

Investing in the Modern Era: **Information, Discipline and the Changing Role of Technology**

Authored By: Senned Tomeh





A
MORE
PROSPEROUS
TOMORROW

SUSTAINABLE INVESTING
THE GLOBAL ECONOMY
ABU DHABI A NEW HORIZON



Table of Contents

INVESTING HAS NEVER BEEN MORE ACCESSIBLE	4
THE DISCIPLINE BEHIND LONG-TERM INVESTING	5
WHEN MORE INFORMATION BECOMES MORE NOISE	8
ARTIFICIAL INTELLIGENCE AND THE NEW INVESTMENT EDGE.....	11
THE UAE AS A GATEWAY TO GLOBAL MARKETS.....	13
FINANCIAL LITERACY AS MARKET INFRASTRUCTURE.....	14
ARTICLE NOTE	16
ABOUT THE ADGM ACADEMY TECH CENTRE	17



Investing has never been more accessible

How greater market access, digital platforms and artificial intelligence are reshaping the responsibilities of the modern investor

Investing has never been more accessible. Market prices that once required specialised terminals can now be viewed instantly from a mobile phone. Financial statements, economic data, analyst commentary and company news can be retrieved within seconds, while digital investment platforms have reduced many of the practical barriers that once separated individuals from global financial markets.

Yet accessibility has introduced a different challenge. Investors today are not necessarily short of information. More often, they face the opposite problem. They must decide which information matters, which signals are temporary and when the ability to act instantly should be resisted rather than used.

These issues formed the basis of a recent discussion between the ADGM Academy Tech Centre and Freedom Broker Global Markets Ltd., undertaken in connection with the Freedom Investment Lab, a joint initiative focused on strengthening financial capability, market knowledge and applied research across the region. The discussion examined how investment principles are evolving alongside technology, artificial intelligence and increasingly connected financial markets. Freedom Broker Global Markets operates within ADGM and is authorised by the Financial Services Regulatory Authority for a range of regulated investment activities.

Although the tools surrounding investing are changing quickly, the principles underlying sound financial decision-making remain remarkably consistent. Time horizon, behavioural discipline, financial literacy, diversification and the ability to distinguish information from noise remain central. Technology can improve each of these processes, but it can also magnify weaknesses when convenience is mistaken for understanding.

The modern investment challenge is therefore not simply about gaining access to markets. It is about developing the judgement required to use that access effectively.



Information

More data.
Greater access.



Filter

Discipline.
Critical thinking.



Judgement

Use greater access
effectively.



The Discipline Behind Long-Term Investing

At the centre of any investment decision lies the relationship between risk, return and time. Risk and return are usually discussed together, but time horizon is often treated as a secondary consideration when in practice it can determine how both should be understood.

An investment intended to fund an expenditure in two years should not necessarily be approached in the same way as capital being accumulated over twenty years. The required return, ability to tolerate fluctuations, liquidity needs and appropriate degree of risk can all change depending on when the money will eventually be required.

This is particularly important for younger investors. Long-term financial objectives can appear distant, while examples of rapid wealth creation are increasingly visible through social media and financial content online. The result can be an understandable

temptation to prioritise speed over consistency and to search for unusually high returns over comparatively short periods.

That approach can overlook one of the most important forces in long-term investing: compounding. Returns generated on an investment can themselves become a source of future returns, meaning that time can play a significant role in wealth accumulation. The effect is gradual at first and becomes increasingly significant over longer periods.

The same principle works in the opposite direction. Significant losses reduce the capital available to participate in future growth. This is why a long investment horizon should not be interpreted as permission to take unlimited risk. Time may provide greater opportunity to recover from temporary volatility, but it does not make poor investment decisions harmless.

The practical starting point should therefore be the objective rather than the security. Before asking which share, fund or bond appears most attractive, an investor should first consider what the capital is intended to achieve, when it is likely to be required and how much uncertainty can reasonably be tolerated along the way.

The contrast between long- and short-term investment horizons can also be seen visually. Over an extended period, broad equity markets may experience significant drawdowns while still producing substantial cumulative growth. Over shorter periods, investors are much more exposed to the timing and frequency of individual price movements. The distinction does not suggest that long-term investing eliminates risk, but rather that the investment horizon can materially change how volatility is experienced.



Risk

Greater potential reward typically comes with greater risk.



Return

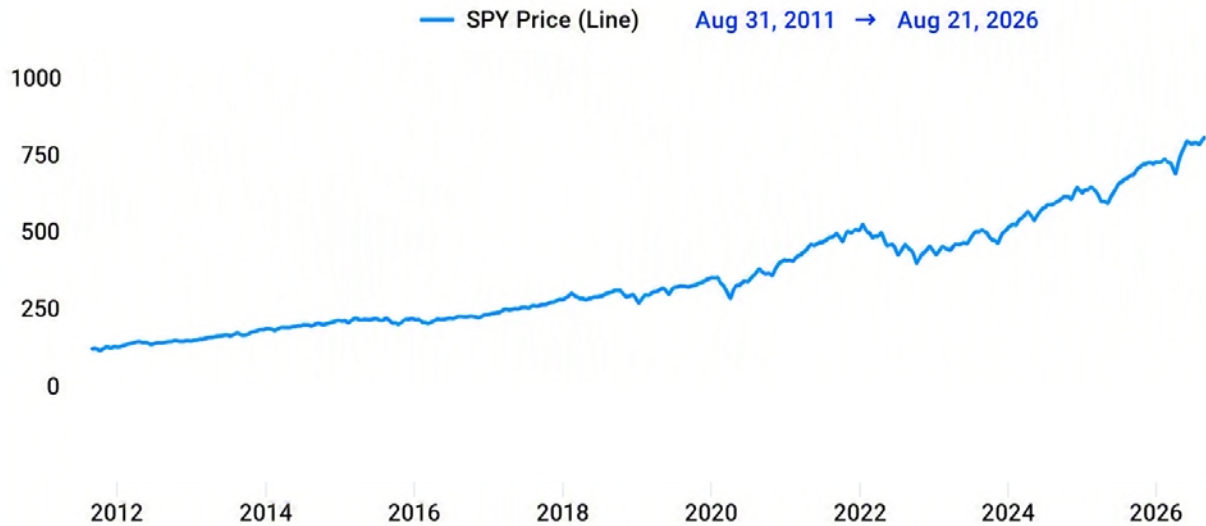
The reward for taking risk, measured over time.



Time

A longer time horizon can help manage risk and improve the potential for returns.

Figure 1. SPDR S&P 500 ETF Trust (SPY) share-price performance, 31 August 2011–21 August 2026.



Source: StatMuse Money, SPDR S&P 500 ETF Trust (NYSE Arca: SPY) historical price data, 31 August 2011–21 August 2026. Prices shown in US dollars. Past performance does not guarantee future results.

Over a fifteen-year horizon, SPY experienced several periods of significant volatility and market

drawdowns while maintaining a substantially higher long-term price level. The chart illustrates how short-

term fluctuations can appear less dominant when viewed within a longer investment horizon.





Figure 2. NVIDIA Corporation (NVDA) share-price performance, 25 August 2025–21 August 2026.



Source: StatMuse Money, NVIDIA Corporation (NASDAQ: NVDA) historical price data, 25 August 2025–21 August 2026. Prices shown in US dollars. Past performance does not guarantee future results.

The shorter time horizon highlights the frequency and magnitude of price movements that investors can experience within a single year. Although NVIDIA recorded periods of strong appreciation, the path was characterised by repeated advances and declines, illustrating the greater visibility of volatility over shorter investment horizons.

Viewed together, the figures illustrate an important distinction between volatility and investment horizon. The SPY chart still contains pronounced declines, but over fifteen years those periods form part of a much broader market trajectory. The NVIDIA chart, viewed over only one year, places considerably greater visual emphasis on individual advances and corrections.

A longer horizon does not protect an investor from losses, nor does it guarantee positive returns. It does, however, provide more time for temporary market movements to be considered within a broader

investment strategy. Shorter-term participants are more exposed to the timing of those movements, making risk management and behavioural discipline correspondingly more important.

This is where the technical side of investing begins to intersect with psychology. Knowledge clearly matters. Investors should understand what they own, how an investment is expected to generate value and what risks could cause that expectation to prove wrong. Yet technical ability alone does not necessarily produce good outcomes.

Financial markets expose investors continuously to fear, optimism, regret and the temptation to act. Rising prices can create a fear of missing out, while falling prices can create an equally strong desire to exit. A security that has appreciated rapidly can appear safer simply because its recent performance has

been strong, while a fundamentally sound investment that has declined can suddenly appear more dangerous.

Successful investing therefore requires an ability to distinguish between a movement in price and a change in underlying value.

A company's share price can change substantially over a short period even when its revenues, margins, competitive position and long-term prospects remain largely intact. Conversely, a rising share price does not necessarily mean that the economics of the underlying business have improved.

Meta Platforms during 2022 provides a useful financial example. Market sentiment deteriorated significantly as investors questioned expenditure levels and strategic direction, producing a substantial decline in the company's valuation. Yet the underlying business continued



to generate considerable cash flow. The subsequent recovery demonstrated how sharply market sentiment can diverge from the longer-term economics of a business.

The lesson is not that falling securities should automatically be purchased. Rather, price

movements should prompt analysis instead of replacing it. Investors need to determine whether new information fundamentally changes an investment thesis or simply changes the market's short-term perception of it.

Behavioural discipline may consequently be one of the most

valuable investment skills. In many cases, the difficult decision is not identifying an opportunity but remaining consistent when market conditions make that decision uncomfortable.

When More Information Becomes More Noise

Technology has radically changed the way investors participate in markets. Account opening can increasingly be completed digitally, execution occurs almost instantaneously, and financial information that was historically concentrated within professional institutions is now available to a far broader audience.

This democratisation of market access is a major development. It has lowered barriers to participation and enabled investors to conduct research that once required considerably greater resources.

At the same time, it has transformed the investor's central problem. Historically, obtaining information was difficult. Today, filtering it may be more difficult.

Financial news, social media, podcasts, online communities, videos, newsletters and live market commentary compete continuously for attention. A single investor can be exposed to hundreds of opinions about markets within a relatively short period.

Not all of that information is incorrect. The difficulty is that its relevance varies substantially.

A headline may move a share price without changing a company's long-term prospects. A widely circulated investment thesis may contain accurate statistics while ignoring valuation. A convincing market commentator may correctly identify an industry trend but underestimate the risks associated with investing in it.



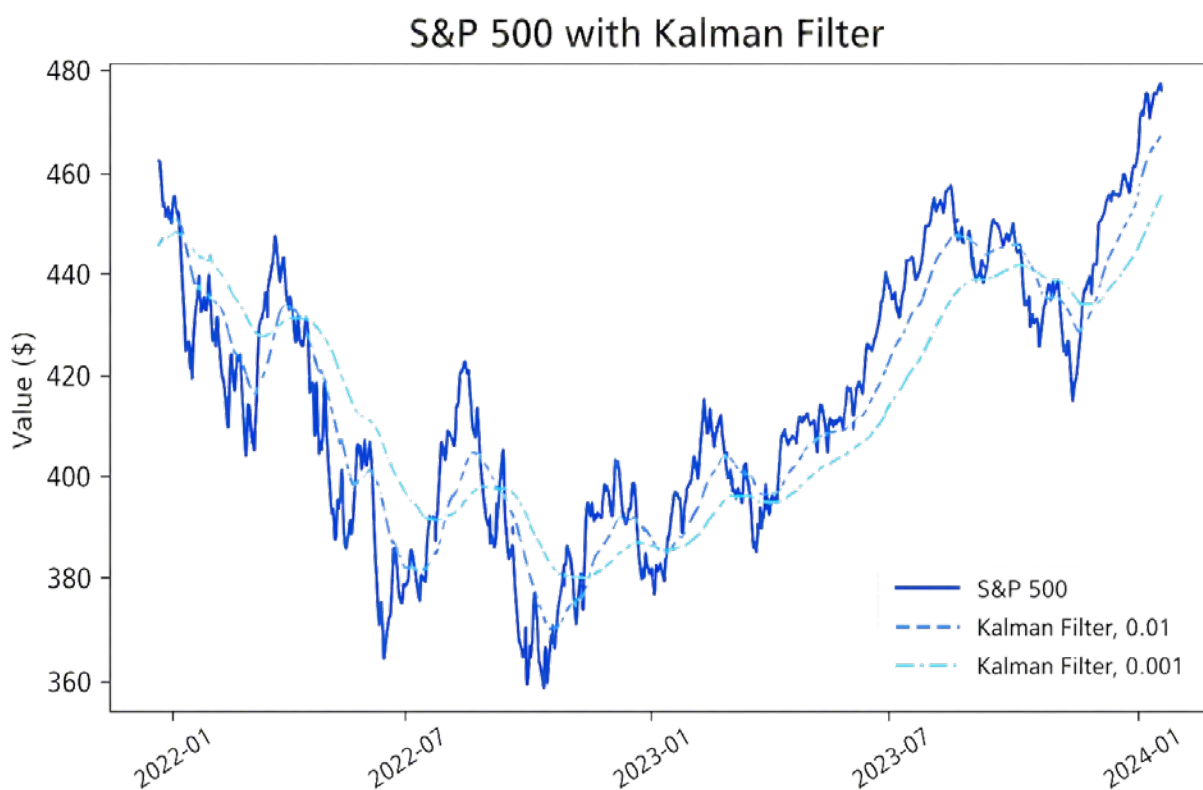
Information and understanding are therefore not the same thing.

Knowing that a company's earnings have risen is information. Understanding why they rose, whether the improvement is sustainable, what expectations are already embedded in the market price and how the company's financial performance compares with competitors requires judgement.

The same principle applies to macroeconomic information. Inflation, employment, interest rates and economic growth can all influence financial markets, but the investment significance of each data point depends on context. Markets respond not simply to whether a figure is positive or negative, but to how it compares with expectations and what it may imply for future conditions.



Figure 3. S&P 500 price series with Kalman filtering applied, approximately 2022–2023.



Source: 1729 Analytics, “Moving Averages & Kalman Filters for Time Series Analysis,” 3 March 2024. The figure applies Kalman filters with transition covariance parameters of 0.01 and 0.001 to S&P 500 data to illustrate different levels of signal smoothing. The figure is reproduced for educational and analytical purposes.

The figure illustrates how statistical filtering can help separate an underlying market trend from short-term price noise. The original S&P 500 series displays frequent

fluctuations, while the Kalman-filtered series smooth those movements to reveal a clearer directional signal. The comparison also demonstrates an important

trade-off: more responsive filters follow recent price changes closely, while stronger smoothing removes more noise but reacts more slowly to new information.



For the modern investor, the ability to filter information may consequently become as important as the ability to obtain it. Knowing what deserves attention and what can safely be ignored is itself an investment skill.

Digital platforms can intensify the challenge because they reduce the friction between receiving information and acting upon it. An investor can read a headline, observe a price movement and execute a transaction within moments.

That convenience has obvious benefits, but friction historically provided an unintended behavioural safeguard. When executing a transaction required greater effort, investors had more time to consider whether action was genuinely necessary.

Today, activity can easily be mistaken for effective portfolio management.

A portfolio designed around a five- or ten-year objective can begin to feel like a daily decision simply because prices can be checked continuously. Temporary losses become more visible. Small movements appear more significant. The convenience of execution creates an implicit invitation to respond.

This can encourage over-trading

and excessively short-term thinking. A long-term investor does not necessarily need to reassess an investment every time the market price changes. Monitoring remains important, but the frequency of observation should reflect the investment strategy rather than the capabilities of the technology being used.

In many circumstances, successful long-term investing includes periods in which deliberate inaction is the appropriate response.

The risk is therefore not digital technology itself. The risk lies in allowing the frequency of information to determine the frequency of decision-making.

Financial education has an important role in addressing this challenge. The objective should not simply be to give investors more information, since information is already abundant. Education should instead help investors develop a framework for interpreting it.

One useful principle is to teach the process rather than the position.

Financial education should explain how an investment operates, how returns may be generated, what risks accompany it and which

assumptions determine the investment case. It should improve an investor's ability to make a decision rather than simply provide the decision itself.

A discussion of bonds, for example, should go beyond describing them as relatively defensive investments. Investors should understand credit risk, interest-rate sensitivity, maturity and the relationship between yield and risk. Similarly, equity education should focus on concepts such as revenue, profitability, cash flow, competitive position and valuation rather than reducing investment analysis to a list of securities to purchase.

This distinction is particularly important for regulated financial institutions. Education and recommendation are not interchangeable.

Helping investors understand how to evaluate an opportunity can strengthen financial decision-making without removing the individual's responsibility for the eventual choice.

A financially literate investor is therefore not someone who possesses every piece of available information. It is someone who knows which questions to ask.





Artificial Intelligence and the New Investment Edge

Artificial intelligence represents the next stage of this transformation. An investor can now ask a generative AI system to explain financial statements, compare securities, summarise market developments, interpret economic data or construct arguments for and against an investment thesis.

Tasks that once required significant amounts of research time can increasingly be completed within seconds.

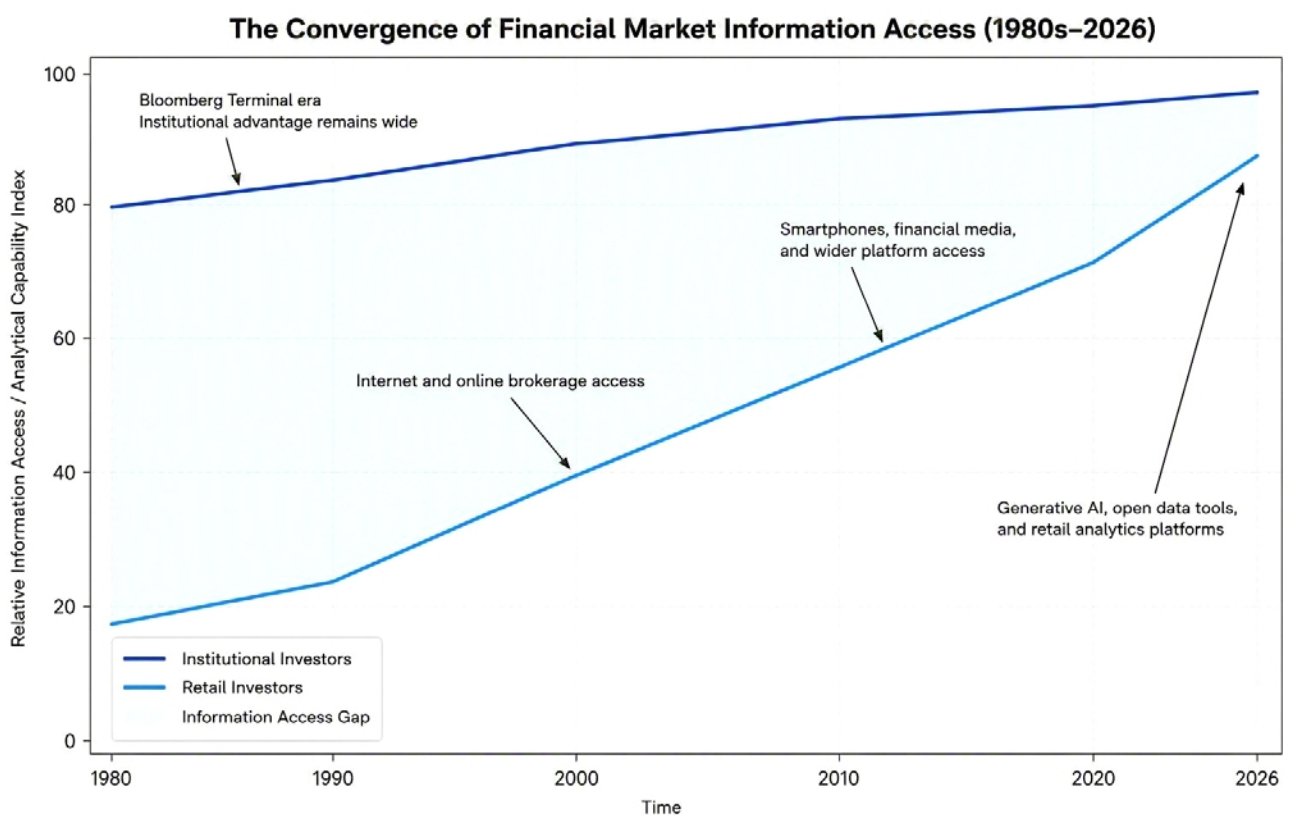
This raises a fundamental question about the future of investment research. If sophisticated analytical tools become available to almost everyone, does the informational advantage traditionally enjoyed by professional investors begin to disappear?

To some extent, AI is already narrowing the gap.

The figure illustrates the narrowing gap in market information access

and analytical capability between institutional and retail investors over time. In earlier decades, professional investors benefited from a substantial structural advantage, supported by specialised tools, proprietary data and institutional research infrastructure. As digital platforms, online brokerage access, financial media, open data tools and artificial intelligence have become more widely available, that gap has progressively narrowed. The figure

Figure 4. S&P 500 price series with Kalman filtering applied, approximately 2022–2023.



Source: Author's illustrative conceptual chart, created for this article. The figure is not based on a single empirical dataset, but is designed to visualise the long-term convergence in financial market information access and analytical capability between retail and institutional investors. The milestone references, including the Bloomberg Terminal era, online brokerage expansion and the rise of generative AI, are included for analytical illustration.



suggests that while institutional investors continue to retain an advantage, retail investors now operate in a far more information-rich and analytically accessible environment than in previous decades.

Financial markets depend on disagreement. For a transaction to occur, participants ultimately need different views about value, risk, timing or future conditions. If a large number of investors rely on similar systems, similar public information and similar assumptions, their behaviour could become increasingly correlated.

Technology may therefore reduce certain human biases while creating new ones.

“ AI may be most valuable when treated as an analytical partners than an analytical authority.

Overconfidence provides a useful example. Traditionally, an investor might become overly confident in their own analysis. In a technology-driven environment, the same bias could simply take another form: excessive confidence in an algorithm.

The behavioural problem has changed, but it has not disappeared.

This is also why technology is unlikely to remove emotion from investing entirely.

Even where a portfolio is highly automated, humans still define its objectives, risk limits and operating parameters. More importantly, the investor retains the ability to intervene.

An automated investment strategy may be designed to remain invested through periods of volatility. If the portfolio then experiences a substantial decline, the individual still faces a decision: trust the process or override it.

At that moment, the technology does not eliminate fear.

A useful analogy is the increasing automation of automobiles. A vehicle may be capable of braking independently when approaching an obstacle, yet a driver may instinctively press the brake because of perceived danger. The automated process may be functioning correctly, but human emotion remains capable of intervening.

Investment technology operates under a similar constraint. Systems can automate rules, but they cannot necessarily eliminate the human desire to change those rules when conditions become uncomfortable.

The objective should therefore not be to remove emotion entirely. A more realistic objective is to recognise and manage it.

Fear, optimism and uncertainty are inherent features of financial markets because markets ultimately aggregate human decisions. Behavioural discipline means understanding those reactions without allowing them to dominate the investment process.



The UAE as a Gateway to Global Markets



These changes are particularly relevant from a UAE perspective. Investors in the country increasingly operate at the intersection of a growing regional financial ecosystem and global capital markets.

Domestic and regional exchanges are expanding, international financial institutions continue to increase their presence, and digital platforms have made access to overseas markets increasingly practical. A UAE-based investor can potentially combine exposure to companies and opportunities within the Gulf with investments across the United States, Europe and Asia.

Geography also provides a practical advantage. The UAE sits between the major Asian, European and North American trading sessions, creating significant overlap with global market hours. For financial professionals and investors alike, this positioning makes the country

an increasingly connected point within international capital markets.

The more important development, however, may be institutional rather than geographical.

Market access alone does not create a mature financial ecosystem. Confidence also depends on regulation, transparency, custody, professional standards and effective market infrastructure.

The significance is broader than any individual institution. Financial ecosystems rely on different organisations performing complementary functions. Regulators establish rules and standards. Brokers and financial institutions provide market access and financial services. Exchanges facilitate transactions. Educational institutions develop professional capability. Investors ultimately make decisions within that framework.

Regulation can increase the complexity involved in establishing and operating financial businesses, but that complexity can also support confidence. Entry requirements and ongoing supervision help ensure that firms participate within defined standards, supporting the credibility of the wider ecosystem.

For UAE-based investors, global access also creates an important diversification opportunity.

An individual's financial exposure extends beyond an investment portfolio. Employment income, property ownership, business interests and other assets may already be concentrated within a particular economy or region. International investment can provide exposure to different industries, currencies and economic drivers, helping reduce dependence on a single source of growth.



Diversification should not simply mean accumulating unrelated securities. It requires understanding how different exposures interact and whether the portfolio as a whole remains aligned with the investor's goals.

This combination of domestic opportunity and global connectivity is becoming increasingly significant as Abu Dhabi's financial ecosystem expands. It enables investors and financial institutions to participate locally without being limited geographically.

That wider connectivity also increases the importance of financial literacy. The greater the range of available products and markets, the more important it becomes for investors to understand what they are accessing.

Financial Literacy as Market Infrastructure



Financial literacy is often discussed as a personal responsibility, but it is also an important component of financial-market infrastructure.

A sophisticated financial system requires participants who can understand the products, risks and information available to them. Greater access without corresponding understanding can expose individuals to decisions they are not adequately prepared to evaluate.

Technology makes this challenge more important because it accelerates both good and poor decision-making.

An informed investor can use digital platforms to diversify efficiently, conduct research and monitor a portfolio. An uninformed investor can use exactly the same technology to over-trade, chase momentum or act on unreliable information.

The platform itself does not determine the outcome. The quality of the decision-making process does.

Financial education therefore needs to evolve alongside financial technology.

Traditional concepts remain fundamental. Investors still need to understand risk and return, diversification, valuation, bonds, equities and the importance of



investment horizons. But modern financial literacy increasingly also requires the ability to evaluate online information, understand the limitations of AI-generated analysis, recognise behavioural biases and resist the pressure created by constant market connectivity.

This broader approach is important because modern financial capability is increasingly interdisciplinary. Professionals may need to understand regulation and technology simultaneously. Investors may need to interpret financial statements while also assessing the reliability of AI-generated information.

Regulators may need to understand how technological systems affect market behaviour.

Financial literacy is therefore becoming less about memorising financial terminology and more about developing adaptable judgement.

The central challenge of modern investing is not that investors lack tools. It is that the tools are becoming more powerful more quickly than the principles required to use them responsibly are changing.

Information is becoming abundant. Judgement remains scarce.

The enduring principles are consequently straightforward. Define the objective before selecting the investment. Understand the time horizon. Know what is owned and why it is owned. Distinguish changes in price from changes in underlying value. Diversify deliberately. Develop a repeatable process. Recognise behavioural biases. Use technology to strengthen analysis rather than replace judgement.

Artificial intelligence will continue to improve. Investment platforms will continue to evolve. Access to financial markets will likely become even easier.

But ease of execution should never be confused with ease of investing.

The responsibility of the investor remains fundamentally unchanged: to determine which information matters, how much risk is appropriate, whether an investment remains consistent with its original purpose and when action is genuinely required.

In that sense, the future of investing may depend as much on better financial education as it does on better financial technology.

Principle for Modern Investors



Objective



Time Horizon



Diversification



Process



Behavioural Discipline



Technology & Judgement





Article Note

This article draws on an interview conducted in August 2026 with Vadim Merkulov and Darshit Ravani of Freedom Broker Global Markets Ltd. as part of research undertaken through ADGM Academy. The discussion has been synthesised thematically rather than reproduced as a question-and-answer transcript. Examples and commentary have been edited for clarity, neutrality and relevance to the broader financial audience.

The article is intended solely for educational and informational purposes. It does not constitute investment advice, an offer or solicitation to buy or sell any financial instrument, or a recommendation of any investment strategy.



About the ADGM Academy Tech Centre

Innovating Knowledge, Empowering Change

The ADGM Academy Tech Centre is Abu Dhabi's multi-sector innovation hub – a first-of-its-kind ecosystem that fuses education, research, regulation, and investment under one roof. Built within the ADGM Academy, the Tech Centre brings together policymakers, regulators, industry leaders, researchers, and entrepreneurs to shape the technologies and industries of tomorrow..

About the Freedom Investment Lab

The Freedom Investment Lab is a specialised platform designed to elevate financial capability across the region. Through high-impact training programmes in market knowledge, trading and stock markets, financial literacy, and fundamental analysis, the Lab equips learners with the skills to navigate today's dynamic investment landscape. It also serves as a hub for applied research, exploring financial markets, emerging investment strategies, and the trends shaping the future of investing.

ADGM Academy

As the knowledge hub of Abu Dhabi Global Market (ADGM), the Academy develops future-ready talent across banking, finance, digital innovation and public services. Supporting the UAE's ambition for a knowledge-driven and globally competitive economy, it delivers practical, experiential learning that equips graduates and professionals with the skills and industry insight needed to succeed in a rapidly evolving landscape.

Through partnerships with leading industry experts, professional bodies and academic institutions, ADGM Academy delivers internationally recognised programmes that combine global expertise with regional relevance. Its industry-focused approach strengthens professional capabilities and supports the growth of Abu Dhabi's financial and digital ecosystem.

Established in 2015, ADGM is a globally recognised international financial centre that strengthens Abu Dhabi's position as a leading financial and business hub, connecting the Middle East, Africa and South Asia with global markets and supporting Abu Dhabi's Falcon Economy.

Stay up to date with ADGM Academy Tech Centre.

academy.adgm.com | techcentre@adgm.com

FOLLOW US
ON OUR SOCIAL NETWORKS



