

Letter to our stakeholders:

## Managing Uncertainty

At the dawn of the 20th century, physics stood on the brink of a profound transformation. Classical mechanics, which had long explained the motion of planets and everyday objects, struggled to account for the behavior of particles at the atomic and subatomic levels.

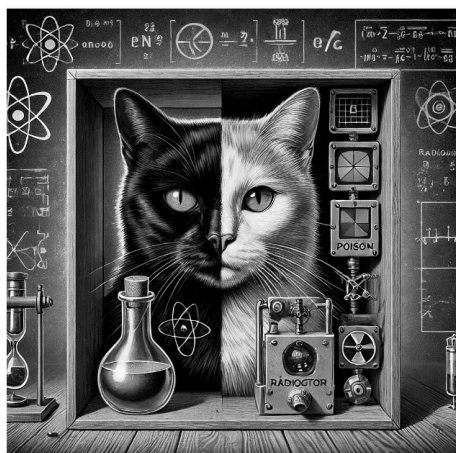
In 1900, German physicist Max Planck made a groundbreaking discovery while studying black-body radiation. He proposed that energy is not continuous but comes in discrete packets called "quanta." This radical idea laid the foundation for quantum theory, challenging traditional notions of energy and matter.

As quantum theory evolved, it introduced several revolutionary ideas, including [Heisenberg's Uncertainty Principle](#). This principle states that it is impossible to simultaneously know both the exact position and exact momentum of a particle. This limitation is not due to imperfections in measurement but rather reflects a fundamental property of quantum systems. According to this principle, particles do not have definite positions or velocities at the same time; **instead, they are described by probability distributions that capture a range of potential outcomes.**

Building on this probabilistic nature, the concept of superposition emerged. Superposition holds that particles can exist in multiple states simultaneously until they are observed. For example, a particle can occupy several positions or exist in different energy states at once. It is only through the act of measurement that one of these possible states becomes the actual, observable outcome. Together, the principles of uncertainty and superposition reveal a quantum reality that defies classical logic, embracing uncertainty and possibilities as fundamental aspects of the quantum world.

This *shift* from certainties to probabilities unsettled many scientists of the time. The classical view of a deterministic universe – where every event has a specific cause and effect – was being replaced by a reality governed by chance. **This new understanding required a radical departure from previous ways of thinking, as uncertainty and probability became essential features of the natural world.**

One physicist who sought to challenge these emerging ideas was the Austrian Erwin Schrödinger. In an attempt to illustrate the seeming absurdity of superposition, he devised his famous thought experiment, "[Schrödinger's Cat](#)." In this scenario, a cat is placed in a sealed box with a radioactive atom, a Geiger counter, and a vial of poison. If the Geiger counter detects radiation from the decaying atom, the vial is broken, and the cat is killed. If no radiation is detected, the cat remains alive. According to quantum mechanics, until the box is opened, and the cat is observed, it exists in a superposition – both alive and dead at the same time.





Schrödinger's thought experiment highlights not only the strange implications of superposition but also the profound role of observation in quantum mechanics. It is the act of observation that forces potentialities to collapse into a single, concrete reality. **No matter how well-informed or precise our predictions may be, they remain uncertain until the moment of observation. Through observation, we transform abstract possibilities into definitive outcomes, reminding us that knowledge, probabilities, measurement, and observation are intimately linked to the process of understanding reality.**

## Quantum Physics in Investing

Much like Schrödinger's famous cat in the sealed box, private investing also operates within a realm of probabilities and uncertainties. In the financial world, however, the outcomes are far more nuanced than the binary fate of the cat. Countless factors shape a company's journey, each influencing its eventual financial return in different ways. As analysts, our role is to foresee these potential outcomes, assess the risks involved, and determine how much of that risk we are willing to bear in pursuit of our goals.

The cornerstone of our approach – and indeed, of any diligent investor – lies in an exhaustive analysis of the entire company. This process involves engaging with stakeholders, examining benchmarks and the value chain, developing in-house theses, forming our own market opinions, and constructing robust financial scenarios that encapsulate both qualitative insights and quantitative data.

This financial model typically focuses on a few critical variables that are pivotal in predicting returns. These may include the growth trajectory and client base evolution, future revenue streams, price and margins, capital requirements and the cost of that capital, exit conditions including expected duration and acquirer profile...

For each of these variables, we assign an interval of estimates. While we can never be sure about, we can estimate a probable average and assign a confidence level to that estimate. For instance, if a company has a consistent history of high margins and shows every indication of maintaining them high, our estimates result in a narrower confidence interval. Conversely, if a variable is more unpredictable, our confidence level decreases, acknowledging the likelihood of greater variability over time.

Once our analysis is complete in a satisfactory way and the investment is made, **the investment exists analogically in a state of superposition – simultaneously embodying multiple potential outcomes, from total success to complete failure. Recognizing the superposition of our investments shapes our thinking and behavior in all aspects of our business: decision making, portfolio construction and active management of the invested companies.**

## Being comfortable (but not too comfortable) with superposition

A significant remark of the experiment and its follow-on studies is the acknowledgment of probabilities and their contribution to logical thinking. Recognizing that in the quantum realm, as in many aspects of life, one cannot know the future. This is the basis of long-term investment thinking. Differently from, say, engineering, where one must make all the sharpest calculations to predict the future or how something will behave with precision, in the craft of investing, this is simply not possible. **And embracing that all investments' outcomes are a set of probabilities existing in a state of superposition is a fundamental skill for a successful investor. Investors who act as engineers, who pretend to know for sure how an investment will turn out, are either misleading themselves or their stakeholders.**

Besides acknowledging that all investments exist in a state of superposition, investors must also be aware that, ultimately, their investments may fail. Besides all the criticisms we have made of the “venture capital” investment school and venture capitalists, we think they teach a lesson in this sense. Being comfortable and embracing that, ultimately, investments fail. On the other hand, while a virtue, it may also present the most



important bias we see in venture capital activity. **Being too comfortable with the idea of superposition and failure may turn you into a lazy investor or a negligent one**, making investment calls based on poor analysis, and avoiding active involvement with the invested company, justifiable by the fact that failure is part of the activity. **Therefore, while we believe that recognizing and being comfortable with the idea of superposition is essential to preserve an investor's rationality and ability to *take and bear* risks, the fear and fluttery sensation that comes with the process is one to be preserved.** Treating all investments as opportunity costs and remaining with a fairly concentrated portfolio to keep decision-making at its sharpest. Also, recognizing that all investments may fail allows you to prepare for the worst scenarios, calibrating the portfolio and taking measures so that the risks are offset by increased return potential.

### **Thinking probabilistically, acting deterministically**

In passive investing, as most public investors and venture capitalists, the strategy is largely about waiting for these initial expectations to unfold and observing the outcome. For this kind of investor, the company is both dead and alive, and the investment is both a success and a failure – until the final observation is made. (usually many years later).

Schrödinger's experiment has aided us in assessing the development of our investment philosophy and strategy. Sooner in Shift's investment trajectory, our focus was mainly on analysis, modeling, and assessment of scenarios and probabilities, seeing each investment as a set of possible financial outcomes, making the *Spreadsheet* the most important tool for our analysts. While not neglecting its importance and remaining diligent with our analysis, **our focus has gradually evolved to taking greater care of the cat.** Differently from public equities and venture capital, where the investment strategy and target company profile are intrinsically designed for passiveness (hence, their main tools are analysis, probabilities, and observations) our strategy and investment niche allow for much more activeness, enabling us to influence the actual behavior of the asset through active involvement. If we were to compare it to Schrödinger's experiment, it would mean that, while embracing that all our investments are in a state of "superposition", that is, having both success and failure as possible scenarios, we are able (and favorable) to gathering as much information as we can, measuring the investment's developments along the way, and exercising influence to maximize the chances of a positive outcome.

**In that sense, Schrödinger would say that we are not merely passive observers; we are vigilant caretakers, constantly monitoring the "cat" within the box to ensure its survival. We actively manage the Geiger counter and the vial of poison – intervening where necessary to protect our cat. In other words, we take deliberate steps to ensure that our initial predictions come to fruition (or to adapt swiftly when they don't). Our active involvement transforms the investment process from passive observation to dynamic management, where we not only try to predict outcomes but actively work to shape them, ensuring that the company thrives and the investment achieves its intended goals.**

As important as a solid analysis and favorable probabilities, right after an investment is made, the spreadsheet loses most of its value, and it is up to the investment team to actively ensure that the reality happens favorably to the desired outcome. And this has profound implications on how we design our team, capabilities, and investment criteria. Once we figured out that Shift can be a major driver of change in the companies, our investment strategy evolved.

### **Active management does not come without a price**

Taking good care of the cat means one cannot have too many cats. Managing our investments with such intensity requires us to be selective in our commitments. In practical terms, we cannot spread our attention too thin across too many companies simultaneously. **It's not about the sheer number of investments we hold but about the depth of involvement each one requires.**



In fact, you can have many cats during your investment period, only if they do not require too much caretaking at the same time. Our philosophy recognizes that companies undergo a journey that demands different types of support as they grow. In their early stages, they rely heavily on their founding team for market fit and initial traction. As they scale, the challenges *shift* from product development to market expansion and operational efficiency, requiring different skills and expertise – often beyond what the original team can alone provide.

This is where we step in, providing some of the most important external resources a company usually requires in the scale-up phase. We specialize in guiding companies through this critical phase where they are too large to depend solely on their founders but not yet large enough to attract top-tier resources independently, a moment defined by the high cost of capital, limited access to financial markets and top talent, scarce resources for transformational steps, and poor financial planning.

However, our involvement is not indefinite. Typically, within 12 to 36 months from investment, the companies we nurture reach a level of maturity where they can attract and retain the assets they need to evolve. At this point, our role *shifts* from active management to a more passive one as we gradually step back and allow the company to thrive independently. Also, not every company requires the same caretaking. During an investment decision, company support is a widely discussed subject among our committees. We vigorously exercise the company’s capabilities, how it will/should look in the future, and how much involvement from Shift’s team will be required. Calibrating well the level of active involvement is a key aspect of a successful strategy (more about this in [Active Minority Shareholder](#)).

Considering the complexity brought by every investment, we seek to maintain a diversified and balanced mix of investments while ensuring that each receives the attention it requires during its most critical growth phases. As a result, we can manage multiple companies simultaneously without compromising the level of care and strategic input each one requires.

### **Even the best vet cannot craft miracles**

One last analogy about the cat. While assessing these new findings and crossing them with this quantum physics experiment, we also realized that it created a crucial bias, one that deserves our attention. **Even the best vet cannot craft miracles.** While acknowledging that our investment strategy allows for the active care of the cat, and ensures higher probability of the desired outcome, our positive influence can only go so far. We will probably not be able to overcome a wrong market thesis or an intense headwind in our invested companies. Being mindful of that will prevent us from overestimating our capabilities to “manipulate the probabilities” and remain true to a solid analysis/investment strategy.

**In a similar way as the venture capitalist who is too comfortable with failure, making him the perfect subject for poor analysis and poor decision making, the active investor such as ourselves who believes to be able to overcome all difficulties through skill and hard work may also be at risk. Being mindful of this and a slow investment pace – with room for setbacks and improvements, will help us calibrate our focus between investment analysis and active management.**

Comparable to quantum physics, investing remains an evolving discipline rather than an exact science. Both fields dwell in the realm of probabilities, where uncertainty is a fundamental aspect of understanding. Schrödinger’s cat illustrates how outcomes depend on observation and interaction, reminding us that, despite our best efforts to refine models and projections, some aspects will always remain uncertain. As investors, much like scientists, we continue to learn and adapt, balancing analysis with intuition, aware that the future is shaped by a blend of known factors and probabilistic outcomes.

Sincerely,

*Shift Capital*



## References

1. The Quantum Atlas. The Uncertainty Principle. <https://quantumatlas.umd.edu/entry/uncertainty-principle/>
2. National Geographic. (2013). *The Physics Behind Schrödinger's Cat Paradox*. <https://www.nationalgeographic.com/science/article/130812-physics-schrodinger-erwin-google-doodle-cat-paradox-science>
3. Schrödinger, E. (1935). *The present situation in quantum mechanics*. <https://arxiv.org/pdf/quant-ph/0103079>
4. *Stanford Encyclopedia of Philosophy*. (2019). *Schrödinger's Cat Experiment*. <https://plato.stanford.edu/entries/qm-copenhagen/>
5. *Ciência Todo Dia* (2019). *O Gato de Schrödinger Explicado*. [https://www.youtube.com/watch?v=pKEq8d\\_1pn4](https://www.youtube.com/watch?v=pKEq8d_1pn4)
6. *Ciência Todo Dia* (2023). *O Gato de Schrödinger Explicado*. [https://www.youtube.com/watch?v=Z4uIBLHs3\\_E](https://www.youtube.com/watch?v=Z4uIBLHs3_E)

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