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Managing organizational errors: Three theoretical lenses on a bank collapse

Vincent Giolito

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JEL-Classification: M00 Management, M190 Strategy, M140 Corporate culture

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Managing organizational errors:

Three theoretical lenses on a bank collapse

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Abstract

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Introduction

Every now and then a major disaster occurs that primarily involves not a natural phenomenon or an individual, but an organization. Airline crashes and industrial accidents provide the most terrible and vivid examples. Yet in terms of societal impact, perhaps no catastrophe was as far-reaching as the failures of major American banks and financial institutions such as Lehman Brothers in 2008 to cite just one. For years, the Lehman bankruptcy would epitomize the crisis that developed in a global recession, with millions of workers laid off, as many households in financial distress, and value destruction by the trillions of dollars (Sorkin, 2011). Such events call for at least two series of questions: what errors did the executives make? And how could they have better managed those errors? The first set of questions evokes errors, that is, roughly speaking, differences between what people in charge did and what they should have done (e.g. Reason, 1990; Hofman & Frese, 2011). The second set refers to potential guidelines for managing untoward events (e.g. Ramanujan & Goodman, 2011).

Some theoretical research exists on organizational errors, and studies provide insights on how and why incidents develop into major crises in the context of high-hazard industries and how some organizations do better than others. I set out to explore how three theories may help

understand the collapse of Fortis, a major financial organization in Europe that embarked in a giant acquisition shortly before the financial crisis. In its home country, Belgium, the Fortis demise had major implications from 2008 on. Amid extraordinary outcry, the group was nationalized and broken up. Shareholders' holdings were wiped out. Political developments ultimately forced the Prime minister to resign (Thomas, Gérard, & Conditijs, 2009).

The theories I used as "lenses" for examining the Fortis case are *a*) the theory of errors and organizational errors (Reason, 1990; Hofman & Frese, 2011); *b*) the theory of normal accidents built on the analysis of nuclear and industrial accidents (Perrow, 1984; 1999; Shrivastava, 1986); *c*) the theory of high reliability organizations (Roberts, 1990a; Weick & Sutcliffe, 2007). So far none of those theories focused specifically on the decisions and actions at the executive level of organizations. This paper attempts to complement knowledge in those research areas, first by transposing prior insights to the financial industry. It has been called for but, to our knowledge, hardly done so far (e.g. Young, 2011). Second, it aims at contributing separately to the three theories: *a*) to the theory of errors by examining to what extent theoretical definitions can be applied to the decisions of executives in a real-life case; *b*) to the theory of normal accidents by adding a novel factor as potentially explaining the probability and magnitude of catastrophes in the financial sector, namely the inherent *interconnectedness* of financial institutions with their environment; and *c*) to the theory of high reliability organizations by showing how executives, at the individual and top-management team level, may act for stemming adverse consequences when unexpected incidents occur. In a later phase, my research aims at developing a theory of organizational error management. The three theories used here may be seen as building blocks for this future effort.

The first section of the paper provides more detail on the theoretical lenses and why they may be relevant for the cases. Then following sections will focus respectively on the Fortis case and its analysis. A discussion synthesizes insights and invites to further effort in research and practice.

1. Theoretical lenses

1.1. Errors in organizations

Errare humanum est, the short quote of Seneca goes. Error broadly refers to what people would prefer not to have done, especially with hindsight in the light of adverse consequences. The concept of error evokes a departing from grand frames of reference, from religion to moral and ethics to legal rules to statistics. The work of a psychologist, Reason (1990), currently forms the base of a pragmatist definition of errors at the individual level. Erroneous actions are "all those occasions in which a planned sequence of activities fails to achieve its intended outcome, when these failures cannot be attributed to the intervention of some chance agency" (Reason, 1990). Building on this, authors came to define organizational errors as organizational actions "that unintentionally fail to achieve their goals, if this failure was potentially avoidable", which suggests that failure was predictable and other courses of actions were available (Hofmann & Frese, 2011). Goodman and colleagues (2011) insisted that organizational errors represent "the actions of multiple individuals who are acting in their formal organizational roles and working toward organizational goals". They also suggested a more restrictive view of errors, defined as "unintended deviations from rules or procedures that can potentially result in adverse organizational outcomes". In this study I deliberately leave aside cases in which following rules may in itself lead to adverse consequences. In specific business contexts like the banking, rules refer to common principles of corporate governance (e.g. respective roles of supervisory board, the board committees, the CEO and

the management committee) as well as regulations particular to the industry. One of those was laid out by the Basel committee on banking supervision, and requires banks to maintain a solvency ratio of equity compared to the risk-weighted assets on their balance sheet (BCBS, 2006). Organizational objectives comprise, for example, of the necessity for a bank to be able to repay its innumerable commitments on a daily basis.

Reason pointed out that "human failures happen frequently: human fallibility, like gravity, weather, and terrain, is just another foreseeable hazard..." (Reason, 1990). At the individual level, psychological research linked errors with biases in reasoning (e.g. Kahnemann, 2011). For example, people form their judgments based on what they recall easily, make decisions based on consistency with prior actions and do not question their assumptions. At the small group level, the reinforcing effect of similarity of several persons' thought processes may form a phenomenon termed "groupthink" (Baron, 2005; Janis, 1997). Over time, both processes may combine and lead to an escalation of commitment in courses of action even though the expected outcomes become more and more unlikely to attain (Staw, 1981).

Errors are critical in understanding adverse events with dramatic consequences such as accidents. It is estimated that 80% of airline crashes originate in human errors, not mechanical failure (Hagen, 2013). Perhaps surprisingly, crashes occur disproportionately not with the first officer, but the captain at the commands, which signals that even the most experienced individuals commit errors. In business settings, several authors noted many examples where errors from top management teams brought their companies into disarray (Hunter, Tate, Dzieweczynski, & Bedell-Avers, 2011; Shimizu & Hitt, 2011). Their works essentially referred to strategic errors, or decisions that endangered organizational strategies that is, the course of actions and allocation of resources necessary for carrying out the long-term

organizational goals of sustainability and profitability (Barney, 1986). It is also worth noting that top management teams are also responsible for errors that occur inside their organizations. This is what the banking regulations term "operational risks" (Basel committee on banking supervision, 2006). Regardless of who committed the error, executives have to manage such them when they reach strategic impact. Error management refers to to setting up and maintaining "the organizational processes for anticipating, preventing, detecting, containing, responding to, coping with, and learning from [organizational] errors" (Goodman et al., 2011).

To summarize, organizational errors refer to actions and decisions (or the lack thereof) by organizational actors in good faith, that unintentionally fail to match certain standards, those being either the organizational objectives or some more or less formal regulations, while the adverse consequences were potentially predictable at the time of their making.

1.2. The 'natural accidents' theory

Research on large-scale accidents that led to the theory of normal accidents (NAT) developed quite apart from studies on errors. Charles Perrow studied several major industrial crises in the nuclear industry, in particular the accident at the Three Mile Island in the US in 1979 and the Tchernobyl catastrophe in 1986 in Ukraine (Perrow, 1999). His works complement those of Shrivastava on the deadly explosion at a chemical plant in Bhopal, India (Shrivastava, 1987). The normal accidents theory exposes a set of conditions that lead industries to experience become highly hazardous, with an increased likelihood of major accidents. Major accidents refer to "the failure in a subsystem or the system as a whole that damages more than one unit and in doing so disrupts the ongoing or future output of the system" (Perrow, 1999). The natural accidents theory notes that accidents happen when two or more failures occur among components and interact in some unexpected way.

As a crucial contribution on organizations where severe accidents are constantly "waiting to happen" (Weick, 1987; Perrow, 1984; 1999) proposes that large-scale accidents are "normal" in organizations whose functioning exhibits a) complexity and b) tight coupling. First, complexity within a given system or organization refers to an unusually high number of close and intricate subsystems, some of which fulfill incompatible functions. Complexity has major consequences. A failure in one component triggers interactions that may have "baffling" outcomes (Roberts, 1990a). The impact of simultaneous failures of two or more functions becomes extremely difficult to anticipate in combination with other subsystems. Perrow notes that in a particular plant for example, a heat exchanger at the same time cools a fuel tank and heats a gas tank; if the device fails, one tank becomes to hot and pressure drops too low in the other one, resulting in a potential fire (Perrow, 1984, cited by Roberts, 1990). Complexity also implies that operators have only indirect information on what is precisely going on, as too many subsystems are involved. In a nuclear reactor, many indicators (e.g. heat and pressure) are constantly monitored in various part of the circuit, but they cannot signal every reaction in the system. Besides, indicators by themselves are subsystems and can prove defective. In the end, operators must rely on inferences to analyze the situation at hand before making high-stake decisions. They rely on sensemaking (Weick, 1993). This is all the more difficult that they are not the designers of the system and they are used to run it under non-defective conditions.

Second, tight coupling is the other crucial characteristic of high-hazard industries where accidents become "normal". Tight coupling means that there is no slack or buffer between two items in the system, so that what happens in an item immediately affects the other. Tightly coupled systems have highly time-dependent processes, meaning that sequences of

actions must be invariant as they are dictated by the design. There is only one way to operate and reach the goal (Perrow, 1999; Roberts, 1990a). Tight coupling is also manifest in busy airports, as a failure in one part of a process such as clearance for takeoff can result in a crash; pilots and air traffic controllers then rely on an invariant, step-by-step procedure to ensure reliably safe operations.

Normal accidents theory studies focused on high-hazard industries, those that deal with materials and processes that prove highly sensitive to small deviations. They may be relatively recent industries having experienced a rapid expansion where, given the risks at stake, systems are designed to avoid rather than manage incidents, notes Perrow (1999). Aggravating factors are a poor documentation of incidents and differences between the design and the way the systems is actually built (Perrow; 1999). Shrivastava pointed the lack of training among operators as a critical element in the Bhopal tragedy. In such circumstances, people in charge then have little experience of actual incidents. As March, Sproull and Tamuz (1991) notice, experiential learning is impaired when organizations can form and project knowledge based on "samples of one or fewer" that is, rare or even just potential events. Following earlier transpositions and calls from scholars, I propose that features of high-hazard activities are present in other business activities to the extent that they match the criteria defined by its proponents.

1.3. The 'High reliability organizations' theory

While the normal accidents theory set out to understand how incidents could degenerate into major adverse events and was somewhat negative, the high reliability organizations (HROs) theory took a positive stance. The point of departure of works by La Porte, Roberts, Weick and Sutcliffe among others was precisely organizations where accidents were constantly

waiting to happen but where, nonetheless, the safety record was outstanding (La Porte, 1996; Roberts, 1990a; 1990b; Weick & Sutcliffe, 2007). Later on, HROs were defined as organizations constantly seeking not only to improve reliability and intervening, but also to prevent errors and failures as well as to cope and recover quickly should errors become manifest through "effective management of innately risky technologies through organizational control of both hazard and probability" (Rochlin, 1993, cited by Sutcliffe, 2011). Initial research was conducted by a group of scholars of the University of California, Berkeley aboard aircraft carriers of the US Navy. Further studies applied and refined the HRO paradigm in other settings, from the American air traffic control system to private-sector power companies operating both nuclear and conventional facilities to healthcare to financial services (Roberts, 1990a; 1990b; Sutcliffe, 2011; Young, 2011).

HROs distinguish themselves by a "mindful" culture that Weick and Sutcliffe (2007) conveniently synthesize in five components.

Extreme attention to operational details. Members of highly reliable organizations tend to avoid, bypass or confirm indirect information. This "bottom-up" attention culture has people privilege raw information over synthetic indicators processed by models. For example, officers in the control tower of an aircraft carrier visually check with binoculars that the approaching jet has correctly deployed its landing gear in addition on relying on the pilots' indication that the lights on the dashboard are on (Roberts, 1990a).

Preoccupation over potential incidents. HROs culture is highly aware of the permanent danger. HROs suspiciously look for surprises. Mindful organizations expect incidents to occur, want to analyze them as potential indicators of larger problems and base organizational learning on them. Civil aviation crews have extensive training based on creative scenarios for potential incidents that may develop in adverse situations (Hagen, 2013).

Resistance to oversimplification. Members of HROs acknowledge that the world is complex, unpredictable, and unknowable to a large extent. As outdated responses to novel situation may prove untoward, they tend to recognize an event as never experienced before instead of modeling their reactions based on prior successful experiences (Weick & Sutcliffe, 2007).

Tracking small failures. As an incident may just be shown later to be the tip of an iceberg of latent issues, HROs investigate on and keep a record of non-fatal problems that occurred in normal operations. As an example, all American civil aviation crewmembers are required to report any flight incident anonymously (Hagen, 2013; Haunschild & Sullivan, 2002).

Deference to expertise. In HROs, practical knowledge of the matter at the operational level takes precedence over hierarchy when something potentially dangerous occurs. This implies considerable empowerment and accountability for all members and can even suggest an inverted hierarchical pyramid (Roberts, 1990b). On aircraft carriers for example, it is the right and duty of any person on the platform to a stop all operations if they notice an object on the ground.

The HROs' mindful culture translates into both systems and processes. On the systems side, a high level of redundancy characterizes HROs. In the tower of an airport, no less than three channels of communication connect the people involved in approach and takeoff/landing; landing clearance decisions are made not by one, but two airport officers (Roberts, 1990b). Technology is constantly improved: new radar screens are installed to help operators do their job, and the old ones are used as a backup. Multiple devices aim at preventing indirect information and instead forwarding direct indications on what is happening. On an aircraft carrier, personnel wear uniforms of various colors so as to help the officers in charge check that all sections critical to an operation are present. In civil aviation, crosschecking communication routines between captain and first officer now help ensure that the crews

share the information in the same form (Hagen, 2013). Redundancy creates slack and proves expensive, as Roberts notes (1990b). It is true of another characteristic of HROs, constant training.

On the process side, Sutcliffe (2011) notes two specific features of HROs. The first one is respectful interaction, meaning that *a*) people accept to base some beliefs and actions on others' reports; *b*) they themselves report honestly what they know and perceive; and *c*) they attempt to integrate their and others' perceptions in a socially shared comprehension of the situation. Respectful interaction allows people to speak up their mind. It necessitates a climate of psychological safety that may be fostered by a "no-blame" approach to reporting of errors (Nembhard & Edmondson, 2006; Provera, Montefusco, & Canato, 2010). The second characteristic of processes that HROs exhibit is termed heedful interrelating, referring to "a social process through which individual action contributes to a larger pattern of shared action and in which individuals understand how their actions fit into the larger action" (Sutcliffe, 2011). When incidents occur, this type of interrelations helps the various people involved to bargain towards "minimax" solutions where everyone wins and no one loses big (Roberts, 1990b). It also allows organization members to develop several options in the face of a critical situation and to free slack, thus escaping traps faced by organizations where there is only one way to reach the goal – when this very way becomes impossible. It also helps organizational members to comprehend and accept unusual, courageous, and bold decisions that novel situations may warrant (Roberts, 1990a).

2. The Fortis case

2.1. Rationale for the choice and investigation method

Research on accidents focused on events of peculiar importance, measured by their consequences in loss of human lives and financial consequences, and their impact on society. The investigations on the American space shuttles Challenger and Columbia complemented studies on chemical and nuclear accidents (e.g. Heimann, 1993; Hughes & White, 2010; Perrow, 1984; 1999; Shrivastava, 1987). This is in line with classic recommendations from grounded theory (Glaser & Strauss, 1967; Suddaby, 2007). This also matches the criteria of choice in case-based research and its preference for extreme events (Eisenhardt, 1995; Eisenhardt & Graebner, 2007; Yin, 2003).

Accordingly, to examine how to transpose the theories of errors, normal accidents, and high reliability organizations to the business world, I was to choose an episode that highly consequential in material and societal terms. The collapse of Belgian bank and insurance group Fortis matches those criteria. In a matter of weeks in 2008, Fortis fell from its position of a major, conquering European financial institution. Only central banks and government intervention avoided a bank run. The group was nationalized and broken apart. The banking part of its business was sold to a foreign rival, the insurance arm was rebranded into Ageas and still carried a financial burden seven years later; and a "bad bank" was set up to dispose of the most toxic assets. The amount of the value destruction amounts to tens of billions of euros. In 15 months, the price of the Fortis stock fell from 35 euros to 0.30 euros. The societal reaction at various stages of the collapse was enormous, with stakeholders from individual shareholders to pension funds to trade unions to government to authorities expressing anger

and despair at public meetings and in the media and engaging in legal procedures that continue 8 years on (Cats, 2011; Thomas, Gérard, & Conditijs, 2009).

As the events date back from several years, direct observation in the field was impossible. I relied on indirect sources. I gathered and analyzed an abundant documentation (more than 3,000 pages). Key documents were annual reports, press releases by Fortis, government and regulatory authorities and official investigation reports written or mandated by government or judicial authorities (e.g. Cats et al., 2010; Cremers et al., 2010; Fortis, 2004-2008; Fortis, 2007, 2008a, 2008b, 2008c). Some of them reproduce documents exchanged inside Fortis and between Fortis and stakeholders such as emails, letters, presentations and memos. Books recounting related stories were also considered (e.g. Smit, 2010; Thomas et al., 2009). Media accounts were not an important source save the Reuters wire news (Reuters, 1991-2015). In addition, I also take into account official reports and books relating the financial crisis of 2008 (e.g. Financial Crisis Inquiry Commission, 2011; Levin & Coburn, 2011; Silver, 2013; Sorkin, 2010).

As a complement, with my focus on decisions at the top of the organization, a second set of sources was interviews with directors and executives who were directly involved in the events that preceded the Fortis collapse. I also interviewed stakeholders, informed observers and investigators. Semi-directed centered interviews began with questions about how interviewees recalled the crisis and asked what lessons they drew with hindsight (Romelaer, 2011). I had 9 interviews, for a total of 12 hours. Interviews were tape-recorded and transcribed (total ca. 100,000 words). Interviews were considered a complement, not a principal source for establishing facts due to the fact that actors may lose the detailed track of the events and recall

them along the lines of their own interests – in that case, some interviewees are still embroiled in legal proceedings.

Based on both documents and interviews, I reconstituted a detailed timeline of 700 items comprising of internal and external exchanges, decisions and events and matched it with the evolution of the Fortis stock price relative to a benchmark index (Stoxx, 2015) so as to isolate the impact of events specific to Fortis from those that affected the financial sector as a whole in a time of extreme global turmoil. I analyzed the timeline and material in three different dimensions: *a*) the context of the financial sector, including the role of regulatory bodies and government; *b*) the context inside Fortis; *c*) the specific decisions made at different points of time by Fortis' board and executives. I then matched information on those three dimensions with the theoretical elements described by main authors.

2.2. The rise of Fortis

Fortis was created in 1991 from the alliance of AG and Amev, a Belgian and a Dutch insurance companies (Reuters, 1991-2008; Thomas et al., 2009). The group grew and diversified quickly in the 1990s thanks to a series of acquisitions mostly in Belgium. Milestones were the takeovers of the Belgian insurer CGER in 1993 and 1997, the Dutch commercial and investment bank MeesPierson in 1997, the leading Belgian retail bank Générale de Banque in 1998, and the Banque générale du Luxembourg in 1999. Fortis also acquired an important credit insurance operation in the US, American Bankers Insurance, later to be divested. In the 2000s Fortis maintained a strong impetus for external growth, with smaller operations in emerging countries from Southern to Eastern Europe to Asia via partial or full acquisitions and joint ventures. In its main retail markets, Fortis' vision was to combine bank and insurance, based on the complementarity of the products for consumers on the one

hand, and the balance of financial resources on the hand. Regular, long-term cash flows coming from insurance would compensate for the more volatile business cycle of the banking industry.

The company initially had a dual listing with different stocks on the exchanges of Brussels and Amsterdam, and dual governance with two co-CEOs, Count Maurice Lippens from Belgium and Mr. Hans Bartelds from the Netherlands, who later became non-executive cp-chairmen. In the early 2000s Fortis streamlined its structures. The same stock was listed in Brussels and Amsterdam. Mr. Lippens became sole chairman of the supervisory board, which appointed a CEO to run the group. From September 2004, the CEO was Jean-Paul Votron, a Belgian banker with experience mostly in marketing and running retail banking operations with Citibank in the US and various geographies across the world.

In late 2006, Fortis had grown to a respected second-tier financial institution: rankings by assets put it in the top 20 in Europe (Thomas et al., 2009). In Belgium, it was a giant. Its total assets amounted to 775 billion euros, the equivalent of twice the annual Gross domestic product of the country (Fortis, 2006; OECD, 2014). Fortis employed 60,000 people, the majority in Belgium. It was the bank of a large part of the population, many clients also being individual shareholders. At that time, a consolidation trend was at work in the whole banking industry following the institution of the single euro currency and the increased regulatory obligations. Merger talks between Fortis and other banks, from British Lloyds TSB to French BNP Paribas to American Citibank to Dutch ABN-Amro to fellow Belgian Dexia ebbed and flowed but eventually failed to materialize (Reuters, 2000-2006; Thomas et al., 2009).

Then in early 2007, Fortis was offered to take part in an unprecedented operation. Royal bank of Scotland (RBS) of the UK and Santander of Spain planned to acquire the ailing Dutch bank ABN-Amro with the intention to break up its activities (Smit, 2010; Thomas et al., 2009). RBS and Santander suggested that Fortis enter their consortium and take an essential part of ABN-Amro's business, the retail and commercial banking operations in the Netherlands. It was a hostile acquisition, as ABN-Amro was engaged in advanced negotiations with British bank Barclays. It was also gigantic. The acquisition was valued over 70 billion euros, which made it the biggest acquisition in the banking industry ever at that time. Fortis' part in the consortium was approximately one-third of the total, or 24 billion euros. At that time its market capitalization was 40 billion euros and its solvency ratios on a par with peers, above minima but not distinctively so. From the outset it was clear that Fortis would have to raise capital in the region of 15 billion euros, an amount that only the privatization of French France Telecom had reached in Europe (Reuters, 2007). Initial reactions from both observers and investors were favorable to Fortis. In the three months following the announcement of the consortium and the bid for ABN-Amro, analysts and the media helped the stock price rise from 30 to 35 euros. In August 2007, Fortis' board and management easily had shareholders approve the 13 billion euros capital increase. Regulators granted clearances with what seemed benign conditions. From October 2007, the consortium proceeded with the acquisition ABN-Amro. And Fortis planned for the integration of its own part, which was due progressively until the end of 2009.

2.3. The fall of Fortis

Since the spring of 2007 on, markets were shaken by doubts on the structured credits and derivatives based on subprime mortgages in the US. Some banks had already declared substantial losses linked to this activity, notably HSBC in the UK and Bear Stearns in the US.

In France, BNP Paribas interrupted trading on some of those products. In Germany, a regional bank overexposed to losses on subprime assets had to ask for support from the government, prompting the chairman of the German financial authority to express fears of "the worst crisis since 1931" (Buck & Simensen, 2007). Financial institutions worldwide were scrutinized for their exposure to asset-backed securities (ABS) collateralized by subprime mortgages and their derivatives. In March 2008, US authorities were to bail out Bear Stearns. In the following 6 months, the financial crisis expanded. In mid-September, the US investment bank Lehman Brothers filed for bankruptcy. A global meltdown followed that impacted the Western world for several years.

Over the 15 months from the summer 2007 to late September 2008, Fortis experienced a rapid descent as doubts grew over not only its exposure to ABS but also its ability to finance its part of ABN-Amro in the context of a global financial turmoil. The stock price may reflect this descent: from 35 euros in July 2007 it fell to a range of 15-20 euros between January and June 2008, then dove to below 10 euros. In September 2008 it lost almost any value. Here I only outline the major stages of the Fortis collapse as outsiders could observe them, first on the business side, then on the financing side. I will explain in the analysis section what very decisions the board management faced.

Regarding the business operations, in September of 2007, ahead of the capital increase, Fortis announced that the subprime crisis would "not materially impact" its targeted net profit of 4.2 billion euros for the year. In November the published 3rd quarter profit was apparently consistent with that target, although depreciations had almost decupled and at least one executive in the bank advocated even further depreciations. In January, the Belgian regulator of financial institutions insisted that Fortis clarify its financial position. Fortis published a

profit warning for the full year 2007 in which it expressed hesitations over the way it would calculate depreciations (Fortis, 2008b; Cats et al., 2010; Cremers et al., 2010). The press release indicated that, depending on the method retained, profit would amount to 4 billion or just 3 billion euros (the guidance was initially 4.2 billion). The latter figure became official in April (Fortis, 2008a), meaning that the group had incurred depreciations for 1 billion euros. In the first semester of 2008, Fortis again was hit by depreciations of 600 million euros; profit amounted to 1.6 billion euros, 41% lower than in the first half of 2007.

Regarding the financing of the ABN-Amro acquisition, Fortis was facing difficulties too. Three main sources were to be tapped to respect the solvency requirements, by order of preference: *a*) hybrid financial instruments accounted for as Tier 1 capital with respect to banking regulations, but not diluting the rights of shareholders; *b*) proceeds of divestments; *c*) emission and retention of capital. A first tranche of hybrid capital was raised as soon as July in 2007. Others followed in the first half of 2008, for a total of 8 billion euros. Divestments were as a key part of the plan, but proved particularly difficult to execute. After the sale of stakes in assets Spain and Portugal in 2007 for 1.2 billion euros, Fortis was unable to cash in the 5 billion euros it intended to. A major setback was recorded in trying to dispose of some of ABN-Amro's activities in the Netherlands, a condition posed by the European commission for motives of fair competition. Fortis only managed to sell them to Deutsche Bank in July 2008. The price was below net asset value and Fortis had to keep the burden of the associated risks – thus degrading its solvency ratio.

Regarding the third source of financing, emission and retention of capital, Fortis initially budgeted a major capital increase at 15-17 billion euros, but revised it to 13 billion. When the climate went dire in the late spring of 2008, Fortis in emergency launched a second operation

for 1.5 billion euros, and coupled it with the retention of 1.2 billion euros by suppressing the payout of the interim dividend. In total, Fortis raised more than 21 billion euros in capital equivalent for acquiring ABN-Amro as of the early July 2008. Credit facilities up to October 2008 bridged the gap to the 24 billion euros price. Yet if the solvency ratios were apparently correct to date, there were doubts about how they would fare as the group would progressively consolidate ABN-Amro on its balance sheet in late 2008 and 2009.

2.4. Final days

The final stages of Fortis' collapse unfolded in the context of two events. First, at the top of Fortis, a rift surfaced between the chairman Maurice Lippens and the CEO Jean-Paul Votron in late June 2008. The point of departure was the reaction of shareholders, both individual and institutional, at the news that the payout of the interim dividend was suspended. During the previous months, Mr. Lippens and Mr. Votron had publicly, sometimes emotionally pledged that Fortis would never alter its dividend policy. As the public outcry spread in the mainstream media, Mr. Lippens and board members decided to ask the CEO to step down. In early July 2008, they replaced him with his deputy. Yet Fortis let also know that the board was searching for a successor, implying that the new CEO was only in charge *ad interim* (Fortis, 2008c).

Second, outside Fortis, the turmoil in the markets turned to a large-scale crisis. In August and September, the US government let investment bank Lehman Brothers go bankrupt, and set up a giant package of public funding for rescuing insurer AIG and mortgage institutions Fanny Mae and Freddy Mac (Sorkin, 2011). In a matter of days, several major investment and retail banks were forced to merge by regulators and the government. The uncertainty was such that banks globally stopped lending money to one another (FCIC, 2010; Levin & Coburn, 2010).

Faced with obligations in dollars that it was not able to repay, Fortis appealed to the Belgian and Dutch and European central banks for a lifeline. When it appeared that the group's liquidity was not sufficient compared to its needs for the following days, over the week-end of 25-26 September 2008, Fortis was nationalized (Cats et al., 2010). After a complex process, BNP Paribas took over the banking operations in Belgium and Luxembourg. The Dutch state acquired the banking activities in the Netherlands that is, ABN-Amro's retail banking network. The insurance business was carved out and rebranded. At approximately the same time, the British government also bailed out Royal Bank of Scotland (Thomas et al., 2009). Of the three partners in the consortium due to carve out ABN-Amro, only Santander, which had acquired the Latin American activities, kept its independence.

3. Analysis

3.1. Top management decisions and errors

The major objective of any organization is to preserve and develop its sustainability over time, and strategy consists of decisions and actions – e.g. goals and policy setting, resource allocation – that allow it to carry out this objective (Barney, 1986). Fortis missed the sustainability objective. To the extent that strategic decisions contributed to this failure, and that failure was potentially avoidable, those decisions were erroneous (Hofmann & Frese, 2011; Reason, 1990). With my focus on error management on the part of top management, I focused on actual decisions that can be traced and documented. However, one should bear in mind that the collapse unfolded with several decisions linked to one another. It is this chain of decisions, potentially a chain of errors that deserves investigations. In this chain of interrelated decisions, if one error is detected, then the ensuing decisions are part of error management as they logically pertain to containing, responding to, coping with, and learning

from prior errors, as well as anticipating, preventing and detecting errors further down (Goodman et al., 2011).

I chose five specific decisions made by the top management team, and I examined those decisions with the lens of error theory (Reason, 1990; Hofman & Frese, 2011). All those decisions represented crucial opportunities to modify the course of Fortis' history. Those decisions are:

a) entering the consortium to acquire ABN-Amro;

b) setting up the financing plan in the spring of 2007, specifically regarding the amount of capital increase;

c) proceeding with the acquisition and the capital increase within the timeframe of a clause that allowed Fortis to pull out (September 2007);

d) devising the emergency financing plan in June 2008; and

e) forcing the CEO to step down in July 2008.

The CEO and the top management team were primarily in charge of decisions *a, b, c* and *d*, with the approval of the supervisory board and its chairman. Decision *e* resorted to the board's and the chairman's prerogatives.

Individuals or teams acting in their organizational roles and working toward organizational goals made all those decisions; hence potential errors can be deemed organizational (Goodman et al., 2011). As far as I can tell based on documentation and interviews, none of those decisions were made while deviating formal or informal rules or procedures, which implies meaning that they do not match the restrictive definition proposed by Goodman and colleagues (2011). Whether some other decisions violated the law is still debated in litigation processes. Thus the questions to answer for each decision are: did it fail to fulfill the

organization' objectives? Was this failure potentially avoidable that is, it was predictable and other courses of action were available?

To preserve anonymity of the persons that was a condition for interview, sources in quotes are referred to only with the mention of their quality as insider or outsider at Fortis.

a) Entering the consortium

Did the decision fail to meet organizational objectives? The decision to take part in the acquisition of ABN-Amro was made at a time when the objectives of Fortis were to grow, as banks were consolidating elsewhere in Europe and resources were allocated only to the top players. Organic growth in mature markets such as banking in Europe was hardly an alternative, leading financial institutions to alliances and acquisitions. At that time, many banks in Europe looked to establish a "second domestic market" (Thomas et al., 2009). To set foot on a market so close to its primary country, where it already had operations and could devise synergies with clients used to cross the Belgian-Dutch border was convenient. Yearly synergies were estimated at 1.1 billion euros both in additional revenues and cost reduction (Cats et al., 2010; Cremers et al., 2010).

The acquisition of ABN-Amro would also have a strengthening effect on Fortis' financial resources. The vast retail operations would add a stable funding base – household bank accounts – partly compensating for the fact that Fortis was somewhat disproportionately engaged in riskier investment banking operations.

> "It was a time, the 2000s after the introduction of the euro, when investors adopted a global scope and, as a consequence, they focused only on the top players in each

industry. Any listed company had to be in the top 5 or 10 of its zone, or risk to lose credibility and resources." (Outsider)

"Acquiring ABN-Amro made sense. What did not was the prior decision to take part in the business of subprime asset backed securities earlier on." (Outsider)

"The acquisitions rebalanced the profile of the whole Fortis to make it bigger and safer. It was a unique opportunity." (Insider)

Of the many risks implied by the initial decision to join the consortium, one was that Fortis could become overwhelmed by the complexities of an unprecedented bid (Cremers et al., 2009). However, the group cleared most hurdles in a timely fashion, be it with partners RBS and Santander, the financial regulators in Belgium and the European commission. The Dutch initially raised objections, yet eventually accepted the operation while committing to a strict monitoring. Only time could have told eventually how Fortis managed the integration of ABN-Amro. It collapsed months before the planned date for combining part of the main operations. Only the asset management business was transferred in early 2008. No indication is available on a potential failure.

The initial decision by the top management and the board of Fortis to enter the bid for ABN-Amro, then, does not *per se* appear to fill the criteria of organizational errors or even a strategic error.

b) Devising the initial financing plan – capping the capital increase to 13 billion

Fortis initially envisioned partial funding of its 24 billion euros part of the ABN-Amro acquisition by a capital increase of 15 to 17 billion euros (Cats et al., 2010). Eventually it decided to limit the amount of the capital emission amount to 13 billion euros (Fortis, 2007).

i. Did the decision fail to meet the organizational objectives?

Reducing the capital emission was certainly in the interest of the shareholders. The smaller the emission, the lower the dilution for existing shareholders. Yet funding in capital is the safest resource for the organization particularly in the light of the beginning financial turmoil. No documentation or information was available on how the decision was made, but a possible explanation is that the final amount fitted a balanced funding plan aligned with the calendar of the whole operation. Management and board were confident that they would be able to work the financing according to plan, which may point to overconfidence (Kahnemann, 2011).

> "We had time. Regarding solvency obligations, we did not need more capital before the end of 2008 and 2009." (Insider)
>
> "It's far from uncommon that companies launch acquisitions without the financing. In that respect, Fortis appeared prudent somehow." (Insider)

With hindsight, Fortis would have been much better off with 2 billion euros more in capital as its results gradually deteriorated as the subprime crisis developed. As early as December 2007, projections of solvency position for the end of 2008 ("look-through") showed a deficit of 2 to 3 billion euros and the group would have to run after capital. It seems that there was an overlook of the "integration paradox", that is that synergies bring in new profits and capital only one or two years after the corresponding assets are accounted for on the acquiring company's balance sheet (Cremers et al., 2010). This overlook might be analyzed as a latent error that is, a non-apparent, unintended deviation from expectations that can potentially (i.e. may or may not) generate adverse outcomes (Ramanujam & Goodman, 2011).

ii. Was that failure potentially avoidable?

Regarding predictability, the "integration paradox" was mentioned in documents pertaining to the ABN-Amro acquisition at the time of devising the financing plan (Cremers et al., 2011). It is not clear whether the CEO and the chairman received those documents but, as corporate governance at Fortis functioned well, the risk and capital committee and the audit committee certainly reviewed them. Moreover, participants in the decision making process were experienced in acquisitions either as actors or advisors. Regarding the availability of alternatives, it seems reasonable to say that the capital emission could have been increased at least until its approval by the general assemblies of shareholders in August 2007, and perhaps until the actual offering, in late September that year.

Based on the criteria of management errors, it may be said that Fortis' decision to limit the capital emission ahead of the ABN-Amro acquisition was an organizational error (Reason, 1990; Goodman et al., 2011).

c) Proceeding with the acquisition, waiving the MAC clause

In the first two weeks of September 2007, some at the board and in the management of Fortis worried of the financial turmoil and wondered whether the group could withdraw from the planned ABN-Amro acquisition. Both the agreement between members of the Fortis-RBS-Santander consortium and the contracts linked to the capital emission included a Major adverse condition (MAC) clause. The common deadline was in late September 2007. Eventually the decision was made to waive the MAC clause and proceed with the operations.

i. Did the decision fail to meet the organizational objectives?

It is not clear whether the circumstances in the financial markets could be analyzed as major adverse events from a strictly legal point of view. Exchanges inside Fortis show that the issue

was investigated and opposite conclusions were drawn regarding litigation risks (Cremers et al., 2010). Waiving the MAC clause precluded any such risks. Another risk pertained to the reputation of Fortis. Pulling out of the deal would have dealt a blow on the group's image in terms of ability to sustain its commitments. Again, those risks were in the short term. Longer term, the decision would have questioned the very strategy of the group and possibly put it at risk of losing credibility both internally and externally.

> "If you want to use the MAC clause, it is without me." (e-mail inside Fortis, Cremers et al., 2010)
>
> "We investigated the matter. Litigation risks were huge." (Insider)

One the one hand, waiving the MAC clause was certainly successful in preserving Fortis from litigation risks and maintaining its reputation of a robust institution in the short term. On the other hand, it was the last opportunity to escape the course of action initiated in early 2007. Proceeding with the acquisition and the capital emission put the organization on a more hazardous path. The conflict between organizational objectives (e.g. short- vs. long-term) at that moment made the judgment extremely difficult.

ii. Was failure potentially avoidable?

If one is to consider that not invoking the MAC clause failed to help Fortis' achieve its objectives and then may be an error, one has to ask whether that failure was predictable. It seems that only scarce elements hinted at a possible strategic negative outcome. External analysts remained positive on the acquisition at that time (Reuters, 2007; Sorkin, 2010). Information that could help predict a negative impact pertained not to the ABN-Amro acquisition by itself, but to the funding plan and to general operational risks at the bank (Cremers et al., 2010). Also, it seems that Fortis had few alternative options. Invoking the

MAC clause implied not only to engage in arduous discussions with shareholders and consortium partners, but also to set up a new strategy with a new communication in a very short period of time. Incidentally, the very circumstances in which the decision was made may shed light. The board decided not to invoke the clause during a meeting in very unusual settings. Instead of just the directors and the CEO, several consultants, advisers and investment bankers were present. The agenda consisted mainly of approving an operation under heavy time pressure, as the deadline for the bid and the rights issue was just days later. One director explicitly and vibrantly raised the issue and advocated using the MAC clause, but the general opinion was hostile to his point. It would have taken an extraordinary amount of energy for the chairman and the CEO to stop the process at that moment.

To summarize, waiving the MAC clause may not be analyzed with the lens of error theory. Rather, it may be viewed as a non-decision, a logical step following prior commitments.

d) Devising the emergency financing plan

From December 2007 to June 2008, signs mounted that Fortis might face a solvency gap. According to documents gathered by Cremers and colleagues (2010), a miscalculation relating to the impact of assets sale imposed by the European commission delayed the realization at the top of the group. In June, the top management and the board urgently devised a new plan to raise new capital for bridging this gap. The plan comprised the emission of new hybrid instruments; a capital emission (up to 3 billion euros, later revised to 1.5 billion); and a change in dividend policy, with the cancellation of the interim dividend for 2007, due in the summer 2008 and a payout for 2008 in shares, not cash.

i. Did the decision fail to meet organizational objectives?

Regarding the financial objectives, at least the first version of the financial package seemed adequate to let Fortis meet its solvency targets. The capital emission part of the plan was underwritten for 3 billion euros by investment banks (Cats et al., 2010; Cremers et al., 2010). Eventually Fortis revised this amount to 1.5 billion. Subscription was successful. Retaining dividends was also an inexpensive way to preserve solvency. Based on available documentation and interview, other objectives seemed not to have been considered at the time of the decision. The issues pertaining to reputation of keeping promises toward shareholders and customers – in that case they were to a large extent the same population of Belgian households – were duly considered regarding the dividend policy, but were eventually disregarded based on the severity of the situation.

Regarding financial goals, in the context of growing pressure, the decision to reduce the capital emission hindered Fortis' capacity to meet its obligations. The package brought in less than 4 billion euros. It failed to bridge the projected solvency gap at the end of 2008 if not in the "base case" of operations running normally, certainly so in the "stress case" that is, with degraded economic and market conditions (Cremers et al., 2010). With respect to Fortis' stock price and reputation, downgrading the dividend payout proved extremely detrimental. The mainstream media echoed public anger as willingly as they had supported Fortis' success as a national cause (Thomas et al., 2009). The impact was made stronger by the generous prior policy – Fortis usually paid out half of its net profit to shareholders – and the fact that the group at the top level had recently reiterated its commitment.

> "The last thing we will do is alter our dividend policy" (Chairman and CEO, several public interventions, Cats et al., 2010; Cremel et al., 2010)

"The suspension of the dividend was terrible. People in Belgium waited for the Fortis dividend to pay their rent, their electricity bills. And Fortis' [chairman] had made it clear that the dividend would be changed only over his dead body." (Outsider)
"The reputation of Fortis is destroyed" (Chairman in an internal email, Cats et al., 2010, Cremel et al., 2010; Thomas et al., 2009)

ii. Was that failure potentially avoidable?

It seems that both financial and reputational risks might have been foreseen. On the financial side, that the emergency plan fell short of bridging the solvency gap appears in the documents that circulated at the top of Fortis. The plan as executed was sufficient only in the base case, and assuming that all other funding operations (e.g. divestments) would run according to plan. The failure on the reputational side was more difficult to plan for, as Fortis entertained only small institutional dialogue with individual investors. Yet the constant relationship with analysts and investors might have suggested that the dividend policy was instrumental in the support they provided to Fortis. Regarding alternative options, it appears that Fortis could issue more capital without too many drawbacks, possibly up to 3.5 billion euros. This may have allowed Fortis to pay part of the dividend. Besides, it is striking that, although facing extremely strong pressure, the management and the board seems never to have considered expanding divestments to core assets or "crown jewels". Despite more and more visible shortcomings, Fortis stuck to its initial divestment plan.

Approving the emergency financing package in June 2008 can be regarded as an organizational error on the part of Fortis' board and the management. In light of prior decisions, this error may be linked again with consistency bias or to "path dependency" theories which signal that individuals tend to apply action patterns with which they are

familiar (Kahnemann, 2011). In the perspective of error management, it also suggests a pattern of "too little, too late" decisions detected by research on aviation accidents (Weick, 1990, cited in Hagen, 2013).

e) Forcing the CEO out

Following the public outcry after the emergency financial plan, Fortis chairman Mr. Maurice Lippens announced to the CEO Mr. Jean-Paul Votron that he would not support him anymore (Cremers et al., 2010). Mr. Votron left Fortis in early July 2008 (Fortis, 2008c). The CFO also was asked to leave, but kept a consulting role over the following weeks.

i. Did the decision fail to meet organizational objectives?

The decision was intended to appease stakeholders and suggest a new direction for the group. Firing the CEO also had to express strong leadership from the chairman whose interests were aligned with those of shareholders. Yet any organization has to preserve and nurture its resources towards sustainability, and competence and talent are critical resources, specifically at the top level (Barney, 1986).

> "The CEO symbolized the drift of Fortis toward international finance." (Outsider)
>
> "Had I remained, I am sure I would have saved Fortis" (CEO, statement to investigators, cited by Cremers et al., 2010).

The departure of the CEO failed to calm down the doubts in Fortis' ability to succeed. The stock price continued to lose ground. Public voices as well as influent insiders invited the chairman himself to consider stepping aside (Cremers et al., 2010). Moreover, removing two central figures certainly deprived Fortis of knowledgeable executives at a time when circumstances warranted swift action. Moreover, it blurred the image of leadership and partly

destabilized the top management team. The new CEO was not prepared to take on the role. Over the summer, as the financial crisis deepened in the US and developed globally, he made no decisions that altered the course of events (Cats et al., 2010). In late September 2008, he fell ill and had to be replaced (Thomas et al., 2009).

ii. Was that failure potentially avoidable?

That a leadership change would fail to result in an immediate change in Fortis' image in the public and the markets was probably possible to predict. Research indicates mixed consequences for CEO dismissals, particularly when the change is sudden and unexpected (Dedman & Lin, 2002; Furtado & Karan, 1990). Toward the society in Belgium and the Netherlands, the scapegoating of the CEO was possibly not strong enough a symbol of Fortis to engage a shift in public representation. The group was much more identified with its chairman, a longstanding public figure in the business and society since the early 1990s, than with its CEO, who was at the top for less than 4 years after a career outside Belgium. Were there alternatives? On the one hand, the chairman himself may have offered his resignation, with the risk of further destabilization at the top of the organization. On the other hand, the board could have kept the CEO and devised new ways to addressing the damage to its reputation.

In short, the decision to let go of the CEO may well fit the criteria of organizational errors. A prior latent error was the absence of efficient succession planning. Yet in the context of the financial turmoil, and given Fortis' prior shortcomings, it remains dubious what role this decision played toward the final demise of the organization.

3.2. Fortis as a 'Natural accident'

The natural accidents theory predicts that events with major adverse consequences are more likely to occur in organizations where operations are characterized by both complexity and tight coupling (Perrow, 1999). I applied this double lens on two aspects of Fortis: a) "normal" operations in investment banking related to asset-backed securities; and b) the setup and unfolding of the funding operations in relation to the acquisition of ABN-Amro. However, it seems that the complexity and tight coupling dimensions come short to explaining why and how the organization collapsed. Connectedness appears to be an essential factor, as will be further detailed.

3.2.1. Complexity

a) Complexity in usual operations relating to asset-backed securities

With organizational complexity defined as an unusually high number of close and intricate subsystems, some of which filling incompatible functions, perhaps retail banking was by no means complex a few decades ago. An institution lent money and accepted deposits of money. Interests set in relation with their time horizon remunerated both operations. For a given horizon of time, as long as the interest rate on money lent was above that on money deposited, and as long as the difference covers operational costs, the bank ran a sustainable business model. From the 1990s on however, multiple elements added complexity in that relatively simple system, particularly in the US.

Instead of keeping the loans – mortgages for example – on their balance sheet for the nominal period of time, banks increasingly packaged them into securities that they could sell for cash (FCIC, 2010; Levin & Coburn, 2011). Packages or special purpose investment vehicles of asset-backed securities (ABS) such as collateralized debt obligations (CDOs) became bigger

and bigger as banks aggregated loans of various qualities and layered them according to their probability of default. Yet in the end, rating agencies attributed a global grade on each CDO. Ratings were based on sophisticated mathematical models supposed to integrate defaulting risks. With rising prices on the real estate market for years, ratings turned out to be disproportionately of the highest quality or triple A (e.g. Silver, 2013). Other instruments accompanied the development of ABS, in particular the credit-default swaps (CDSs). They helped banks (and other investors) hedge their risks against possible defaults.

In the mortgage market, complexity resided in the dramatically increased number of contracts, but also in their diversity. The classical loan over 30 years was succeeded by new arrangements allowing minimum payments (e.g. only interests, no principal; or flexible payments) that came to represent a significant portion of the market (FCIC, 2010). In ways that mirror industrial operations, all those instruments were simultaneously fulfilling several functions (Perrow, 1999; Roberts, 1990a). They permitted banks to charge fees for packaging the loans. They brought in immediate cash instead of long-term commitments. They provided insurance against defaults. And as in industrial operations, their failure triggered "baffling" unpredictable interactions (Perrow, 1986, 1999). Both repayments and insurance indemnities became more unlikely at the same time. Just as normal accidents theory underlines, complexity resulted in the decision makers having to rely only on indirect information. For example, the rating delivered by agencies supposedly represented the entirety of an ABS-type product, masking underlying performance indicators such as the actual default rate on specific ranges of mortgages (FCIC, 2010; Sorkin, 2011; Silver, 2013). As indicators contradicted one another, complexity made it impossible for managers to make sense of what was really going on.

In that respect, ordinary operations at the investment banking arm of Fortis were no different than in other banks. A critical characteristic, though, was the relatively poor quality of the monitoring system for liquidity. The indicators themselves were deficient. External auditors repeatedly pointed out that management had no direct view of the group's liquidity position at the end of a given day and 3 days ahead. Operators did much of the consolidation work on Excel spreadsheets, with associated risks of error in reporting figures and making calculations (Cremers et al., 2010). Procedures were in place and followed on at the operational level. A "code orange" alert on liquidity was activated in the summer of 2007. Yet it is unclear whether the top management was made aware of it. The audit and risk and capital committees responded to the auditors' invitation to improve on those systems by putting the project several times on the list of priorities from September 2007 to mid-2008, apparently with little effect (Cremers et al., 2010).

b) Complexity in the setup and funding of the ABN-Amro acquisition

Complexity was also a feature of the planned acquisition of ABN-Amro. Not only the operation involved 4 banks from different countries working under different legislations, but also was it submitted to approval from as many national regulators, central banks and/or governments, not including the European commission and a possible intervention from US authorities. Regulators themselves expressed caution about complexity when Fortis approached them (Reuters, 2007-2008). Again managers had to rely on indirect information. For example, investment bankers (Merrill Lynch in the case of Fortis) provided information on the funding options available, and external consultants were the source for evaluating the synergies, as Fortis had no direct access to ABN-Amro's books for a long period of time before making key decisions on the offer (Cats et al., 2010; Cremers et al., 2010). The sale of assets demanded by the European commission for reasons of fair competition in the

Netherlands are another case in point, as they may illustrate the "baffling interactions" that Perrow (1999) referred to. Fortis duly expected forced divestments. It viewed them both as a source of capital and a relief on the total assets. The combination was by essence beneficial to the solvency ratio. Yet the conditions put forth by the buyer Deutsche Bank likened the operation to a dysfunctional system in Fortis' plans with unforeseen and self-reinforcing negative consequences.

3.2.2. Tight coupling

In the normal accidents theory, tight coupling means that critical subsystems are mechanically intricate so that a failure on one subsystem immediately impacts at least another one (Perrow, 1984, 1999).

a) Tight coupling in usual activities of investment banking

Tight coupling is manifest in the mechanisms of ordinary activities in investment banking. As daily trade of ABS became an ordinary source of short-term liquidity for banks, the sudden impossibility to sell some of them for lack of buyers, immediately posed issues. The problem was made acute by the volume of "repo" agreements by which banks lent and borrowed financial instruments overnight (FCIC, 2010). This is how Fortis experienced its first liquidity crisis in the summer of 2007 (Cremers et al., 2010). The scarcity of buyers had another, almost immediate consequence. On the banks' balance sheets, ABSs were usually valued according to their market value ("mark-to-market"). When the market for specific subprime ABS disappeared, they had to be valued according to theoretical models ("mark-to-model"), generally with a substantial loss (FCIC, 2010; Levin & Coburn, 2010). This loss directly impacted the profit and solvency ratios for the current quarter that is, in a very short period of time. In addition, because banks are free to design their valuation models, the news that Fortis

(among others) relied on mark-to-model valuation immediately threw doubts on the real value of its assets.

b) Tight coupling in the ABN-Amro acquisition

Tight coupling implies a fixed sequence of events, up to the point that there remains only one way to execute processes toward organizational goals (Perrow, 1999). Any misstep at one stage endangers the realization of following stages. In a way, this was also imposed to Fortis in the ABN-Amro operation. The nature of the obligation in that case is not mechanical or physical, like in hazardous industries, but legal and financial. Fortis had first to secure agreements of its shareholders and regulators; then to proceed with raising money; then to pay the price; then to sell assets; then to integrate ABN-Amro. Deadlines were no less compelling than in industrial processes. For example, the divestments in the Netherlands were to be completed by July 2008. The revolving credit facility granted by Merrill Lynch and other banks expired in October. And the solvency obligations would change significantly at the end of 2008 according to the consolidation plan. None of those deadlines was negotiable. When a severe error occurs in a plant or on an aircraft, people in charge must make decisions in a matter of minutes, sometimes only seconds (Hagen, 2013). The lack of flexibility in the sequence of events – in particular the process of selling the Dutch assets as imposed by the European commission – had put the organization in a situation comparable as a high-hazard installation. Though the timeframes in the case of Fortis were in weeks and days, instead of hours or minutes in the case of a nuclear incident, the organization had very little room for manoeuver when unexpected incidents occurred.

With the view of the normal accidents theory, Fortis thus appears as an organization where major issues were predictable. Yet beyond complexity and tight coupling, another dimension

contributed to the development of adverse consequences. The normal accidents theory was developed based on the observation of relatively closed systems. It appears that, in the collapse of Fortis, the connectedness implied both by its usual activities and the ABN-Amro project played a significant role.

3.2.3. Connectedness

In the normal accidents theory, the organization is confronted with a relatively small number of well-defined parameters inside the system that, when deviating from specifications, trigger unexpected interactions resulting in uncontrollable consequences. An organization such a bank is much more open and parameters result much more from human interactions.

a) Connectedness in usual activities of investment banking – reliance on the environment

A specific feature of investment banking is the number of relationships the organization entertains with counterparts in its daily activities. The very business of the organization is to exchange information with other organizations in the form of numbers of financial products bought or sold, price, time horizon etc., not to maintain a technical device within the boundaries of the organization (e.g. a flying aircraft, a nuclear reactor). Connectedness complicates the acknowledgment of errors in two ways. First, connectedness impacts the amount and quality of information available to managers to assess the situation of their own system: a) a vital part information lies *outside* the system under the control of managers; b) information is available only in aggregated forms e.g. ratios of activity, to a greater extent than in mechanical contexts – relevant information does not exist in its raw form, as is the case for the measures of airspeed and incidence of the flying aircraft; c) indicators do not measure physical and objective reality, but human decisions and actions; d) indicators monitor transactions in which the organization itself is part and the operators themselves have

a personal interest due to reward systems – this may pave the way for biased interpretations (Tversky & Kahnemann, 1973); and e) part of the information is qualitative, not quantitative. With respect to this last point, for example, managers at Fortis might have notice how severe the subprime crisis was to be based not on their daily observations of the market, but on the surprisingly high amount of depreciation declared by rival bank HSBC in 2006, or a cover story of the influential British magazine The Economist as soon as 2005 on the risks in the US real estate market (FCIC, 2011).

Second, connectedness obscures the frames of reference that incidents can be measured against. To some extent, the very objectives of the organization are much more loosely specified than in industrial systems. While the organizational goal of a pilot is to land safely and that of a nuclear plant manager is to deliver power without incident, bank managers may essentially think they have to make money, yet this objective is relative to an ever-evolving environment. It is normal for a bank to deliver smaller profits when the economy is weak or the markets are troubled. At some point, the goal is not that much to deliver an objective measure as to do like peers – or if possible a little better. This may explain how Fortis' board and executives made the decision to increase their investment in ABS and derivatives as rival banks did and to launch the acquisition of ABN-Amro as peers were striving for cross-border mergers (Thomas et al., 2009). This certainly explains in part how they opted for limited disclosure of their exposure to subprime products, which would soon contribute to the mounting distrust of the group. Lastly, connectedness implies that relevant information both inside the organization and outside is available only with time lags. Sensemaking is delayed, as are decisions that could correct deviations from safe operations.

Managers have to make sense of information, to interpret it, even before they can make sense of different pieces of information (Weick, 1987; 1993). At Fortis, it is striking how difficult it was for board members and executives to make sense of the severity of the market turmoil in the summer of 2007, and how it would affect the bank. For a very long time they believed, apparently in good faith, that organization fared better than others (Cats et al, 2010; Cremers et al., 2010; Thomas et al., 2009). The difficulty to appreciate information is reflected in quotes of actors in the Fortis story.

> "Our models were very close to that of other banks, and they indicated that the impact of the subprime turmoil on our assets would have no impact on our results" (Insider)
>
> "It was a folly to develop a business in mortgage-based securities in 2005, as evidence of the looming crisis were all over the place" (Outsider)

In sum, the situation of managers at Fortis looked less like that of high-hazard plant managers and more like that of firefighters confronted with uncontrollable winds in a mountainous area they never visited (Weick, 1993).

b) Connectedness in the acquisition of ABN-Amro – stakeholders diversity and novelty

Connectedness also means that organizations have to interact with outside stakeholders, and this interaction influences the unfolding of events. In the case of Fortis during the ABN-Amro acquisition, executives were confronted with stakeholders with diverse and conflicting interests and with whom they were not prepared to interact. We propose that diversity and novelty of stakeholders contributes to place an organization in a high-hazard situation. Board and executives at Fortis were used to exchange with Belgian financial authorities, analysts, institutional investors and the financial media. Yet when the consortium threw its bid on ABN-Amro, Fortis was suddenly questioned by several new stakeholders: the Dutch regulator,

the European commission, consultants and investment bankers brought in by RBS and Santander, to name but a few. It went worse when doubts emerged about the operation. In a matter of weeks, Fortis had to share information with ministers, the mainstream media, and individual investors in at least two countries. Telling is the fact that only in July 2008 Fortis set up a website dedicated for the dialogue with individual shareholders (Cremers et al., 2010). Those connections were new to the decision makers at Fortis. They were also new in that Fortis found itself in a position of relative weakness – in a defensive rather than offensive position – and was demanded accountability. In a tight coupling pattern, the interactions with some stakeholders impacted the perception of others. Doubts on Fortis' robustness helped Deutsche Bank bargain for very favorable terms in the divestment of ABN-Amro assets, which in turn impacted Fortis' robustness indicators and so on (Cremers et al., 2010). In the very last days of Fortis, when the liquidity crisis became critical, many suspect that the group did not enjoy enough support from the Belgian and Dutch governments.

> "Had I, had we developed better relationships with politicians earlier on, we would have been able to save Fortis" (Insider)
>
> "In September 2008, the three major Belgian banks were on the brink of collapsing. It happens that the other two were more politically connected than Fortis. They were rescued and managed to remain independent" (Outsider)

3.3. Fortis as a (non-) highly reliable organization

With hindsight, as Fortis has collapsed, it may be suspected that it did not fit the model of high reliability organizations (HROs), those that sustain setbacks and bounce back to normal operations quickly when unexpected events such as organizational errors occur (Roberts, 1990b; Sutcliffe, 2011; Weick & Sutcliffe, 2007). Several features are particular to HROs;

Fortis' functioning at the top management level was reviewed in the light of those characteristics.

a) (No) preoccupation with failure

HROs constantly suspect that operations may be derailed by some incident or combination of incidents (Weick & Sutcliffe, 2007). It is not clear how the culture at Fortis in the years prior to the collapse seems was imprinted with such preoccupation. Yet it can be noted that the ordinary mood was optimistic, essentially geared toward growth. As a remote indicator, the communication heavily emphasized the good news, to the point that embarrassing indicators appeared buried in the fine print. An example is the press release published in May 2008, relating to the financial results of the first quarter.

> "In a difficult economic environment, Fortis maintains growth… Strong operational growth, combined with strict control over costs, allowed Fortis to gain … Net profit was doubled compared to the 4th quarter of 2007…"

The release, reviewed by the top management, does not mention solvency, nor does it compare results over the same period of 2007, which was much more profitable. It is difficult to say whether how widespread this optimistic and tone was at the top of the organization, and to what extent it denoted dismissal of potential failure. Yet it is consistent with the attitude of the board and executives in their willingness to proceed with projects as planned, regardless of setbacks, at the risk of an unfavorable escalation in commitment (Staw, 1988). In response to potential large-scale accidents, HROs allocate resources in system redundancy, and training and specific procedures (Roberts, 1990a). In that regard, telling is that Fortis not only lacked of redundant systems, but also was deprived of critical functions. After reorganization in the

management in late 2007, the position of chief risk officer remained vacant for months while pressure was mounting (Fortis, 2007).

b) (Poor) tracking of small failures

HROs pay attention to incidents potentially leading to severe consequences and follow up on those that are detected to determine how and why they occurred (Weick & Sutcliffe, 2007). In contrast, it seems that Fortis let incidents happen with little effort to analyze and improve on them. As an example, an early episode of the subprime crisis resulted in an alert on the liquidity of the bank in the summer 2007. The incident was classified "code orange" on a scale that further goes to red and black. Investigation on the liquidity monitoring systems showed many issues and a decision was made to act upon it. Yet more than six months later, the topic was still on the top management's agenda as work in progress (Cremers et al., 2007).

c) (Poor) Attention to operational details

HROs focus on execution at the lowest level of the hierarchy, on the frontline (Sutcliffe, 2011). In contrast, episodes at Fortis show that the top management had different priorities – at least sometimes. As mentioned just above, that officers in charge of the liquidity consolidation worked on Excel spreadsheets rather than directly from the bank's systems was not acted upon. At the end of the 3rd quarter of 2007, the investment banking arm suggested the group increase depreciations in the light of likely downgrades by rating agencies on a range of ABS. For top management, positive financial communication took precedence and depreciations were deferred to the 4th quarter (Cremers et al., 2010).

d) (No) resistance to oversimplification

People in HROs prefer a detailed picture of the situation to a simple one (Weick & Sutcliffe, 2007). In contrast, as the problems mounted at Fortis, it seems that the board and executives focused more and more on a single indicator, the solvency ratio. Most issues were analyzed with that lens, if one is to refer to the internal exchanges of emails and memos (Cats et al., 2010; Cremers et al., 2010). However critical to the future of the group, this simplifying indicator was not sufficient to provide a clear picture of the situation. Complicating the matter, there were various understandings of the indicator, depending on the time horizon and the regulations of reference. For example, while some calculations were made based on solvency as defined by so-called Basel I regulations, other figures included "Basel II relief" (BCBS, 2006; Cremers et al., 2010). To avoid confusion, HROs such as aircrews use redundant communication: captain and first officer have to repeat critical information in the same words (Hagen, 2013). It seems that at some point, board and executives at Fortis did the opposite.

e) (No) deference to expertise

Finally, HROs build their capacity to sustain operations in a degraded situation by taking advantage of expertise, wherever it may be found (Sutcliffe, 2011). In the aviation context, Hagen (2013) recounts how a crew recovered from an extremely dangerous situation by summoning on the flight deck a veteran captain who happened to be a passenger on that flight. His advice proved invaluable in the favorable outcome. In a very differing way, it seems that the board and executives at Fortis relied only on their own strengths – pointing to overconfidence (Kahnemann, 2011). According to insiders and documents, no experts of complex acquisitions were asked for help. Consultants were used only for technical advice in legal and financial matters. Yet top people at Fortis were experienced neither in a cross-border operation in the size of ABN-Amro with multiple international partners, nor in a

financial turmoil in the magnitude of the subprime crisis. Being on their own, they had to rely on too little informed judgment. In addition, it is quite possible that they were overwhelmed by information and workload in the development of the crisis, as the burnout of one executive seems to show (Cats, 2010; Cremers et al., 2010; Thomas et al., 2009).

4. Discussion

In the perspective of building a theory on the management of organizational errors, this paper set out to examine how three theories could shed light on the case of a specific organizational collapse in the financial sector. The first theoretical lens pertains to errors in general and errors in organizations; yet they remain recent and underdeveloped. Our study aimed at determining to what extent it could apply to a real-life situation. The next two theories that we referred to, the normal accidents theory and the theory of high reliability organizations were developed in the context of industrial operations and public institutions. The research had to establish how they might be transposed to an private-sector activity based on human interactions. We chose the case of the demise of Fortis, once the leading bank and insurance in Belgium and a candidate for entering the top five of European financial groups thanks to the projected acquisition of Dutch bank ABN-Amro, because it is an occurrence of an extreme event (Eisenhardt, 1995; Eisenhardt & Graebner, 2010; Yin 2003). The bigger Fortis had grown, the harder it fell – its collapse was felt as a national trauma (Thomas et al., 2009). In addition, big financial institutions carry a systemic risk (BCBS, 2001; 2006).

I tried to delineate decisions and actions specific to the top management of Fortis, specifically the board of directors and the executive team, from the context of the financial crisis that was unfolding at the time and ultimately triggered the collapse (FCIC, 2010; Levin & Coburn,

2010; Sorkin, 2011). I grounded my study on interviews with actors of the case, both insiders and outsiders, and abundant documentation, noticeably reports from official investigations by authorities.

4.1. Findings and contributions

a) Theories of errors

First, regarding errors, based on 5 decisions that were pivotal to the demise of the organization, I found that the restrictive definition of errors as deviations from rules and procedures was not useful in understanding how the situation at Fortis unraveled (Goodman et al., 2011). With a definition of errors as sets of actions and decisions that fail to achieve the organizational goals while this failure was potentially avoidable (Reason, 1990), I found that 3 out of 5 decisions could be qualified as errors at least partly: devising a weak first financing plan; designing a weak emergency financing plan; and forcing the CEO out in the midst of the crisis. A pattern of "too little, too late" decisions may be detected in the two financing plans. Regarding the other 2 decisions: *a*) the initial decision to enter in the process of acquiring ABN-Amro was probably not an error; *b*) it is difficult to assess the decision to waive the right to withdraw from the deal based on major adverse conditions, as it was somehow a non-decision intricately linked in the sequence of events. All decisions analyzed as errors qualify as organizational errors, as they were committed by actors individually and collectively acting in good faith toward the organizational goals (Hofman & Frese, 2011).

What are the contributions of this study to the theory of errors? To a certain extent, it dismisses the narrow definition of errors by reference to rules, norms and procedures. At least it suggests that compliance is not enough. Audit and risk committees did what they were supposed to, and regulations were respected to the letter, yet organizational errors brought an

important organization to its demise. With regard to other aspects, it is a rare empirical application of concepts that have remained, so far, researched in their theoretical dimensions (e.g. Hofman & Frese, 2011).

b) Normal accidents

Second, I found that the normal accidents theory of highly hazardous industries was somewhat easily transposable to the financial industry (Perrow, 1984, 1999). Yet, my study adds to the theory of normal accidents by highlighting a novel element that makes organizational accidents more likely, namely connectedness. Probably because the theory has been developed based on relatively closed systems, it had not identified this dimension as critical in the transformation of incidents into catastrophes. Connectedness appears to comprise of two components: the number of *outside* partners, that complicate to a large extent the retrieval and analysis of decision-critical information; and the apparition of *novel* stakeholders, whose intervention may transform the nature of the crisis. The mainstream media is the most visible of those occasional stakeholders. Politicians, too, are to be dealt with, as were individual shareholders in the case of Fortis. Those stakeholders also mobilize the cognitive and emotional attention of top management in periods of crisis, to the possible detriment of sensible decision-making.

For the rest, the normal accidents theory concepts are by and large applicable to the finance industry. The theory predicts that large-scale accidents are likely in organizations characterized by complexity and tight coupling. *Complexity* refers to a high number of subsystems, some of which fulfill incompatible functions and implies that managers are essentially provided with indirect, not direct information on what really happens. Fortis was a bank with activities in 20 countries involved in the arrangement and trade of financial

derivatives such as mortgage asset-based securities. Failure in one category of such devices triggered a cascade of reactions, from loss of revenues to depreciations to calls on collaterals. Information was by nature indirect. It also happens that the monitoring system of a critical issue, global consolidated liquidity, was defective (Cremers et al., 2010).

The projected acquisition of ABN-Amro added a layer of complexity were it only because its legal intricacies. Tight coupling means that operations in highly hazardous industries are linked so that a failure in one subsystem impacts other subsystems immediately or after a very short period of time. Some investment banking operations at Fortis – and other banks – are effectively tightly coupled. Fortis relied on so large a volume of short-term refinancing on the money markets, for example via the interbank "repo" overnight agreements, that an incident could bring the bank down in a matter of days. *Tight coupling* also involves that the sequence of operations is fixed, with one only way to achieve the goals. This was true of the series of actions in the ABN-Amro acquisition. Just one missed step could not only derail the plan, but also bring the whole organization down for not meeting the required levels of solvency.

c) High reliability organizations

My third theoretical lens was the theory of high reliability organizations. Unsurprisingly, I found that Fortis was not meeting the criteria that characterize HROs (Roberts, 1990a, 1990b; Sutcliffe, 2011; Weick & Sutcliffe, 2007). The top management apparently did not have a preoccupation with failure. Rather, growth was the major concern and good news was emphasized, perhaps to the point of over-optimism. Fortis paid insufficient attention to certain operational details, as indicate the delays in improving on the liquidity consolidation. It failed to investigate and design remedies for small failures, as the lack of follow-up on a liquidity alert seems to show. At some points in time at least, top management apparently based

decisions on an oversimplified picture of the situation, by focusing on only one indicator – solvency – whose definition was imprecise at best. Deference to expertise, the last feature of HROs, was not a characteristic of the top management at Fortis. Board and executives made the critical decisions with apparently little advice from season experts. Even in the ABN-Amro, outsiders were called in only for solving technical issues.

Eventually, this study builds on the theory of HROs by showing how transposable it is to private sector, profit-oriented organizations. Transposition is not new for HRO. First insights were gained on the deck of nuclear aircraft carriers, but authors soon showed that other public-sector organizations were acting accordingly (Roberts, 1990a; 1990b). More recently, Sutcliffe (2011) recommended the framework in healthcare organizations, specifically in the practice of anesthesiology. Young (2011) had called for using the HRO lens in the financial industry. To our knowledge, this study is the first to rigorously examine how the theory applies in the case of a large bank. Another contribution may well lie in the focus on the top management – board of directors and executive team – of an organization. So far HRO theory has tried to explain positive outcomes in whole organizations or in small operational teams. This study sheds light on how scholars may apply the HRO framework specifically to leaders, individually and in their mutual interactions.

4.2. Strengths and weaknesses

A first strength of this study may reside in the retrospective focus on a single case whose nefarious outcome is known and documented. The failure of Fortis is unambiguous. The abundance and quality of both interviews and documents helped reconstitute and crosscheck not only the unfolding of events and decisions taken by the main actors, but also its broader context, internal as well as external (Yin, 2003). A second strength may be found in the

application of two theoretical lenses that complement each other. As the HRO framework helps understanding how normal accidents "waiting to happen" actually do not occur, the findings of this paper regarding an organizational collapse benefit from a strong theoretical base.

No research is exempt from weaknesses though. The first one is not specific to this study but pertains to the case study method. Generalizability is difficult to infer from just one story. However case studies are classic and their contributions invaluable in nascent areas of research (Edmondson & McManus, 2007; Eisenhardt & Graebner, 2007). As in many such studies, I hope that the breadth and the richness of the findings, which allow for further interpretation in differing contexts, will at least partly compensate for this caveat. A second weakness is more specific. This study was made long after the facts. Interviewees had a blurry recollection of particular episodes of the Fortis demise and, more embarrassing, some of them had vested interests in legal proceedings still open to the date of the meetings. To some extent, the value of the interviews proved disappointing. Fortunately, official reports adequately complemented this source. Yet biases cannot be excluded considering how even the authorities who commissioned those works had arguments to defend at the time.

4.3. Recommendations for research and practice

I undertook this research in the perspective of laying out bases for a theory of the management of organizational errors. As the three lenses used appear empirically relevant to analyze errors in organizations, I suggest that scholars prolong the endeavor by using those theories as building blocks. Future studies could be based on those blocks but in new contexts and/or add new theories in the observation of organizational errors. Given the robustness of the theories I used, future contributions should also try other methods. Specifically, I

recommend further effort aim at defining quantitative variables and examine their interrelationships. Weick and Sutcliffe (2007) developed questionnaires that may be of help in that direction. A second, promising avenue may rest in the combination of the theories I used with research on leadership. Leadership, or the influence a person has on others toward organizational goals above and beyond their formal power, is remarkably little studied in works on errors, accidents and HROs (Bass & Bass, 2008). So far, save a few exceptions, literature on errors essentially focused on individual or organizational mistakes. In the latter area, they insisted on organizational culture as a way to deal with unavoidable errors (e.g. Weick, 1987). Few studies devoted specific attention on the role of leaders in either the making of mistakes or their management (e.g. include Shimizu & Hitt, 2011). In parallel, leadership literature rarely mentions the issue of reliability and failures (exceptions include Hunter et al., 2011). As the Fortis case may illustrate, the higher a person in the hierarchy, the most severe the consequences of errors may be. This invites to deepen the understanding of how leaders deal with errors, both their organizations' and their own.

My study also should inspire practice. In particular, it should invite practitioners in the financial industry to view their business as potentially high-hazard organizations where many conditions are met to generate severely adverse events. Because of the intrinsic connectedness of those organizations, consequences can extend far wider than in relatively closed systems, as the 2008 financial crisis showed (FCIC, 2010; Levin & Coburn, 2010). Regulators recognize the magnitude of those risks by recognizing the existence of "systemic" risks (e.g. BCBS, 2006). For the good of their own organizations and the society at large, executives in those industries should take potential errors into consideration. They may want to aspire for higher reliability. The HRO framework appears to be a powerful instrument to improve in that direction, by proposing to allocate resources to training and system redundancy and, to begin

with, building an organizational culture of reliability and resiliency (Weick, 1987; Weick & Sutcliffe, 2007).

5. Conclusion

My work aimed at transposing 3 theories pertaining to adverse organizational events in an industry, banking and finance, which is not immune to risks. Counterintuitive as it might seem at the outset, based on the difference in organizational cultures between where the theories originated and where I applied them, my study tends to show that financial organizations can do a better job in managing reliability issues. It also invites to consider the theories I based my work on as potentially more far-reaching that they appeared. I can only hope that this study will inspire both scholars and leaders in devising and implementing ways for improving the safety of our organizational systems.

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