005).

Inflation: Literature shows that inflation changes in the price level leaves mortgages demand unchanged. The challenge to this interpretation came by economist building on two arguments: inflation and the standard fixed payment mortgage combined to the size of the mortgage loan; an increase in the rate of anticipated inflation of the general price reduces the after-tax cost of housing, thus increasing the demand for housing and demand for homeownership (Khairunnisa et al, 2020). In particular, a 1% increase in the annual rate of anticipate inflation of the general price level reduces aggregate housing demand by about 4-5% (Follain, 1982). However, the inflation could have a double effect. On the one hand, the attractiveness of the mortgage can increase if you consider that the real value of the mortgage debt decreases. On the other hand, since financial institutions usually impose loan limits based on repayment relationships, inflation will be lower imply lower nominal interest rates that will increase the maximum amount a financial institution will make lend to the family (Stevens, 1997). In general, the house buyers are willing to take a larger mortgage in periods of low inflation because they fail to acknowledge that inflation lowers the real value of debt and this is coherent with the notion of money illusion (Shafir et al., 1997). Inflation increase the riskiness of fixed rate mortgage and stabilizing adjustable rate mortgage, an important element in household risk management. Campbell and Cocco (2003) highlight risk differences between fixed rate mortgage and adjustable rate mortgage, finding that a fixed rate mortgage with a prepayment option is expensive in a stable or deflationary environment. Adjustable rate mortgage conversely, limit potential risks associated with inflation uncertainty, yet are subject to income risk due to the short-term variability in monthly payments that may force a reduction in future consumption.

Exchange Rate: The mortgage market is of particular importance from the perspective of monetary policy as it plays an important role in the mechanism that transmits changes in the ECB’s policy rates to housing investment and consumption by households, and ultimately to output and prices (Issing, 2005). When the interest rate is rising, the cost of borrowing is also rising and the potential buyers are getting discouraged. As a result housing demand is falling. On the contrary, when the interest rates are on the decrease, e.g. because of money supply growth, then the user cost of housing is going down and the demand for housing is rising (Apergis and Rezitis 2003; Igan et al. 2011, Jha, 2019).

Frederic (2007) detects six direct and indirect ways in which the rate is affecting the housing market: directly on the user cost of capital, on the expectations for the future movements of prices and on the housing supply; indirectly through housing wealth changes and credit-channel effects on consumption and on demand.

Kibuthu (2005) investigated the extent to which borrowing respond to interest fluctuations. The study showed that there exists a strong negative linear relationship between lending rates and volumes of borrowings. The amounts borrowed increase with declining lending rates, as the private sector will be more willing to take on more credit.

Employment: Friedman (1967) argued that the equilibrium level of unemployment can be expected to depend upon structural forces such as the degree of labour mobility in the economy, while addressing the American Economic Association. Nevertheless, it is possible that the functioning of the labour market is haped by the nature, and inherent flexibility and dynamism, of the housing market (Layard et al, 1991) and not only by long-studied factors such as the generosity of unemployment benefits and the strength of trade unions.

Flatau et al. (2003) presented empirical work for Australia that suggested that mortgage payments could provide important incentives for job search. In particular, they showed that highly leveraged male workers were more likely to find a job soon after becoming unemployed than outright owners.

The relationship between homeownership and unemployment is an intriguing one. According to Oswald’s thesis (see Oswald 1996, 1997, 1999) there is a positive correlation between the two. The connection between homeownership and unemployment is policy-relevant, as in many countries homeownership is encouraged (for instance, by the tax deductibility of mortgage interest payments). Thus, Oswald’s thesis prompts questions of both a policy and a research nature, as is also witnessed in studies by Coulson and Coulson and Fisher (2009) and Green and Hendershott (2001).

More recently, Kantor et al. (2015) and Kusairi et al. (2019), findings support earlier micro-econometric results that homeownership tends to accelerate a successful job search.

National Savings Rate: Several past studies observed that one of the main requirements of the mortgage market is the availability of funds in form of accumulated savings. In fact, when the level of savings in an economy is high, the funds available to the mortgage market are high. Indeed, as the mortgage lenders are in the business of financial intermediation they are constantly relying on accumulated savings in an economy. Japelli and Pagano (1994) develop a simple overlapping-generations model to examine down payment constraints and saving rate showing that requiring larger down payments leads to significant increases in household savings. Their prediction is confirmed by their empirical findings, and by the empirical findings of a later study by Engelhardt (1996). The explanation supporting their result is that larger down payments impose a constraint on how much households can borrow, and this leads to an increase in aggregate saving. They also show that increased aggregate saving in turn leads to a bigger economic growth. This conclusion is in contrast to the conclusion of earlier studies that capital market imperfections hinder, not accelerate, growth. According to Japelli and Pagano (1994), the source of the departure from the conclusion of the earlier studies is the following: while earlier models focus on business credit, the focus in Japelli and Pagano (1994) is on the supply of credit to households.

2.3 Informal Sector and Mortgage Market

The majority of the workers active in the informal sector have not formed their unions or associations. Therefore, they remain without any representative organizations, which could help them to fight against the injustices they face every day (Gumber, 2002). They often have low and irregular income (Alam and Mahal, 2014) and the lower an individual earns, the worse will be his health (Bansod and Pedgaonkar, 2014). Moreover, high out-of-pocket health expenditure can lead to a significant burden on poor households: indebtedness and sometimes selling and mortgage of the household asset to pay for the health care expenditure (Gumber, 2000; James, 2004; Sunder and Sharma, 2002). In fact, a health shock leads to direct expenditure on medicines, transport, user fees and proper nutrition as well as the income forgone in the event of illness (Bhat & Jain, 2006; Choudhary, 2014; Yojana, 2014). As a result, most of the workers employed in the informal sector do not seek care unless it becomes necessary (Prinja, 2014).

In developing economies, like India, discussions on prospective reforms to achieve effective government-provided housing finance focused on minimizing bottlenecks that restricted access to housing credit. Discussed mechanisms needed to provide innovative banking alternatives with flexible guarantees and collateral requirements for those living in poverty and those working in the informal sector (Martin and Mathema, 2008). The financial sector had excluded lending to households with low and irregular incomes because of perceived repayment risk. As a result, prospective borrowers had limited access to banking services. Such low bank penetration further marginalized borrowers and reinforced a culture of unfamiliarity and uneasiness with housing finance products. Because of this perceived risk and unease in lending to low-income slum dwellers, higher interest rates and loan servicing costs further excluded such borrowers with their smaller loan sizes.

After using a multi-clustered stratified sample data of households residing in informal settlements in Jakarta, Indonesia, Saleh (1999) found that mortgage loans were inaccessible to majority of households employed in the informal sector due to the nature of their incomes and the strict requirements of loan collateral by the formal housing finance sector. Using ratio analysis, Taylor and Jureidini (1994) found that housing repayment requirements for women borrowers in Australia were consistently higher by more than ten percent than for men. They hypothesized that this could be due to the secondary status assigned to women’s income and the uncertainty of continuation of women in work owing to domestic reasons, which represent another form of informal employment.

3. EMPIRICAL ANALYSIS

3.1 Sample

We merged three data sources in order to build the file used in our baseline estimation: Bank of Italy, Eurostat and ISTAT (Italian National Statistical Institute). The sample consider the total residential mortgage by the banking sector for real estate from the annual reports of the Bank of Italy. Data on macro-economic factor as GDP, exchange rate, house price index, inflation was collected leveraging on Eurostat Database. Data regarding the informal sector employment, national saving rate, formal sector employment, was obtained from the statistical bulletins published by the ISTAT. Eventually, data on treasury bill rates derived from Italian Government data repository. Data are yearly observations and the time span goes from 1999 to 2019.

3.2 Methodology

The methodology we adopted is the multiple regression analysis. Before performing the regression analysis, we ran a normality test and a correlation test on data. Since we are investigating a sample consisting of less than 50 observations, the most appropriate normality test is the Shapiro Wilk test. If the statistic value is too small, equal to less than 0.05, the test it is the null hypothesis that makes it normal (Shapiro and Wilk, 1965).

As anticipated, we also performed a correlation analysis to observe the existence of a possible linear relationship between the independent variables and the dependent variable. This test serves to check if the variables are unrelated and therefore independent, in that case, regression analysis is not necessary. Given the sample data, the Pearson test is the most appropriate test. However, it was necessary to test for multicollinearity before the regression analysis because, if the independent variables exhibit strong multicollinearity, the regression model is deemed unreliable leading to problems when doing interpretation (Coakes, Steed & Price, 2008).

The analysis of the impact of macro economic and informal sector on residential mortgage is performed by using the approach proposed by Wichura (2006) and Mogaka et l. (2015):

$$REM_t = \alpha_t + \gamma_1 Infl_{t-1} + \gamma_2 \Delta GDP_{t-1} + \gamma_3 ISec_{t-1} + \gamma_4 ISecE_{t-1} + \gamma_5 FSecE_{t-1} + \gamma_6 NSR_{t-1}$$
$$+\gamma_7 TBR_{t-1} + \gamma_8 GDPcap_{t-1} + \gamma_9 REER_{t-1} + \delta_1 FinCrisis_{it} + \varepsilon_{it}$$

where the variables are specified as
REM_t = outstanding residential mortgage
$Infl_{t-1}$ = average inflation rate
ΔGDP_{t-1} = growth rate of the real gross domestic product (GDP)
$ISec_{t-1}$ = added value produced by the informal sector as a percentage of GDP
$ISecE_{t-1}$ = irregular employment rate (Informal Sector Employment)
$FSecE_{t-1}$ = regular employment rate (Formal Sector Employment)
NSR_{t-1} = national saving rate
TBR_{t-1} = treasury bill rate
$GDPcap_{t-1}$ = GDP per capita
$REER_{t-1}$ = real effective exchange rate (to control for external competitiveness)
$FinCrisis_t$ = dummy variable to control for the financial crisis period that assumes the value of one from 2008 to 2009 and zero otherwise (Reinhart and Rogoff, 2009)

3.3 Results

3.3.1 Shapiro-Wilk Test of Normality

A preliminary analysis of the data is performed. We run a normality test in order to understand if variables are distributed around a mean value (Table 1).

Variables	Obs	W	Prob>z
REM_t	20	0.94305	0.32554
$Infl_{t-1}$	20	0.91483	0.11472
ΔGDP_{t-1}	20	0.90538	0.07246
$ISec_{t-1}$	20	0.94764	0.38567
$ISecE_{t-1}$	20	0.94284	0.35389
$FSecE_{t-1}$	20	0.80101	0.06223
NSR_{t-1}	20	0.90247	0.05346
TBR_{t-1}	20	0.91297	0.09207
$GDPcap_{t-1}$	20	0.86173	0.05221
$REER_{t-1}$	20	0.96892	0.77655

Legend: REM = outstanding residential mortgage, Infl = average inflation rate, GDP = growth rate of the gross domestic product, ISec = informal sector as a percentage of GDP, ISecE = informal sector employment, FSecE = formal sector employment, NSR = national saving rate, TBR = treasury bill rate, GDPcap = GDP per capita, REER = real effective exchange rate.
Source: Istat, Eurostat and Italian Government data processed by the author.

TABLE 1: Test of Normality for all variables.

As shows in Table 1, the significance levels of all the data are more than 0.05 and these values indicate that the data are normally distributed. In particular, the higher value can be note for average exchange rate (0.776), the variables on informal sector (0.385 and 0.353) and outstanding residential mortgage (0.325). Minimum values, however higher than 0.05, can be note instead in the GDP per capita (0.052) and the variables about the formal sector employment (0.062).

3.3.2 Pearson Correlation Test

With the correlation test, each independent variables was be analysed with the dependent variable, make a correlation matrix (Table 2).

	REM_t	$Infl_{t-1}$	ΔGDP_{t-}	$ISec_{t-1}$	$ISecE_{t-1}$	$FSecE_{t-1}$	NSR_{t-1}	TBR_{t-1}	$GDPcap_{t-1}$	$REER_{t-1}$
REM_t	1.000									
$Infl_{t-1}$	-0.287	1.000								
ΔGDP_{t-1}	0.532	-0.406	1.000							
$ISec_{t-1}$	0.354	-0.254	0.534	1.000						
$ISecE_{t-1}$	0.435	-0.370	-0.096	-0.112	1.000					
$FSecE_{t-1}$	-0.322	-0.191	0.326	0.178	-0.524	1.000				
NSR_{t-1}	-0.466	0.332	-0.438	0.261	-0.292	0.514	1.000			
TBR_{t-1}	-0.329	0.537	-0.314	0.340	-0.100	0.070	0.445	1.000		
$GDPcap_{t-1}$	0.447	-0.557	0.383	-0.145	-0.009	0.176	-0.285	-0.666	1.000	
$REER_{t-1}$	0.229	-0.323	0.080	0.364	-0.494	0.514	-0.348	-0.277	0.163	1.000

Legend: REM = outstanding residential mortgage, Infl = average inflation rate, GDP = growth rate of the gross domestic product, ISec = informal sector as a percentage of GDP, ISecE = informal sector employment, FSecE = formal sector employment, NSR = national saving rate, TBR = treasury bill rate, GDPcap = GDP per capita, REER = real effective exchange rate.
Source: Istat, Eurostat and Italian Government data processed by the author.

TABLE 2: Pearson Product-Moment Correlation for all variables.

The table shows that there is a strong and negative correlation between the following variables: TBR and GDP per capita (-0.666) and GDP per capita and inflation (-0.557). On the other hand, we find a positive correlation only between TBR and inflation (0.537). All the other relationships present values that shows a medium level of correlation between them.

3.3.3 Multicollinearity Test

Condition	$Infl_{t-1}$	ΔGDP_{t-1}	$ISec_{t-1}$	$ISecE_{t-1}$	$FSecE_{t-1}$	NSR_{t-1}	TBR_{t-1}	$GDPcap_{t-1}$	$REER_{t-1}$	ε
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.357	0.02	0.03	0.00	0.00	0.00	0.03	0.04	0.05	0.00	0.00
2.759	0.03	0.15	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00
6.432	0.41	0.22	0.02	0.00	0.00	0.12	0.00	0.00	0.00	0.00
8.965	0.53	0.02	0.09	0.00	0.02	0.23	0.33	0.36	0.02	0.00
11.001	0.24	0.47	0.03	0.05	0.46	0.16	0.45	0.02	0.00	0.03
14.658	0.32	0.46	0.34	0.03	0.62	0.00	0.26	0.42	0.06	0.12
23.553	0.02	0.03	0.08	0.47	0.41	0.45	0.15	0.56	0.09	0.34
25.745	0.01	0.04	0.02	0.59	0.78	0.98	0.21	0.72	0.24	0.56

Legend: Infl = average inflation rate, GDP = growth rate of the gross domestic product, ISec = informal sector as a percentage of GDP, ISecE = informal sector employment, FSecE = formal sector employment, NSR = national saving rate, TBR = treasury bill rate, GDPcap = GDP per capita, REER = real effective exchange rate.
Source: Istat, Eurostat and Italian Government data processed by the author.

TABLE 3: Collinearity analysis for all control variables.

Table 3 shows the collinearity diagnostic for the macroeconomic variables assessed. In particular, the variable National Saving Rate shows a high coefficient value, therefore, there is collinearity for this variable.

3.3.4 Regression Model

	Coef.	P>|t|	Std. Err.	t-test
Average Inflation	0.607	0.017	0.523	1.50
GDP Growth	1.336	0.045	0.561	2.38
Percentage Informal Sector per GDP	0.228	0.027	0.024	3.18
Percentage Informal Sector Employment	0.995	0.009	0.289	3.45
Percentage Formal Sector Employment	-1.061	0.553	0.716	4.62
National Savings Rate	0.017	0.242	0.813	1.26
Treasury Bill Rate	0.013	0.967	0.212	2.04
GDP per capita	0.825	0.799	0.630	2.36
REER	-0.999	0.091	0.520	1.92
ε	-1.122	0.132	0.670	2.68

Legend: REM = outstanding residential mortgage, Infl = average inflation rate, GDP = growth rate of the gross domestic product, ISec = informal sector as a percentage of GDP, ISecE = informal sector employment, FSecE = formal sector employment, NSR = national saving rate, TBR = treasury bill rate, GDPcap = GDP per capita, REER = real effective exchange rate.
Source: Istat, Eurostat and Italian Government data processed by the author.

TABLE 4: Impact of Informal sector and macro economic variables on residential mortgages.

R-squared	Adj R-squared	Std. Error of the Estimate
0.832	0.633	0.069

TABLE 5: Model Summary.

The table 4 shows the model output coefficients, t test and beta statistics. The predictor variables were average inflation, GDP growth, Percentage informal sector per GDP, Percentage informal sector employment, Percentage formal sector employment, national saving rate, Treasury bill rate, GDP per capita and average exchange rate. The influence of each explanatory variables, both in magnitude and direction, has been estimated by the regression analysis. The main output, considering only predictor variables statistically significant based on the t-test result, are the following: a unit increase in average inflation will cause a 0.607 increase in residential mortgage, while a unit increase in GDP growth will cause an increase in residential mortgage by 1.336. Moving to Informal sector predictor variables there is a huge difference in magnitude between but not directionally between Percentage informal sector per GDP and Percentage informal sector employment, a unit increase of these variables cause an increase of residential mortgage by respectively 0.228 and 0.995. The only other significant variable is the average exchange rate; a unit increase in average exchange rate would cause a decrease in residential mortgage by -0.999, thus being the only negative correlation we find among significant variables we are considering. We find that the other variables (Percentage formal sector employment, national saving rate, treasury bill rate and GDP per capita) are not statistically significant based on the regression analysis.

Table 5 shows that the residential mortgages are influenced by control variables used in the model. In fact, 65,4% of the variation in residential mortgage can be explained by inflation, GDP growth, Informal sector, formal sector employment, national saving rate, treasury bill rate, GDP per capita and real effective exchange rate.

4. CONCLUSIONS AND POLICY IMPLICATIONS

This paper examines the influence of macro-economic variables, including informal sector, on the growth of the mortgage market in Italy considering data from 2009 to 2019. The methodology we adopted is the multiple regression analysis. Before performing the regression analysis, we ran a normality test and a correlation test on data. In departure from literature, inflation has a positive relationship with mortgage growth, just like GDP per capita and informal sector employment. Various such as Boamah (2009) and Chiquier et al. (2004) argue that the residential mortgage market grows in a stable macroeconomic environment.

Our results suggest that in Italy, residential mortgages are more driven by informal sector employment than formal sector employment. We show that there a positive and potentially high correlation between residential mortgage and informal sector. In particular, we find that a unit increase in Percentage informal sector employment will cause an increase in residential mortgage by 0.995 as confirmed by Martin and Mathema (2008) and Taylor and Jureidini (1994), while Percentage informal sector GDP will cause an increase of 0.228 in residential mortgage. This may be counterintuitive, as the informal sector magnitude should represent a weaker access to credit for borrowers; nevertheless it may also be the case that informal sector increase anticipate GDP growth signalling a subsequent positive economic downturn. Thus, financial institutions will increase residential mortgage due to the informal sector growth signalling a positive economic trend and thanks to these results we are able to implement the existing literature on the subject.

This work may help financial institutions suggesting how to include informal sector dynamics into residential mortgage pricing, as well as policymakers to read residential mortgage market dynamics and derive informal sector insights.

In a recent publication from the Journal of Business Research and Management (Cristofaro et al., 2021) four main areas of investigations were highlighted while reviewing the Journal's focus in the past years: marketing, technology and innovation management, operations and supply chain management and organizational behavior. This work mainly focus on the sub-topic of how to leverage and complement customer's behaviours insights from traditional sources by including the non-formal sector employment variable. In fact, as we clearly showed in our research it can significantly improve and potentially anticipate customer's behaviour changes while ahead other traditional sources of insights that marketing team would look into.

Original contribute is the effort to include over macro-economic factors, the informal employment sector and Informal sector in terms of value added as a percentage of GDP, in order to explain mortgage market dynamic in Italy and which role these three different drivers play in this.

This work shall serve as a starting point to continue investigation around which signalling the informal sector provide for residential mortgage markets. Both for financial institutions, which could include this variable for mortgage pricing as well as for policymakers to read residential mortgage market dynamics and derive informal sector insights.

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Repair of Trust Through Apology at a Reputable Company: The Case of PostBus In Switzerland

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Abstract

In 2018, an inquiry revealed that the Swiss-based PostBus company had illegally received several excessive compensatory payments. Consequently, trust in this once-reputable company declined. The subsequent crisis communication was studied from two perspectives: study 1 examined the case by means of a content analysis of the framing strategies used by both Swiss newspapers and PostBus. The analysis revealed that the newspapers framed the affair as an integrity-based trust violation and attributed the crisis responsibility internally. PostBus took the opposite stance, framing the breach of trust as a question of competence and assigning the blame externally. In study 2, we experimentally tested the effectiveness of the apology accounts. Our results showed that external attribution was more effective in repairing trust when the scandal was framed as a competence-based trust violation; however, regarding the framing of the scandal as an integrity-based trust violation, no difference was found between the two different apology strategies.

Keywords: Trust Repair, Crisis Communication, Apology, Accounts, Reputation.

1. INTRODUCTION: ORGANIZATIONAL MISCONDUCT AND ITS CONSEQUENCES

In today's interconnected world, news regarding organizational misconduct and the ethical failures of management spread faster and further than ever before. This dynamic also affects corporate crises (Kim & Park, 2017). Consequently, organizations perceive these crises' negative effects—in particular, the loss of trust—more swiftly and, in some cases, more intensively (Vasterman, 2018). Hence, corporate communication and the implementation of appropriate rhetorical tactics are crucial in rapidly responding to the formation of public opinion. Various studies (e.g., Coombs & Holladay, 1996; Brühl, Basel & Kury, 2018; Kim et al., 2006) indeed indicate that timely and target-oriented communication is an effective means of mitigating any damage that the organization's reputation may incur.

Of course, not every management error or violation of popular values will inevitably result in a tangible crisis. The decisive factor is often not only the objective severity of the misconduct but rather the attribution of responsibility (Coombs, 2007). When values such as fairness or honesty are violated, organizations perceived as highly respectable are particularly likely to face a more dramatic fall. The reason for this is that the public are particularly sensitive to violations of expectations of integrity (Burgoon & Le Poire, 1993). Zavyalova et al. (2016) also found that highly reputable organizations suffer more severely following negative events but only when they have disengaged stakeholders. According to Zavyalova et al. (2016, p. 257), disengaged stakeholders "have few cognitive and emotional links to the organization and do not define themselves as being one with the organization."

There are numerous approaches that address the issue of how organizations behave in the event of a (self-inflicted) crisis. The contribution of this study lies in the fact that a real case study of PostBus in Switzerland was examined through two perspectives: Study 1 examined the case by means of a content analysis of the framing strategies used by both Swiss newspapers and PostBus. Through this approach, we aim at a better understanding of the organizational communication behavior and information system (OCIS, based on Academy of Management (2021) research area classification). The analysis revealed that the newspapers framed the affair as an integrity-based trust violation and attributed the crisis responsibility internally. PostBus took the opposite stance, framing the breach of trust as a question of competence and assigning the blame externally. In study 2, we experimentally tested the effectiveness of the apology accounts. This approach focuses on the managerial and organizational cognition (MOC, based on Academy of Management (2021) research are classification). Our results showed that external attribution was more effective in repairing trust when the scandal was framed as a competence-based trust violation; however, regarding the framing of the scandal as an integrity-based trust violation, no difference was found between the two different apology strategies. These findings imply that apologies can help to restore trust but should not be regarded as a universal solution. While the results show trust repair effects with external attribution after a competence-based trust violation situation, no such increase in trust is observed in situations of integrity-based trust violations. Neither internal attribution of blame nor external attribution helped to restore trust, which proves that some integrity-based trust violations are simply too severe to be mitigated by verbal accounts only in a short time.

2. THE CASE OF POSTBUS SWITZERLAND

A prime example of serious credibility loss in a highly reputable company with disengaged stakeholders is the 2018 Swiss PostBus scandal. PostBus is a public corporation with over 100 years of history and is the leading bus company in Switzerland. PostBus is an intrinsic and iconic element in Swiss society and culture and has repeatedly ranked among the top Swiss brands based on reputation. The company itself has cultivated its brand to embody reliability, security, and trust. Consequently, the public also associates PostBus with characteristic Swiss values, such as punctuality and reliability. At the same time, however, PostBus' stakeholders' engagement and identification with the company is low: people do not generally identify strongly with bus operators. Compared to prestigious universities, gallant environmental associations, or desirable lifestyle brands, it can be assumed that people are unlikely to pay more for transport in a PostBus vehicle, as distinct from a bus operated by another company.

This scandal is less well documented internationally but should be viewed as an exemplary case of mismanagement in a state-owned company. Corporate crises of this nature are by no means uncommon (Detter & Fölster, 2015) and are particularly characterized by the fact that citizens should be regarded as stakeholders and consequently as having greater interest in adequate management.

2.1. Chronology of the PostBus Scandal

PostBus is a fully owned strategic subsidiary of the Swiss Post and is therefore also managed by the Swiss Post's Board of Directors and Executive Management. Swiss Post is, in turn, wholly owned by and receives its performance mandate from the Swiss Confederation. As a public company, PostBus is audited both internally and externally and is ultimately monitored by the Federal Office of Transport (FOT). At a press conference on February 6, 2018, the FOT disclosed that PostBus had failed to comply with the legal provisions from 2007 to 2015. The company had received a total of 78.3 million Swiss francs in excess compensatory payments, which amounts to three percent of the total compensation received during this period. According to a press release by Swiss Post, published immediately before the FOT's disclosure, the unlawfully obtained money was used for "ongoing operations and investment" (PostBus, 2018a), and PostBus were committed to reimbursing the full amount to the state.

In this first press conference, PostBus CEO Susanne Ruoff claimed that she had only known about the organizational transgressions since the autumn of 2017, when the FOT had first sought her help and collaboration, and that she regretted the incident deeply. Ruoff also highlighted that the transgressions "happened in only a corner" (PostBus, 2018b) of PostBus and reiterated the company's intention to fully reimburse the excess payments. As an initial response, Susanne Ruoff dismissed two of the company's executives.

On February 7, 2018—one day after this first official communication—a national tabloid, *Blick*, published an internal document claiming that Susanne Ruoff, in addition to other members of PostBus' management team, "had been made aware of the illegal accounting practices as early as 2013" (Zaugg & Tischhauser, 2018). The combination of the initial transgression with inconsistencies in communication caused a significant public stir and triggered a discussion that went beyond the accusation of illegal accounting practices. One key theme that emerged was the general legitimacy of public companies and how such companies should be organized.

In response to public and political pressure, Swiss Post and Urs Schwaller, the president of the board of directors at that time, decided on February 14, 2018, to launch an internal inquiry with the aim of fully investigating the issue of mismanagement. However, it was proposed that the inquiry would take place under his own leadership, which also prompted accusations that the investigation's objectivity was insufficiently assured.[1]

3. THEORETICAL FRAMEWORK

3.1 Media Framing

When organizational misconduct is detected, executives usually try to gain sovereignty over the interpretation of events. Potential strategies in such endeavors may include reference to internal investigations—as in the case of Swiss Post—or to planned future measures. In short, the interested parties will try to maintain their grip on the reins, usually with the intention of contrasting the organization's own presentation of information with external (e.g., news media) reporting. In addition to the selection of information, certain aspects are also made salient. The combination of selectivity and salience is widely discussed under the term "framing" in communication research (Cacciatore et al., 2016; Olsson & Ihlen, 2018; Liu & Scheufele, 2016).

Framing is considered to be a central component in the constitution of our social reality (McQuail, 2005) and public opinion (An & Grower, 2009). Framing's effectiveness is also supported by various studies, which demonstrate that even supposedly identical facts can be perceived in completely different ways as a result of subtle changes in wording or presentation sequence (e.g., Basel & Brühl, 2016; Fausey & Boroditsky, 2010). After all, reportage is not only concerned with passing on information but also with attributing causes and responsibilities and, ultimately, with the credibility of all communication. Consequently, the framing strategies implemented by organizations and news media are not always identical, nor are they necessarily identical between individual media outlets (e.g., depending on political orientation).

3.2 Attribution and Responsibility

The basic human need to understand one's social environment and its underlying causalities is of central importance in corporate crises. In the event of potential misconduct, stakeholders want to know the underlying reasons and how the company is responding to the situation. The patterns according to which the ascription of causality proceedings are discussed fall into the area of various types of attribution theories (Försterling, 2001).

In the field of trust (-repair), Weiner's (1985; 2018) seminal psychological attribution theory has gained traction and has been empirically supported in various settings (e.g., Brühl et al., 2018; Tomlinson, 2018). According to this approach, three dimensions of the attribution of causality are of particular importance:

[1] At the time of writing in 2020, the investigation into this issue had not yet been fully completed. Since this study focuses on reporting during the first two weeks of the crisis, the final result is not decisive for the analysis presented here. Interestingly, however, PostBus (2019) argued in its own communications as early as June 2019 that the affair is now closed and that decisive steps have been taken.

1. Locus—Is the cause of the crisis located inside or outside the company?
2. Stability—Does the cause of the crisis have a systematic, recurring component?
3. Controllability—Can the causes of the crisis be addressed or not?

The company can address these individual dimensions in a targeted manner by means of its communication strategy. In this context, the selection of accounts receives particular attention.

3.3 Accounts as Rhetorical Tactics

Accounts are defined as social actors' responses that explain past and future behaviors and the underlying responsibility for such behaviors and their consequences. Accounts have been examined since the mid-20th century (e.g., Scott & Lyman, 1968) from a sociological and linguistic perspective. In recent years, the transference of accounts into (crisis-) communication and trust repair research has attracted considerable attention from scholars (e.g., Brühl & Kury, 2019; Sandell & Svensson, 2016; Brocato et al., 2012) and practitioners alike (e.g., Tavris & Aronson, 2020).

Psychological and communication-theoretical literature offers numerous typologies of various existing accounts. Interestingly, most of these can be classified according to Weiner's (1985) three dimensions and thus empirically analyzed in terms of their effect. The question of responsibility first arises when existing norms are violated. The example of PostBus shows that, interestingly, this happens in two different ways. On one hand, legal standards were clearly broken. On the other hand, the affair constituted a violation of the moral norm, as the perception that facts had been distorted intensified.

3.4 Apology as a Rhetorical Tactic

In the light of a looming scandal, many organizations initially follow legal advice and make no statements at all or deny any misconduct (Brühl & Kury, 2019). However, several studies suggest that apologies in particular may play a key role in repairing trust (e.g., Ferrin et al., 2007; Fuoli et al., 2017; Kim et al., 2004).

According to Lewicki et al. (2016), a full apology is composed of various elements: an expression of regret, a deliberate assumption of responsibility for undesirable developments, and potential offers of compensation to the afflicted parties in combination with a request for forgiveness. Although this is the ideal standard for a comprehensive apology, little research to date has focused on the degree to which these elements must be addressed for the apology to be considered satisfactory (Bippus & Young, 2020). Empirical studies, however, indicate that aspects of responsibility and future measures are likely to be the essential foundations of an effective apology (Lewicki et al., 2016).

However, even if an organization decides to issue an apology, the apology itself may still fail to clarify the nature of the breach of trust that is being addressed. The most relevant distinction here is between a violation of competence and a violation of integrity (Mayer et al., 1995). If the apology foregrounds deficits in skills and abilities, the recipients' attention will focus on competence deficiency. If, on the other hand, the apology emphasizes disregarded values and norms, the recipients' focus will be on integrity.

3.5 Repairing Public Trust

Public trust is defined as "the degree to which external stakeholders, such as the public, hold a collective trust orientation toward an organization" (Poppo & Schepker, 2010, p. 124). The loss of public trust threatens the core existence of organizations and highlights the importance of establishing and maintaining public trust as well as working on restoring it in the wake of organizational transgressions. However, this is easier said than done: while the establishment of public trust is more difficult than its destruction (Nakayachi & Watabe, 2005), research has found that the initial establishment of trust is still far easier than its repair following a violation of that trust (Kim et al. 2004). The public often initially has little knowledge of the organization in question and must thus "examine aspects of the firm's behaviour that are broader [than relational aspects of the firm] and presented by the organization itself" (Poppo & Schepker, 2010, p. 127). As long as no other evidence suggests that a company has committed a trust violation, the public may initially place its trust in the organization (McKnight, Cummings, & Chervany, 1998).

An organization's position will inevitably be affected after a trust violation has occurred, and the lost trust must be restored. First, a violation will often cause trust to "plunge below its initial level," so that it requires greater effort to restore it to its pre-crisis level than was initially required to establish it. Second, Kim et al. (2006, p. 50) argue that companies who are obliged to repair trust must not only re-establish positive expectations but must also overcome "salient negative expectations that are likely to have arisen from the trust violation". Trust repair thus clearly differs from initial trust development and must be analyzed as an independent topic.

4. STUDY 1 – MEDIA AND ORGANIZATIONAL FRAMING

Study 1 focused on the official communication released during the first two weeks following the PostBus disclosure. Aside from the fact that the first few days after a wrongdoing has been exposed are key in how an organizational transgression develops (Clemente & Gabbioneta, 2017; Entman, 2012), extending the time frame for the analysis would also shift the focus of this investigation away from the direct reactions and their perception and toward the legal subtleties to engage in hermeneutic, in-depth document analyses.

4.1 Media Framing Analysis

In deciding how to frame certain issues, the media can shape public opinion and influence stakeholders' impressions of an organization's behavior (Olsson & Ihlen, 2018). By choosing which issues to cover (selection) and how much attention a chosen issue receives (salience), media outlets fulfill a filtering function that is proven to influence the public's ability to engage with an issue (Althaus & Tewksbury, 2002). Rhee and Haunschild (2006) further argued that the media concentrates on those issues that promise to attract the most attention. Media outlets thus literally create scandals as "highly mediated events that originate from a disruptive publicity of a transgression that elicits public disapproval" (Clemente & Gabbioneta, 2017, p. 288).

Owing to the company's high profile and public ownership, the PostBus scandal promised this public attention. In cases such as that of PostBus, in which the ultimate responsibilities for the occurrence of a crisis have yet to be clarified, media outlets can choose to frame both the type of trust violation (i.e., integrity-based or competence-based) and to whom the blame should be apportioned (dispositional or situational factors). Combining the finding that people generally respond more strongly to bad outcomes than to good outcomes (Baumeister et al., 2001) with the fact that negative information regarding integrity is more heavily weighted than negative information regarding competence (Connelly et al., 2016), we may deduce that an integrity-based trust violation will attract greater public attention than a competence-based trust violation.

Framing the PostBus affair as a dishonest organizational action would violate the public expectations as well as the company's self-declared values of reliability, security, and trustworthiness more than if the wrongdoing were framed as attributable to a lack of knowledge or control. As newspapers are, among other things, particularly interested in stirring public attention and increasing their readership, we posit the following:

Proposition 1. In the case of PostBus, newspapers framed the scandal more as an integrity-based trust violation than as a competence-based trust violation.

Proposition 1 prompts the question of to whom the media attributed the corresponding responsibility for the affair. According to the dispositional attribution model (Reeder & Brewer, 1979), the type of trust violation plays a crucial role in defining how severe the public's perception of an organizational transgression will be. Competence-based trust violations are often perceived as human or normal, "given that those who are competent and incompetent can each perform poorly in certain situations" (Kim et al., 2006, p. 51) and as situational factors seem to play a critical role in determining success or failure. However, when a trust violation occurs as a result of poor integrity, the situation looks completely different, as "people would intuitively believe that those with high integrity would refrain from dishonest behaviour regardless of the situation, whereas those with low integrity may exhibit either dishonest or honest behaviors depending on their specific incentives and opportunities" (Kim et al., 2006, p. 51). The situational factors fade into the background, and the trust violation is perceived as a conscious choice made by the transgressor.

For integrity-based trust violations, it therefore seems more difficult to determine why particular parties should be held responsible for the transgression. Additionally, the fewer situational factors that may be deducted from a transgression, the more likely it is that individuals will attribute the corresponding responsibility to the transgressor(s) themselves (McClure, 1998), which, in this study, is PostBus management. We therefore posit the following:

Proposition 2. In the case of PostBus, newspapers largely apportioned the responsibility for the "subsidies affair" internally rather than externally.

4.2 Organizational Framing Analysis

By effectively framing their own missteps, organizations can positively influence the tenor of media coverage and public opinion while aiming to "increase the firm's social approval following wrongdoing" (Zavyalova et al., 2012, p. 1080). Brühl et al. (2018, p. 162) state that initial judgments regarding a transgressor's responsibility and credibility are not final but can be modified through "new information, situational interpretations and specific judgments", offering the transgressing party an opportunity to repair damaged trust.

In ambiguous situations, in which final motives have not yet been identified, management can—in the first stage—decide on how best to frame the type of trust violation that has taken place. In the case of PostBus, in which the underlying reasons and motives were still not fully clear even after the external investigation committee presented its results in June 2018, the company's management were free to choose either type. The company could frame the trust violation as resulting from a lack of understanding or control (i.e., a competence-based trust violation) or as a deliberate act whereby illegal actions were planned or at least implicitly accepted (i.e., integrity-based trust violation). Based on the above argument that integrity-based trust violations are more heavily weighted than competence-based trust violations, we posit the following:

Proposition 3. In the case of PostBus, the management framed the scandal more as a competence-based trust violation than as an integrity-based trust violation.

In the second stage, management can decide how to frame the response for the chosen trust violation type. In the case of PostBus, potential situational influences to which the management could assign part of the responsibility include politics, external or internal auditors, the government, or dishonest employees. The results with respect to the success and effectiveness of the different attribution strategies are mixed. The most effective approach to apologizing appears to be a balancing act (Tomlinson, 2018) between offering enough honesty and assuming enough responsibility to be perceived as credible and to repair trust. Being too honest and assuming too much responsibility may give the impression that the transgressing organization is more culpable than it actually is (DiFonzo et al., 2020) or may expose the company to lawsuits or financial loss (Coombs & Holladay, 2008).

As a natural complement to proposition 2, positing that the media will attribute responsibility predominantly to internal sources, we posit that the PostBus management tried to save face and mitigate the potential loss of trust by applying the opposite strategy:

Proposition 4. In the case of PostBus, the management attributed the responsibility for the 'subsidies affair' more externally than internally.

4.3 Data Collection
4.3.1 Media Framing
To analyze how the media framed the PostBus affair, all articles published in the printed editions of three Swiss newspapers between February 6 and 20, 2018, were collected. Data collection was limited to the first two weeks after the disclosure of the PostBus affair on February 6, 2018 by the FOT as, for example, Entman (2012) argues that the first days after the exposure of a trust violation are key in framing and determining whether or not a transgression will escalate into a scandal.

A total of three Swiss-only high-circulation newspapers were selected for analysis: a right-liberal-oriented newspaper (*Neue Zürcher Zeitung* (*NZZ*)), a conservative-populist tabloid (*Blick*), and a left-liberal newspaper (*Der Bund*). These publications were selected as representative of the most widely distributed daily newspapers to represent all political orientations and impressions of the scandal (Fichter & Jonas, 2008).

Media Source	***NZZ***	***Blick***	***Der Bund***
Political orientation	right-liberal	conservative-populistic	left-liberal
Daily readership	78,953	133,579	37,336
Catchment area	Zürich	Swiss-wide	Bern
Publisher	NZZ media group	Ringier	Tamedia

TABLE 1: Media Analysis Sources.

To obtain an initial impression of the differences in reporting among the three newspapers, the 99 articles collected were first quantitatively analyzed (see Table 2). *NZZ* published the fewest articles, although these articles were the longest in terms of average word count. *Blick* published 18 articles more than *NZZ*, which were approximately one third shorter in terms of average word count than NZZ's articles. *Der Bund* ranked between *NZZ* and *Blick* in terms of the total number of articles published and the average length per article but was found to have dedicated the most front-page stories to the PostBus affair.

Number of articles published	***NZZ***	***Blick***	***Der Bund***
Overall	24	42	33
First week	13	25	18
Second week	11	17	15
Cover stories	3	8	9
Average word count	516	304	457

TABLE 2: Quantitative Newspaper Analysis.

4.4 Organizational Framing
As a first step, all official statements released by PostBus and all personal statements given by its management were collected. It was assumed that all official communication had first been discussed with the management of PostBus prior to its release, and this was also treated as indirect communication on the part of PostBus' management for the purpose of this analysis. Data collection was limited to the first two weeks after the crisis had come to light, focusing on direct crisis communication and its effectiveness. Overall, eight official statements were released during this time frame (see Appendix). The statements were gathered through Swissdox, a Swiss media research service platform, and through the official website of the Swiss Post. Personal

statements are based on reports compiled by a journalist from the Tamedia Group who attended press conferences in person and kindly provided the authors with her notes.

4.4.1 Qualitative Analysis – Media Framing

For the qualitative analysis, Kim et al.'s (2006) categorizations of trust violation type and trust violation response were used as the two main frameworks. The two-stage procedure was conducted by two coders, based on the approach detailed by Clemente and Gabbioneta, (2017), whereby each article is read at least four times.

Stage 1: To obtain a general understanding of the argumentation used by the three newspapers, all 99 articles were read for the first time. Next, each article was read a second time, and all text components supporting one of the two frames—nature of trust violation or locus of responsibility—were extracted. These "components or devices of frames" (Matthes & Kohring, 2008, p. 263) were coded in first-order categories, such as internal pressure, with the help of MAXQDA (Kuckartz & Rädiker, 2019), a professional software program for qualitative data analysis. During this process of reading one article after the other for the second time, the first-order categories evolved, beginning with open coding to detect common topics and produce an initial set of codes. The first-order categories that emerged from reading the first article were transposed to the second article, and so on. At the end of stage 1, all articles were again reviewed with the elaborated 18 first-order categories, and five first-order categories were eliminated, as they had either been detected in one newspaper only or had been used by multiple newspapers but no more than three times by any publication.

Stage 2: The remaining 13 first-order items were combined into broader, second-order categories representing similar topics. For the predefined frames of nature of trust violation and locus of responsibility, the second-order categories were correspondingly integrity-based trust violation versus competence-based trust violation and external attribution versus internal attribution. The use of MAXQDA allowed the calculation of an overall Cohen's kappa (κ) = 86% for all rhetorical tactics. Cohen's kappa corrects overestimation just by chance (Brennan, Guillamon-Saorin, & Pierce, 2009), and the resulting overall value is considered to be a very good to excellent measure of reliability.

4.4.2 Qualitative Analysis – Organizational Framing

Analysis of the organizational framing was conducted following the same two-stage approach as was used in the media analysis. The relevant statements were first extracted, and they gave rise to 12 first-order categories that were iteratively created. In contrast to the media analysis, no statements were excluded owing to the availability of less information that was all derived from the same source. To test hypotheses 3 and 4, those first-order categories were then merged with the predefined second-order categories in a second stage, and these, in turn, were assigned to the predefined frames of nature of trust violation and locus of responsibility. Again, MAXQDA was used to measure interrater reliability. Cohen's kappa (κ) = 88% can also be classified as very good to excellent.

5. RESULTS – MEDIA FRAMING

5.1 Integrity-based Trust Violation

The three newspapers distinguished two types of integrity-based trust violations in the PostBus affair: the initial organizational transgression (i.e., the excess compensatory payments) and the management's communication following the disclosure of the PostBus affair on 6 February 2018. On the day of the disclosure, Susanne Ruoff's initial statement was praised as exemplary, and she was regarded as not having been jeopardized by the affair. This initial assessment, in addition to the tone of the reportage, however, changed immediately with the exposure of a confidential Post-internal document one day later.

The media framed the internal document, which revealed that knowledge of the compensatory payments already existed, as ultimate proof that PostBus' management, including the CEO, had been made aware of problematic transactions as early as 2013 but had labeled these transactions as unimportant and never took action. This shifted the focus from "one corner of the organization" directly to the management level of PostBus. Based on this internal document, all three newspapers labeled CEO Susanne Ruoff's statement of February 6, 2018—in which she said "something wrong has happened in one corner of PostBus" (Lanz, 2018)—as a deceptive attempt to direct the blame away from her and the rest of PostBus' management.

5.2 Competence-based Trust Violations

All three newspapers presented arguments that categorized the trust violation as competence-based and primarily distinguished between the first-order categories of lack of control and lack of competence. Those two first-order categories encompass arguments such as missing knowledge, too much trust (i.e., insufficient control), unqualified employees, or a complicated and unclear accounting system that is too complex even for auditors to grasp.

Table 3 presents a comparison of the distribution of the two second-order categories across the different newspapers. Comparing both the relative and the absolute numbers of arguments for each type of trust violation, it still emerged that all three newspapers gave more weight to integrity arguments than to competence arguments. On average, 95% of all articles included an argument that framed the trust violation as integrity-based, compared to 22% of the articles, which raised competence-based trust violation arguments.

Proposition 1 was supported, as the newspapers framed the trust violation predominantly as an integrity-based rather than a competence-based trust violation.

5.3 Internal Attribution

A total of five first-order categories that attributed responsibility to PostBus' management were identified. By far, the most popular attribution items were implicit knowledge and internal pressure. The management of PostBus was considered to have pressured its employees to achieve the company's business targets so that ultimately they saw no option but to cheat. The leaked internal document was further used by all three newspapers as evidence that the management of PostBus was aware that something was amiss but that rather than intervening, they were framed as having turned a blind eye to the issue. Following the disclosure of this document, all three newspapers shifted the focus from the employees to the management so that overall, employees were not blamed but rather were framed as victims in the affair.

The unknown underlying motives of those involved in the PostBus affair gave rise to much speculation in all three newspapers. Oft-cited potential motives were greed for gain, higher personal bonuses, and additional money for innovation. Finally, all newspapers repeatedly categorized the transgression as systematic rather than due to an individual's misdemeanor.

5.4 External Attribution

Overall, four first-order categories were identified for the external attribution of responsibility. By far, the most frequently raised items concerned the pressure that politicians placed on PostBus as well as the conflict of goals that they co-created. The Swiss government requires that public companies make customary profits while simultaneously forbidding profits for the most profitable business units, such as the regional transport sector in the case of PostBus. This conflict of goals was blamed for having set the wrong incentives and was consequently framed as partly responsible for the mindset that allowed the wrongdoing to occur in the first place. All three newspapers further questioned the role of the external auditing company, which insisted that it had never received the mandate to control the subsidies. With *Der Bund*'s disclosure of letters written by the cantons, the regulator's role was critically assessed. All three newspapers questioned whether the FOT had indeed done everything in its power to unveil the illegal practices. Overall, the newspapers did not define a single external actor as being primarily responsible. Table 3 shows that, overall, the newspapers found a further 89 arguments for why responsibility for the PostBus affair should have been internally rather than externally attributed.

To sum up, the results of the qualitative media analysis showed clear support for proposition 2, positing that the majority of the newspaper reportage attributed the responsibility for the PostBus affair internally rather than externally.

Newspaper	N	Nature of trust violation				Locus of responsibility			
		Integrity		Competence		Internal		External	
		#	%	#	%	#	%	#	%
NZZ	24	29	120.8	4	16.7	58	241.7	48	200.0
Blick	42	40	95.2	7	16.7	112	266.7	52	123.8
Der Bund	33	25	75.8	11	33.3	66	200.0	47	142.4
Total	99	94	94.9	22	22.2	236	238.4	147	148.5

TABLE 3: Analysis of Media Framing.

6. RESULTS – ORGANIZATIONAL FRAMING

6.1 Integrity-based Trust Violation

Analysis of all eight official documents revealsed that only three statements labeled the trust violation as integrity-based. These three statements all referred to illegal practices—specifically, to PostBus' failure to adhere to the law. Together, they gave rise to the first-order category: illegal practices. Two of the three statements were issued by Susanne Ruoff, and one statement was part of the first official press release from February 6, 2018. In contrast to the media analysis, no statement that framed Susanne Ruoff's communication from February 6, 2018, as an integrity-based trust violation was found.

6.2 Competence-based Trust Violation

Overall, 12 statements that labeled the trust violation as competence-based were identified. These were merged into two first-order categories. Official statements from the Swiss Post as well as statements from the CEO and the chairman of the Board of Directors were distinguished according to whether they revealed a lack of knowledge or a lack of control. While they acknowledged mistakes, all 12 statements simultaneously included a justification for the transgression. Urs Schwaller, for example, stated, "[…] we would not do our job properly if we were to work on operational topics and control each single bill" (PostBus, 2018b). Finally, a further six statements refused to take a stand, claiming that it was too early to make a judgment about the nature of the trust violation.

Table 4 compares the frequency of the second-order categories with respect to the nature of the trust violation and shows that, overall, PostBus' management predominantly used arguments that framed the trust violation as competence-based. The qualitative analysis thus showed clear support for proposition 3.

Document	Nature of trust violation		Locus of responsibility		
	Integrity	Competence	Internal	External (employees)	External
1 (SP 01)	1	0	1	1	0
2 (SR 01)	1	1	1	3	0
3 (SP 02)	0	1	0	1	1
4 (SR 02)	1	8	4	10	6
5 (US 01)	0	0	1	1	1
6 (SP 03)	0	1	2	1	1
7 (US 02)	0	0	0	0	0
8 (US 03)	0	1	1	1	0
Total	3	12	10	18	9

Note: SP = Swiss Post, SR = Susanne Ruoff, US = Urs Schwaller

TABLE 4: Analysis of Organizational Framing.

6.3 Locus of Responsibility
Unlike the analysis of media framing, which considered two second-order categories, three second-order categories were considered for organizational framing. The analysis distinguished between internal attribution (i.e., the management assumed full responsibility) and external attribution (i.e., the management partly blamed third parties and external influences, such as politics) as usual but also identified a third category, whereby the management attributed part of the blame to the company's employees, such as the internal audit department.

6.4 Internal Attribution
Ten statements indicated that PostBus' management assumed full responsibility for the affair. The ten statements were allocated to four first-order categories, based on whether the management admitted that it did not pay enough attention (lack of control), that it lacked sufficient industry knowledge (lack of knowledge), that it fostered systems that were not ideal for the challenges PostBus faced (internal systems), and statements in which the company apologized to its customers and innocent employees, who had suffered as a result of the organizational transgression (remorse). All three sources, the official communication by Swiss Post, and the interviews given by Susanne Ruoff and Urs Schwaller attributed the blame at least once internally to the management level. Susanne Ruoff stated, for example, "as I said previously, I should have reacted faster and paid more attention to the subject of profits at PostBus."

6.5 External attribution
Despite denying that they would blame anyone internally, analysis of the eight documents identified 18 statements that clearly shifted the responsibility to either the internal audit, the lower management of PostBus, or other employees involved. These findings gave rise to two first-order categories: blame-shifting employees and blame-shifting internal auditors.

Finally, nine statements at least partially blamed third parties, including external auditors. The frequency of the arguments for each second-order category shows clear support for H4—that the management of PostBus predominantly attributed the responsibility for the PostBus affair to its communication during the first two weeks externally rather than internally.

7. STUDY 2 – EFFECTIVENESS OF APOLOGY STRATEGIES
7.1 Hypothesis Deduction
Kim et al. (2006) compared the effectiveness of both attribution strategies for each violation type and found that for individuals who had committed integrity-based trust violations, external attribution was more successful in repairing trust, while for individuals who were responsible for competence-based trust violations, internal attribution was more effective in repairing trust. This study aims to test the same conditions in a real environment and at the management rather than the individual level. In this way, we strive to increase the external validity that many trust repair approaches lack.

Kim et al.'s (2006) findings have already been tested by other researchers, none of whom were able to fully support their results. Brühl et al. (2018), for example, most recently found that internal attribution was more successful than external attribution in repairing trust after an integrity-based trust violation, as it was evaluated to be more credible. Utz et al. (2009, p. 110), on the other hand, found that the "effectiveness of a reaction was not moderated by the type of trust violation". With the aim of testing Kim et al.'s (2006, p. 49) findings, which state that integrity-based trust violations are often so detrimental to credibility that "any mitigating response, even one that perceivers are likely to question, may prove worthwhile," we posit the following:

Hypothesis 5a. For a perceived integrity-based trust violation, external attribution will be more successful than internal attribution in restoring trust.

Further, again based on the findings of Kim et al. (2006), we posit the following:

Hypothesis 5b. For a perceived competence-based trust violation, internal attribution will be more successful than external attribution in restoring trust.

7.2 Method

An online experiment was developed to test the effectiveness of the respective apology strategies. This experiment was created using Qualtrics, a widely used research, survey, and experiment software tool. The approach was realized in the context of a vignette study, using a between-subject design. An advantage of this method is that both the desired realism and the control of independent variables are guaranteed (Aguinis & Bradley, 2014). Furthermore, Eckerd and colleagues (2021, p.264) argue that vignettes are particularly useful if participants “have an appropriate grasp of the experimental context,” which applies to the PostBus scenario.

7.3 Participants

The sample for the experiment was assembled via the authors’ personal and professional networks. The invitation link could easily be distributed, and therefore a possible unintentional “filter bubble” of the sample was also avoided as best as possible. Since no special skills were required of the participants, this approach seems plausible, including with regard to the sample’s heterogeneity. In total, 183 participants, of whom 47% were male and 53% were female, participated in the experiment. The average age of the participants was 36 years; 55.8% were between 21 and 30 years, and another 20.2% were between 51 and 60 years old. The youngest participant was 15 years old, while the oldest was 84 years old. Almost three quarters of participants were Swiss (73.2%), and 82.5% of participants resided in Switzerland at the time of inquiry. The remaining 17.5% non-Swiss residents were categorized as international. This seems sufficient, since the essential question was whether PostBus is known and whether its services are used. No explicit incentives were offered for participation. The experimental survey was conducted between May 7, 2018 and May 14, 2018.

7.4 Setting and Task

During the first stage, participants read a background text about the PostBus affair as a general cover story. However, they were made aware that the case was real and not fictitious and that the background text was based on official communication from the Swiss Post. The second part consisted of a fictitious written apology statement (see Appendix for the full statements). However, the participants were not informed at this stage that the statement was fictitious, as it was assumed that this information would influence the participants’ assessment of the apology.

The apology text was based on a 2 (violation type: integrity vs. competence) x 2 (violation response: internal attribution vs. external attribution) between-subjects design. Participants were randomly assigned to one of the four conditions—A, B, C, or D—as shown in Table 5.

Trust violation type	**Apology strategy**	
	Internal attribution	**External attribution**
Integrity	A	B
Competence	C	D

TABLE 5: Study Conditions.

7.5 Scenarios

The apology statements differed for each condition (see Appendix). Contra Kim et al. (2006), who separated the trust violation type from the trust violation response, this experiment included both in the same apology text—that is, the management not only apologized for the trust violation but also offered an explanation as to why the violation occurred. The framing of the trust violation type and the trust violation response represented this study’s manipulations of the experiment.

7.6 Violation Type

The violation was either framed as integrity-based (conditions A and B) or competence-based (conditions C and D). In the integrity conditions, the top management confessed that it had known about the illegal transactions but had done nothing to actively fight them. The apologies further stated that the management had tried to "cut corners a bit" (following the official PostBus communication) to reach the profit goal. In the competence conditions, the apology statements explained that the top management did not understand what was going on, as the underlying system was too complicated to follow. As the results from the official investigation committee had not yet been published when the survey was distributed and conducted, the participants ultimately had no evidence to support one type of trust violation over the other.

7.7 Violation Response

The response to the trust violation type was either framed as internal attribution (assuming full responsibility = conditions A and C) or external attribution (assuming only part of the responsibility = conditions B and D). In the internal attribution conditions, the management assumed full responsibility for the violation by stating that "we are guilty of illegal accounting practices". In the external attribution conditions, the management explained that they were "only partly guilty of illegal accounting practices" and shifted the rest of the responsibility to situational factors, mainly the conflict of goals that they considered to have been imposed by the government.

7.8 Dependent Measures

Following Kim et al. (2006), two separate multi-item scales developed by Mayer and Davis (1999) were used to measure perceived integrity and perceived competence.

7.9 Perceived Integrity

Three items from Mayer and Davis' scale (1999) were used to measure how the respondents assessed the integrity of the apology statement given by management: (1) "The Swiss Post's top management has a great deal of integrity"; (2) "I like the values of the Swiss Post's top management"; and (3) "Sound principles seem to guide the behavior of the Swiss Post's top management," using a seven-point Likert scale (1 = "strongly disagree"–7 = "strongly agree").

7.10 Perceived Competence

Regarding perceived integrity, three items developed by Mayer and Davis (1999) were used to measure how respondents rated the competence of the apology statement on a seven-point Likert scale (1 = "strongly disagree"–7 = "strongly agree"): (1) "The Swiss Post's top management is very capable of performing its job"; (2) "The Swiss Post's top management has much knowledge about the work that needs to be done"; and (3) "I feel very confident about the skills of the Swiss Post's top management".

Two additional items were presented: one to test trusting intentions—"Overall, I think that the top management of the Swiss Post should be given a second chance and should not be fired"—and the other to test trusting beliefs—"Overall, I think the management of Swiss Post will learn from its mistakes and will not do it again". These additional items aimed to capture a generalized assessment of the scenario and were not directly grounded by a theoretical frame of reference.

Finally, the online survey gathered data regarding the degree to which PostBus enjoys a good reputation on a reversed seven-point Likert scale (1 = "strongly agree" – 7 = "strongly disagree"). PostBus was repeatedly voted among the top Swiss companies with the best reputations, which led to the assumption that the company enjoyed a sound and trusting reputation before the crisis.

7.11 Control Variables

After reading the apology statement, participants had to answer two questions about what they had just read. These questions were developed by Kim et al. (2006) to test whether participants correctly understood both violation type and violation response.

8. RESULTS – APOLOGY STRATEGIES

8.1 Manipulation Checks

The two main manipulation check questions successfully tested the manipulations of trust violation type (Q1: "*What accusations against PostBus Switzerland does the apology statement* *by the management comment*?") and trust violation response (Q2: "*What did the management of the Swiss Post admit?").* Out of 183 participants, 161 answered both questions correctly (88%). Manipulation checks were more successful for the integrity-based trust violation (conditions A and B), as in both conditions, only two participants answered one or two questions wrong. For the conditions of competence-based trust violation, manipulation checks were less successful: in condition C, five respondents answered at least one question wrong, while in condition D, 13 respondents had to be excluded due to wrong answers. Thus, the final sample size was N = 161.

All respondents who answered incorrectly were excluded from further analysis. Comparison of the final 161 participants of the four condition groups with one another showed that the number of participants per treatment was almost equal (A: n = 38; B: n = 41; C: n = 39; D: n = 43) and well balanced in terms of gender.

8.2 Validation of Scale

To test whether the six items from the scale developed by Mayer and Davis (1999) could indeed be reduced to the two suggested components of perceived integrity and perceived competence, a principal component analysis (PCA) with oblique rotation (direct oblimin) was conducted.

Table 6 shows that the six items clustered on two components, supporting the model developed by Mayer and Davis (1999). Component 1 represents perceived competence, while component 2 represents perceived integrity. All loadings were above .7, which is considered "excellent" (Comrey & Lee, 1992). Together, components 1 and 2 explained 72.51% of the variance: 46.24% of the total variance explained was due to component 1, and the remaining 26.28% was explained by component 2 (see Table 6). Finally, the percentage of non-redundant residuals with absolute values greater than 0.05 was lower than 50%, which further indicated the model's good fit. Components 1 and 2 thus described the two most important dimensions of trust. To test hypotheses 5a and 5b, the two components were weighted with their explanatory power and summed up to the final dependent measure of trust.

Item	**Components**	
	Component 1	**Component 2**
I feel very confident about the skills of the Swiss Post's top management.	.86	.06
The Swiss Post's top management is very capable of performing its job.	.79	.10
The Swiss Post's top management has much knowledge about the work that needs to be done.	.79	-.10
I like the values of the Swiss Post's top management.	.00	.81
Sound principles seem to guide the behavior of the Swiss Post's top management.	-.05	.74
The Swiss Post's top management has a great deal of integrity.	.06	.56
Eigenvalues	2.77	1.58
Explained variance (%)	46.24	26.28
Cronbach's α	.86	.73

Note. Component loadings >.4 appear in bold

TABLE 6: Validity of Scale.

8.3 Hypothesis Tests

After checking for outliers and normality, the trust variable was computed for all four conditions. As shown in Table 7, the results indicate that a successful manipulation of the trust violation type can be assumed.

Condition	N	Competence			Integrity			Trust		
		M	Mdn	SD	M	Mdn	SD	M	Mdn	SD
A	38	3.58	3.66	1.43	2.65	2.66	1.26	3.24	3.27	1.14
B	41	3.78	3.66	1.42	2.83	2.66	1.16	3.44	3.30	1.19
C	39	2.62	2.33	1.14	2.85	2.66	1.20	2.70	2.70	0.91
D	43	3.07	3.00	1.12	3.46	3.66	0.99	3.21	3.09	0.86
Total	161	3.26	3.00	1.35	2.96	3.00	1.18	3.15	3.08	1.06

TABLE 7: Mean, Median, and Standard Deviation of Trust (Components).

To test hypothesis 5a, an independent samples t-test was used to compare the means of conditions A and B. First, Levene's test for equality of variances was conducted to check whether homogeneity of variance was given. The result was not significant: $F(1, 77) = 0.47$, $p = .83$, which allowed for the assumption of homogeneity of variance and continuation of the analysis as planned. Comparison of condition A with condition B in terms of trust repair, shown in Table 7, indicated that external attribution was more successful ($M = 3.44$, $SE = 0.19$) than internal attribution ($M = 3.24$, $SE = 0.18$) in repairing trust. This difference, however, was not significant ($t(77) = -0.74$, $p = .46$), and hypothesis 5a could not be supported. Additionally, Cohen's $d = .17$ as well as $r = .08$ indicated that, in practical terms, only a small effect was evident, accounting for no more than 1% of the total variance (Cohen, 1992).

In the final step, the effectiveness of different apology strategies in terms of trust repair for competence-based trust violations was measured to test hypothesis 5b. The same procedure that was followed for hypothesis 5a was applied. Comparing the means, it emerged that external attribution was more successful in repairing trust ($M = 3.21$, $SE = 0.15$) than internal attribution ($M = 2.71$, $SE = 0.13$). This difference was significant. Both Cohen's d (-.59) and $r = .38$ indicated a medium effect (Cohen, 1992).

To verify the results of the independent samples t-test, the Mann–Whitney test was also conducted for hypothesis 5b. Supporting the initial results, the Mann–Whitney test found that for competence-based trust violations, external attribution ($Mdn = 3.09$) repaired trust significantly more successfully than internal attribution ($Mdn = 2.70$, $U = 1{,}079.50$, $z = 2.41$, $p = .02$). The r value of $r = .27$ represented a small-to-medium effect, slightly below the .3 criterion for a medium effect size (Cohen, 1992).

Hypothesis 5b, positing that internal attribution would repair trust more successfully than external attribution after a competence-based trust violation, could therefore not be supported.

Additionally, we reanalyzed the answers given to the two questions intended to test for trusting intentions (Q9) and trusting beliefs (Q10). Table 8 gives an overview of the mean, median, and standard deviation for each condition and shows that for both trust violation types, external attribution (conditions B and D) was in absolute terms again more successful than internal attribution in repairing trust (conditions A and C).

Condition	N	Q9 (trusting intentions)			Q10 (trusting beliefs)		
		M	Mdn	SD	M	Mdn	SD
A	38	3.05	3.00	1.63	3.82	4.50	1.83
B	41	3.66	4.00	1.68	4.24	5.00	1.51
C	39	3.36	3.00	1.66	4.10	5.00	1.60
D	43	3.93	3.00	1.53	4.60	5.00	1.07
Total	161	3.52	3.00	1.64	4.20	5.00	1.53

TABLE 8: Descriptive Statistics Additional Checks.

Independent sample t-tests were conducted to test hypothesis 5a, and again no significant difference in terms of trust repair between the internal and external attribution strategies was found for either question (Q9: $p = .108$/Q10: $p = .259$). Measuring the effect size using Cohen's d, as described in formula (3), the difference between conditions A and B represented a small effect for both questions (Q9: $\hat{d} = .375$, $r = .182$; Q10: $\hat{d} = .230$, $r = .128$) (Cohen, 1988, 1992). The additional check did not support hypothesis 5a.

To double-check the results for hypothesis 5b, independent sample t-tests were run once more. In contrast to the tests for normality, no significant difference was observed between the effectiveness of external and internal attribution for competence-based trust violations (Q9: $p = .109$; Q10: $p = .097$). However the difference represented a small-to-medium effect (Q9: $\hat{d} = 0.343$, $r = .178$; Q10: $\hat{d} = 0.312$, $r = .184$) (Cohen, 1988, 1992).

A potential explanation for the different results for hypothesis 5b may be that Q9 and Q10 were too strongly formulated. Furthermore, they measured trusting intentions and trusting beliefs directly and, to the best of our knowledge, had never before been tested at the management level, as opposed to the questions devised by Mayer and Davis (1999) to measure perceived integrity and competence with respect to trust.

9. DISCUSSION

The real-life circumstances of the PostBus affair helped to compare the theoretical study results with the actual incidents. In study 1, comparison of media framing with corporate framing showed that the newspapers framed the PostBus affair in precisely the opposite manner to how PostBus' management framed it. Based on the widely tested and endorsed (Kim et al., 2004, 2006) dispositional attribution theory (Reeder & Brewer, 1979), which claims that negative information regarding integrity is weighted more heavily than negative information regarding competence, the difference between the framing can be explained as an attempt on the part of PostBus' management to minimize the loss of public trust by framing the transgression as a matter of competence deficiency.

The expectancy violation effect (Burgoon & Le Poire, 1993) further explains why the media did the exact opposite. Framing the PostBus affair in the light of a lack of integrity promised a greater violation of the public's expectations of the popular and highly respected public transport provider. This, in turn, yielded greater attention and sales than framing the affair as a lack of competence would have. The same dissonance was observed in the locus of responsibility. While all three newspapers predominantly blamed internal actors among the company's highest echelons, PostBus' management attributed three times as much blame to the company's employees or third parties than to itself. Both the media and PostBus' management were more focused on where the responsibility ultimately lay than on attempting to frame the type of trust violation.

Taken together, these findings represent a situation that is the exact opposite of what Kim et al. (2006) suggest. Kim et al. (2006) found internal blame attribution to be more successful after competence-based trust violations, while external blame attribution repaired trust more effectively following integrity-based trust violations. This situation can be explained by several factors. First, the media and PostBus' management pursued different objectives. While the management's motivation was to keep the scandal as low-profile as possible, the media were interested in creating a stir around the issue, which is easier when the circle of defendants is minimized. The disclosure of the internal document, which the media framed as incontrovertible proof that the management had known about the transgression since 2013, further reinforced the image of a public deluded by PostBus' management. Accepting that the argumentation of the other side seemed to be more convincing and lacking in pivotal counterevidence, the management of PostBus followed Kim et al. (2006, p. 49), whose findings suggested that "being guilty of an integrity-based violation can be so detrimental that any mitigating response, even one that perceivers are likely to question, may prove worthwhile" and consequently attributed as much responsibility as possible to situational factors that lay beyond their control.

Study 2's results supported PostBus' strategy but newly contradicted Kim et al.'s (2006) findings. External attribution of responsibility proved more successful than internal attribution for both competence- and integrity-based trust violations. A potential explanation for this is that PostBus' trust violation, when framed as integrity-based, was simply too significant to permit tangible trust repair effects following a single verbal apology (Gillespie & Dietz, 2009).

9.1 Practical Implications

This study offers new insights for managers of highly reputable firms facing severe trust violation accusations. First, apologies can help to restore trust but should not be regarded as a universal solution. While the results show trust repair effects with external attribution after a competence-based trust violation situation, no such increase in trust is observed in situations of integrity-based trust violations. Neither internal attribution of blame nor external attribution helped to restore trust, which proves that some integrity-based trust violations are simply too severe to be mitigated by verbal accounts only in a short time. Managers therefore need to extend their set of trust repair measures—apologies alone are insufficient and should always be adapted to the context. This finding supports both Utz et al. (2009) and Brühl et al. (2018), while contradicting Kim et al. (2006), who found positive trust repair effects in all settings.

The most promising finding for managers, however, may be the proof that violation types can also be successfully framed. Ninety percent of the respondents in study 2 correctly classified the trust violation according to its nature. These results support Kim et al. (2006), who highlighted that the initial framing of a transgression is a powerful but highly understudied lever for organizations at the onset of crises. While Kim et al. (2006) framed a fictitious scenario that the respondents had never heard of, to the best of our knowledge, the present study is the first to have framed a real and widely discussed crisis to test the efficacy of different apology statements on trust repair. The successfully conducted manipulation checks also proved that a real trust violation can be framed with respect to its nature if no ultimate proof of a given trust violation type exists. This finding is of considerable importance for managers facing the onset of a potential organizational crisis due to a trust violation, giving them an additional powerful tool that will allow them to potentially influence the course of events.

9.2 Limitations and Future Research

To analyze the media framing, this study chose to focus on three distinct newspapers. One way to potentially increase the explanatory power of the media analysis would be to include other media channels, particularly social media, which enjoy greater credibility and popularity than ever before (Westerman et al., 2014).

In analyzing the PostBus affair, this research focused on the first two weeks after disclosure of the malpractice, based on the finding that the first few days following disclosure are key in determining whether or not an affair will escalate into a crisis (Clemente & Gabbioneta, 2017; Entman, 2012). Furthermore, Coombs (2015) and Gillespie & Dietz (2009) highlight the importance of swift apologies. In severe corporate crises, however, future research might broaden the scope by incorporating other substantial measures as well as apologies, thus extending the time horizon for analysis. Two weeks and an apology-only setting may not have been sufficient to measure the trust repair effects for integrity-based trust violations.

The third limitation identified for study 2 concerned the apology statement given. As Gillespie and Dietz (2009) and Brühl et al. (2018) correctly highlighted, trust repair is a long-term process that will likely require more than a single apology. Analysis of a single written apology's effectiveness and comparing it to the strategy implemented by the Swiss Post within the first two weeks is therefore not fully representative. This may also explain why no significant difference was observed between the effectiveness of the two attribution strategies when the PostBus affair was framed as an integrity-based trust violation. Another possible explanation is that the integrity-based trust violation may have been too forcefully framed and, together with the participants' potential biases, may have represented too severe a transgression to allow the observation of trust repair effects after a single verbal apology. Future studies could include other (substantive) measures and/or analyze long-term trust repair strategies to determine whether some significant differences could also be found for an integrity-based trust violation.

Our research highlights a substantial difference between corporate and news communication. Possible reasons for this difference, such as the media's tendency to scandalize, have been discussed, but this paper remains purely descriptive on this point. Future research could also address the deeper motives that guide media coverage while also examining the extent to which corporate communication specifically takes motivational and trust-building aspects into account (and does not merely function as a legal safeguard), as depicted by Ferrin et al., (2018). Finally, successful trust-building crisis communication is also likely to depend on the composition of the governing bodies. Further empirical studies could examine, for instance, whether a diverse board of directors uses different accounts than a homogeneous board of directors.

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APPENDIX

Table A1
Apology Statements

Condition	Apology statement
A	We hereby admit that the accusations made by the Federal Office of Transport are true. We are guilty of illegal accounting practices as we knew about and therefore implicitly accepted them. In brief, the situation was that we, the management of the Swiss Post, wanted to see increasing returns for PostBus Switzerland that would support investment in new and innovative ideas and secure the company a promising future. Consequently, we tried to cut corners somewhat and honestly did not think it would be noticed. We are truly sorry for what has happened and sincerely promise to do everything in our power to prevent such incidents from happening again.
B	We hereby admit that the accusations made by the Federal Office of Transport are partly true. We are partly guilty as we knew about the illegal accounting practices. In brief, the situation was that we tried to find a way of solving the conflict of goals that we faced in our business. The government as well as regulations passed by the parliament placed PostBus Switzerland in a practically unsolvable situation. On the one hand, we were asked to deliver usual market returns for PostBus Switzerland, while simultaneously being prohibited from making profits in the company's most profitable sectors. Consequently, we tried to cut corners somewhat and implicitly accepted the illegal accounting practices by failing to actively fight them. We honestly did not think it would be noticed. We are truly sorry for what has happened and sincerely promise to do everything in our power to prevent such incidents from happening again.
C	We hereby admit that the accusations made by the Federal Office of Transport are true. We are guilty as we knew that problematic transactions had been made. In brief, the situation was that we, the management of the Swiss Post, wanted to see increasing returns for PostBus Switzerland that would help us to invest in new and innovative ideas and secure the company a promising future. In truth, we did not fully understand what avenues had actually been taken to secure this financial success. We did not understand what was really going on or how the system worked, as the complexity of the situation was beyond our understanding. Indeed, we should have invested more time in trying to understand the situation and monitor it accordingly. We are truly sorry for what has happened and sincerely promise to do everything in our power to prevent such incidents from happening again.
D	We hereby admit that the accusations by the Federal Office of Transport are partly true. We are partly guilty as we knew problematic transactions were made, but we did not understand that they were illegal. In brief, the situation was that we tried to find a way to help us resolve the conflict of goals that we faced in our business. The government as well as regulations passed by the parliament placed PostBus Switzerland in a practically unsolvable situation. We were asked to deliver the usual market returns for PostBus Switzerland while simultaneously being prohibited from making profits in the company's most profitable sectors. Consequently, we relied on our internal experts to find ways of achieving this and trusted our internal and external auditors to ensure compliance with the law. In truth, we did not fully understand what avenues had actually been taken to secure this financial success. We did not understand what was actually going on or how the system worked, as the complexity of the situation was beyond our understanding. We are truly sorry for what has happened and sincerely promise to do everything in our power to prevent such incidents from happening again.

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