

Navigating Financing Challenges: A Case Study of Amazon's Application of Pecking Order Theory

Yinqi Zhao *

The School of Philosophy, Psychology and Language Sciences, The University of Edinburgh, 3 Charles Street, Edinburgh, United Kingdom

* Corresponding Author Email: S2555605@ed.ac.uk

Abstract. In the field of corporate finance, the Pecking Order Theory (POT) serves as a vital framework, stating that firms prioritize internal funds to minimize asymmetric information costs, followed by debt and equity as a last resort, especially important in high-growth technology sectors like Amazon's evolution from an online bookstore to a leader in e-commerce, cloud computing, and AI. Due to post-2020 economic swings, such as interest rate increases, which encourage a thorough analysis of financing strategies in effective markets, this hypothesis program is under increased attention. This paper conducts a case study on Amazon, reviewing its historical development from 1994 to 2025 across early (1995-2002), growth (2003-2010), and mature (2011-2024) stages, highlighting the shift from equity reliance to internal fund dominance, it identifies challenges including information asymmetries causing underinvestment, financing deficits during high growth leading to leverage risks, and market timing disruptions, and proposes countermeasures such as bolstering internal fund accumulation, optimizing debt mixes with tools like convertible bonds, and integrating strategic equity timing. According to the results, Amazon typically adheres to POT but expresses variations as a result of prolonged inequalities and rapid development, as evidenced by Q2 2025 data, which showed \$102.9 billion in net property and equipment purchases and \$ 18.2 billion in free cash flow. These findings suggest that debt concentration issues often outweigh the purchase. Essentially, this expands POT with tech-specific insights, assisting for businesses to manage challenges, increase capital efficiency, and encourage innovation driven growth in turbulent environments.

Keywords: Pecking Order Theory; Amazon financing strategies; Information asymmetry.

1. Introduction

Firms must prioritize financing sources in order to reduce asymmetric information costs, according to the Pecking Order Theory (POT), a crucial component of corporate finance. It was developed by Myers and Majluf in 1984 and advocates using internal funds, such as retained earnings, followed by debt, and equity as a last resort, given concerns about pricing and agency issues related to equity. The idea now incorporates effective elements, such as market timing and firm costs, as evidenced by improvements in the 1990s and 2000s. In high-growth companies, such as networks, where intangible assets significantly influence decisions about growth and success, and lead to greater inequality, it is frequently used. With its \$2 trillion+ market capital and transition from bookstore to e-commerce/cloud/AI leader, Amazon is actually chosen as a case study. POT is highlighted by the shift in cash, which moves from equity in organizations to internal funds at a later stage, while R&D reveals changes, making it interesting to examine. According to this study, how does Amazon employ POT, what challenges does it face, and how does it countermeasures for alignment? In response to post-2020 economic shifts, such as price increases, it provides insights for technology firms on how to utilize cash for growth.

The Pecking Order Theory (POT) literature has thoroughly examined its validity and limitations, ranging from foundational frameworks to practical applications. For example, Myers and Majluf demonstrated through an asymmetric information model that businesses prefer internal funds over external equity to avoid high selection costs when confronted with the risk of devaluation during equity issuances [1]. The hypothesis's foundation was established by initial research. Later reports, such as those by Shyam-Sunder and Myers, empirically tested POT against the trade-off idea by

examining US firm financing deficits, seeking help for debt-filling spaces, but found no significant variations during periods of higher growth [2]. Frank and Goyal (2003) further criticized POT's long-term predictive power by analyzing large samples of US-listed companies and emphasized that structural inconsistencies are brought on by market forces and debt capacity, particularly in small and high-growth environments [3]. In emerging markets, Chen et al. combined emerging businesses using Taiwan screen data, POT, and market timing concepts to demonstrate firms' ability to challenge equity cleverly during positive valuations, blending principles to better reflect real decisions [4]. POT's impact in the technology sector is supported by Seifert and Gonenc's fresh opinions, which examined global examples and discovered pronounced asymmetric information effectiveness, but mixed adherence as a result of rapid growth and innovation forces [5]. These experiments, conducted in public, defend case reports on tech companies like Amazon while highlighting the organized advantages of POT, but also identify gaps in high-growth and innovation-focused companies, such as handling financing deficits and external influences.

This paper analyzes Amazon's POT application through historical review (1994-2025), current status, challenges like asymmetry and deficits, and countermeasures such as internal fund boosts and debt optimization. Theoretically, it enriches POT with tech insights, filling adaptation gaps. Practically, it guides firms in risk management and sustainable strategies amid volatility, promoting innovation and value.

2. Case Description

POT emphasizes that companies under information asymmetry prioritize internal funds, followed by debt, and lastly equity, to minimize financing costs [1]. Amazon, as a global leading technology company, its development history and financing strategies provide a typical case for the practical application of Pecking Order Theory (POT). This section starts with the company's development history, describes its current operating status, and combines financial and stock price analysis to demonstrate POT's application, finally discussing future challenges.

2.1. History

Amazon was founded in 1994 by Jeff Bezos, initially operating as an online bookstore, officially launched in July 1995. In the early stage (1995-2002), the company lacked internal funds and a profit record, with highly volatile revenues, making debt markets inaccessible (see Figure 1). In 1997, Amazon conducted an IPO, raising \$54 million in equity funds to support operational expansion and infrastructure investment. In the late 1990s, it diversified into electronics, toys, and other categories, with financing needs surging. From 1998 to 2000, it issued debt, but high leverage and loan restrictions led to a shift back to equity financing to reduce risk. This reliance on equity contradicted POT predictions but reflected the constraints of high information asymmetry in the startup phase: no collateral, no credibility, making equity the only viable option [6].

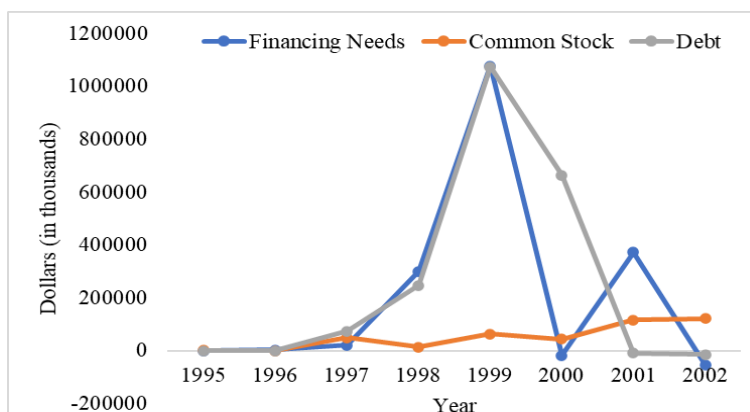


Fig 1. Financing Sources During Amazon's Early Stage (1995-2002).
 Source: Amazon.com, Inc. (n.d.).

In the growth stage (2003-2010), Amazon’s operating cash flows grew steadily (see Figure 2). From 2003 to 2004, internal funds covered investments and even repaid debt. From 2005 to 2007, the company used surpluses to reduce leverage and repurchase stock. From 2008 to 2010, it relied entirely on internal funds, avoiding new equity issuance. The 2006 launch of Amazon Web Services (AWS) marked a shift to cloud computing, significantly boosting internal cash flows and reducing external financing needs. This evolution aligned with POT: as profitability stabilized and information asymmetry decreased, the company prioritized internal funds, with reduced debt usage [6].

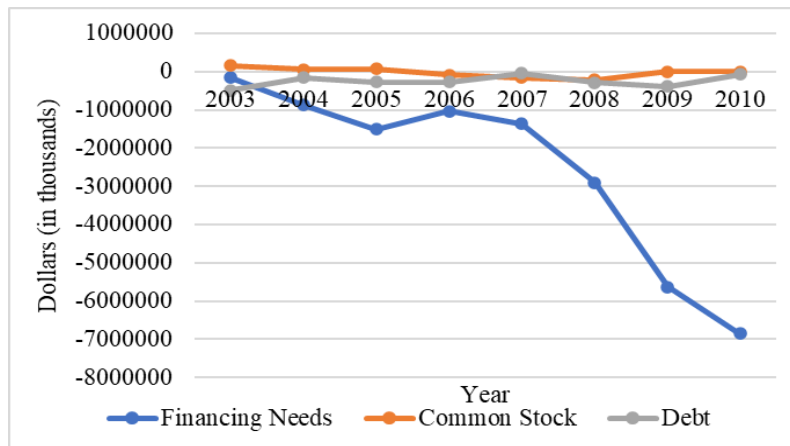


Fig 2. Operating Cash Flow and Financing Trends During Amazon’s Growth Stage (2003-2010).
 Source: Amazon.com, Inc. (n.d.).

In the mature stage (2011-2024), Amazon’s cash flows were strong, with internal funds dominating financing (see Figure 3). It avoided new equity issuance, only issuing debt selectively in heavy investment years, such as during the 2020 pandemic to enhance liquidity. In 2017, the \$13.7 billion Whole Foods acquisition was partly funded by debt and equity, but internal funds remained the preference [6]. This historical path reflects POT’s hierarchy: shifting from equity reliance to internal fund priority, showing the company’s evolution from high asymmetry to greater transparency [7].

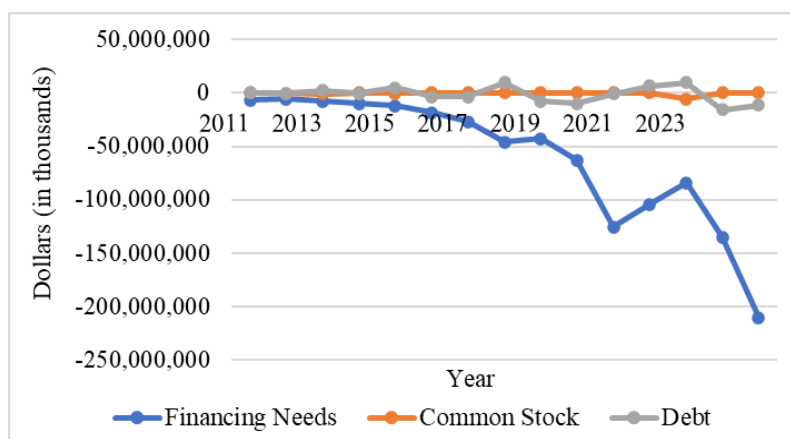


Fig 3. Financing Composition in Amazon’s Mature Stage (2011-2024).
 Source: Amazon.com, Inc. (n.d.).

2.2. Current Status

As of September 2025, Amazon operates as a global leader in e-commerce, cloud computing, and digital streaming, with diversified businesses including AWS (contributing over 60% of operating income), North America/international retail, advertising, and healthcare. In Q2 2025, net sales reached \$167.7 billion, up 13% year-over-year; operating income was \$19.2 billion, and net income was \$18.2 billion. Over the past 12 months, operating cash flow was \$121.1 billion, up 12%, and free cash flow was \$18.2 billion, showing strong internal fund generation.

In its capital structure, Amazon maintains a low debt-to-equity ratio of about 0.15, with long-term debt at \$50.7 billion, reflecting POT's preference for internal funds: retained earnings reached \$208.2 billion, supporting \$102.9 billion in net property and equipment purchases. In the first half of 2025, it raised \$0.7 billion in long-term debt for general purposes, while equity issuance was minimal, only increasing capital through stock issuance. Net financing activities used \$2.5 billion, mainly for debt repayment (\$2.8 billion in first half of the year), aligning with POT's second-tier preference for debt over equity to avoid information-sensitive equity financing.

In stock performance, Amazon's stock price has shown an overall upward trend in 2025, recovering from 2022 lows despite yearly fluctuations, with a market capitalization exceeding \$2.4 trillion. This reflects investor confidence in Amazon's internal financing strategy, with high profitability reducing reliance on external equity. Empirical studies on U.S. firms confirm that Amazon's high cash flow and low equity issuance validate POT's applicability in the mature stage [3]. However, high-growth investments (e.g., AI and logistics, over 10% of sales) occasionally cause deficits, with Q2 2025 net debt repayment of \$7.4 billion (past 12 months), highlighting POT's flexible application.

For future development, Amazon faces intense competition (e.g., Walmart and Alibaba in e-commerce, Microsoft in cloud computing), antitrust regulatory scrutiny (EU/U.S. investigations), and supply chain vulnerabilities (global uncertainties). These may worsen financing deficits. Q3 net sales guidance is \$174.0-\$179.5 billion, with 10-13% growth, but operating income is \$15.5-\$20.5 billion, potentially requiring more debt. This could force deviations from strict POT, increasing external financing risks. All financial data in this section are sourced from Amazon.com, Inc. (2025). Q2 2025 Earnings Release [8].

3. Analysis on the Problems

Amazon's application of POT is generally consistent but faces critical challenges due to information asymmetry, high growth, and market timing. These issues impact its financing strategy's alignment with POT's hierarchy. This section analyzes three aspects based on existing research findings and company data.

3.1. Information Asymmetry in Equity Financing

Persistent information asymmetry is a major issue, hindering equity issuance and causing potential underinvestment. POT's core principle states managers know more about company value (e.g., AWS innovations), leading external investors to undervalue new equity. In Amazon's startup phase (1995-2002), lacking profits and collateral, debt markets were closed, forcing equity reliance, contradicting POT. In the 2020s, despite high R&D needs (e.g., AI investments), Amazon avoided equity, favoring debt. In Q2 2025, it repaid \$2.8 billion in debt, but rising interest rates increased financial risks. Empirical studies show U.S. tech firms face high adverse selection costs, limiting market flexibility and leading to suboptimal financing [9]. Amazon's reduced equity release can address this issue, but it runs the risk of excluding advancement opportunities and potentially hindering long-term technological development. This is evident in how tech giants prioritize debt to avoid signaling overvaluation, which further degrades investment value and skews the optimal hierarchy [1]. In conclusion, these inequalities distort the ideal pyramid and lead to underinvestment in R&D-heavy projects, as exemplified by Amazon's proactive approach to addressing equity amid tech valuation volatility.

3.2. Financing Deficits During High Growth

Internal funds are unable to meet development needs, which is why POT's orders often struggle with financing deficits during periods of high growth. Amazon's aggressive investments (e.g., logistics, AI) exceed cash flows, with Q2 2025 net property and equipment purchases at \$ 102.9 billion (over the past 12 months), forcing debt accumulation, which contradicts POT's principle of

minimal external financing. According to recent research, tech firms' debt rises 20% yearly, as seen in Amazon's structure in the mid-2020s, increasing their risk of debt during economic downturns. Free cash flow decreased to \$ 18.2 billion in 2025 (year over year), as a result of an deficit pressure, which may lead to excessive leverage and threaten long-term financial stability. High-growth companies often increase their debt ratios as a result of stringent financing requirements, which deviates from the typical reliance on private engagement, according to studies on high-growth companies [7]. Interest burdens increase faster than money flows in the tech sector, which is compounded even further by price increases and a decline in versatility. Effective businesses may no longer have the same level of financial freedom as active ones as a result of this deficit-driven plan.

3.3. Market Timing Influences on Capital Decisions

Market timing usually outweighs POT, as evidenced by Amazon's decision to issuing debt or equity based on market conditions rather than a fixed approach. For example, during the low-interest phase of 2021, it issued bonds under the mixing plan concept. In the first quarter of 2025, Amazon raised \$0.7 billion in debt but used \$2.5 billion in cash, resulting in conflicting options. According to data from the US market, opportunistic adjustments may mislead investors and lead to a decline in value [10]. For Amazon, cautious debt use ignores long-term asymmetry costs, which affect investor trust. Experiments demonstrate that firms follow market timing alongside POT when conditions are favorable and create capital structure regularly. According to scientific evaluation, timing effects continue to change leverage in addition to pyramid choices. This addition illustrates how decisions are influenced by external factors, leading to higher costs in high-risk industries such as e-commerce. Short-term planning may lower prices, as seen in Amazon's uneven financing, but it can also result in suboptimal structures if basic needs are not met.

4. Countermeasures

Actionable suggestions are made to address these issues based on extensions of Pecking Order Theory (POT), which are derived from current research findings and empirical studies on capital structure dynamics. These recommendations aim to mitigate data imbalance, financing deficits, and market timing influences, thereby enhancing Amazon's financing methods, improving capital efficiency, and ensuring better alignment in accordance with POT's structured guidelines for sustainable long-term growth.

4.1. Strengthen Internal Fund Accumulation

To minimize information imbalance, increased retained earnings are of major interest. If Amazon optimizes costs and profits, such as through AI-driven supply chains, then anticipate a 15-20% increase in cash flow. Reinvesting AWS profits (\$10.2 billion in operating income for Q2 2025) into core operations, which aligns with POT's internal funding preference, reduces external needs. Regular assessment of profit allocation reviews can lead to continued cash flow growth. Empirical studies confirm this, strengthening U.S. companies' ability to resist financing deficits [3]. For example, research on US listed firms demonstrates that more prosperous internal funds are made available, reducing POT's reliance on external financing [2]. This strategy is especially useful for tech companies like Amazon, where intangible assets can foster knowledge gaps and strengthen deficit resistance during growth. However, by focusing on internal accumulation, businesses can maintain financial autonomy and help long-term growth without making regular external interventions.

4.2. Optimize Debt Financing Mix

Utilizing POT's second level, various debt devices are used to target growth deficits. To balance risk and maintain debt below 50% of capital in 2025, convertible bonds employ regular stress testing. The discovery of green bonds supports the growth of green assets. According to recent research studies, this lowers mismatch charges in high-growth environments [7]. Without paying more

than \$15.3 billion in the past 12 months, Amazon can use its lower 0.15 debt-to-equity ratio to raise financing. Information on convertible bonds indicates that they are used as a cross-application in high-growth firms that bridging debt and equity under asymmetric information [11]. Green bonds, for example, have been shown to positively impact strong performance by attracting ESG-focused investors and reducing overall borrowing costs [12]. With respect to POT's hierarchy, reducing bankruptcy risks, Amazon is financing efforts such as logistics expansions, thereby lowering the risk of debt during economic downturns. As a result, adjusting the debt mix increases mobility and aligns with theoretical preferences in low-risk choices.

4.3. Integrate Strategic Equity Timing

To overcome market timing issues, POT is expanded with behavioral insights, and equity is issued at overvaluation peaks. Amazon is an issue after profit highs (for example, \$18.2 billion in net income in Q2 2025) by using scientific forecasts to increase transparency and reduce imbalance. Regular market analysis ensures the best schedule. This essentially maintains the value without deviating from POT's order, as indicated by international surveys [10]. Studies that combine POT and market timing demonstrate that firms issue equity during periods of favorable cost-savings, ensuring the investment structure's long-term security. This approach is particularly important for Amazon in volatile tech sectors, where behavioral extensions to POT improve investor confidence and decision-making. Making the most of business options ultimately leads to alignment with hierarchy while capitalizing on market opportunities.

5. Conclusion

In this analysis of how Amazon's financing strategies evolved from a startup online bookstore in 1994 to a mature global technology leader by 2025, the Pecking Order Theory (POT) was thoroughly examined. Through a historical review of Amazon's development stages—early (1995-2002), growth (2003-2010), and mature (2011-2024)—the analysis demonstrated how the company shifted from heavy reliance on equity financing due to high information asymmetry and lack of internal funds, to prioritizing internal funds and selective debt as profitability and transparency improved, aligning with POT's hierarchical principles. One of the main problems identified is the recurring information asymmetries that lead to underinvestment, financing deficits during periods of high growth that increase leverage risks, and market timing factors that disrupt the strict hierarchy. The proposed measures include enhancing debt mixtures with tools like convertible and green bonds, as well as incorporating strategic equity timing to lower costs. These observations, combined with prudent adjustments for Amazon, demonstrate POT's significance in high-growth technology sectors and provide recommendations for strengthening capital structures in times of economic uncertainty to foster innovation and long-term value.

Despite these contributions, the analysis has limitations, particularly in its focus on a single case study of Amazon and the use of historical data up to 2025, without further quantitative modeling of future uncertainties.

References

- [1] Myers, S. C., & Majluf, N. S. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 1984, 13(2): 187–221.
- [2] Shyam-Sunder, L., & Myers, S. C. Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics*, 1999, 51(2): 219–244.
- [3] Frank, M. Z., & Goyal, V. K. Testing the pecking order theory of capital structure. *Journal of Financial Economics*, 2003, 67(2): 217–248.

- [4] Chen, D.-H., Chen, C.-D., Chen, J., & Huang, Y.-F. Panel data analyses of the pecking order theory and the market timing theory of capital structure in Taiwan. *International Review of Economics & Finance*, 2013, 27: 1–13.
- [5] Seifert, B., & Gonenc, H. The international evidence on the pecking order hypothesis. *Journal of Multinational Financial Management*, 2008, 18(3): 244–260.
- [6] Amazon.com, Inc. (n.d.). SEC filings. Retrieved from <https://ir.aboutamazon.com/sec-filings/default.aspx>, last accessed 2025/9/26.
- [7] Leary, M. T., & Roberts, M. R. The pecking order, debt capacity, and information asymmetry. *Journal of Financial Economics*, 2010, 95(3): 332–355.
- [8] Amazon.com, Inc. (2025). Q2 2025 Earnings Release. Retrieved from https://s2.q4cdn.com/299287126/files/doc_financials/2025/q2/AMZN-Q2-2025-Earnings-Release.pdf, last accessed 2025/9/26.
- [9] Autore, D. M., & Kovacs, T. Equity issues and temporal variation in information asymmetry. *Journal of Banking & Finance*, 2010, 34(1): 12–23.
- [10] Baker, M., & Wurgler, J. Market timing and capital structure. *The Journal of Finance*, 2002, 57(1): 1–32.
- [11] Stein, J. C. Convertible bonds as backdoor equity financing. *Journal of Financial Economics*, 1992, 32(1): 3–21.
- [12] Flammer, C. Corporate green bonds. *Journal of Financial Economics*, 2021, 142(2): 499–516.