

Investing in the Ability to Withstand Shocks

The 2013 World Economic Forum in Davos was entitled ‘Resilient Dynamism’. The event description read, ‘This new leadership context requires successful organisations to master strategic agility and to build risk resilience.’ According to the Forum’s report *Building National Resilience to Global Risks*, resilience allows organizations to survive and thrive in an increasingly interdependent and hyper-connected world. Resilient companies work to recover as quickly as possible after environmental or economic failures. Resilience has become a call to action – a call for change – in a world that has gone through crises and unexpected events. However, what does this term, which is spreading among economists, sociologists, ecologists and psychologists, actually mean?

The term *resilience* derives from the Latin *resalio*, the frequentative of the verb *salio*, which means ‘bounce’. In one of its original meanings, it refers to getting back on a capsized boat. The term found its first applications in physics and mechanics, where it is used to measure the impact resistance of a material, and a material’s ability to regain its original shape after being deformed, flattened, elongated or subjected to any change. Resilience has traditionally been linked to engineering studies, especially to metallurgy, where it indicates the ability of a metal to resist the impulsive forces applied to it. This concept can also be applied to the dynamics of liquids, in which case it expresses the capacity of a system to return to a state of equilibrium following a disturbance and the time it takes to do so. A classic example used to explain resilience is that of a pebble in a pond. The pebble is thrown into the water, creating concentric circles until the water returns to the initial stasis and the circles disappear. Another example is a metal called nitinol, which is a shape-memory alloy (i.e. a metal that remembers its original shape) that, even when deformed, can return to its original shape after being heated.

In computing, resilience refers to the ability of a system to continue operating properly despite faults in one or more elements. System resilience indicates tolerance to failures, faults and breakdowns. In anthropology, the concept is

discussed in terms of societies, ethnicities, languages and belief systems that provide evidence of resilience. In chemistry and biology, resilience is defined as homeostasis – the ability of a system or organism to return to its starting conditions or to maintain its initial functions in a dynamic, changing environment where a large number of interacting forces must be maintained in a more or less unstable equilibrium.

In order to develop a complete picture of resilience and to outline the nature of its drivers, we offer a brief overview of selected academic areas in which resilience has been implemented. Each area serves as a basis for drawing similarities and differences with respect to our definition.

IN PSYCHOLOGY

In psychology, resilience refers to the ability to positively face traumatic events and to positively reorganize our lives when confronted with difficulties. It is the ability to rebuild oneself while remaining receptive to the positive opportunities that life offers. Resilient people are those who manage to survive highly adverse situations.

The term was first used in 1982 by the American psychologist Emmy Werner in a longitudinal study of unschooled children of the Hawaiian islands entitled *Vulnerable but Invincible: A Longitudinal Study of Resilient Children and Youth* (Werner, 1982). These children were without family, and they had been exposed to violence and disease. The study showed that only 30 per cent of these children were literate, had work and had created families. In terms of classic psychology, about one-third of these infants had all of the prerequisites for a prognosis of mental or social disadvantage, as they were exposed to numerous risk factors, including difficult births, poverty, families with alcohol problems, mental illness and aggression. However, in contrast to likely expectations, one-third of these children – seventy-two to be exact – succeeded in improving their living conditions in adulthood. They became adults capable of initiating stable relations, undertaking work and doing their utmost for others. This discovery of the possibility for improvement opened up a field of study on those protective factors that can promote proper development. Among these factors are personal characteristics (e.g. resilient children have temperamental characteristics that provoke positive responses from family members and strangers, pronounced autonomy, a strong social orientation and an optimistic view of their experiences); supportive parents; a strong bond with nonparent caretakers (such as aunts or teachers); and involvement in a community (such as church or a group like the YMCA).

In 2007, Pietro Trabucchi, a sport psychologist, wrote the book *I Resist, Therefore I Am* in which he proposed that the majority of people tend to be resilient. In fact, people are able to adapt to and learn to overcome even the most severe adversity. Trabucchi writes,

It seems that in recent years the usual perspective has reversed a little: resilience is the norm in humans, not fragility. In World War II, London was extensively bombed. Serious repercussions were feared on the psychic equilibrium of inhabitants. The opposite happened. Admissions to psychiatric wards decreased, as did suicides. The same thing happened in the acute stages of the war for the independence of Northern Ireland, and during the race riots in the United States in the 60s and 70s.

(Trabucchi, 2007)

We all are naturally resilient because we are, in general, characterized by an 'optimism bias' (Sharot, 2012). In other words, we tend to overestimate positive events and underestimate negative events. Our approach to divorce serves as an example. Statistics suggest that the probability of divorce is around 40 per cent. However, two people who marry tend to estimate the probability of leaving each other over the years at 0 per cent. If they happen to divorce, the card they can play is to marry a second time.

Optimistic people seem to be naturally more resilient than others. A study conducted on a sample of students in the early months of 2001 and in the months following the September 11, 2001, terrorist attacks confirms that resilience is associated with life satisfaction, optimism and tranquillity. The study showed that people with more resilience had better moods and, after the attacks, they reported more positive emotions than their peers with lower resilience values. The same study also provides evidence that the ability to develop one's own resources after a critical event – the ability to be resilient – is mediated by experiencing positive emotions (Fredrickson, Tugade, Waugh and Larkin, 2003).

Personal resilience has often been investigated in the military. Seligman (2011) studied positive psychology. In 2008 he met General George W. Casey Jr, commander of the Multi-National Force in Iraq. The General asked Seligman how his field of study applied to military life, and Seligman responded by arguing that the reaction of individuals to adversity is normally distributed. On the one end of the spectrum are soldiers who fall into depression or resort to suicide following trauma and war. In the middle are the majority of soldiers, who initially become depressed or face anxiety, but return to form after a month or two. In other words, they continue from the point where they were before the trauma. On the other end of the spectrum are soldiers who show

post-traumatic growth. They experience shock, but have the strength to eventually feel better than before the traumatic event. These are the people that Friedrich Nietzsche defines with 'what does not kill me, makes me stronger'.

Psychology studies have also been applied to enterprises. Resilient companies are made up of resilient people. Dean Becker, president and CEO of Adaptive Learning Systems, says, 'More than education, more than experience, more than training, a person's level of resilience will determine who succeeds and who fails. That's true in the cancer ward, it's true in the Olympics, and it's true in the boardroom' (Coutu, 2002, p. 22).

In our research we took two cues from these psychology studies. First, the same principle that applies to people can be applied to companies – the drivers that determine whether a company will be successful in the face of external shocks can be identified. Second, shocks should be used to make firms stronger, a little like soldiers who become stronger after a trauma.

IN ECOLOGY

The ecological concept of resilience was introduced by Crawford Holling in the early 1970s. Holling (1973) used it to define the ability of natural systems or social-ecological systems (i.e. integrated human and ecological systems) to absorb disturbances and reorganize during a change while essentially maintaining the same functions and the same equilibrium. A system has the ability to evolve in multiple states that are different from the states prior to the disorder, thereby maintaining the vitality of its functions and structures. In other words, a forest has the ability to regenerate and even to live with an element of natural or human disorder if that disorder is not definitive deforestation. For example, in the Amazon rainforest the problem is the expansion of the agricultural frontier through the construction of new roads. Resilience depends on society's capacity to cohabitate with the ecosystem without destroying it.

Andrew Zolli and Ann Marie Healy's book (2011) *Resilience: Why Things Bounce Back* (Zolli and Healy, 2012) contributes to the debate in this field. Zolli runs PopTech, a network of innovators in the field of technology. In the face of the great challenges of our time – social inequalities, pollution and climate change – Zolli argues that the 'sustainability' buzzword is proving inadequate. He highlights that talking about sustainability implies a goal of restoring perfect balance, while it is much more realistic to learn to manage a world in perpetual imbalance.

An interesting reflection on resilience cited in the book concerns the city of New York after it was ravaged by Hurricane Sandy in 2012. Although the trauma

of the hurricane had not yet come to an end and the damage had not yet been fully absorbed, the city decided to reflect on how a large metropolis could prepare for extreme weather events. The debate considered both the possibility of facing disasters and the possibility of adapting to them. The first approach would require investing in the construction of robust physical barriers – expensive but still vulnerable dams – to protect the city from future tsunamis. The second approach considered the solutions developed by nature itself, which were far more flexible and less expensive. Such solutions included the exploitation of wetland areas (such as marshes, natural swamps, lakes and ponds) as moving barriers to block an unexpected influx of water and lessen its destructive capacity.

In 2004 a group of economists began to study the resilience of small nations. In a paper entitled *Economic Vulnerability and Resilience Concepts and Measurements* (2008), a group of researchers led by Lino Briguglio explain the concepts of vulnerability (i.e. potential exposure to external shocks) and resilience (i.e. the ability to react to those shocks with appropriate policies and actions) (Briguglio et al., 2008). They explain the concepts using the example of Singapore. Due to its small size, Singapore is more comparable to a city-state than to a nation. Its limited geographic scope makes it highly vulnerable. It is dependent on exports and basically helpless in the face of external shocks deriving from the global economy. Nevertheless, Singapore has become a laboratory of resilience, as it has been able to implement the principles of good governance and social development. Resilience is actionable in any country and only requires adoption of effective laws and rules.

The analysis of resilience in ecology suggests that the need to deal with a challenge and to establish the rules of survival derive from the external environment, which is characterized by ‘constant volatility’ or the ‘new normal’. In fact, in a world in perpetual imbalance, investments in resilience are required, as is responsible leadership. If the forest is in grave danger, managers should try to be the tree that is not felled.

In our research, we took two cues from these ecology studies. First, firms that are stressed and exposed to external shocks can survive and prosper by establishing some rules of conduct. Second, size does not necessarily offer good protection against shocks.

IN SYSTEMS

In systems, resilience is the ability to remain within certain limits or to maintain balance despite fluctuations caused by external forces. It refers to the ability to cushion external attacks and, as such, becomes a necessary feature

of any kind of system. For example, lakes with an alkaline-buffer system were able to resist the acidification caused by acid rain in the 1980s, while more sensitive lakes with less alkaline in southern Sweden acidified and became devoid of higher life forms.

The resilience of social systems refers to the processes that take place within a social environment affected by a traumatic event. These processes are intended to support and rebuild social bonds and a sense of belonging.

In computer systems, the term 'resilience' indicates the ability to adapt to the conditions of use and to resist wear, and thereby ensure continued provision of services. These goals can be achieved by means of redundancy techniques. For example, if a computer is a few years old and has been used a great deal, frequent back-ups are advisable. Resilience can be enhanced by duplicating the available resource in order to reduce the risk of a breakdown or a loss of data.

In engineering systems, resilience is defined as the flexural strength/shock resistance of a material. The Charpy test consists of dropping a pendulum of known mass and length from a known height towards a material that is positioned on two supports. The results of that test gives the energy absorbed during the drop. In this case, resilience is equal to the energy absorbed per surface unit.

In industrial-relations systems, supply and demand are created, knowledge of products or semi-finished products in the production process is transferred and relations are established among competitors or other social actors. These exchanges and relations make the environment very unpredictable and uncertain. For this reason, mathematical or quantitative models are used to study the resilience of the industrial system – the system's ability to withstand shocks.

In all of these systems, resilience requires two elements: (1) an ability to recognize risk factors on every systemic level (e.g. individual, family, community, society) and to predict subsequent problems for an individual within the system or for the system itself; and (2) the subsequent adaptation of the system if necessary.

IN FIRMS

The resilience of individuals or materials can easily be measured using appropriate tests. Consider the tests that the US Navy SEALs must take to gain access to training. That training, if passed successfully, leads to their recruitment. The tests listed below must be carried out in sequence with a maximum break

of three minutes between each. The values are the minimums that must be met to be considered eligible for training:

- ★ swimming 500 yards (about 455 m) in less than 12 minutes and 30 seconds,
- ★ forty-two push-ups in 2 minutes,
- ★ fifty sit-ups in 2 minutes,
- ★ six pull-ups (from a lying position), and
- ★ a 1.5-mile run (about 2.4 km) wearing boots and long trousers in less than 11 minutes and 30 seconds.¹

Such a test allows the resilience of an individual to be identified and subsequently enhanced. However, at the firm level, observing and measuring resilience seems more difficult. In this context, resilience refers to an organization's ability to continue to operate and remain efficient in the face of negative external events. A firm is resilient if it is able to ensure stable performance over time despite the turmoil and difficulties of the environment.

To improve our understanding we can examine cases of failure or bankruptcy. In 1992, for example, Hoover launched a marketing campaign to boost sales. The UK division of Hoover had a large stock of unsold washing machines and other appliances. To free up warehouses it promised free airline tickets to customers who purchased products worth more than GBP 100. However, Hoover failed to foresee the large number of requests that would result from this campaign. People purchased appliances not necessarily because they needed them but because they were interested in the tickets. Initially, the offer included two round-trip tickets to a European destination of the customer's choice. When it was extended to include routes to the United States, the damage was immense given that the price of an intercontinental flight far exceeded GBP 100 worth of products. Hoover suffered heavy losses.

Due to the events of September 11, Swissair did not have the money to pay for fuel and kept all of its aircraft on the ground in October 2001. About 39,000 passengers were stranded at various airports around the world. The damage to the company's image was immense. The company's policy of undertaking unlimited mergers and acquisitions financed with debt had caused its collapse. In 2005, after setting aside national pride, Swissair was sold to Germany's Lufthansa, which helped it to become a profit-maker over time.

Some firms manage to use a crisis to gain competitiveness. In his book *Reorganize for Resilience*, Ranjay Gulati (2010) studies the most recent crises

¹ See Official Naval Special Warfare website: www.sealswcc.com.

that hit the global economy. He estimates the survival rate of companies at 60 per cent. In such situations a large proportion of companies focus exclusively on survival and reduce costs as much as possible in order to re-emerge when the storm has passed. A smaller group (5–10% of survivors) uses a crisis as a time of development with respect to competitors. Walmart, the US retail giant, is an example of the latter. This multinational managed to extend its outlets throughout the United States, particularly when the crisis had devastated many small traders who could not compete with the power of Walmart due to their small size.

Many Korean and Chinese companies have found new opportunities thanks to the recent financial crisis. For the Korean giant Samsung, 2012 was the year in which it conquered the summit. In Q1 2012, with nearly 100 million units sold, it surpassed global leader Nokia's sales of 82 million units to become the world's leading producer of mobile phones. In addition, it surpassed Apple, which continues to pursue legal battles against Samsung regarding patents, flexible chips and displays. In 2015, Samsung's market share stood at more than 25 per cent, which can be compared to Nokia's 22 per cent and Apple's 9.5 per cent. In hindsight, Samsung had already won the smartphone battle by late 2011 in terms of scale, as its product line had been consolidated thanks to the international success of Galaxy products.

Similarly, at the end of 2010, Haier – a Chinese company that became the world leader in household appliances in less than thirty years – had increased sales of its appliances by 23 per cent, and lifted its turnover by 38 per cent in the Americas, 32 per cent in Europe and 13 per cent in Asia. In 2011, it announced net sales of USD 23.3 billion, an increase of 12 per cent relative to the previous year. The brand became increasingly global. In 2004, Haier decided to invest in Italy. Despite the crisis, the favourable tide reached Europe. In 2012, turnover in the Italian market increased by 25 per cent compared to 2011 (Planet Tech, 12 September 2012)². Enrico Ligabue, managing director of Haier Italy and Greece, said:

Maybe our good luck is that we cannot compete with the household appliance giants in terms of technology, resources or investments. Perhaps it is easier. Big companies that have an extremely large market share are the first to suffer. We compete with small local producers. In these situations, brands emerge that have something different to say, such

² See 'A Milano la strategia 2013 di Haier Italia' at: www.e-uesse.it/News/Cons.-Electronics/A-Milano-la-strategia-2013-di-Haier-Italia-149476.

as Haier. The value for money that we offer meets the demands of the medium-low customer segment, today turning more and more towards the medium range. The goal is to sell products that are in line with the market, therefore a medium line, without however relinquishing good quality. It was the right offer at the right time. We try to understand the needs of our customers and have invested in brand awareness. Up to 2010, we did not have many resources to give the brand visibility. In 2011, the choice in Italy was to invest in communications. It was a turning point.

(Pirotti, 2013)

For both companies, the crisis represented an opportunity, as it created market turbulence and a shift in customer needs. Samsung was able to offer high-tech products at lower prices, thereby meeting the needs of a new market segment composed of customers who were no longer willing to pay premium prices. Samsung's success was also made possible by its size and its ability to reap profit from economies of scale. Similarly, Haier managed to address the medium-low-end customer segment, which was growing rapidly due to the ongoing economic crisis.

As these examples illustrate, a crisis creates volatility and has the potential to redistribute market shares. However, resilience is more than the ability to adapt, move and innovate. It also encompasses an ability to return to a state of efficiency and effectiveness after the equilibrium of the business system has been disturbed. To do so, a firm must be able to read external feedback, show some flexibility, and transfer the knowledge and resources needed to overcome the trigger event. In 2000, Barnett and Pratt (Barnett and Pratt, 2000) theorized that the primary emphasis of an organization should not be on rigid or bureaucratic responses – when a firm adopts a rigid stance towards necessary changes, the chances of survival and development decrease. Weick and Sutcliffe (2007) argue that 'the essence of resilience is therefore the intrinsic ability of an organisation (system) to maintain or regain a dynamically stable state, which allows it to continue operations after a major mishap and/or in the presence of continuous stress'.

In sum, two perspectives are offered by organizational literature. The first views resilience as the ability to cope with adverse situations, and knowing how to recover when those situations have passed or changed (Balu, 2001; Gittell, Cameron, Lim and Rivas, 2006; Rudolph and Reppenning, 2002; Sutcliffe and Vogus, 2003). The second relates not only to adaptation but also to the ability to develop new skills and create new opportunities when dealing with a crisis (Freeman, Hirschhorn and Maltz, 2004; Jamrog et al., 2006;

Lengnick-Hall, Beck and Lengnick-Hall, 2011). The most comprehensive definition of resilience is one that integrates the two perspectives. Resilient companies: (1) know how to absorb an adverse situation by developing awareness of what is happening and reflecting on how much has to be done; and (2) develop specific responses and adaptive-transformation activities that enable long-term survival (Lengnick-Hall, Beck and Lengnick-Hall, 2011).

OUR DEFINITION OF RESILIENCE

Muhammad Ali is known for his statement, ‘inside of a ring or out, ain’t nothing wrong with going down. It’s staying down that’s wrong.’ The uncertainty of economic competition has been compared to the uncertainty in a boxing ring (Sull, 2009). Prior to a match, a boxer can study the moves that his opponent used in the past, but he cannot precisely predict what will happen during the match in terms of which punches will be used, in what sequence and with how much force. The two contenders may have very different approaches during the match. Some boxers, such as Jack Johnson, have great agility. Johnson was the first African American world heavyweight boxing champion (1908–15). He was sprightly and quick to avoid the opponent’s blows, but also ready to launch fast and frequent attacks. Conversely, some boxers have great physical strength, such as George Foreman, and formulate their tactics to absorb many punches and punch when the opponent shows signs of fatigue. Of course, true champions manage to combine agility with the capacity to absorb hits.

Like boxing champions, firms need to have systems that allow them to avoid shocks and systems that allow them to absorb the shocks which they cannot avoid. Three elements of resilience can be identified from this boxing metaphor:

- 1 *Robustness*. Similar to a tree that withstands the storm, companies do not bend and are able to absorb shocks.
- 2 *Recovery*. Companies bend in the face of external shocks, but they know how to get back up.
- 3 *Resourcefulness*. Companies bend and change position.

Robustness

Certain people are called ‘prophets of doom’. They are preparing for the end of the world. When it comes, they will be ready to deal with it with the resources they have amassed. This is the case for Lonny Sundvall, who follows

a curious ritual every morning. 'The first thing I do when I get up: check the US Geological Survey website for earthquakes and volcanoes. Then I check the observatories. Then I check the space weather', reveals Sundvall, who lives in Oregon (Huffington Post, 2011)³. Sundvall is neither a seismologist nor a volcanologist. His hometown, Roseburg, is not located on a major fault line nor near a volcano. Sundvall is forty-nine years old, he works in a warehouse and he belongs to the growing community of people who pay a great deal of attention to news of disasters in the world. Like other prophets of doom, Sundvall has a bunker to be used in case of emergency and he accumulates canned provisions, which would be useful if the apocalypse becomes a reality. In his own way, Lonny Sundvall is robust – should there be any large-scale natural disasters, he will probably survive using the means with which he has equipped himself.

Some companies specialize in the construction of underground buildings or bunkers to withstand the dangers of nuclear, biological, chemical and seismic activities. One of the most important companies active in this line of work in the United States is Hardened Structures. Its operating method is based on an analysis of the possible risks. It designs buildings according to customer needs and constructs them using more durable materials in absolute terms than the nature of the risk the customers think they may face. In fact, the underground real-estate market has become a veritable industry that continues to expand. A feature that sets it apart from other areas is the level of secrecy with which bunkers can be built. Those who commission this type of building usually do not want their neighbours to know what they are building. In recent years, the business has substantially grown in the United States. People seem to show an increasingly higher level of preparation to handle disasters.

In corporate terms, BMW or Audi can be described as examples of robustness. When faced with the recent crisis, they were able to maintain good results without having to implement major changes. The alignment among their selected targets, the products offered and their organizational structures worked prior to and during the crisis. In other words, the strategic choices these two German automakers had made allowed them to withstand the challenge without bending. Their continuous investments in technology and design allowed the two producers to meet the needs of a traditional, sophisticated, skilled market segment willing to pay a higher price for product quality, design and durability.

³ See 'Mayan prophecy 2012 catastrophe' at: www.huffingtonpost.com/2011/12/14/mayan-prophecy-2012-catastrophe_n_1146092.html#s277466&title=1999_2012_3797.

However, for Audi, which is part of the Volkswagen Group, we include a disclaimer regarding the predictive value of our research. The analysis presented above focuses on business performance during a specific period of time (i.e. 2001–2010). Throughout that period, several strategic and organizational factors enabled both Audi and BMW to successfully resist external shocks. While we are confident that the seven resilience drivers presented in this book generally help firms overcome external shocks, we do not claim to be able to draw conclusions about Volkswagen's ability to mitigate the effects of the recent scandal concerning the manipulation of emissions data.

Recovery

An excellent example of the recovery element of resilience is found in the recovery of the internationally recognized pianist, composer and conductor Giovanni Allevi. Allevi holds an honours degree in philosophy, as well as two Conservatory diplomas awarded with full honours in piano and composition. His songs define the tenets of new 'contemporary classical music' through language that seeks to unite the sanctity of traditional classical music with modern tastes. Due to his intellectual commitment, Allevi has not only been met with an enthusiastic audience, but he has also received acknowledgement and appreciation from Italian President Giorgio Napolitano, Pope Benedict XVI and Nobel laureate Mikhail Gorbachev. Nevertheless, he has also been subject to harsh criticism, which sent him into a lengthy depression. It all began in 2008 when the violinist Uto Ughi attacked him in an interview, saying he was 'offended by Allevi's success' (*La Stampa*, 24 December 2008).⁴ For two years, the pianist disappeared from the scene. However, thanks to his 'love for music and a profound acceptance of what happened' (*La Stampa*, 24 December 2008), he finally found his own way of reacting – he composed *Sunrise*, a concerto for piano and orchestra, and violin and orchestra that broke box-office records in terms of a completely sold-out tour and the number of CDs sold.

The reaction mechanism is similar for companies. Following the death of its founder in 2001, the Korean automaker Hyundai had to divest many of its businesses and faced a serious setback. Yet, by analysing the quality-focused strategy established from 2001 to 2011, Hyundai was eventually able to present itself as one of the most solid and promising companies in the auto sector. The company's reaction to the difficult time was to the fullest, which

⁴ The interview 'Il successo di Allevi? Mi offende' is available at: www.lastampa.it/2008/12/24/spettacoli/il-successo-di-allevi-mi-offende-JPzmyr6NIOF4RbEMGfKXsM/pagina.html.

meant that it was able get back on its feet. The solution was a new focus on quality, which started with a marketing initiative. When faced with a huge drop in sales in 1998, Hyundai's desperate US executive leaders had launched a consumer-research project. They discovered a highly positive reaction to the prospect of a three-part warranty deal (ten-year/100,000-mile powertrain protection, five-year/60,000-mile bumper-to-bumper coverage and five-year/unlimited mileage roadside assistance). They proposed calling it 'America's Best Warranty'. The warranty represented a massive bet on the company's ability to improve. Without consistent quality improvements, the company would face a huge amount of claims and bad publicity. This programme ensured that Hyundai created internal commitment to massive change programmes aimed at quality improvements.

Resourcefulness

The third element involves a shift – a real transition from one sector to another or a substantial repositioning of activities. For example, some actors who have played key roles in certain films, such as James Caviezel who played Jesus in *The Passion of the Christ*, are subsequently unable to build a solid career in film and, in most cases, turn to television. Caviezel has since starred in the successful television series *The Prisoner*.

To cite an example from corporate life, Nokia seems to have an impressive capacity to reinvent its business model. The history of the Finnish company and its shifts from one business to another show that it has been able to reinvent itself and adapt as necessary to market needs. From cellulose to cell phones, the changes that Nokia has put in place are characterized by a high degree of agility. Nokia is the name of a river, near which the mining engineer Knut Fredrik Idestam built a sawmill in 1865 to exploit the current in order to process wood and cellulose. At the beginning of the twentieth century, a leader in the manufacturing of rubber boots was attracted by the energy produced by the river. The Finnish rubber company started using 'Nokia' as its trademark. Shortly after the First World War, the company, which at one point became the most important supplier of boots for the Finnish Army, acquired the nearby wood-processing mill. In 1922, the two companies entered into a holding agreement with the main national provider of cables for telephones and telegraphs. After the Second World War, the group's cable branch offered its services to the USSR as a supplier of the material that Finland had to provide under the peace treaty. In the 1970s, Nokia increased its commitment to the telecommunications industry by developing automated switching

instruments. In 1977, Kari Kairamo became chairman. Kairamo had studied in the United States and did not share the pro-Soviet tradition typical of Finnish entrepreneurs. He instead targeted televisions and personal computers. His successor, Jorma Ollila, who became chairman in 1992, concentrated on the electronics industry by changing the product focus from computers to mobile phones while the latter's boom was still in its infancy. Nokia's cable division was sold. The decision to focus on the telecommunications industry and on the production of mobile phones paid off, turning Nokia into one of the most important companies in the world in these two sectors. Only time will tell whether the company will be able to utilize its abilities to again climb the leadership board now that it has been acquired by Microsoft for EUR 5.44 billion.

Apple offers another example. When Steve Jobs was appointed CEO ad interim in the late 1990s after having been sent away a few years earlier, Apple was on the verge of bankruptcy. Jobs worked hard, surveying every product team in the company. Each team had to convince him that its product was essential to the company's strategy. If the product was not profitable, it was usually removed from the product line. 'After two years as interim CEO, Steve Jobs completely turned Apple around. He restored the company's public image, implemented a successful and focused new strategy, attracted software developers, and launched highly innovative and awe-inspiring products on the marketplace. The confused product lines had turned into a simple yet powerful product matrix made by iMac, Power Mac, iBook and PowerBook'.⁵ About fifteen years later – one year after Jobs' death – the company reached the highest level of capitalization in its history – USD 660 billion.⁶

Based on our discussion of these three elements, we define *resilience as the process by which firms make strategic decisions (drivers) that increase their robustness, recovery and resourcefulness, and thereby ensure stable and sustained superior performance over time*. The three main ingredients of resilience – robustness, recovery and resourcefulness – are related to many change-management models and theories, where 'change management' is defined as a structured approach to organizational change that makes it possible to switch from the current structure to a desired future structure. Change management encompasses such concepts as flexibility, willingness to change and organization's elasticity in facing new challenges. In extreme cases, firms engage in

⁵ See 'The return to Apple' at: http://allaboutstevejobs.com/bio/longbio/longbio_08.php.

⁶ See 'Steve Jobs: the return, 1997–2001' at: www.businessweek.com/magazine/the-return-19972011-10062011.html.

turnaround-management exercises, which are defined as processes dedicated to the renewal of companies in a short period of time – in a crisis situation – through the use of analytical and planning tools. The aim of such exercises is to return to good financial results as quickly as possible. They involve an evaluation phase, in which the factors that have caused the crisis are identified; a recovery phase, in which extraordinary and urgent measures are taken to solve problems in the short term; and a restructuring phase, in which decisions are made for the long term (Barker and Duhaime, 1997). If the above steps are appropriately structured, the results in terms of performance should return to the positive.

We have seen many turnaround processes. One of the most recent is Qantas, Australia's national air carrier. In 2014, Qantas announced a severe cost-cutting programme and a corporate-restructuring programme aimed at returning the airline to profitability. CEO Alan Joyce unveiled a record USD 2.8 billion loss. Then, in February 2016, Joyce announced a record first-half underlying profit of \$921 million, a 234 per cent surge in the six months to December, including net profit of \$688 million.⁷ However, while Qantas has proven able to bounce back from poor performance, we would not label Qantas a highly resilient firm. Organizations that show high resilience are able to avoid such drastic restructuring phases because they act before they find themselves at the brink of bankruptcy.

The following section anticipates the main results of our study – that resilient firms are able to achieve stable, positive performance in the long run. To do so, companies need to know or learn how to best manage seven strategic variables, or decisional trade-offs. While we do not claim that this list of factors that influence resiliency is exhaustive, we suggest that thinking about these variables and contextualizing their implications will have a positive impact on the firm's capacity to deliver sustained superior performance.

OUR MODEL OF RESILIENCE

Commonly used models to study resilience have two problems. First, resilience is only indirectly defined on the basis of its drivers and it is not directly intended to be an exogenous variable (i.e. performance objective). Second, many organizational features are incorporated into the concept of resilience, such as agility and absorption (Sull, 2009), or 'capture' and 'governance'

⁷ See 'Qantas: The most remarkable turnaround in aviation history?' at: www.icas.com/ca-today-news/qantas-nine-lives-flying-kangaroo.

strategies (Carmeli and Markman, 2011). Moreover, it is difficult to measure resilience prior to a negative event. An organization's latent resilience is composed of resources, strategies and capacities that are extremely difficult to measure. Consequently, we propose a model that limits itself to rigorously measuring the company's ability to absorb a shock and achieve good results in the long term (i.e. sustained superior performance, SSP) and is less specific regarding the issue of what drives the company's resilience. This implies a need to verify two conditions for companies to be defined as resilient: (1) the company must be exposed to an external event or a complex crisis; and (2) the company must show above-average performance before, during and after the crisis.

We measure SSP using an indicator called VOLARE, which we explain in detail in Chapter 2. It takes into account a relatively long period (ten years) and assigns values ranging from 0 (lowest) to 10 (highest) to 705 listed companies in seven different sectors affected by external shocks in recent years. The main focal industries are banking, automotive, pharmaceuticals and energy, and the model analyses the main choices implemented by these companies. Quantitative research techniques are used in combination with qualitative techniques to determine the drivers of resilience. We conducted many interviews in the companies in our sample, and we integrated that information with secondary data from business documents, institutional websites and newspaper articles.

We focused our interviews and data analysis on decision making in situations where top management teams are faced with such questions as: Is it better to be in a few markets in which we have a strong position or in many markets in which we may have less impact? Is it better to focus on a few products that make the company recognizable or diversify risk through the introduction of many products? Is it better to focus on the values of the founder or to try to be a global company in terms of culture and formulation? Is it better to prioritize the interests of shareholders or make products that appeal to the customer, even if the latter might reduce short-term performance? Is it better to decide quickly or listen to a number of opinions before arriving at a decision? Is it better to have specialist or generalist managers in the top management team?

Aligning on one side of the trade-off or the other can affect the company's ability to be resilient. Given the idiosyncratic decision-making challenges a company faces, the extant research has identified some drivers that increase the likelihood of obtaining positive, stable performance over time. These drivers, which should always be adapted to the specific environment in question,

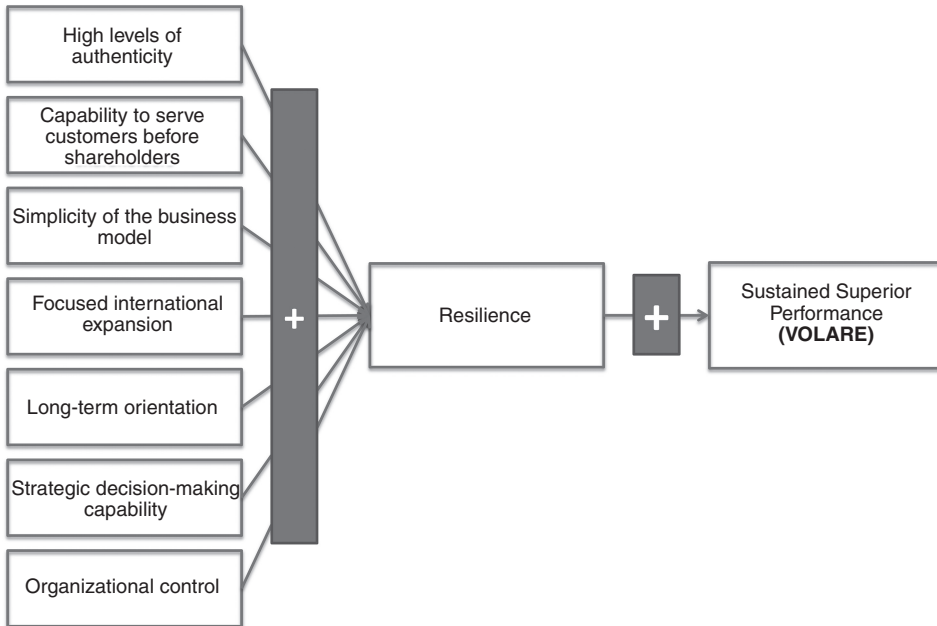


Figure 1.1 Resilience model

Source: authors' own

can be synthesized according to the model shown in Figure 1.1, which incorporates the assertions listed in the introduction:

- 1 Resilient companies show higher levels of authenticity. They approach the business in coherence with their traditions, competences, brand image and values.
- 2 Resilient companies have a high level of customer centricity. They are dedicated to the care of their customers and their needs, and they are willing to sacrifice short-term profitability in order to tie in customers in the long term. Employees identify with this strategy and are proud to be able to add value for customers before they think about shareholders.
- 3 Resilient companies have relatively simple business models and are determined to preserve key competencies by clearly linking their products and services to specific resources and capabilities.
- 4 Contrary to common beliefs, aggressive geographical diversification often increases the fragility of an organization, as it is difficult to assess and control all local risks. These problems increase with greater geographic diversification. Resilient companies hold a strong position in their

home markets and prefer to develop strong positions in a few additional markets as opposed to weak positions in many markets.

- 5 Decision makers in resilient companies employ a long-term perspective that goes beyond their mandate.
- 6 Leaders in resilient companies make strategic decisions. In addition, they manage to combine speed with quality of decisions.
- 7 Resilient companies are led by CEOs and relatively small top-management teams. Members of such teams have strong specialist and functional backgrounds, and they are bound by shared values.

Before we discuss each driver in detail, the next chapter focuses on how we can measure the performance implication of resiliency: SSP.