

# Is the 2008 financial turmoil increasing the risk of a bank run?

## An empirical research in Geneva\*

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**Abstract:** In this paper, the authors present the results of an empirical study that attempts to analyse the risk of bank run in Geneva, Switzerland. Two similar surveys have been conducted upon two independent samples of Geneva population (June 2008 and February 2009) to detect the existence of predictive signals leading to a bank run within the selected area. The authors discover that Geneva inhabitants are generally confident in Swiss banks; the risk of a bank run in the area is low. However, reliance to the national banking system is worsening: The number of people fearing about their savings and those thinking the default of a major Swiss bank as “possible” has significantly risen. Also, more and more people keep updated about the current financial crisis; overall trust in Swiss banks has slightly decreased.

**Key words:** survey research; bank run; Swiss banks; investor’s confidence

### 1. Introduction

Switzerland is a European country with a renowned banking tradition. The industry employs 3% of the national active population and represents 10% of the country’s GDP. It hosts two main international financial hubs, Zurich and Geneva, as well as other cities active in the industry (Schriber, 2007).

The Swiss banking system is characterised by two major international private banks, Credit Suisse and UBS as well as several publicly owned financial institutions, i.e. Cantonal Banks and The Swiss Post. Also, there are private retail banks spread at the national level such as Raiffeisen, Migros and Coop banks, private bankers and foreign banks settled in the main Swiss cities, for a total of 388 institutions<sup>1</sup>.

The 2008 financial turmoil heavily hit Switzerland with both major banks being rescued: December 16, 2008, the Swiss Confederation and the Swiss National Bank designed an *ad hoc* plan to help UBS<sup>2</sup> while Credit Suisse

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<sup>1</sup> Source: Swiss National Bank, <http://www.snb.ch>.

<sup>2</sup> Source: Swiss National Bank, <http://www.snb.ch>.

has been heavily capitalised by the Qatar sovereign fund “Qatar Holding LLC”<sup>3</sup>. Furthermore, the national insurance of CHF 30’000 on bank deposits has been raised to CHF 100’000 since December 18, 2008<sup>4</sup>.

From 2007 to mid-2009, no Swiss banks experienced a bank run like UK Northern Rock Bank in September 2007 or previous episodes (see for example Carlson, 2002; Llewellyn, 2008). Nevertheless, most Swiss depositors transferred their savings from UBS and Credit Suisse to other Swiss financial institutions such as the Cantonal banks, The Swiss Post and retail banks<sup>5</sup>.

During the third quarter of 2008, before Credit Suisse and UBS recapitalization, transfers to other banks were considerable. Indeed, in November 2008 some Cantonal or private banks (i.e. Schwyz and Neuchâtel Cantonal Banks and The Swiss Post) refused new clients or created more severe rules to new accounts opening. In fact, it was impossible for them to get a return of the large amounts received and their infrastructure was insufficient to welcome so many new customers (Eckert, 2008). At the end of 2008, Credit Suisse and UBS counted, respectively, CHF -226 billion<sup>6</sup> and CHF -3 billion<sup>7</sup> deposits than in 2007.

During the first quarter of 2009, the Swiss banking system showed positive signals, with both main private banks deposits increasing. Credit Suisse counted CHF +8.8 billion while UBS CHF -14.9 billion new deposits instead of CHF -85.6 billion the quarter before (source: UBS 1<sup>st</sup> quarter 2009 results).

In this difficult context, individuals’ perception and trust in the banking system should be constantly monitored to prevent and detect the spread of panic that could lead to a bank run (Catenazzo & Fragnière, 2009). Since the international financial turmoil started at the end of 2007 is constantly evolving, the authors have made a longitudinal study based on two surveys administered in June 2008 and in February 2009. Questionnaires have been submitted at two independent samples of Geneva population (the first in June 2008, the second seven months later) with the aim to identify individuals’ likelihood to run to Geneva banks.

The risk of bank run hits banks episodically (or seasonally) but with huge consequences (Dwyer & Gilbert, 1989). The authors learn from the Risk Management Theory that, when dealing with the service industry, the authors can manage risks through ex-ante (to anticipate) or ex-post (to reduce damages) actions and controls (Fragnière & Sullivan, 2006). Anticipated controls are considered as more successful as they allow to avoid the risk occurrence and to keep a high reputation level, a condition *sine qua non* when dealing with intangibles (Dubosson, *et al.*, 2008).

To constantly monitor the banks customers’ moods can be considered as a preventive (anticipated) measure to identify predictive signals to better manage the risk (Catenazzo & Fragnière, 2009). Thus, the authors wish to underlie key elements of perception dealing with the bank run risk with the purpose to design and apply efficient risk management measures.

Therefore, this empirical research evidences sociological factors connected with the risk of bank run. Through a sociological approach, the authors wish to identify whether the risk of run on banks exists in Geneva, the second Swiss financial hub. Also, the authors would like to draw useful recommendations for policy makers and the industry to design effective risk prevention measures.

This research is based upon the analysis and the comparison of two surveys addressed to Geneva population.

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<sup>3</sup> Source: TSR Swiss Television, <http://www.tsr.ch>.

<sup>4</sup> Source: Swiss Federal Institution of Deposits and Transactions Insurance, <http://www.einlagensicherung.ch>.

<sup>5</sup> Source: Swiss National Television, <http://www.tsr.ch>.

<sup>6</sup> Source: UBS 2008 Annual Report.

<sup>7</sup> Source: <http://www.swissinfo.ch>.

The authors interviewed two independent samples; the first one (June 2008) counts 363 valid questionnaires, the second (collection in February 2009) 547.

This research has been conducted by the laboratory of market research (LEM, Laboratoire d'Études de Marché) of Geneva Haute École de Gestion, whose objectives are to develop locally based survey research in Economics and Business Administration and to expose students to marketing survey techniques. The studies presented in this paper, "Is the 2008 financial turmoil increasing the risk of a bank run? An empirical research in Geneva" has been conducted in June 2008 and February 2009.

In both questionnaires, the authors also include questions based on Contingent Valuation Methods (hypothetical scenarios, see for example Hoevenagel, 1994) to assess individuals' distinctive attitudes and behaviours if a bank run spread in Geneva.

This empirical research attempts to provide some elements of perception concerning the confidence Geneva inhabitants have in Swiss financial institutions. Also, the authors attempt to identify whether bank runs predictive signals exist within the social context examined in this research. Among others, this sociological perspective aims at providing financial institutions with elements leading to recommendations for bank governance and communication practices.

This paper is organized as follows: In the next section, the authors present some of the existing academic literature related to this research. Then, the authors present the main descriptive statistics obtained by the authors' survey. A few hypotheses related to the theme retained for this paper follow: "Is the 2008 financial turmoil increasing the risk of a bank run? An empirical research in Geneva". In conclusion, the authors provide managerial recommendations to be addressed to banks and to policy makers.

## **2. Literature review**

The bank run experienced by Great Britain with the Northern Rock Bank case has been studied in depth by several authors (see for example Hall, 2008; Keasey & Veronesi, 2008; Llewellyn, 2008; Yorulmazer, 2008). In particular, Hall (2008) and Yorulmazer (2008) present the story of the default of Northern Rock Bank, United Kingdom's No. 5 mortgage bank.

Among others, the bank's business model weaknesses have been evidenced among the main default causes (Keasy & Veronesi, 2008; Llewellyn, 2008). Failures in the public regulator control activity (Hall, 2008; Keasy & Veronesi, 2008), as well as the breaches within the United Kingdom banking system have also been highlighted (Hall, 2008). Despite of being heavily analyzed, this case had limited spill over effects to the country's banking system; up to mid 2008, United Kingdom was not been heavily affected by the US sub-prime mortgage crisis (Yorulmazer, 2008).

Therefore, it seems that UK banking system and the national regulation can be listed among the main causes of the bank run (Hall, 2008). Indeed, the bank's original business model, funding mechanisms and securitisation levels sheltered the Northern Rock bank from national authorities' controls and policies.

Generally speaking about the bank run phenomenon, the model designed by Diamond and Dybvig presents bank run as the negative consequence of series of coordination games: Whether a depositor starts to withdraw early, then a panic reaction follows (Alonso, 1996). This model and further studies also point out that changes occurring to states of the economy may lead to bank panics (Bougheas, 1999).

The relationship between bank run and the banking sector size has been explored by Miller (Miller, 2008)

who affirms that countries with middle-sized banking sectors are less likely to experience bank run episodes than the others.

ZHU (2001) classifies the bank run risk in two main categories: The author talks “Type-I” bank runs in which the panic and the run to the banks is not connected to objective difficulties. By contrast, “Type-II” bank run occurs during economic crises or tough times.

During economic downturns, in an unregulated environment, bank runs are likely to be contagious (Bougheas, 1999) and even overcome the national borders (Vaugirard, 2005). Also, the likelihood of bank runs is even higher in case of correlations between banks; transparent information is considered an efficient preventive measure to avoid this additional drawback (CHEN & Hasan, 2006).

The individuals’ behaviours throughout bank run (or “bank panic”) episodes have been studied and modelled by Carlson (2002). The author draws two theories: the “random withdrawal theory” and the “asymmetric information theory”. The former states that people run to banks thinking the bank’s liquidity insufficient to satisfy all customers’ needs. The latter stresses on poor information available: Since people are unaware of the institutions in trouble, they withdraw from all banks of the area. These two theories have been tested in the Denver (Colorado) 1893 bank run crisis.

The relevance of the “asymmetric information theory” has been evidenced during the analysis of the 1994 bank run in Argentina. In this case, reliable information disclosure about the crisis has lowered the likelihood of a run to all local banks (Schumacher, 2000). The 2007 Northern Rock Bank run confirms this behaviour: after a clear and official information presentation as well as the bank’s bailout announcement, the other banks of country quickly regained the depositors’ confidence. However, during contagious bank run phenomena, depositors do not difference between banks and rush on all financial institutions (CHEN & Hasan, 2008).

As put by Yorulmazer (2008), people seem to have a rational behaviour when they follow the market news. Indeed, if people are up-to-date throughout the whole financial turmoil, they would be more likely to put off cash withdrawals. This is one of the main findings of an experimental study conducted by the CESS (Center for Experimental Social Science) at New York University (Schotter and Yorulmazer, 2008). Also, the two authors (Schotter and Yorulmazer, 2008) claim the bank insiders to be beneficial in avoiding bank runs. Among others, information disclosure about the banks’ assets can be used as a successful tool to prevent bank runs (Selvaretnam, 2007).

Oppositely, imperfect information is the cause of most of Type-I (panic-driven) bank run events (ZHU, 2001). Contagious runs could be a further drawback due to the lack of complete and trustful information (CHEN, 1999).

Together with information disclosure, the analysis of private or governmental deposit insurances is an important direction for the bank run research. In fact, deposit insurances seem to be a successful disincentive to bank runs (Carlson, 2002; CHEN and Hasan, 2005; Hall, 2008; Schotter and Yorulmazer, 2008, Schumacher, 2000). The design of deposit insurance has been investigated: partial deposit protection is useful but not sufficient to avoid the risk of a bank run. Thus full coverage on deposits should be applied. However, this policy has its drawbacks: it may distort the bank market equilibrium because of the lack of customers’ control on the bank solidity (CHEN and Hasan, 2005; Llewellyn, 2008, Wheelock & Wilson, 1995).

According to ZHU (2001), deposit insurance drawbacks lead to an imperfect social optimum equilibrium. The Kansas bank crisis (1910-1928) case shows that the banks taking part to state deposit insurance system revealed themselves to be more at risk than the others. This was due by a more risk-taking attitude and, consequently, high-risk portfolios in their lockers (Wheelock & Wilson, 1995).

Llewellyn (2008) confirms this thesis: a complete deposits' protection can result in bankers and customers taking more risks since whatever happens, clients will be entirely refunded. On the other hand, if the deposit protection does not cover the entire amount, depositors tend to withdraw their savings if they have doubts about the solvency of their bank. For these reasons, Niinimäki (2002) states that bank runs can be prevented without deposit insurance.

A further measure to avoid bank run and its contagious outcome has been underlined by Bougheas (1999) who advocates a temporary suspension of deposits convertibility into cash to allow the solvent banks to order their liquidity. Temporary suspension could even improve depositors' welfare according to CHEN and Hasan (2008). Calling for a deposit contract adjustments has also been evidenced by Alonso (1999).

Finally, in June 2008, Catenazzo and Fragnière (2009) have made an empirical study among Geneva population to explore the local perception towards the Swiss banking system and the likelihood of a bank run in the Swiss city. The authors conclude their study by stating that customers' lack of confidence in their banks may be likely to lead them to a bank run. Among the suggested policies, they recommend banks to adopt clear, accurate and faithful communication policies to improve the customers' confidence in their bank. Thus, they can avoid the spread of bank panic. Also, they predict that, whether either of the main Swiss banks defaulted, the Swiss would transfer their money to Cantonal banks, The Swiss Post or retail national banks.

This literature review, although not exhaustive, indicates that too little sociological knowledge is available to understand individuals' behaviours and attitudes to anticipate the occurrence of the bank run risk. In this study, the authors intend to highlight some social patterns associated with these issues in Geneva. The Swiss city is the second largest national financial centre and is situated only a few hundred miles from other European financial hubs such as Zurich, Paris, Frankfurt, and Milan.

### **3. Methodology**

To further the topic under study in this paper, i.e. the identification of significant sociological hints to predict a bank run, the authors have made an empirical study in Geneva, the second Swiss financial hub. To discover the main sociological patterns associated with this theme, the authors have designed two questionnaires that were submitted to two independent samples representative of the local population. The first survey has been administered in June 2008, the second seven months later, in February 2009. Both surveys design encompassed the following steps: qualitative exploratory phase, questionnaire design, data collection and analysis.

During the exploratory phase the authors conducted around 40 in-depth interviews with volunteers to discuss with them about this topic. Interviewees were selected randomly in Geneva and freely agreed to have non-structured interviews that lasted 20 to 30 minutes each. Thus, the authors had available elements of perception concerning this topic. The interviews analysis lead us conclude that individuals seem to be rather confident in the financial institution they conferred their money. However, if a bank run occurred in Geneva, they would be likely follow the stream by either changing banks or by withdrawing all of their deposits.

After this exploratory phase, the authors have designed a first survey administered in June 2008. The submitted questionnaire (the complete version, in French, is available by the author on request) was made by 20 closed-ended questions attempting to identify individuals' opinions concerning the current financial crisis, their confidence in banks, and possible behaviours within a bank run context.

This survey (as well as the second) has been administered with the help of a group of students under the

supervision of the LEM (Haute École de Gestion of Geneva Laboratory of Market Research) research staff. Both surveys' respondents were selected on a random basis in the streets, open spaces and other public places in Geneva and surrounding areas.

The second survey has been administered seven months later, in February 2009. The submitted questionnaire was based upon the June 2008 version with 5 additional queries for a total of 25 closed-ended questions. Again, additional questions design has been through the analysis of further interviews. The authors also got useful comments and suggestions to the article presenting the first survey's results (Catenazzo & Fragnière, 2009) by many banks and international seminar participants to further the authors' research. The new queries aim to deep understanding of possible individuals' attitudes and behaviours in a bank run context.

The identification of predictive hints concerning individuals' attitudes and behaviours within future scenarios has been conducted through the inclusion in the questionnaire of Contingent Valuation Methods (Bateman and Turner, 1992; Hoevenagel, 1994). Thanks to this method borrowed from psychology and the environmental sciences (Debély, *et al.*, 2008; Garrods and Willis, 1999; Hansla, *et al.*, 2008; Higgins, *et al.*, 2002; Imandoust & Gadani, 2007; Nomura & Akai, 2004), the authors attempt to assess individuals' typical attitudes and behaviours within hypothetical settings.

The first survey administered in June 2008 totalised a sample of 363 people living and working in Geneva and its surrounding area (Canton). The second sample (February 2009 survey) counts 547 people who have answered to the questionnaire. The first sample is made up by 56.7% men and 43.3% women, the second counts 52.4% men and 47.6% women, while the official data (2008) report 48.2% men and 51.8% women.

The first sample counts 1.9% of the respondents working in the primary economical sector (agriculture, fishing...) 10.1% in the secondary sector (manufacture, buildings...) and 88.0% in the third sector (trading, transports and services). The second sample totalises 2.5% in the primary sector, 14.0% in the secondary and 83.5% in the third sector. Geneva official data (2005) count, respectively, 1.01%, 14.45% and 84.54% (OCSTAT, 2008).

The median age of the first sample is 33, spreading out from a minimum of 19 years and a maximum of 87 years old. The median age of the second sample is also 33, spreading out from a minimum of 16 years and a maximum of 93 years old. The mean age is 37 for both samples and the standard deviation is 13.35 for the first sample and 15.75 for the second.

#### **4. Descriptive statistics**

The authors now present the main statistics obtained by the analysis of both surveys results. To help the reader, the authors put February 2009 results in plain text, June 2008 ones are in brackets ( ).

The first part of both questionnaires deals with four enquires about the respondents' savings. In particular, the authors asked the respondents whether they are worried or not about their savings (See Figure 1): 46.6% (37.5%) of the samples said that they are worried about their savings, 47.9% (55.5%) said that they are not, and 5.5% (7%) do not know. It seems that more people were worried about their savings in February 2009 than in June 2008.

In the second survey, the authors attempted to define more precisely individuals' concern about their savings. 31.9% of the people who are worried affirm to be little worried about their savings, 41.5% feel moderately concerned, 18.6% say to be very worried and 8% do not know.

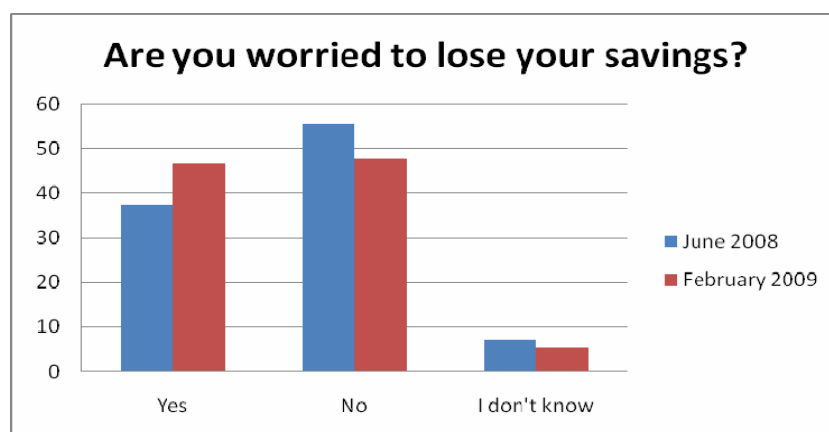


Figure 1 "Are you worried to lose your savings?"

The authors asked the interviewees what type of savers they are. 55.8% (50.1%) of the respondents consider themselves as "average savers", 21.8% (23.1%) said "poor savers", 9.0% (13.2%) "not saver at all", 11.4% (11.8%) "high saver" and 2.0% (1.7%) do not know. The authors decided to ask the same question but in a different way. So the authors asked the respondents to indicate approximately (in percentage) the share of their income destined to their savings. 38.2% (35.7%) of the interviewees affirmed saving approximately 5% to 20% of their income. 30.1% (33.1%) save less than 5%, 11.6% (12%) more than 20% and 7.7% (9.7%) do not save any of their income. 12.4% (9.5%) cannot answer this question.

The authors later asked the interviewees two questions concerning their current consumption of banking services. First of all, the authors enquired whether individuals' money is deposited into one or more banks. 47.1% (50.4%) affirmed their money is split into several banks, while 46.1% (46.5%) have all their money in one bank. 5.3% (1.7%) provide alternative possibilities, and 1.5% (1.4%) do not know.

Then, the authors asked the respondents the bank or financial institutions they deposited their money. The major Swiss private banks such as UBS or Credit Suisse gather about 57.2% (65.8%) of the respondents' deposits. 46.1% (34.2%) have placed money at public driven financial institutions such as Cantonal banks or The Swiss Post. National retail banks, such as Raiffeisen, Migros, and Coop Banks are chosen by 18.5% (17.1%) of the sample followed by other Swiss private banks such as LODH, Pictet or Sarasin that cover 3.8% (9.6%) choices. 4.8% (8.5%) have chosen other banks, mainly French Banks (the French borders are less than 10 km away from the Geneva city centre), and 7.3% (3.9%) prefer not to answer to this question. Respondents could choose more than one possible answer; the sum of the percentages provided is over 100%

To explore more in depth individuals' attitudes towards their banks, the authors asked the respondents to assess their confidence in Swiss banks by assigning them a mark (See Figure 2). The average mark given is 6.21 (6.88) on a scale spanning from 1 to 10 (10 being the highest mark). The mode of the answers provided is 8 (8), and the median is 6 (7). It seems that Geneva population trust in Swiss banks is generally high but slightly deteriorating.

Also, 70.7% (69.0%) of the sample does not foresee a bank change in the short run. 16.5% (14.1%) would, and 12.8% (16.9%) cannot answer. Also, in February 2009, 53% of the respondents think that it is probable that one of the main Swiss banks defaults against 37.2% in June 2008. 26.3% (41.0%) think that it is improbable that one of the main Swiss banks collapses and 20.7% (21.8%) cannot answer (See Figure 3).

60.7% (63.4%) of the interviewees affirm to have more confidence in Swiss banks than any foreign banks,

27.9% (26.8%) affirm their confidence in Swiss and foreign banks is alike, 1.5% (5.0%) prefer foreign banks, and 9.9% (4.7%) do not know.

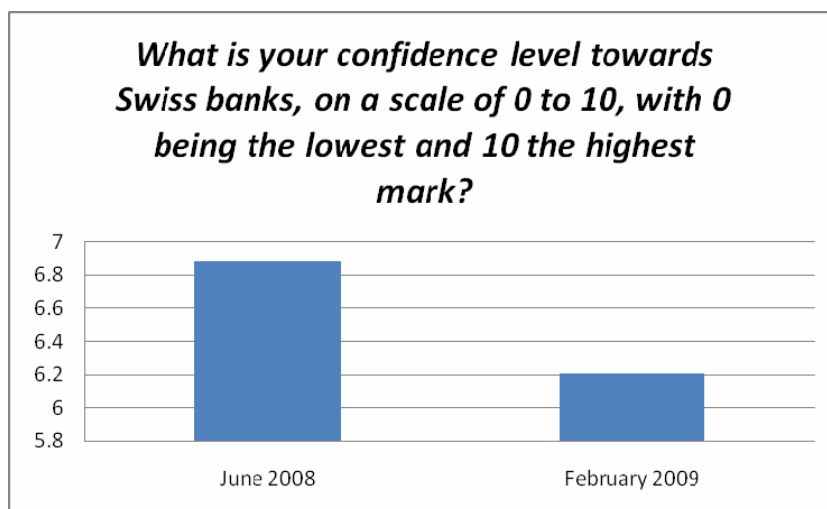


Figure 2 “What is your confidence level towards Swiss banks, on a scale of 0 to 10, with 0 being the lowest and 10 the highest mark?”

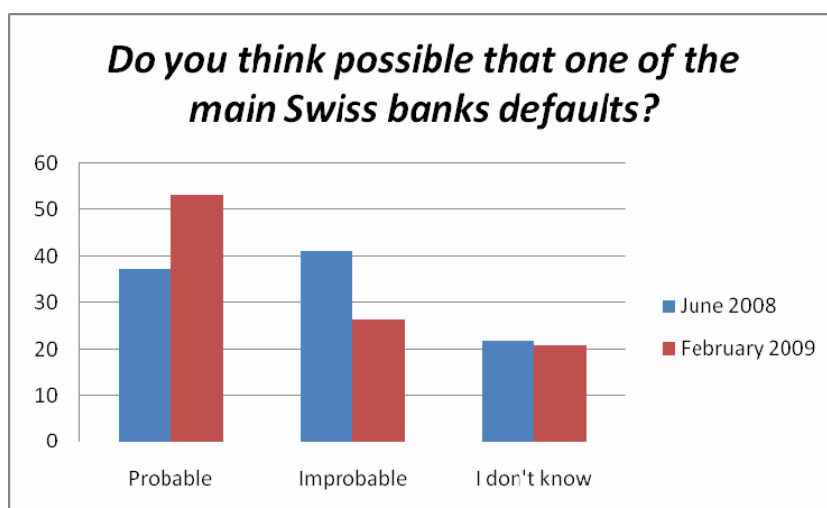


Figure 3 “Do you think possible that one of the main Swiss banks defaults?”

The authors then explored individuals’ beliefs and behaviours towards the current financial crisis to identify the existence of changes between in seven months (See Figure 4). First, a large majority of the sample, 86.9% (74.4%) affirm they keep up-to-date regarding the current financial crisis through media communication means, 11.6% (23.6%) do not, and 1.5% (1.9%) do not know.

Thus, it seems that people who keep themselves up-to-date regarding the financial current crisis through media have increased from June 2008 to February 2009.

In February 2009, 71.3% of the interviewees felt that the “bulk” of the crisis was over, while 10.3% disagree and 18.4% could not answer.

Three enquiries, more close to the Swiss context, followed. In February 2009, the authors asked the interviewees if they believed that the recapitalisation of UBS by the Confederation was necessary. Almost half of



the respondents, 48.4% consider that the intervention of the Swiss Confederation (Federal Government) was required, 18.7% have judged that it was not and 32.8% could not answer.

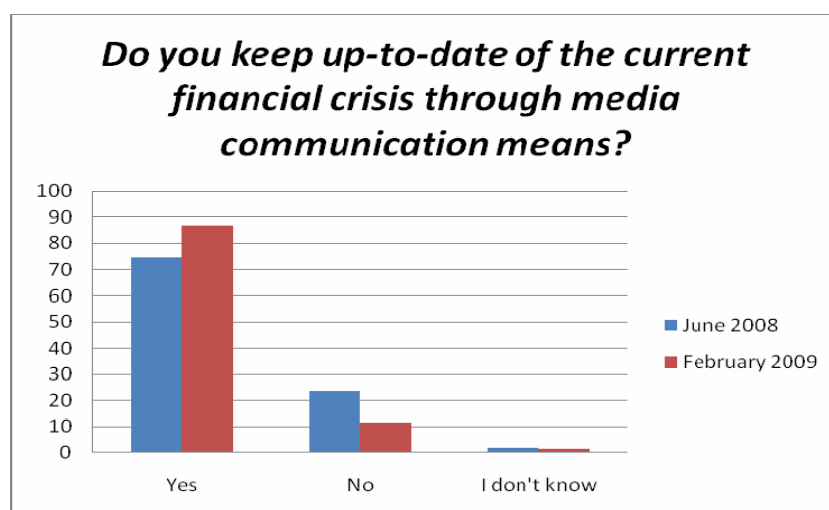


Figure 4 “Do you keep up-to-date of the current financial crisis through media communication means?”

According to 58.7% of the interviewees, it is not the role of the Swiss Confederation to rescue a private bank. 22.5% believe that this is the role of the Swiss Confederation and 18.8% do not know.

41.1% of the sample collected in February 2009 totally agrees with the following statement: “Following the crisis, managers of banks in difficulty should give back their bonus earned these recent years”. 34.1% moderately agree with this affirmation, while 13.2% do not agree at all and 11.6% do not know.

As presented in the literature review section, the banks’ deposit insurance is key research direction in the bank run risk analysis. In February 2009, the authors asked the interviewees if they were reassured by the fact that the guaranteed savings passed from CHF 30’000 to CHF 100’000<sup>8</sup>. 41.6% of the sample is moderately reassured by this increase, while 25.7% feel totally reassured, 12.5% are not reassured at all and 20.2% do not know.

At the end of both questionnaires, the authors presented five hypothetical scenarios to understand behaviours individuals are likely to show within a bank run scenarios as well as to identify useful sociological hints to predict and prevent the occurrence of a bank run.

First, in case of a panic movement (e.g., bank run), 41.1% (40.0%) affirm they would not follow the rush on bank for cash withdrawals, while 28.2% (26.5%) would. About a third of the samples cannot answer.

Then the authors enquired about the source of information that would push the interviewees to withdraw their savings in the case of a failure of their bank. The role of information is crucial when dealing with bank run: clear and faithful corporate communication is an important driver to avoid the bank panic spreads (Catenazzo & Fragnière, 2009). “Media” take the first place with 50.1% of calls, followed by “the bank” with 45.0%, “The Swiss Confederation” 39.9%, “a relative” 26.3% and 9.1% do not know.

Then, the authors asked the interviewees: “if your bank defaulted, to which one of the following banks would you entrust your money?” The answers provided are as follows: 30.7% (31.4%) do not know which bank s/he would choose, 32.4% (27.3%) would choose Swiss private banks such as Raiffeisen, Migros or Coop banks, 32.5% (22.0%) would redirect themselves towards Cantonal Banks or The Swiss Post, 4.8% (12.1%) would

<sup>8</sup> Source: Swiss Federal Institution of Deposits and Transactions Insurance, <http://www.einlagensicherung.ch>.

choose another institution, 4.9% (10.5%) would choose LODH, Pictet or Sarasin banks, and only 5.5% (9.9%) would turn towards the main Swiss private banks like UBS or Credit Suisse. The answers provided to this question confirm the 2008 and 2009 tendency of deposits transfers from the two main Swiss private banks (Credit Suisse and UBS) to smaller institutions, mainly Swiss small retail private banks (i.e. Raiffeisen, Migros or Coop banks) and publicly-owned institutions (i.e. Cantonal Banks and The Swiss Post).

As a further hypothetical scenario, the authors asked the interviewees how they would react if their bank announced bankruptcy and the Swiss Confederation did not consider helping the bank. Most answerers (61.8%) responded that they would directly withdraw their money. Around one fourth (24.4%) says that they would attend to have more information, 4.4% would do nothing, 1.7% would wait to see what the others clients are doing and 7.7% do not know.

The authors finally asked how the interviewees would react if the Swiss Federal Banking Commission (the Swiss Federal Authority in charge of providing the national banking licence and to control the industry) announced the imminent failure of a bank, without specifying which one. In this case, less than one of four of the respondents, 23.7% would withdraw immediately their money, while 59.6% would wait for more information, 7.2% would do nothing, 2.6% would wait to see how the population reacts and 7.0% do not know.

## 5. Hypotheses testing

Descriptive statistics have shown that Geneva population is generally confident in their banks. Both surveys' results (June 2008 and February 2009) also evidence that people are not planning to run to their banks to withdraw all of their money.

However, the authors have shown that individuals' perceptions of some crucial issues have slightly changed. This might reveal an overall change in individuals' assurance of their banks reliability. To verify whether these variations are significantly relevant, the authors have designed and tested four hypotheses.

As presented in the "Methodology" section of this paper, the authors submitted one close-ended questions form to a sample of individuals in June 2008 and a new (with most questions identical to the former) questionnaire to another sample of individuals in February 2009. The collected questionnaires of both surveys have been coded through SPSS 15 software. Answers provided to the authors' questions (variables) are defined over qualitative scales, thus, the authors employ non-parametrical tests to validate authors' hypotheses (Bryman & Cramer, 2006).

The first hypothesis the authors have tested deals with people fear of losing their savings. This is a relevant issue since banks loss of credibility to ensure the savers' refunded can be counted among the possible reasons of a bank run (Diamond & Dybvig, 1986). Also, if people perceive their savings being at risk, they will be more likely to run on banks (Catenazzo & Fragnière, 2009). Thus, the authors would like to verify whether individuals' perception of losing their savings has significantly changed between June 2008 and February 2009.

For this reason, the authors design the following hypothesis scheme:

**H<sub>0</sub>:** Individuals' concern to lose their bank savings has not significantly changed between June 2008 and February 2009.

**H<sub>a</sub>:** Individuals' concern to lose their bank savings has significantly changed between June 2008 and February 2009.

To test this hypothesis, the authors have used an identical question (variable) in both surveys. The authors

have asked both samples (the one of June 2008 and the other interviewed in February 2009) the following question: “Are you worried to lose your savings?” Respondents could answer either “yes”, “no” or “I don’t know”.

The first test the authors have made is called “Kolmogorov-Smirnov” for two independent samples commonly used to verify whether the distribution of values within two samples differs (Bryman & Cramer 2006). The authors have retained a significance level of 5% in which the authors would fall in the first-type error which is the risk to reject the null hypothesis when it is actually correct.

**Table 1 “Are you worried to lose your savings?”**

Test statistics (a)		“Are you worried to lose your savings?”
Most extreme differences	Absolute	0.093
	Positive	0.093
	Negative	0.000
Kolmogorov-Smirnov Z		1.376
Asymp. sig. (2-tailed)		0.045

Note: a. Grouping variable: surveys.

From Table 1, the *p-value* of 0.045 let us reject the null hypothesis and affirm that there is a difference between the perceptions of the first (June 2008) and the second sample (February 2009). Descriptive statistics show that the share of population fearing savings at risk has risen from 37.5% to 46.6%.

The authors further the analysis by verifying whether individuals have changed their behaviour on keeping up-to-date of the current financial turmoil through media communication means. The literature review has underlined the strategic role of information to prevent the occurrence of a bank run or to limit its damages (Schotter and Yorulmazer, 2008). Moreover, poorly informed individuals are more likely to follow a bank run stream: the more informed the people the more rationally they behave, then avoiding runs to all banks, notoriously panic-driven (“Type-I”) runs (CHEN, 1999, Yorulmazer, 2008 and ZHU, 2001). Therefore, a high rate of people keeping informed all along the crisis is a positive signal.

According to the results (see “Descriptive statistics”), the rate of individuals who keep informed of the current financial turmoil through media communication means has risen from 74.4% (first sample, June 2008) to 86.9% (second sample, February 2009). Therefore, the authors would like to test whether this difference is statistically significant.

The authors have made a statistical test called “Kolmogorov-Smirnov” for two independent samples which is used to verify whether the distribution of values within two samples differs (Bryman & Cramer 2006). The authors have retained a significance level of 5% in which the authors would fall in the first-type error which is the risk to reject the null hypothesis when it is actually correct.

Here follows the hypothesis scheme:

**H<sub>0</sub>:** Individuals keeping up-to-date about the current financial crisis through media has not significantly changed between June 2008 and February 2009.

**H<sub>a</sub>:** Individuals keeping up-to-date about the current financial crisis through media has significantly changed between June 2008 and February 2009.

To test the hypothesis, the authors have used one identical question asked to June 2008 and to February 2009

samples. The authors asked both samples whether they keep up-to-date of the current financial crisis through media communication means. Possible answers individuals could choose among were: “yes”, “no”, “I don’t know”.

From Table 2, the *p-value* of .003 let us argue that the number of people keeping up-to-date of the current financial crisis through media has significantly changed between June 2008 and February 2009.

**Table 2 “Do you keep up-to-date of the current financial crisis? (1)”**

Test statistics (a)		“Do you keep up-to-date of the current financial crisis?”
Most extreme differences	Absolute	0.123
	Positive	0.123
	Negative	-0.002
Kolmogorov-Smirnov Z		1.818
Asymp. sig. (2-tailed)		0.003

Note: a. Grouping variable: surveys.

To confirm the validity of the hypothesis, the authors have made a further statistical test. The authors have made the “Median test for two or more unrelated samples” that allows us to verify if the distribution of values varies between two independent samples (Bryman & Cramer 2006).

Here are the results of the test:

**Table 3 “Do you keep up-to-date of the current financial crisis? (2)”**

Test statistics (a)		“Do you keep up-to-date of the current financial crisis through media communication means?”
N		905
Median		1.00
Chi-square		22.266
df		1
Asymp. sig.		0.000
Yates’ continuity correction	Chi-square	21.441
	df	1
	Asymp. sig.	0.000

Note: a. Grouping variable: surveys.

Again, from Table 3, the *p-value* of 0.000 let us reject the null hypothesis and confirms the existence of differences between the two samples on their information update about the ongoing financial crisis. This test proves that the difference descriptive statistics have evidenced is statistically significant. Thus, the authors can affirm that considerably more people keep regularly informed about the financial crisis in February 2009 than in July 2008.

Finally, the authors have made two additional hypothesis tests to verify whether changes occurred in individuals’ perception towards Swiss banks. First, the authors would like to verify whether significant changes on the perceived bankruptcy of one of the main Swiss banks. Secondly, the authors aim to check the eventuality of a significant change of the level of confidence of the Swiss in their banks.

Descriptive statistics have highlighted that, between June 2008 and February 2009, the rate of people

thinking that one of the main Swiss banks could collapse has risen from 37.2% to 53%. Also, the authors have also evidenced that the confidence level of the Swiss in their bank has slightly lowered, the average mark changing from 6.88 to 6.21 (i.e., -9.73%), and the median from 7 in June 2008 to 6 in February 2009.

Both signals could reveal an increase of the likelihood of a bank run in Geneva. Indeed, the supposed default possibility of one of the main Swiss banks is a possible bank run driver (Catenazzo & Fragnière, 2009). Also, the loss of confidence in financial institutions is a further predictive signal that might lead to a bank run (Carlson, 2001). Therefore, the authors have made further tests to verify whether these changes are statistically significant and, the authors then validate the hypotheses.

The first hypothesis scheme is the following:

**Ho:** Individuals thinking that one of the main Swiss banks could go bankrupt has not significantly changed between June 2008 and February 2009.

**Ha:** Individuals thinking that one of the main Swiss banks could go bankrupt has significantly changed between June 2008 and February 2009.

To test this hypothesis, the authors have used again the “Kolmogorov-Smirnov” test with a significance level of 5%. The variable analysed in this case refers to an identical question asked to both samples interviewees’: “Do you think possible that one of the main Swiss banks defaults?” People could select between “Yes”, “No” and “I don’t know”.

**Table 4 “Do you think possible that one of the main Swiss banks defaults?”**

Test statistics (a)		
“Do you think possible that one of the main Swiss banks defaults?”		
Most extreme differences	Absolute	0.158
	Positive	0.158
	Negative	0.000
Kolmogorov-Smirnov Z		2.338
Asymp. sig. (2-tailed)		0.000

Note: a. Grouping variable: surveys.

From Table 4, the *p-value* of 0.000 let us reject the null hypothesis and state that there is a significant difference between people thinking possible that one of the major Swiss banks goes bankruptcy between June 2008 and February 2009. Thus, results and the test let us affirm that of the number of people believing in the possibility of default of one of the major banks has significantly raised in 7 months.

**Table 5 “What is your confidence level in Swiss banks, on a scale of 0 to 10, with 0 being the lowest and 10 the highest mark?(1)”**

Test statistics (a)		
“What is your confidence level in Swiss banks, on a scale of 0 to 10, with 0 being the lowest and 10 the highest mark?”		
Most extreme differences	Absolute	0.164
	Positive	0.164
	Negative	0.000
Kolmogorov-Smirnov Z		2.411
Asymp. sig. (2-tailed)		0.000

Note: a. Grouping variable: surveys.

The last hypothesis the authors tested deals with the confidence level the Swiss have in their banks. The variable (question) under study refers to an identical question submitted to June 2008 and February 2009 samples: “What is your confidence level in Swiss banks, on a scale of 0 to 10, with 0 being the lowest and 10 the highest mark?” Respondents were asked to choose an integer between 0 and 10 to evaluate their trust in the Swiss banks. To verify whether significant changes occurred during the timeframe under study, the authors have designed the following hypothesis scheme:

**H<sub>0</sub>:** Individuals confidence towards Swiss banks has not significantly changed between June 2008 and February 2009.

**H<sub>1</sub>:** Individuals confidence towards Swiss banks has significantly changed between June 2008 and February 2009.

To test this hypothesis, the authors have used the “Kolmogorov-Smirnov” test with a significance level of 5%.

From Table 5, the *p-value* of 0.000 let us retain the alternative hypothesis arguing a significant difference between individuals’ confidence towards their banks between June 2008 and February 2009. The authors have tried to test the same hypothesis with the “Median test for two or more unrelated samples”. Here are the results of the test:

**Table 6 “What is your confidence level in Swiss banks, on a scale of 0 to 10, with 0 being the lowest and 10 the highest mark? (2)”**

Test statistics (a)		“What is your confidence level in Swiss banks, on a scale of 0 to 10, with 0 being the lowest and 10 the highest mark?”
N		903
Median		7.00
Chi-square		15.690
df		1
Asymp. sig.		0.000
	Chi-square	15.134
Yates’ continuity correction	df	1
	Asymp. sig.	0.000

Note: a. Grouping variable: surveys.

Again, from Table 6, the *p-value* of 0.000 confirms the hypothesis and let us conclude that a change in individuals’ confidence towards Swiss banks effectively took place between June 2008 and February 2009. A fall in the mean (-9.73%) and in the median (-14.28%) marks between June 2008 and seven months later is a statistically relevant indicator showing the trust degradation during the period under study.

## **6. Discussion and conclusion**

Risk inventory is the first of four steps to design measures effective corporate risk management to both financial and non-financial institutions (Fraginière & Sullivan, 2006; Tchankova, 2001). Within the banking environment, customers’ overall cash withdrawals, i.e. a “bank run” is a strategic risk that has low occurrence (it hits only episodically) but leads to high damages to the concerned institution (s).

So far, several studies have been conducted to attempt to understand the main causes of bank runs in different years and contexts. Game theory applications, informational theories and contagious effects have been studied in

depth to better understand this phenomenon. Also, researchers have been investigating about the more efficient tools to prevent and to limit the bank runs effects. Let's quote, among others, the importance of clear and transparent communication whenever one or more banks are through hard times. Also, the design of deposit insurances and the cash convertibility of banks deposits are some of the tools whose advantages and drawbacks have been deeply examined and put in practise in different contexts.

Most economic and financial crises over centuries have experienced a bank run; the current 2008–2009 international financial turmoil has encountered the Northern Rock bank event in UK. In Switzerland, the two major private banks are through tough times and needed a huge recapitalization to keep their positions in the industry at an international level. Thus, the risk of Swiss customers running to their banks might have increased along the crisis.

For this reason, the authors have made a longitudinal study with the aim to detect predictive signals of a possible bank run in Geneva, the second Swiss city and an international financial hub. The authors have designed a questionnaire that was submitted to a representative sample of Geneva population in June 2008 to assess individuals' confidence in their banks and to identify possible behaviours in a bank panic (or bank run) context. 363 people have filled out the questionnaire. Seven months later, February 2009, a similar questionnaire (5 new additional queries than the former) has been submitted to another (independent) representative sample (547 people) of Geneva inhabitants.

Descriptive statistics show that people are generally confident in banks. The authors also discovered that about half of the respondents' savings are split between more than one bank, the major Swiss banks gather the majority of people deposits. Moreover, the increase of the national insurance on deposits is considered as reassuring and, according to the sample, it is not a task of the Swiss Confederation to help private banks.

Hypothetical scenarios evidenced that in case of a bank run most people affirm not be likely to be taken by the stream. Also, in case of default of the respondents' banks, they would redirect to Swiss private retail banks, Cantonal banks and The Swiss Post. Results to this second scenario are highly representative of a 2008 tendency showing huge deposits' transfer waves from the Swiss major banks to Swiss publicly owned or private retail institutions. A last scenario showed that, if the respondents' banks defaulted and public institutions refused to bailout or provide it with other aids, people would run on the bank to withdraw their money.

Results also show the existence of differences between Geneva population answers given to identical questions by June 2008 and February 2009 samples. Since some differences are proper of crucial issues to detect the increase of bank run risk, the authors have made statistical non-parametrical tests to verify the relevancy of those changes in people perceptions.

First of all, the authors can state that between June 2008 and February 2009 there is a significant increase of people who fear to lose their savings. This is a signal that, under certain specific circumstances, might lead to a bank run. As advocated in previous researches, information improvements, notoriously about the banks solidity' and the new national insurance on deposits of CHF 100'000, might help savers to reduce their apprehension towards the loss of their money.

Then, the authors have discovered a significant increase of people who keep up-to-date of the current financial crisis through media communication means. This is a positive signal since it seems that individuals behave rationally to market news.

The authors also evidenced a degradation of the Swiss confidence in their banks. The authors verified a significant rise of people believing possible that one of the major banks could default. Furthermore, people

evaluation of their trust in Swiss banks has lowered, -9.73% on average in seven months only. Both indicators are representative of a decrease of the Geneva inhabitants' reliance in their banks. If this trend continues, policy makers and the industry should apply preventive measures to avoid a worsening trust level turning into panic.

In fine, this research encounters some limitations and possible directions for further studies. First of all, sampling bias is a weakness: although the authors have been interviewing people in different places, times and days of the week, the sample may not be fully representative of Geneva population. Also, as in most surveys, the questionnaire design may lead to further bias (OECD, 1999).

The use of hypothetical scenarios in the questionnaires, despite of being a useful tool, suffers of a further weakness: it not sure that in real situations people behave in the same way they state they would (Garrods & Willis, 1999; OECD, 1995). Further bias and risks are commonly associated to this type of empirical study (Equey & Fragnière, 2008).

Future research should continue to assess the bank run risk in Geneva through sociological factors. This would be even more necessary whether the international banking system did not significantly improve in the upcoming months. Similar studies should be made in other cities in Switzerland and abroad to better monitor the situation to avoid the occurrence of a bank run and the likelihood of contagious effects.

#### References:

- Alonso, I. (1996). On avoiding bank runs. *Journal of Monetary Economics*, 37, 73-87.
- Bateman, I. J. and Kerry Turner, R.. (1992). *Evaluation of the environment: The contingent valuation method*. CSERGE Working Paper GEC 92-18.
- Bougheas, S.. (1999). Contagious bank runs. *International Review of Economics & Finance*, 8, 131-146.
- Bryman, A., Cramer, D.. (2006). *Quantitative data analysis for the social scientist with SPSS 15 & 16*. London: Routledge.
- Carlson, M. A.. (2002). *Causes of bank suspensions in the panic of 1893, board of governors—Federal reserve system*. Working Paper No. 2002-11.
- Catenazzo, G, Fragnière, E.. (2008). *La Gestion des Services*. Paris, France: Economica.
- Catenazzo, G, Fragnière, E.. (2009). Identifying bank run signals through sociological factors: An empirical research in the Geneva area. In Gregoriou, G. N. (Eds.), *The banking crisis handbook*, 499-512, Chapman-Hall/Taylor and Francis Group.
- Chen, Y.. (1999). Banking panics: The role of the first-come, first-served rule and information externalities. *Journal of Political Economy*, 107( 5) , 946-968.
- Chen, Y., Hasan, I.. (2005). The transparency of the banking industry and the efficiency of information-based bank runs. *Journal of Financial Intermediation*, 15(3), 307-331.
- Chen, Y., Hasan, I.. (2008). Why do bank runs look like panic? A new explanation. *Journal of Money, Credit and Banking*, 40(2-3), 535-546.
- Debély, J., Dubosson, M., Fragnière, E.. (February 2008). The pricing of knowledge-based services: Insights from the environmental sciences. *Journal of Services Research, Special Issue*, 167-181.
- Diamond, D. W., Dybvig, P.. (1986). Banking theory, deposit insurance and banking regulation. *The Journal of Business*, 59(1), 55-68.
- Dubosson, M., Fragnière, E., Milliet, B.. (June 21-23, 2006). A control system designed to address the intangible nature of service risks. Proceedings of *the 2006 IEEE International Conference on Service Operations, Logistics, and Informatics*, Shanghai, China, 90-95.
- Dwyer, G. P., Gilbert, A. R.. (1989). Bank runs and private remedies. *Federal Reserve Bank of St-Louis*, 71(3), 43-61.
- Eckert, E., Les. (October 28, 2008). "Petites" banques commencent à refuser de l'argent! *La Tribune de Genève*.
- Equey C, Fragnière E.. (2008). Elements of perception regarding the implementation of ERP systems in Swiss SMEs. *International Journal of Enterprise Information Systems*, 4(3), 1-8.
- Fragnière, E., Sullivan, G. (2006). *Risk management, safeguarding company assets*. Boston, MA: Crisp-Thomson NETg.
- Garrods, G, Willis, K. G.. (1999). *Economic valuation of the environment, methods and case studies*. Cheltenham, UK: Edward Elgar.



- Hall, J. B.. (2008). The sub-prime crisis, the credit squeeze and northern rock: The lessons to be learned. *Journal of Financial Regulation and Compliance*, 16(1), 19-34.
- Hansla, A., Gamble, A., Juliusson, A., Gärling, T.. (2008). Psychological determinants of attitude towards and willingness to pay for green electricity. *Energy Policy*, 36, 768-774.
- Higgins, J., Warnken, J., Sherman, P. P., Teasdale, P. R.. (2002). Survey of users and providers of recycled water: Quality concerns and directions for applied research. *Water Research*, 36, 5045-5056.
- Hoevenagel, R.. (1994). An assessment of the contingent valuation method. In: Pethig, R. (Ed.), *Valuing the environment: Methodological and measurement issues*, 195-227. Dordrecht, The Netherlands: Kluwer academic publishers.
- Imandoust, S. B. and Gadam, S. N.. (2007). Are people willing to pay for river water quality, contingent valuation. *International Journal of Environmental Science and Technology*, 4(3), 401-408.
- Keasey, K., Veronesi, G. (2008). Lessons from the Northern Rock Affair. *Journal of Financial Regulation and Compliance*, 16(1), 8-18.
- Llewellyn, D. T.. (2008). The Northern Rock Crisis: A multi-dimensional problem waiting to happen. *Journal of Financial Regulation and Compliance*, 16(1), 35-58.
- Madiès, P. (2005). *Coassurance des dépôts et panique bancaire: Une étude expérimentale*. Working Paper 01-05, GATE Groupe d'Analyse et de Théorie Économique – UMR 5824 du CNRS.
- Miller, V.. (2008). Bank runs, foreign exchange reserves and credibility: When size does not matter. *International Financial Markets Institutions & Money*, 18, 557-565.
- Niinimäki, J. P.. (2002). Do time deposits prevent bank runs? *International Financial Markets, Institutions & Money*, 12, 19-31.
- Nomura, N., Akai, M.. (2004). Willingness to pay for green electricity in Japan as estimated through contingent valuation method. *Applied Energy*, 78, 453-463.
- OCSTAT. (2008). Geneva Cantonal Office of Statistics, Mémento statistique du Canton de Genève.
- OECD. (1995). *The economic appraisal of environmental projects and policies—A practical guide*. Paris, France: OECD Publications.
- Rogoff, K.. (Sep. 17, 2008). America will need a \$1,000bn bail-out. *Financial Times*.
- Schriber, M.. (2007). Le secteur bancaire suisse, une histoire à succès mais aussi à risqué. *Revue de politique économique*, 4, 44-48.
- Selvaretnam, G. (2007). *Regulation of reserves and interest rates in a model of bank runs*. Working paper CDMA07/14, University of St Andrews, Scotland, UK. Retrieved from Available at SSRN: <http://ssrn.com/abstract=1015234>.
- Saunders, A.. (1996). Contagious bank run: Evidence from the 1929-1933 period. *Journal of Financial Intermediation*, 5(4), 409-423.
- Schotter, A., Yorulmazer, T.. (2008). On the dynamics and severity of bank runs: An experimental study. *Journal of Financial Intermediation*, 18, 217-241.
- Schumacher, L.. (2000). Bank runs and currency run in a system without a safety net: Argentina and the 'Tequila' shock. *Journal of Monetary Economics*, 46, 257-277.
- Tchankova, L.. (2002). Risk identification—Basic stage in risk management. *Environmental Management and Health*, 13(3), 290-297.
- Vaugirard, V.. (2005). Beliefs, bailouts and spread of bank panic. *Bulletin of Economic Research*, 57(1), 93-106.
- Yorulmazer, T.. (2008). *Liquidity, bank runs and bailouts: Spillover effects during the Northern Rock Episode*. Retrieved from SSRN: <http://ssrn.com/abstract=1107570>.
- Wheelock, D. C., Wilson P. W., (1995). Explaining bank failures: Deposit insurance, regulation, and efficiency. *The Review of Economics and Statistics*, 77(4), 689-700.
- Zhu, H.. (2001). *Bank runs without self-fulfilling prophecies*. BIS working paper No. 106. Retrieved from SSRN: <http://ssrn.com/abstract=847445>.

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