

NIC Undergrad Review

February 2025

NIC

— Undergraduate Division —

Editor's Note.

Dear reader,

It is with great pleasure that I present to you the second edition of the NIC Undergrad Review for the academic year 2024-2025.

This edition begins with a brief overview of the Iberian Markets, followed by an analysis of key M&A activity in Q4 2024, including the acquisition of Calpine Corporation by Constellation Energy. We also explored the quantum computing industry and provided a business deep dive into AST SpaceMobile, covering peer analysis, risks, and catalysts. Additionally, we present an article titled "ETFs: Shaping the Finance Industry Forever", examining their impact on global financial markets and how they affect investors' behavior. To conclude, we had the pleasure of interviewing Gonçalo Pina Santos, a NIC alumnus, who shared unique perspectives on the importance of education and provided insightful information about Portugal's private equity industry, particularly in real estate.

Lastly, I would like to thank all the members who contributed to this edition: Afonso Costa, Catarina Canha, Ivan Ataev, Miguel Moura, Pedro Resende, Rafael Dias, and Yash Chauhan.

Best regards,

Raquel Mendes

Editor-in-Chief

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Quick Take on Iberian Markets



Catarina Canha

Millennium BCP shares rose 4.99% in one day following J.P. Morgan's recommendation. The investment bank upgraded its rating for the stock from "neutral" to "overweight" based on its attractive risk-return profile and growth potential. During the day, shares reached maximums from April 2016 while the overall PSI Index, which tracks the performance of leading companies on the Lisbon Stock Exchange, decreased by 0.55%. J.P. Morgan emphasized the bank's strong outlook was led by its operations in Portugal and Poland. The bank's earnings per share have been growing, supported by an expected decline in provisions for Swiss franc-denominated mortgages in Poland, which are set to drop from €0.5 billion in 2024 to €0.05 billion by 2026. The investment bank also highlighted BCP's robust capital position, cost efficiency, and sensitivity to interest rates.

Portuguese investors propose acquiring Tupperware's factory in Portugal. Tupperware, a multinational that has operated in Montalvo, Constância, since 1980, has received a proposal to acquire its Portugal factory after filing for bankruptcy. The factory is fully dependent on its U.S.-based parent company. As a result of the insolvency, it was scheduled to close on January 8, potentially leading to the layoff of around 200 workers. However, the closure has been postponed to fulfill orders. The proposal includes the purchase of all facilities and machinery, with the possibility of retaining some of the employees. If realized, this acquisition could prevent the plant's permanent closure, preserve jobs, and maintain Tupperware's presence in Portugal. Yet, the outcome of these discussions is still uncertain.

Jerónimo Martins sales grew 9.3% to €33.5 billion in 2024. The Portuguese group surpassed 2024 expectations, despite an outlook predicting that a drop in food inflation, combined with high-cost inflation, would intensify competition. The strong performance was driven by Pingo Doce, which increased sales by 4.5% to €5.1 billion, supported by competitive pricing, improved product assortments, and enhanced shopping experiences. Recheio grew by 1.9%, reaching €1.4 billion. In Poland, Biedronka attained a 9.6% sales increase while Colombia's Ara achieved impressive growth of 17%. Hebe demonstrated remarkable progress with sales of €585 million, showcasing 24.3% growth.

Spanish hotel wholesaler HBX targets €725 million IPO. HBX Group, a private equity-owned Spanish hotel room wholesaler, plans to raise €725 million through an IPO in Spain, marking it the first major European listing of the year. This IPO reflects a recovery in the European IPO market following last year's rebound. The group, best known for its Hotelbeds brand and behind-the-scenes travel infrastructure, is expected to be valued at approximately €5 billion. After the IPO, HBX shares fell by up to 11% on the first day of trading, closing 4.35% lower, as hedge funds that acquired 25% of the shares quickly sold them. HBX will proceed with the issuance of new shares to reduce its debt and strengthen its financial position.

BBVA expands the U.S. workforce by 30% as it focuses on investment banking. BBVA has increased its U.S. workforce by adding 100 employees and bringing its total to 517. The bank is targeting key markets such as New York and Houston where it has opened a sustainability hub and plans to triple its staff. This growth follows several high-profile hires from Barclays, Crédit Agricole, and UBS, boosting the bank's investment banking division, which now employs 451 people. The workforce increase is aligned with BBVA's broader strategy to strengthen its U.S. presence and enhance its corporate client services, particularly after selling its retail business to PNC Financial Services for $11.6 billion four years ago.

M&A Analysis



Yash Chauhan

Renewed Momentum of M&A Activity in 2025

Overview

In 2025 global M&A activity is expected to continue the positive momentum observed in late 2024, with forecasts predicting a robust increase of approximately 15% YoY in deal volumes. Total transaction value can potentially surpass the $4tn mark, reflecting the resurgence of large-scale deals across various sectors. This optimistic outlook is supported by stable macroeconomic conditions, strategic corporate expansions, and increased PE activity, as well as easing valuation gaps in certain industries.

On the one hand, in the U.S., M&A activity is encouraged by easing inflation, strong productivity, and the expectation of gradual rate cuts by the FED. This leads to increasing corporate activity, centered on deploying strong cash balances or justifying the narrowing valuation gaps. Corporations are prioritizing acquisitions over buybacks, leveraging their cash reserves to fuel growth.

Another major sign of business expansion comes from the expected regulation (or deregulation) environment and lower corporate taxes under Trump's administration. The new U.S. presidential administration will most likely ease antitrust and merger guidelines, facilitating more M&A activity, particularly in energy, technology, and manufacturing. However, the extent to which some of Trump's policies like tariffs, abnegation of green energies, and immigration deportation initiatives are embraced will be critical. These measures added to the well-established geopolitical tension could affect supply chains, interest rate cuts, and M&A focus on a global perspective, with a shift toward U.S.-based assets to the detriment of cross-boarding deals. Industries such as healthcare and those related to ESG may face greater uncertainty.

Finally, private equity firms are almost certainly going to drive significant M&A activity in 2025, with dry powder levels surpassing $3.5 trillion globally. The already mentioned narrowing of valuation gaps and a shift towards strategic exits that were delayed in the H2 of 2024 are expected to enable PE managers to deploy capital effectively, driving growth in leveraged buyouts and secondary buyouts.

Most relevant deals in the fourth quarter of 2024 and January 2025

Announced Date	Target	Buyer	Target Region	Target Industry	Value
10/01/2025	Calpine Corporation	Constellation Energy	US	Energy	$ 16.4 billion
01/10/2024	Covestro	Adnoc	GER	Chemicals	$ 15.3 billion
13/01/2025	Intra-Cellular Therapies	Johnson & Johnson	US	Pharmaceuticals	$ 14.6 billion
21/10/2024	Nord Anglia	CPPIB, Neuberger Berman, and EQT	UK	Education Services	$ 14.5 billion
09/12/2024	AssuredPartners	Arthur J Gallagher & Co	US	Insurance Brokerage	$ 13.45 billion
09/12/2024	Interpublic Group	Omnicom Group	US	Advertising and Marketing	$ 13 billion
03/12/2024	HPS Investment Partners	BlackRock	US	Investment Management	$ 12 billion
25/11/2024	Summit Materials	Quikrete	US	Construction Materials	$ 11.5 billion

Constellation Energy Acquires Calpine

Deal Structure

On January 10th, Constellation Energy, the largest clean energy producer in the United States, announced its acquisition of Calpine Corporation, the privately held, largest electricity generator via natural gas and geothermal resources. Calpine's equity is valued at $16.4 billion, financed through $4.5 billion in cash and 50 million Constellation shares, as well as the $12.7 billion in Calpine's debt. According to the two companies, this acquisition creates an energy powerhouse with an enterprise value of nearly $27 billion and targets a customer base of 2.5 million.

Constellation Energy was advised by Lazard and Kirkland & Ellis LLP while Calpine Corp relied mainly on Evercore, Latham & Watkins LLP, and White & Case LLP.

The Rationale

This acquisition is driven by Constellation's strategic vision to meet surging power demand, fueled by the growth of data centers and artificial intelligence (AI) technologies. The U.S. power sector is projected to grow nearly 20% by 2033, and demand from data centers can even triple in the next three years, with natural gas-fired generation playing a critical role due to its reliability compared to renewable sources like solar and wind.

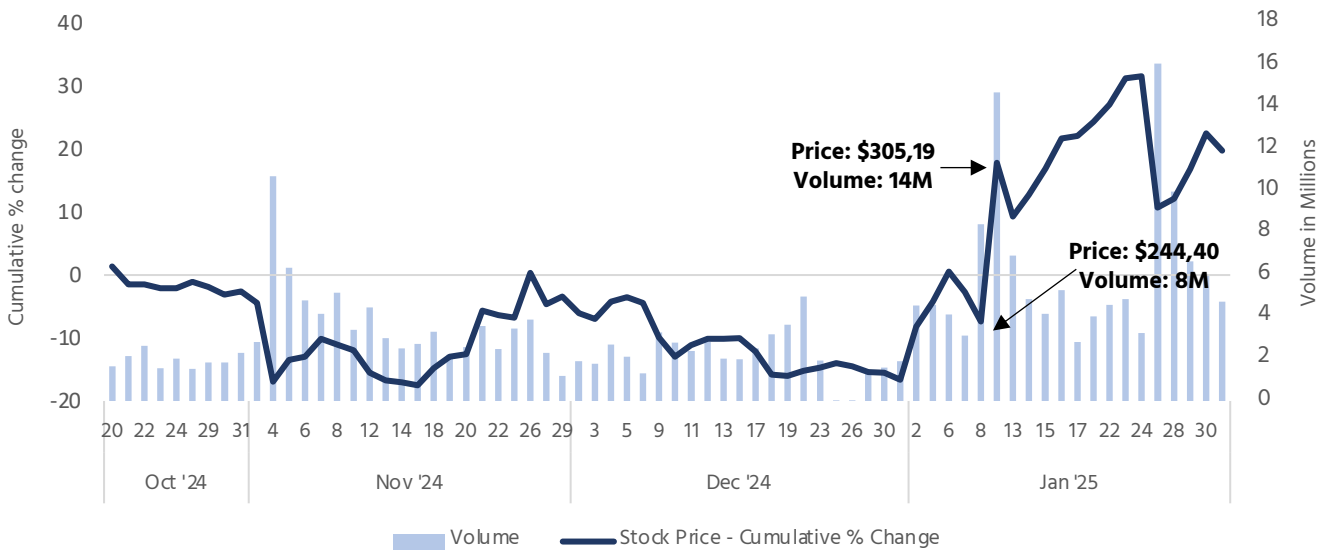
By combining its industry-leading zero-emission nuclear infrastructures with Calpine's extensive natural gas and geothermal generation assets, Constellation aims to offer the broadest array of energy products and services. The already mentioned 2.5 million customer base solidifies Constellation's position as the leader of clean energy solutions and its commitment to continuous innovation. The merger also expands Constellation's geographic footprint, particularly in key growth regions such as Texas and California, where Calpine operates 78 energy facilities capable of powering 27 million homes.

From a financial perspective, it is projected that the transaction will bring $2bn of free cash flow per year in addition to a 20% increase in EPS in 2026.

Market Reaction

The market has responded positively to the acquisition announcement. Following the news, Constellation's shares surged over 25%, reflecting investor confidence in the strategic benefits of the deal. Analysts have termed the acquisition as "positive and value accretive," with Jefferies raising the price target for Constellation Energy. All in all, this transaction underscores the industry's evolution toward diversified, sustainable, and reliable energy generation.

Constellation stock performance



(Source: Yahoo Finance)

Industry Overview:
Quantum Computing



Miguel Moura

Dive into the computing breakthrough

Understanding Quantum Computing

Although Quantum Computing may seem like classical computing, we must first understand that quantum computing means a breakthrough and a paradigm shift in the computing environment. For context, quantum chips have given us not only the answer to, until now, unsolvable problems but also an exponential and mind-blowing process capability. In quantum mechanics, computations that take less than five minutes would require 10^{25} years on the world's fastest classical computer. The main reason for this efficiency is superposition. While classical computers rely on binary bits (zeros and ones) to store and process data, quantum computers use quantum bits, or qubits, which can encode significantly more information at once. Unlike classical bits, which can be either zero or one, a qubit can exist simultaneously in a weighted combination of both states. When multiple qubits are in superposition, their combined computational power scales exponentially. For example, two qubits can represent four states, three can represent eight, and four can represent sixteen. This exponential growth marks a breakthrough in computing. A system of 300 qubits can represent more states than the number of atoms in the observable universe.

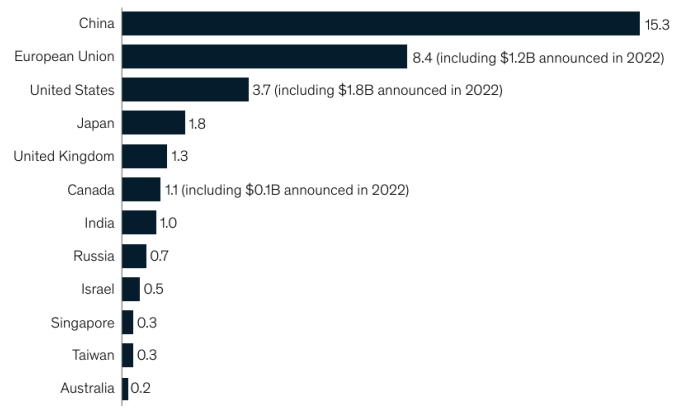
Market Overview and Investment Landscape

The global quantum computing market has experienced significant growth and is expected substantial expansion in the coming years. Valued at $885.4 million in 2023, the market is projected to increase to $1160.1 million by 2024 and reach an impressive $12620.7 million by 2032. This growth corresponds to a remarkable compound annual growth rate (CAGR) of 34.8%. The four industries that are more likely to benefit from QC in an early stage are: automotive, chemicals, energy, and financial services. Collectively, these sectors could realize up to $1.3 trillion in value by 2035 as quantum technology enables transformative innovations in processes, product development, and operational efficiencies.

The quantum technology sector achieved a new high in total annual start-up investment, reaching $2.35 billion, corresponding to 223 created startups in 2023. Moreover, 80% of startups founded in the past three years are in the QC space. However, year-over-year growth in this area was limited to just 1%, reflecting several challenges. The first one is the possible lack of talent as most experienced quantum specialists, typically from academic backgrounds, are already employed by established start-ups. The other is the limited practical use of QC, as many quantum applications are still in development, with few advanced enough for commercial implementation. As such, the biggest barrier to QC development is its usefulness being limited to complex computations, whereas classical computing has broader applications.

However, Governments worldwide have shown strong commitment to advancing quantum technology through substantial investments, with total funding reaching $34 billion globally. Notably, the United States, the EU, and China are committed to funding R&D to maintain global competitiveness.

Announced Government Investment, $ Billion



(Source: IBM)

Key and Emerging Players: Recent Developments

Leading innovation in the field are major players such as IBM Quantum, Google Quantum AI, Microsoft, NVIDIA, and Amazon. Additionally, startups specializing in quantum computing, such as D-Wave Systems, Rigetti Computing, and IonQ, are gaining attention due to their partnerships with top firms.

As research progresses, IBM plans to introduce a quantum system with 200 logical qubits. In 2019, Google, a leader in the field, revealed that its Sycamore quantum processor completed a task in just over three minutes, something that would take a supercomputer thousands of years. Recently, Google also announced Willow, a new quantum computing chip that significantly reduces computational errors. However, real-world applications may still be some time away.

Private Equity and Venture Capital Interest in Quantum Computing

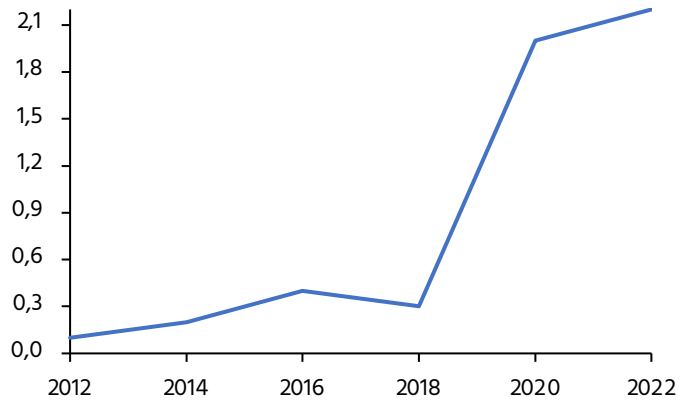
The year 2022 saw significant deals, with four of the ten largest quantum technology investment deals since 2001 closing that year. SandboxAQ, a spin-off from Alphabet, secured $500 million in funding; Rigetti raised $345 million through its IPO; D-Wave secured $300 million; and Origin Quantum, a Chinese quantum computing company, obtained $149 million. Additionally, seven out of the ten deals in 2022 were valued at over $100 million, signaling the industry's rapid growth.

As mentioned, 80% of the startups founded in the last three years focus on quantum computing. Moreover, leading institutions have partnered with innovative startups, making substantial investments to advance the field. These efforts reflect the widespread recognition of quantum computing as a revolutionary high-tech field with immense potential.

Patent activity in quantum technologies has also seen a rapid increase in recent years. This trend highlights the expanding application of quantum computing across both technical and non-technical areas, including IT architectures and materials engineering. Prominent players such as AMD and Amazon are actively engaging in patent research to secure their positions in this evolving landscape.

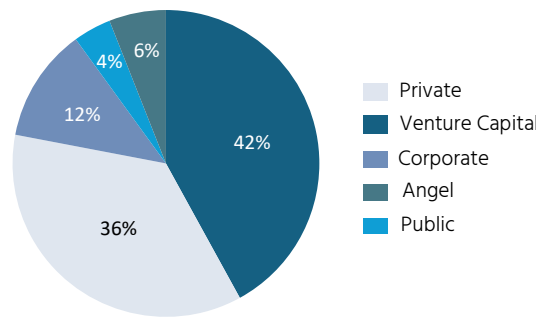
This surge in patent activity further underscores the growing interest in this industry, with both established companies and emerging enterprises seeking to capitalize on its potential. As a result, quantum computing continues to attract significant attention and investment, positioning it as a key driver of technological progress in the coming decades.

The volume of raised start-up investment, $ billion



(Source: McKinsey & Company)

Split of QC investments by investor type
2001–22, % of total investment value



(Source: McKinsey & Company)

Impact on Financial Services

The financial sector is similarly embracing quantum computing, with major institutions, such as JPMorgan Chase and Citigroup launching quantum computing initiatives. These banks have not only implemented quantum strategies but have also acquired stakes in quantum computing startups, further demonstrating their commitment to

leveraging this technology for future innovation.

Many financial services activities, from securities pricing to portfolio optimization, require the ability to assess a range of potential outcomes. To do this, banks use algorithms and models that calculate statistical probabilities. While effective, these models are not infallible, as seen in the financial crisis when low-probability events occurred more frequently than expected. In a data-heavy world, ever-more powerful computers are essential to calculating probabilities accurately.

The last two decades have seen financial and economic crises that led to rapid changes in how banks and other market participants assessed and priced the risk of different asset classes. This led to the introduction of increasingly complex and real-time risk models powered by artificial intelligence but still based on classical computing.

Quantum computing could be a game changer, but large-scale implementation remains a challenge. Financial institutions are only beginning to access the necessary hardware and develop quantum algorithms. However, rising initiatives suggest a tipping point is near, making it critical for banks reliant on computing power to start engaging now.

Some of the calculations relevant to the financial industry would require hundreds or thousands of qubits to resolve. At the current pace of development, sufficient capacity will likely be reached in five to ten years.

Quant-driven hedge funds aim to profit through analytical complexity, making them a natural constituency for ultra-powerful processing. Large banks are early experimenters, taking on multiple roles in financial markets, such as valuation adjustments for derivatives. Asset managers optimize portfolios using computationally intense models. Quantum computing could enable faster, more accurate decision-making, such as determining an optimal portfolio mix and rebalancing investments to better respond to market conditions and investor goals.

Why it matters

Complexity in financial markets trading activity is skyrocketing therefore investment managers struggle to incorporate real-life constraints, such as market volatility and customer life-event changes, into portfolio optimization. Quantum technology could help cut through the complexity of today's trading environments. Furthermore, the finance industry operates in a highly competitive and fast-paced environment and adopting quantum technologies can benefit financial institutions as organizations can gain deeper insights into markets and customer behaviour by leveraging advanced data analytics with emerging technologies. Additionally, businesses can strengthen their resilience against cybersecurity threats by implementing robust security measures and staying ahead of potential risks. From 2013 to 2022, banks increased tech spending by 38% to meet evolving digital needs, with IT expenses reaching 10.6% of revenues and 20% of total costs in 2022, highlighting growing cybersecurity concerns.

Conclusion

Realistically, classical computers will remain essential for most applications, but cloud-connected quantum systems and hybrid ecosystems are already exploring advanced applications. As quantum computing progresses, we can expect it to transform existing industries and potentially unlock entire new ones.

Early movers are likely to have an advantage. However, in all cases, a practical first step is to rewrite internal algorithms in quantum language, which will lay the groundwork for meaningful investment. Companies such as Google and IBM hope to double the capabilities of quantum computers every year. While the hardware and software for the most complex problems may not be ready until 2035 or later, the window for getting up to speed and gaining a competitive advantage will not be open for long. It is only a matter of time.

Quantum computing continues to advance in processing power and applications. Collaborations between industry leaders and research institutions underscore its potential to solve complex problems in cybersecurity, AI, and drug discovery. As this technology evolves, it promises to redefine the boundaries of computing capabilities.

Business Deep Dive

AST SpaceMobile



Pedro Resende

AST SpaceMobile is a pioneering telecommunications company, founded in 2017 by Abel Avellan, with the ambitious goal of eliminating connectivity gaps worldwide. Headquartered in Midland, Texas, AST SpaceMobile is designing and deploying the first space-based cellular broadband network that connects directly to standard mobile phones without the need for additional hardware. In 2021, the company went public through a SPAC merger and began trading on the NASDAQ under the ticker ASTS. With a mission to bring mobile broadband to areas traditionally underserved, AST SpaceMobile is positioned as a key innovator in the satellite telecommunications industry.

The company's flagship initiative, the BlueWalker satellite constellation, is set to create a seamless, low-latency network capable of providing high-speed broadband to rural, remote, and underserved regions worldwide. Unlike traditional satellite broadband providers that require specialized ground receivers, AST SpaceMobile's technology integrates directly with existing mobile devices and networks, offering a cost-effective solution for telecom operators and end users.

Markets

Since its inception, AST SpaceMobile's share price has seen significant growth, increasing by more than 700%, from ~$1 to over $30. At the time of writing, the price was near its 52-week average after declining by around 30% since August. Its price rose abruptly over the summer after they announced a long-term strategic partnership with Vodafone to provide space-based cellular broadband across Europe and Africa.

Company Data	
Price	$23.10
YTD Performance	650%
52-week Range	$1.97 - $39.08
Shares Outstanding (M)	200.34
Market Cap (Bn)	4.63
Entreprise Value (Bn)	4.33

Market data from 22/01/2025

Price Performance



Business Model

AST SpaceMobile's revenue model is centered around partnerships with mobile network operators (MNOs). The company's technology enhances these operators' coverage, allowing them to reach customers in areas previously beyond the scope of terrestrial cell towers. By leveraging its satellite constellation, AST SpaceMobile provides coverage over oceans, deserts, and other hard-to-reach areas without requiring significant infrastructure investments from MNOs.

AST SpaceMobile collaborates with major telecom operators such as Vodafone, AT&T, and Rakuten, with already signed agreements and understandings with more than 45 mobile network operators serving around 2.8 billion existing subscribers. These agreements typically involve revenue-sharing models where operators pay AST for access to satellite-powered network services. In terms of service agreements, they offer significant flexibility with multiple potential ways for cellular subscribers to access their service:

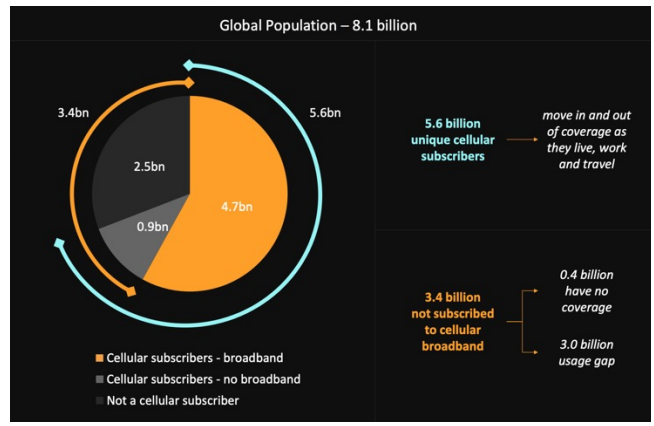
- **Day Pass:** Subscribers receive a text on their phone asking if they would like to turn on SpaceMobile service.
- **Monthly Add-on:** A fixed monthly rate to add SpaceMobile as a supplemental service to an existing cellular plan. Subscribers automatically connect with SpaceMobile's network upon entering an area without cell tower coverage.

To make this service available, the company licenses its patented technology to operators, enabling integration with existing network infrastructure, representing another source of revenue. Once fully operational, AST SpaceMobile plans to offer additional value-added services, including emergency connectivity, Internet of Things (IoT) integrations, and enterprise solutions.

Market Analysis

This market offers many opportunities for ASTS to explore. There is an over $1 trillion global mobile wireless services market; 5.6 billion mobile phones and devices that move in and out of coverage each year; 42% of the global population lacks cellular broadband, and approximately 90% of Earth's surface is without cellular coverage. Beyond these facts, the company estimates an 8-year expected demand for satellite direct-to-device communications of $67 billion, driven by 5G expansion and the growing demand for reliable mobile broadband in emerging markets.

Global wireless services subscribers per type



(Source: GSMA Intelligence)

While competitors like SpaceX's Starlink and OneWeb dominate the satellite internet space, AST SpaceMobile's differentiation lies in its direct-to-device connectivity. Moreover, since it offers a different type of service that enables the extension of coverage without additional ground hardware, ASTS isn't directly competing with companies like Starlink for the target market segments it wants to focus on.

Peer Analysis

AST SpaceMobile operates in a highly competitive market. While some major players dominate a large share of the industry, ASTS's innovative approach and the problem-solving tools it offers to MNOs create strong growth opportunities.

	Technology	Market Focus
AST SpaceMobile	Direct-to-mobile broadband	Emerging markets
SPACEX	Satellite internet via dishes	Consumer broadband
OneWeb	Low Earth Orbit (LEO) constellations	Enterprise and rural markets

Besides offering a different type of service, AST positions itself as a partner to MNOs, rather than as a competitor, offering its services exclusively to operators through a B2B system, instead of trying to penetrate the market with a B2C system. This approach ensures mutual growth and reduces market resistance.

Financial Overview

AST SpaceMobile is still in its initial revenue stage, accumulating some losses over the past 3 years but has made significant strides in securing funding and demonstrating its technology. The company expects to launch another 60 satellites by 2026 to increase its revenue stream. It also anticipates increasing its revenue streams following the commercial deployment of its BlueBird satellites, planned for 2025-2026. Before that, AST has already raised over $1.5 billion, with major contributions from strategic investors such as Vodafone, Rakuten, AT&T, and Google.

Risks and Catalysts

Risks

• Capital Intensity: Building and deploying a satellite constellation is highly capital-intensive, and AST's mission statement is heavily reliant on this deployment.

• Regulatory Challenges: Operating a global satellite network requires navigating complex regulatory environments, which could pose delays or additional costs, especially when this might involve security issues, particularly in terms of people hiding their global location. deployment.

• Market Volatility: The company's stock has experienced significant fluctuations, with a 344% rise in 2024 followed by a 13% drop after financial disclosures, highlighting market sensitivity to AST SpaceMobile's financial health.

Catalysts

• Growing Partnerships: AST's collaborations with major MNOs like AT&T and Vodafone enhance its credibility and market access, with over 2.8 billion subscribers.

• Market Demand: Rising demand for mobile broadband in remote regions positions AST as a critical enabler of global connectivity. Moreover, it could open a specific niche in the market, such as providing internet access during flight time.

• Technological Milestones: In 2024, AST SpaceMobile achieved a significant breakthrough by conducting the first satellite-enabled video call from a no-coverage area, demonstrating the viability of its technology.

Conclusion

AST SpaceMobile's innovative approach to satellite broadband positions it as a transformative player in the telecommunications industry. By addressing the global connectivity gap and partnering with leading telecom operators, AST has the potential to reshape how mobile broadband is provided globally. However, as the company moves toward commercial deployment, it must navigate significant financial pressures and competition from established satellite providers such as SpaceX's Starlink. AST's ability to execute its ambitious plans, scale operations, and meet regulatory requirements will be critical to its long-term success. With upcoming satellite launches and continued technological advancements, its impact on the telecommunications landscape could be profound, making it a company to watch in the years ahead.

ETFs: Shaping the Finance Industry Forever



Ivan Ataev

From Niche to Mainstream

Introduction

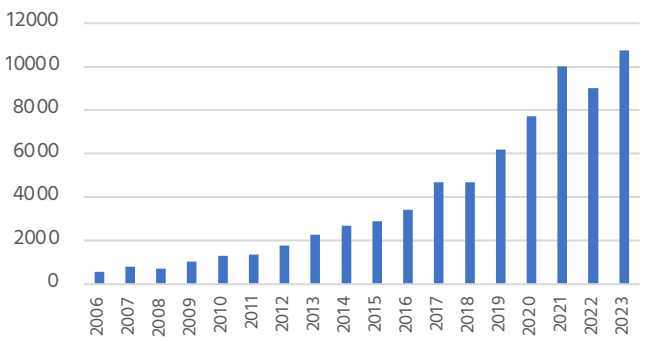
Exchange-traded funds (ETFs) emerged as the most innovative financial instruments in the 1990s. Growing into the multi-trillion-dollar industry, they revolutionized investors' exposure to a wide range of assets.

Unlike traditional mutual funds, ETFs are traded on stock exchanges, offering liquidity, flexibility, and cost efficiency. Their special trait is that they track indexes, sectors, commodities, and even bonds has made them extremely popular among institutional and usual investors. This transformation has democratized access to investment opportunities, creating more efficiency in the markets.

How ETFs gained popularity

Exchange-traded funds have seen explosive growth since the launch of the first ETF, the SPRD S&P 500 ETF (SPY), in 1993. Initially, ETFs were mostly used to track market indexes such as S&P 500, however, over time, they have expanded to a wide variety of assets, including stocks, bonds, and commodities. By 2024, the global ETF market has surpassed $10 trillion in global Assets Under Management (AUM).

Change in ETFs' AUM from 2006-2023 (in US$ bn)



(Source: ETF Global)

Several factors have contributed to the success of the ETFs. First is their low cost, compared to mutual funds, which usually carry high management cost. Second, ETFs provide liquidity, as investors can sell them throughout the whole trading day, unlike mutual funds, which can only be sold at the end of the trading day. Third is their transparency, as investors are allowed to see the holdings in real-time.

Moreover, ETFs have democratized investing, because they allow small investors to access diversified portfolios of assets, which were previously only available to institutional players.

Impact of ETFs on Global Financial Markets

The impact of ETFs on markets has been profound. One of the most significant changes is how more efficient the markets have become. As ETFs allow investors to buy fractions of a broad range of market indexes, sectors, or specific themes, the rise of ETFs boosted passive investing, where investors replicate the performance of benchmarks, rather than trying to beat them. This puts pressure on actively managed funds, which not only often struggle to beat the market, but also impose high management fees.

Furthermore, ETFs have played a crucial role in improving liquidity in various markets. ETFs are traded on an exchange, therefore it is easy to buy and sell them, increasing access to less liquid markets, such as emerging markets or niche sectors. Additionally, ETFs have helped narrow bid-ask spreads, further enhancing market efficiency.

The introduction of thematic ETFs (such as technology or emerging markets), ESG ETFs, and sector-specific ETFs has allowed investors to tailor their portfolios to their values and goals.

However, ETFs do have criticisms. Some investors argue that as ETFs grow quickly, they could create new risks, such as market imbalances or increased volatility. ETFs are easy to buy, therefore in times of high uncertainty, investors may rush all in the same direction, leading to even bigger downturns.

Types of ETFs

There are different types of ETFs for different investment strategies. For example, equity ETFs focus on stocks and give exposure to various sectors, industries, and countries. They are popular because they are simple – they expose investors to a broad range of companies, instead of picking individual stocks. Bond ETFs invest in fixed-income assets such as government or corporate bonds, offering a more stable income and lower risk, compared to stocks. Commodity ETFs track the price of physical assets like gold, oil, or agricultural products, allowing investors to gain exposure to commodities without directly buying the assets.

These are traditional ETFs, but more specialized options exist, such as thematic ETFs. For example, AI-driven ETFs are gaining popularity as they invest in companies that incorporate AI technologies in various ways, which is an area with high growth potential. Other types include leveraged ETFs, which use financial derivatives, and inverse ETFs, designed to profit from market declines by moving opposite to a specific index. Both are typically used by experienced traders for short-term strategies.

Looking to the future, crypto ETFs are emerging as an attractive option for investors seeking exposure to cryptocurrencies, like BTC and Ethereum, without the need to buy them directly. ESG ETFs are also growing in popularity, hopping on the train of hype around socially responsible investing. These ETFs focus on companies that meet specific environmental and social standards, typically for investors who want their portfolios to reflect their values.

ETFs vs. Mutual Funds vs. Index Funds

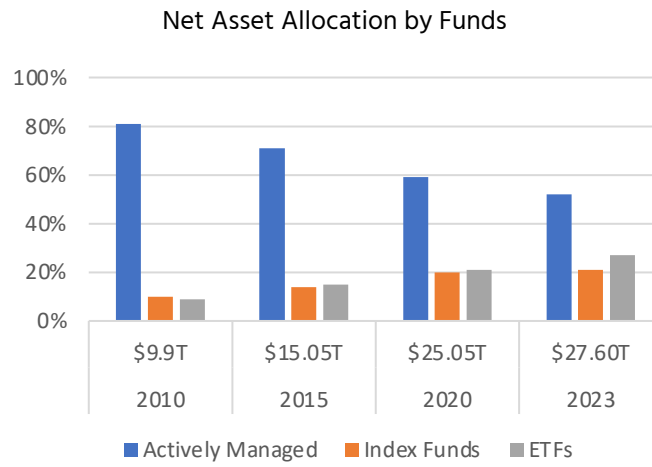
ETFs, mutual funds, and index funds are all accumulating money from multiple investors to buy a diversified portfolio of assets, but they differ in key ways.

ETFs are typically passively managed, tracking specific indexes, and they are famous for their low fees and flexibility. ETFs are traded on stock exchanges; therefore, investors can buy or sell shares throughout the day at market prices, just like stocks. This allows investors to react quickly to market changes. Over time, ETFs have outperformed many actively managed Mutual funds because of their lower fees and more efficient structure.

In contrast, mutual funds are typically actively managed, meaning that a fund manager makes decisions about which stocks or bonds to buy and sell based on his analysis. This active management usually results in higher fees. Mutual funds can be a good choice for investors, who seek professional management and don't mind paying higher fees for the possibility of outperforming the market. However, many actively managed mutual funds fail to consistently beat their benchmark after accounting for fees, therefore becoming less attractive for investors.

Index funds, which are often a type of mutual fund, aim to track the performance of a specific market index, like the S&P 500. These funds are passively managed and have lower fees, compared to actively managed mutual funds, because they don't require a team of fund managers. Overtime index funds proved to be an effective and low-cost way for investors to gain broad market exposure, and they generally perform well in comparison to actively managed mutual funds, especially when fees are considered. Like ETFs, they are known for their simplicity and long-term growth potential, even though they can't be traded throughout the day, like ETFs.

In 2010, most assets were concentrated in actively managed funds. Nowadays, assets are more evenly distributed (can be seen on a graph).



Influence of ETFs on investors' behaviour

The rise of ETFs has not only transformed financial markets but also impacted the behaviour of the players. In the past, investing often required significant time, knowledge, and resources to build a diversified portfolio. With the rise of the ETFs, however, this process has become easier, allowing investors of all levels to gain broad exposure to different asset classes. The accessibility of ETFs has shifted the way investors approach their portfolios and brought significant changes in overall investment strategies.

One of the most noticeable shifts is the growing preference for passive investing. In the past, investors often wanted to beat the market by choosing individual stocks or funds managed by active managers. ETFs popularized the passive investment approach, which aims to match, rather than outperform, market returns. This change shows that there is a broader trend towards lower-cost, less picky investment strategies, especially in times when many actively managed funds fail to consistently deliver returns that justify their higher fees. ETFs have made it easier for investors to simply 'buy the market', removing the need for constant decision-making and reducing stress.

Additionally, ETFs have contributed to a shift in the way transformed view diversification. In the past, diversification required purchasing individual stocks across different sectors or geographical regions, which is a complex and costly task. With ETFs, investors can quickly and affordably access diversified packages of assets, whether that is stocks from a specific country or a niche sector, like clean energy. This has transformed new opportunities for small investors, who may not have the time or resources to build such diverse portfolios on their own.

ETFs have also influenced the way investors behave during market volatility. The liquidity of ETFs allows investors to react quickly to market changes, which can be both beneficial and risky. On the one hand, this flexibility means that investors can easily adapt their portfolios as a reaction to sudden market movements, protecting themselves from losses. On the other hand, the liquidity of ETFs might also encourage impulsive behavior, especially during times of market stress. For example, in the 2020 market crisis, many ETFs experienced quick sell-offs.

The growth of thematic and ESG ETFs has also significantly impacted investors' behavior. As more investors want to align their portfolios with their values, these specialized ETFs are a solution for them. The rise of ESG investing is a trend, especially among younger generations, who are passionate about creating positive environmental impact. This has led to a surge in demand for ETFs that target green energy and sustainable agriculture.

In sum, ETFs have not only changed how investors access the markets but have also changed their behavior profoundly. ETFs have influenced investors' mindsets by promoting passive investing, encouraging faster decision-making, and popularizing thematic investing. The ETF market continues to grow, and it will be crucial for investors to adapt and understand the behavioral consequences of their investment choices.

Conclusion

Exchange-traded funds have transformed the investment field, by offering investors a more cost-efficient, flexible, and diversified way to access global markets. From the 1990s, when they were mostly used for tracking major indexes, ETFs have grown into a multi-trillion-dollar industry, changing portfolio management strategies. Their low-cost, passive investment approach has shifted away the focus from actively managed funds, making investment opportunities inclusive for everybody.

They have enhanced market liquidity, created greater diversification, and increased market efficiency. However, this growth also brings challenges, like the potential for market distortions and crowd behavior during times of volatility.

The future of ETFs looks promising, especially in areas like thematic investing and ESG strategies. However, investors will need to be mindful of the risks, particularly in terms of market concentration and the emotional behavior they can trigger.

Interview with



Gonçalo Pina Santos

/in/goncalo-pina-santos/

Gonçalo earned a Bachelor's in Management from Nova SBE, including a semester abroad in Germany.
During this time, he gained six months of professional experience through internships at TE Connectivity, EDP, Sonae, and BiG. Additionally, he was Co-Head of NIC-UD.
In 2020, he pursued a Master's in Finance at Nova SBE, where he was an Investment Banking Analyst for NIC's Master's division.
In 2021, he completed a two-month off-cycle internship at Expand Capital. Later that year, Gonçalo joined ECS, a leading investment firm based in Portugal. Having started as an intern, in nine months, he moved to analyst and, recently, was promoted to associate.

Q1: How do you think your experience at NIC has influenced your career?

I think that, overall, my entry into NIC was very positive for several reasons. Initially, during the first years of my undergraduate studies, considering I came from a science and technology background, I wasn't quite sure which areas to pursue, what to specialize in, or even in terms of management and economics, which topics I found most interesting.

I believe NIC allowed me to connect with capable people who debated multidisciplinary topics and had very different interests. This helped me learn a little more in-depth about various subjects, but more importantly, it helped me deepen my knowledge and passion for finance. It helped me build a strong foundation for professional development, from improving my CV and handling recruitment processes to receiving mentorship in some situations.

The people I met, who are highly competent, helped me and still have a huge impact on my career today. They remain a valuable connection that continues to support me in my professional life.

I believe NIC gave me valuable project experience that continues to impact my career. One example is the fundraising I did for the fund you currently manage; it was a great experience that allowed me to develop and learn more. At the end of the day, it also demonstrated my strong interest in finance, which helped me significantly in recruitment processes and my future career.

Lastly, it's impossible not to mention this: it was through NIC that I secured my opportunity at ECS. An NIC alumnus who was leaving ECS at the time reached out directly to see if anyone was interested in joining. Since I was very keen on private equity, this connection allowed me to join ECS. I think this perfectly illustrates how NIC helps and plays a key role in each person's development.

Q2: Considering your role as an Investment Banking Analyst at NIC Masters, how did your interest in Private Equity arise?

I would say my interest in private equity grew as I explored different areas. Through my education and internships, I realized my path was not just in finance but specifically in corporate finance, rather than markets.

My experience at NIC Masters significantly deepened both my knowledge and passion for corporate finance while also giving me a stronger understanding of the Portuguese market. I remember organizing conferences at Nova SBE with key industry players and even interviewing the CEO of Iberis Capital.

Hearing their perspectives helped me grasp market dynamics of an area that was somewhat unclear to me before. NIC made me realize that private equity, particularly in Portugal, is a fascinating industry with compelling deals and significant differentiation across its various segments.

In conclusion, my interest in private equity stems from its strong application of corporate finance. You analyze a business not just strategically but also operationally, applying the knowledge gained at NIC and in a master's in Finance. The combination of critical analysis and financial insight is fascinating, and private equity merges the best of both worlds.

Q3: What motivated you to pursue a Master's degree, specifically in Finance? Did you see it as important in shaping your career, or were there other factors that influenced your decision to pursue this path?

So, initially, I decided to pursue a master's in finance because, throughout my undergraduate studies and experiences, I gradually narrowed my interest toward finance. During my internships at Sonae, BIG, and EDP, I became certain that finance was the right path for me.

Then, during my Erasmus in Germany at WHU, I took more specialized finance courses alongside people who already had significant experience and strong financial skills. That experience confirmed my decision to pursue a master's in finance.

At one point, I was considering taking a gap year, but then COVID-19 happened. The job market was unstable, companies were hesitant and unsure about hiring. Additionally, pursuing a master's abroad at that time would have lost some of its value, as COVID would have severely limited the experience.

So, I chose Nova SBE. I believe Nova provided me with an essential analytical toolkit and significantly strengthened my technical finance skills. But it also brought other valuable aspects, such as strong international exposure. I had the chance to interact with students from Germany, Italy, France, and all over the world, many of whom had extensive experience. That exposure helped me mature, refine my reasoning, and improve my analytical abilities.

I'm a huge advocate for education. I firmly believe that the more you study, the better. It gives you a much more technical and refined understanding of concepts and analytical foundations, which ultimately makes you feel far more prepared when entering the job market.

Comparing myself when I finished my undergraduate degree to when I completed my master's, it was like night and day, even though only about a year had passed. Being able to refine my skills significantly helped me immensely when I joined ECS. I entered with a completely different level of capability than I had before.

Q4: Could you please share your experience during your internships at EDP, Sonae, BiG, and Expand Capital? What key lessons did you learn there that have been relevant to your current position at ECS?

I believe that, besides the importance of studying, combining studies with professional exposure throughout university is crucial. That's why I decided to do several internships during my academic journey.

What I took from my internships at EDP, Sonae, and BiG was incredibly valuable in helping me determine the career path I wanted to follow. It's essential to build a strong analytical foundation during university, but gaining practical experience, whether through internships or involvement in clubs, gives you a much clearer picture of the job market. It also helps you understand what you enjoy doing before fully stepping into the professional world.

Among my experiences, I particularly highlight my time at Sonae Sierra, an opportunity I secured through NIC. The club connected me with Professor Luís Mota Duarte at Sonae, which led to an internship. During that time, I developed technical skills and deepened my understanding of real estate investment, including investment analysis, financial modeling, and the critical evaluation of opportunities.

Ultimately, internships are valuable for two main reasons: they help you discover what you enjoy (and what you don't) in your career, and they set you apart in the job market. They demonstrate your proactivity and willingness to learn.

Q5: How does working in a private equity firm that focuses on both traditional investments and real estate differ from one that specializes in just one area? Do you work in a specific area? What do you see as the advantages or challenges of being in a firm with this dual focus?

In Portugal, most firms specialize exclusively in either real estate or traditional private equity. However, ECS operates in both areas, which I find very interesting because it provides a much broader perspective on investment and the private equity industry as a whole.

Investment analysis in traditional private equity is quite different from real estate investment analysis. I've had the opportunity to work in both, and I believe they complement each other well. Currently, I'm more focused on real estate, and I find it especially engaging due to its varied risk profiles and diverse market dynamics.

On the other hand, traditional private equity requires a deeper understanding of the business itself, the industry in which a company operates, its strategy, and the key factors that drive its success. Meanwhile, real estate investment tends to have a more structured and quantitative approach, with various asset types ranging from hotels to retail and logistics properties.

As for why I focus on real estate at ECS, the firm has historically had a strong emphasis on real estate

investments across multiple sectors. My focus in this area was a natural progression, partly due to my prior experience at Sonae Sierra, which was particularly significant when I joined ECS, as a major real estate deal was taking place.

Overall, working in a firm that balances both areas has been extremely valuable, as it provides a comprehensive perspective on investments, financial structuring, and market dynamics.

Q6: At ECS, have you had any project that you found particularly interesting? Why was that?

Without a doubt, the most significant project in my relatively short career so far was one I worked on right when I joined ECS as an intern. This project was one of the most crucial transactions for ECS, involving not only the sale of the funds managed by ECS at the time, but also the sale of the asset management company itself. The buyer was Davidson Kempner Capital Management.

What made this experience so impactful was that the transaction began just as I joined ECS, allowing me to follow the entire process from start to finish. In the end, it became one of the largest transactions in the Portuguese market, reshaping the landscape for restructuring funds.

Without getting too technical, this deal gave me exposure to several key aspects of M&A transactions. I learned how large transactions are presented to the market and how they are pitched to potential investors. The due diligence process was intense, given that the deal involved a massive number of assets, all of ECS's holdings at the time, which gave me valuable insight into how in-depth asset evaluations are conducted. The negotiation process was also a crucial learning experience, as I got to see firsthand how deals of this scale are structured and finalized.

Being part of such a complex and high-profile deal from day one was an incredible learning opportunity. It was an invaluable experience that truly accelerated my professional growth.

Q7: What do you think sets successful private equity professionals apart from others in the industry? How can aspiring professionals work on developing these traits early in their careers?

In private equity, professionals are differentiated not only by their analytical ability but also by a combination of soft skills that allow them to become better professionals. This is a demanding industry, and beyond working efficiently, being reliable, which means being someone your seniors can trust, is crucial. Strong communication skills are equally important, enabling you to engage with your team and all business stakeholders effectively.

While hard skills are important and certainly differentiate professionals, everyone in this industry is technically capable. What truly sets individuals apart is their ability to communicate, collaborate, and negotiate with various stakeholders.

Soft skills are often developed through experiences like internships, which provide valuable insights into the job market. Ultimately, both hard and soft skills evolve throughout your career, and having a willingness to learn, coupled with intellectual curiosity, is key to continuous development.

Q8: What would you say are the key differences between working in private equity in Portugal and other countries?

Naturally, the main differences between working in the Portuguese market and other countries are related to factors such as market size and the structure of transactions. The Portuguese market is much smaller, and in terms of pipeline and deal sourcing, opportunities can be more limited and scarce. This requires you to build closer relationships with companies and adopt a more hands-on approach to business and opportunities. In other words, you need to be more proactive in how you engage with and navigate the market.

In terms of transactions, there is always a greater concentration of deals in sectors such as tourism, energy, and infrastructure. Growth strategies tend to focus more on local or regional expansion, which differs slightly from international private equity firms, which might acquire a company and then attempt to expand it internationally. So, I'd say that here, in Portugal, the approach is much more clinical and specific.

On the other hand, as I mentioned, in other countries, markets are larger, which means there are fewer niche sectors. This can offer a slightly more varied experience. However, in Portugal, the smaller market allows for a more tangible and in-depth understanding. You gain a clear view of the key players and market agents, which is particularly interesting because it provides a deeper perspective.

At ECS, in particular, significant responsibility is given to professionals from the start, due to the relatively

small size of teams. This means that, as an analyst or associate, you must be more proactive and capable of driving deals forward earlier in your career.

That said, I believe that in private equity, the fundamentals remain the same across countries. Strong execution skills, rigorous analysis, and good soft skills are essential in all markets.

Q9: Considering you have recently been promoted, how have your responsibilities changed from being an Analyst to an Associate at ECS?

In private equity, particularly in Portugal, deal team structures tend to be small. Typically, deals involve an associate and a director or an analyst and a director. For larger deals, the team might include a director, an associate, and an intern. As such, from the beginning, I was given considerable responsibility, so in that sense, I didn't feel a drastic difference.

What I do notice now is a greater expectation on my end, not only to conduct analyses independently but also to demonstrate greater proactivity in my work. Additionally, I need to have a more critical perspective on market dynamics, which is something that an intern, for example, might not yet have the experience to develop.

Another key difference is that I'm now expected to review materials and the work of junior team members when we have an intern on the team. As an associate, I'm also expected to take more initiative in driving the M&A process forward. I should be capable of negotiating purchase agreements with counterparties and, essentially, handling the process from start to finish, perhaps with some oversight from directors.

You can also clearly see a distinction in knowledge levels. More senior members of the team expect associates to have a much sharper critical perspective. Particularly in real estate, for example, some concepts wouldn't be expected from an analyst but are now expected at this level.

Q10: If you had to offer one piece of advice to students like us who are aspiring to build a career in private equity, what would it be?

I believe it's crucial to maintain intellectual curiosity. This mindset allows you to improve not only as a professional but also as a person. The motivation to add marginal value to your abilities each day is what will make you a better professional, a better student, and, ultimately, a better individual.

Naturally, resilience and persistence are also crucial, as the learning curve in these industries is steep and highly competitive. Securing a position is tough, so you must be someone who understands the need to keep learning every day and be prepared to face setbacks along the way. This will make you more capable and functional in the long run.

Finally, while technical skills are undoubtedly important, at the end of the day, soft skills make all the difference in career progression. Being efficient, reliable, and a good communicator is crucial for managing all aspects and dynamics of the industry. The ability to build relationships and work under pressure is just as important, if not more so, than financial and technical knowledge.

Ultimately, this combination of skills is what truly matters. Developing them will help you progress every day so that by the time you graduate, you'll be more prepared and ready to enter the job market.



Rafael Dias



Afonso Costa



Raquel Mendes

Message from the Co-presidents.

Dear reader,

We are proud to present the NIC Undergrad Review's second edition of the academic year. As Portugal's first student-run business magazine, we aim to carry the value of tradition, while aiming to innovate and bring the quality of our work to higher levels.

In this particular edition, you will find topics that are immensely relevant to the current state of the world, ranging from Quantum Computing to the growing importance of ETFs in financial markets. Of course, without breaking tradition, we will bring to you a quick take on Iberian markets and an M&A analysis for the quarter. Finally, and no less important, we had the utmost pleasure of interviewing Gonçalo Pina Santos, NIC-UD alumnus and former Co-President, who shared his view on the club's importance for his career and his experience as a private equity associate at ECS.

A big appreciation note to Raquel Mendes, our Editor-in-Chief, for her outstanding work supporting NUR and its restructuring. We also thank all participating members for the commitment that shaped this edition of the NUR.

To all readers, we are grateful for your support of NIC-UD and this community. We hope you have found this edition of NUR as insightful and entertaining as we did.

Sincerely,

Rafael Mora

Co-President NIC-UD



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