



## A Bridge Through Uncertainty

The Strategic Use of Convertible Debt in the Case of Einride

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### Abstract

We investigate the use of convertible debt as a financing instrument in late-stage startups through an in-depth case study of Einride's \$50 million convertible note issued in response to the firm's 2024 liquidity crisis. Our research reveals the importance of an adaptive management approach that combines continuous investor engagement and internal scenario modeling. We find that in the case of Einride, convertible debt is a suitable instrument to strategically defer valuation, preserve debt-free status for future equity rounds, and ensure operational continuity. The instrument offers quick implementation, structural flexibility, and aligns investor-founder incentives. We also uncover that aggressive terms, such as payment-in-kind and cash interest, can be used to signal founder confidence and facilitate appropriate investor returns. Finally, we introduce the concept of an "adjusted shadow valuation" to benchmark convertible debt against priced equity rounds under asymmetric information. Our work contributes empirical evidence to the underdeveloped field of convertible debt financing in late-stage startups. It offers practical insights to entrepreneurs and investors, particularly in less mature markets for convertible debt, such as Sweden. The thesis also serves as a basis for the teaching case at the Stockholm School of Economics.

**Keywords:** Convertible debt, startup finance, bridge financing, late-stage venture

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## List of abbreviations

AI	Artificial Intelligence
AV	Autonomous Vehicle
CEO	Chief Executive Officer
CFO	Chief Financial Officer
EV	Electric Vehicle
FCaaS	Freight-Capacity-as-a-Service
FDS	Fully Diluted Shares
IPO	Initial Public Offering
IRR	Internal Rate of Return
KPI	Key Performance Indicator
LP	Limited Partner
MOIC	Multiple on Invested Capital
OEM	Original Equipment Manufacturer
PE	Private Equity
PIK	Payment-In-Kind
SaaS	Software-as-a-Service
SEK	Swedish Krona
US	United States
VC	Venture Capital

# 1. Introduction

In 2024–2025, Einride, a Swedish autonomous electric freight startup, made a leap from being under existential liquidity pressures to announcing its initial public offering (IPO), valued at \$1.8 billion. Throughout 2024, the company was considered to be on the verge of bankruptcy, following the failure of a financing round that left the unprofitable startup in dire need of funding (Hävner, 2024; S. Lundell, November 11, 2025). The situation was intensified by unprecedented negative headwinds in the venture capital (VC) market, which particularly affected capital-intensive ventures, including electric vehicle (EV) and autonomous technology projects. Once the markets stabilized, Einride announced a Series D equity raise in October 2025 and, the next month, its forthcoming IPO on the New York Stock Exchange (Einride, 2025e; Lawrence-Geschwindt, 2025). The vital instrument that bridged the potential bankruptcy to an upcoming IPO was a \$50 million convertible debt note raised in late 2024 (Lundell, 2025a). It provided Einride with liquidity during adverse market conditions, enabling the firm to operate until the next successful funding cycle.

More broadly, convertible debt instruments have gained prominence among European VC-backed companies in recent years. The total amount of convertible debt funding for European startups expanded to €2.5 billion in 2023, representing a 47% year-on-year growth amid the sharp total VC funding decline (Howcroft, 2024). Sweden has emerged as a market that is well-positioned to utilize convertible instruments, specifically during periods of market stress (E. Arnetz & G. Elezi, November 14, 2025). Despite that, the local convertible debt market is challenging to navigate due to a lack of its maturity compared to more developed markets, such as that of the United States (US) (R. Falck, November 24, 2025). These developments, and the vital role that convertible debt can play in cases like Einride, underscore the relevance of the instrument for academic research, particularly in the European and Swedish contexts.

The academic literature addressing convertible debt remains predominantly focused on either early-stage seed financing or on convertible bonds issued by mature, profitable corporations. In contrast, the use case for late-stage startups remains largely absent from scholarly research. This gap persists even though convertible instruments in startups have historically emerged as tools for late-stage bridge financings between two equity rounds (Coyle & Green, 2014), like in the case of Einride. Overall, only general theoretical frameworks explaining why corporations issue convertible debt have been well-developed. They include adverse selection and agency conflict mitigation models, as well as signaling hypotheses (Dutordoir et al., 2014). Little empirical evidence exists linking these theories to actual decision-making in crisis situations in startups, notably lacking the European and late-stage contexts. This means that for startups, the choice of convertible debt over competing alternatives, e.g., equity or venture debt, is based on practitioner insights that often remain undocumented and unformalized in academic research.

Therefore, we aim to investigate the motivations and approach behind convertible debt issuance in late-stage startups based on the case of Einride. We examine why convertible debt has beaten other alternatives in Einride’s circumstances and how the management approached the decision to pursue this instrument. Formally, we aim to answer the following research questions:

**Research question 1:** How did Einride approach its fundraising strategy in response to its 2024 liquidity crisis?

**Research question 2:** Why did Einride choose convertible debt over other financing alternatives?

In answering these questions, we examine the overall management response to the crisis, the structuring of the convertible instrument, the alternatives evaluated, and what made convertible debt the optimal fit for Einride.

We find that Einride’s selection of convertible debt was accompanied by a dynamic management approach that combined continuous investor engagement, internal scenario modeling of strategic alternatives, and deliberate term structuring to balance competing stakeholder interests. The company chose convertible debt to defer valuation while preserving debt-free status for subsequent fundraising and avoiding business restructuring. Einride capitalized on the instrument’s operational advantages, including speed of implementation, structural flexibility, and straightforward cap table management. Convertible debt also ensured that investor and founder incentives are aligned towards high-risk, high-reward projects through equity upside. The loan’s aggressive payment-in-kind (PIK) and cash interest rates simultaneously facilitated positive market signaling and appropriately compensated investors for the risk.

This thesis serves two primary objectives. Firstly, it provides in-depth empirical evidence on convertible debt financing in late-stage startups. This context is underrepresented in current academic literature, which focuses predominantly on early-stage applications and mature corporations. The analysis formalizes practitioner insights on crisis financing, documenting how compressed timelines and relational factors play out in real-world capital structure decisions. Secondly, the thesis has a pedagogical goal to serve as a basis for developing a teaching case for the Stockholm School of Economics’ Master’s in Finance program. The Einride case illustrates real-time financing decision-making under uncertainty, stakeholder management during financing crises, and the evaluation of key convertible debt terms. All of this is integral to graduate finance education.

## 2. Literature review

This chapter provides an overview of previous academic research on convertible debt and its alternatives. We first introduce convertible debt as a financing instrument, including motives for its use in startups. Then, we focus on financing alternatives for startups and highlight how they differ from convertible debt.

### 2.1. Convertible debt

In this section, we first define convertible debt in general as a financing instrument. We then define startups, followed by the use cases and characteristics of convertible debt in startups. Furthermore, we examine theoretical rationales and finally, empirical findings.

#### 2.1.1. Definition

Convertible debt is a hybrid financing instrument that combines characteristics of debt and equity financing (Bernthal, 2018; Triantis, 2001). In its essential form, convertible debt allows an investor to provide capital initially structured as a loan with interest, which may be converted into equity ownership under specified conditions (Triantis, 2001). The hybrid nature of this instrument creates a mechanism whereby the investor receives downside protection through debt status while maintaining exposure to upside potential through conversion rights (Bernthal, 2018).

Convertible debt is utilized by both large corporations and startups, with issuance occurring through public or private placements. Public issues are mostly referred to as convertible bonds, and private issues are referred to as convertible notes. This thesis concentrates on the role of convertible notes in startup financing. Therefore, the following section explores how this instrument is applied in the startup context.

#### 2.1.2. Convertible debt in startups

Startups are newly founded, independent companies with minimal assets, characterized by high uncertainty in innovative environments and negative cash flows (Bauer et al., 2024; Vieira da Silva et al., 2021). Early-stage ventures focus on experimentation and innovation amid high risk and informal governance, while late-stage firms have achieved product-market fit and revenue, and are scaling operations (Bauer et al., 2024) (Schütz & König, 2024; Bauer et al., 2024). We classify Einride as a late-stage startup due to its existing customer base and recurring revenue. Startup financing is typically structured in staged VC rounds so that investors retain the option to exit the investment or invest more in subsequent rounds, depending on performance (Cornelli & Yosha, 2003).

Convertible notes are most commonly used before a startup raises its first equity round, or as bridge financings in between subsequent equity rounds (Coyle & Green,

2014; Williams, 2018). In late-stage startup financing, convertible debt is often used to sustain operations until a milestone or a liquidity event, i.e., an IPO or acquisition (Coyle & Green, 2014; Gutterman, 2022). For example, bridge financings with convertible debt may be necessary when a company struggles to meet earlier business or financial targets and requires capital to reach a point where a further equity round is feasible (Gutterman, 2022; Mendelson & Feld, 2016). Equity funding may be unfeasible if a lower valuation round, called a down round, forces the company to issue more shares for the same capital, increasing shareholder dilution (Mahoney, 2002). The terms of convertible bridge notes vary based on whether the bridge leads to equity financing or a sale, the likelihood of either, the extent of investor support, and the capital structure (Coyle & Green, 2014).

Convertible debt instruments exhibit flexibility in their structural design, with variable term specifications that include interest rates, conversion mechanics, and other features. Interest rate on the principal of the note is either paid in cash or through PIK arrangements (Puca, 2020). PIK interest is added to the principal value at the time of conversion. Given the unprofitable nature of the financed startups, investors usually do not demand cash interest payments and expect cash to be used for the operations (Triantis, 2001). Overall, interest rates on convertible debt are usually too low to truly compensate for default risk, since equity upside provides additional value (Coyle & Green, 2014).

Convertible noteholders have the option to convert into equity within specified timeframes, while the issuer may call the debt, thereby forcing conversion (Triantis, 2001). However, conversion is typically triggered upon the occurrence of defined events rather than through discretionary options. This distinguishes VC convertibles from conventional bond instruments. The primary conversion trigger is a qualified financing round, which may include a new share issue, an IPO, or an acquisition. Should no conversion event materialize before maturity, the issuer may still be obligated to repay the principal and accumulated interest, depending on the terms (Triantis, 2001).

Since investors in convertible debt typically look for high-risk, high-return investments, convertible debt is usually converted into equity and not repaid (Williams, 2018). It is generally intended to convert into the equity terms negotiated in the next financing round (Gworek, 2001), but at a discount (Triantis, 2001). Therefore, a valuation must not be determined during the convertible debt financing (Williams, 2018). Instead, the final conversion ratio is a function of the next round's price, PIK interest, and the discount. This ratio indicates the number of shares an investor receives per note. Even in the absence of subsequent financing, the debt will usually be converted either through the issuer's call option or through automatic conversion at maturity (Triantis, 2001).

If conversion into new financing rounds occurs, two common types of valuation protection mechanisms create discounts for convertible debt investors to the new equity terms. First, the valuation cap establishes a price ceiling for share conversion, protecting investors against aggressive future valuation (Bernthal, 2018). Such a valuation cap

functions as a “shadow valuation”, resembling investor expectations (Bernthal, 2018, p. 834). Second, discount rates, typically ranging from 10% to 30%, provide an alternative protection mechanism, with noteholders selecting either the valuation cap or discount benefit but not both (Bernthal, 2018). By pitching investors that they will receive future equity at a discounted price compared to next round investors, the founder can also facilitate negotiations (Coyle & Green, 2014).

Note terms may include specific provisions. In distressed scenarios with uncertainty about future funding rounds, terms become more complex, including liquidation preferences, board changes, or voting control (Harris, 2002; Mendelson & Feld, 2016). Investors may require operational adjustments, such as cost cuts or strategic suspensions of operations, to extend the runway, which is defined as the time for which a startup can operate before running out of capital (Harris, 2002). Additional structural elements can include maturity periods, conversion ratios, pro rata participation rights in future equity rounds, no-call period provisions, and covenant structures (Williams, 2018). Additionally, security arrangements may be incorporated with collateral comprising physical assets, intellectual property, or personal guarantees (Williams, 2018).

### 2.1.3. Theoretical rationales

Theoretical rationales for using convertible debt differ regarding the specific financing challenges convertible debt is intended to address. One stream of research views convertibles as mechanisms for reducing adverse selection costs, while another emphasizes their role in mitigating agency conflicts, such as moral hazard. However, most of these theories focus on convertible debt more broadly, rather than in startups.

Agency theory and adverse selection models focus on resolving information asymmetries and agency problems between insiders, such as managers or existing shareholders, and outsiders, including new shareholders or bondholders (Zambelli, 2014). Adverse selection arises pre-investment, when entrepreneurs typically possess superior knowledge about the quality of their ventures. Misrepresentation of such information may lead investors to commit resources they might otherwise withhold. Conversely, moral hazard occurs post-investment, when misaligned incentives encourage entrepreneurs to prioritize personal gains over investor returns. A more complex scenario, double-sided moral hazard, reflects the dependence of venture success on both entrepreneurial effort and involvement by venture capitalists in management and value creation. Because neither party’s contributions can be fully verified by external observers, both parties require incentives to ensure productive engagement (Zambelli, 2014).

#### *Adverse selection theories*

Several theories conceptualize convertible debt as a mechanism to alleviate adverse selection. In their sweetened debt theory, Brennan and Kraus (1987) and Brennan and Schwartz (1988) postulate that convertible debt can address valuation disagreements

between the company and investors regarding firm risk. When external investors perceive higher risk than managers, firms may face elevated borrowing costs. Convertible bonds reduce adverse selection-driven capital costs by limiting the impact of risk uncertainty on the security's total value. While the bond component becomes less attractive with higher risk, the equity component becomes more valuable. Therefore, agreeing on a valuation of the security becomes easier, and coupon rates are lower compared to straight debt (Brennan & Kraus, 1987; Brennan & Schwartz, 1988).

Another theory builds on uncertainty about firm value rather than firm risk. In his delayed equity model, Stein (1992) argues that firms strategically defer equity in high uncertainty situations where they face financial distress costs associated with straight debt issues and adverse selection costs associated with equity issues, leading to dilution. Firms defer equity issuance until more favorable conditions and higher valuation can be achieved. This deferral mechanism proves particularly valuable when firm prospects remain uncertain or when management possesses superior information regarding future earnings potential. By assuming significant interest and repayment obligations prior to information revelation, firms credibly signal confidence in upcoming favorable disclosures. This theory critically depends on the possibility of financial distress and callable convertibles to force conversion once the valuation reaches strike levels following positive developments (Stein, 1992).

Lewis et al. (1999) argue that the delayed equity and sweetened debt views are not mutually exclusive but reflect firm-specific financing constraints. Firms with high equity issuance costs tend to issue debt-like convertibles to lower their borrowing costs compared to straight debt, while those facing high debt costs prefer equity-like convertibles to defer equity issuance. The design of the convertible, particularly the trade-off between coupon payments and conversion premiums, will vary accordingly (Lewis et al., 1999).

In contrast to previous models, Lewis et al. (2001) emphasize investor demand constraints rather than signaling motives as the primary driver of convertible issuance. Issuing equity when investors demand a discount for risk could dilute ownership or signal weakness, while issuing more debt at high leverage could increase bankruptcy risk. In such cases, convertible bonds offer an alternative, as they are senior to equity and thus more attractive in times of uncertainty. Delaying the issuance of equity does not work due to other costs, such as losing valuable investment opportunities (Lewis et al., 2001).

While prior theories looked at convertible debt more broadly, there are several signaling considerations specific to venture capital settings. Chang (2009) demonstrates that entrepreneurs, facing ex-ante information asymmetry with VCs, can use the conversion ratio as a signaling mechanism. A lower conversion ratio signals higher expected project quality, while a higher ratio may indicate greater risk. This enables VCs

to infer the entrepreneur's private information based on the proposed contract terms, facilitating more efficient financing decisions (Chang, 2009).

Additionally, maturity structures can serve as a signal of firm quality. According to Williams (2018), low-quality firms are less likely to reach a conversion event before the maturity of the convertible debt, making shorter maturities more costly for them. Investors can thus use shorter maturities as a screening tool to mitigate adverse selection. Moreover, shorter maturities can address moral hazard by increasing the likelihood of renegotiation, allowing investors to exert control and discipline over managerial behavior through the threat of non-renewal or repayment demands (Williams, 2018).

Furthermore, Williams (2018) argues that a time-increasing discount can reduce adverse selection. This can be used as a screening mechanism for investors, as such a discount is costlier for low-quality companies that take longer to convert debt into equity. It also mitigates moral hazard, as an entrepreneur is less likely to engage in wasteful post-investment behavior if the discount rises over time (Williams, 2018).

#### *Agency conflict theories*

Multiple theories model convertibles as a tool that reduces agency costs. Unlike adverse selection theories, which address information asymmetry about firm risk and quality, these models focus on agency conflicts between firm insiders and outsiders.

Green (1984) develops a model addressing inefficient investment decisions. When firms issue risky debt, equity holders with limited liability have incentives to pursue high-risk projects at the expense of debt holders. Green argues that convertible bonds mitigate this problem by altering the payoff structure of equity holders. Since convertible bondholders take a share in the upside through the conversion option, shareholders' gains from risk-shifting are diluted, reducing their incentive to undertake excessively risky investments. Convertible debt thus aligns shareholder incentives more closely with firm value maximization (Green, 1984).

Mayers (1998) introduces a theory where convertible debt enables firms to invest efficiently and reduces issuance costs when firms face uncertain future investment opportunities. If the investment is valuable, conversion into equity retains funds within the firm and eliminates further issuing costs. If an investment proves unprofitable, convertible bonds will be repaid to bondholders (Mayers, 1998). This helps control overinvestment incentives, where managers fund negative value projects to increase firm size and personal benefits (Jensen, 1986). This theory relies on convertible debt repayment, which is rare in startup financing due to automatic conversion provisions.

Cornelli and Yosha (2003) complement this by highlighting that convertible debt can mitigate entrepreneurs' incentives to engage in "window dressing" – the manipulation of short-term performance indicators to secure subsequent funding rounds. Convertible debt reduces window dressing, as premature conversion by investors at inflated valuation

becomes a credible threat. With an investor-friendly, pre-specified conversion ratio, premature conversion dilutes the entrepreneur's ownership and reduces their long-term payoff. This discourages short-termism and aligns long-term value creation incentives. The model is particularly relevant for firms in high-information asymmetry settings (Cornelli & Yosha, 2003). Yet, the theory's applicability is limited as the conversion ratio is usually not pre-specified but set by the next round terms.

Also, Schmidt (2003) shows that convertible debt can effectively align incentives in a sequential double-sided moral hazard setting. The conversion feature motivates the entrepreneur to exert effort that enhances the venture's prospects, thereby increasing the likelihood of conversion and shared equity participation. The equity incentives then motivate investors to contribute meaningfully to the venture (Schmidt, 2003).

Overall, existing theories emphasize the ability of convertible debt to mitigate adverse selection and agency conflicts. However, these rationales are largely conceptual and mainly do not focus on startups. To complement this theoretical view, the following section examines empirical research on the use of convertible debt.

#### 2.1.4. Empirical research

Empirical research acknowledges the widespread use of convertible debt in startup financing (Cumming, 2005; Kaplan & Strömberg, 2003), but offers limited insight into the decision-making processes and issuing motivations from the perspective of entrepreneurs above theoretical rationales. Quantitative studies, such as those by Lewis et al. (1999) and Mayers (1998), test theoretical rationales for the issuance of convertible bonds, but neither are tailored to startups, nor do they capture case-specific considerations that influence financing choices. There are also qualitative works that focus on the motivation behind convertible debt issues. Yet, existing surveys and polls, such as those by Graham and Harvey (2001) and Billingsley and Smith (1996), primarily focus on large US corporations and do not address startups.

Academic literature on convertible debt rationales in startups is focused on early-stage ventures and mainly mentions three advantages: the delay in valuation, fast round closing, and low costs (Chaplinsky & Becker, 2020; Williams, 2018). First, delaying valuation closely resembles Stein's (1992) model, as issuing and pricing equity are postponed until a later date with less information asymmetry. Second, convertible debt enables startups to raise capital more quickly and with fewer legal complexities than equity financing, as it avoids immediate valuation negotiations and minimizes documentation requirements (Chaplinsky & Becker, 2020; Williams, 2018). Third, legal fees for convertible financings can be 2–4 times lower than those for traditional equity rounds, although this gap is decreasing (Coyle & Green, 2014).

Convertible debt also presents several drawbacks for startups. For founders, interest accrual can be viewed as an unnecessary complication that increases dilution

upon conversion (Coyle & Green, 2018). The presence of a maturity date, though rarely enforced, can give investors leverage to demand repayment or negotiate favorable terms, creating strategic pressure on the issuing company (Coyle & Green, 2018).

Overall, academic research regarding the motives behind convertible debt issues by startups is scarce and lacks empirical validation, especially in late-stage ventures. To complement the literature on convertible debt, the following section introduces alternative financing instruments for startups.

## 2.2. Financing alternatives

Besides convertible debt, startups use other funding options that differ significantly in terms of rights, risk exposure, and strategic implications for entrepreneurs and investors. In the following section, we present the most relevant financing alternatives and examine the selection process of the financing instrument.

### 2.2.1. Equity

Priced equity is the main financing type for high-growth startups (Kaplan & Strömberg, 2003), offering permanent capital in the form of common or preferred shares without fixed repayment obligations. Financing terms are shaped by future funding and valuation expectations as well as capital requirements (Williams, 2018).

Common stock constitutes the foundational equity class. Holders of common shares participate in the company's residual profits through dividends and capital gains, as well as benefit from voting and control rights (Zambelli, 2014). Common equity offers no downside protection in liquidation, as claims are satisfied only after debt holders and preferred shareholders have been fully paid. This makes common equity highly sensitive to firm performance and risk, aligning incentives between founders and investors but exposing both to volatility (Zambelli, 2014).

Preferred equity is a hybrid financing instrument that combines features of debt and equity. Preferred shareholders are granted priority over common shareholders in dividend payments and liquidation proceeds (Oranburg, 2020). For multiple series of preferred stock, e.g., pre-seed, seed, series A, B, etc., liquidation preferences are ordered from latest to earliest (Williams, 2018). To safeguard their interests, investors often negotiate governance rights, including board representation, compensating for the absence of affirmative covenants typically found in debt contracts (Oranburg, 2020).

Equity financing remains the dominant source of capital for startups, offering permanent capital at the cost of dilution and governance concessions. The primary alternative to equity is debt, which is examined in more detail in the next section.

### 2.2.2. Debt

Debt financing offers both strategic advantages and operational constraints for startups. Traditional bank debt and venture debt represent two distinct approaches suited to different stages and profiles of startups.

Bank loans offer lower capital costs compared to equity and provide lenders with priority claims over equity shareholders in liquidation (Winton & Yerramilli, 2008). Loans are particularly relevant once startups become creditworthy (Markova & Perkovska-Mircevska, 2009). Startups with limited collateral face challenges in securing bank financing (Oranburg, 2020). Further, debt agreements often include covenants – contractual conditions that constrain borrower behavior and lead to default if broken. These may involve maintaining asset thresholds, limiting debt issuance, or restricting dividend payments, and typically require ongoing financial disclosures, all of which portray debt as unattractive for startups. Additionally, fixed interest payments introduce financial and default risk, particularly for firms with volatile cash flows (Oranburg, 2020). Despite these constraints, bank debt can be beneficial for late-stage startups seeking capital while maintaining decision-making autonomy (Berger & Udell, 1998).

Venture debt is a form of debt provided to high-growth startups by specialized lenders with different risk-return profiles than traditional banks (Rodriguez, 2023). These loans are between 2-4 years in maturity, carry interest rates of 5-10% above the prime rate to compensate for default risk, and include a small percentage of warrants (Mann & Gonzalez-Uribe, 2024). Unlike traditional loans, venture debt targets companies lacking substantial collateral or predictable cash flows, relying on anticipated equity rounds for repayment (Davis et al., 2020). Since venture debt providers typically do not acquire board seats (Rodriguez, 2023), it presents an attractive option for startups aiming at low capital costs and high autonomy (Bauer et al., 2024). Indeed, venture debt can reduce dilution compared to equity financings because VCs, unlike specialized venture debt lenders, price in premiums for improving the company (Mann & Gonzalez-Uribe, 2024).

Similar to convertible debt, the primary purpose of venture debt is to extend a startup's runway between equity rounds when valuation is uncertain, enabling milestone achievement while minimizing dilution (Mann & Gonzalez-Uribe, 2024). Opposed to convertible debt, the equity upside is limited, and debt is repaid rather than converted in subsequent equity rounds (Rodriguez, 2023). Consequently, venture debt is common in late-stage startups with positive cash flows, where equity financing becomes costly, and existing investors seek to avoid dilution ahead of exit strategies (Rodriguez, 2023).

Overall, debt provides non-dilutive capital but imposes repayment obligations and covenants, making it less suitable for unprofitable startups. The following section considers short-term liquidity solutions that complement debt and equity.

### 2.2.3. Short-term capital

In addition to long-term financing instruments, startups can utilize short-term capital sources, such as factoring and trade credit, to address immediate liquidity needs.

Factoring is a form of short-term debt financing based on the sale or assignment of accounts receivable to a third party at a discount. This method is particularly relevant for firms targeting high growth and established revenue streams but limited profitability, as it enables immediate access to working capital without incurring debt obligations (Klein et al., 2019). Yet, factoring is limited by the amount and quality of receivables.

Trade credit serves as a relevant short-term financing tool for startups, but plays a secondary role compared to formal debt (Robb & Robinson, 2014). Customer credit involves receiving advance payments for goods or services not yet delivered, while supplier credit allows deferred payment for inputs already received (Mitter & Kraus, 2011). From the founder's perspective, moderate use of supplier credit can be strategically beneficial to retain control and avoid equity dilution (Berger & Udell, 1998).

In essence, short-term financing can alleviate immediate liquidity pressures but cannot substitute for strategic growth capital. This underscores the importance of selecting the right instrument under specific circumstances, which we address next.

### 2.2.4. Choosing the financing instrument

Scholars debate whether firms follow systematic rules or situational judgment when choosing financing instruments. While traditional theories, such as the pecking order theory and trade-off theory, try to structure how firms select between equity, debt, and hybrid instruments (Berger & Udell, 1998; de Bettignies, 2008; Fourati & Affes, 2013; Paul et al., 2007), Shimizu (2023) argues that the financing choice depends entirely on the individual situation, including external environments.

For startup financing specifically, Bauer et al. (2024) and Klein et al. (2019) highlight the growing diversity and use cases of financing options but address broader categories and do not mention convertible debt. Available case-based studies, such as those by Atherton (2012) and Paul et al. (2007) focus solely on outcomes and do not explore the rationales behind choosing specific instruments, such as convertible debt.

Overall, scholarly research on the choice of convertible debt for late-stage startup financing remains limited and lacks empirical validation. Given the relevance of convertible debt in financing practice, this instrument merits deeper academic investigation, particularly in the context of late-stage startups. We seek to contribute to the understanding of convertible debt in startup financing by linking theoretical rationales to real-world practice. Specifically, we explore how and why Einride selected convertible debt during its late-stage liquidity crisis in 2024.

### 3. Methodology

In this chapter, we discuss our research methodology, including the reasons behind choosing a case study research method, the data collection process, and considerations for research quality and validity.

#### 3.1. Case study method

Given the limitations of existing research, as well as the nuanced and dynamic realities of startup financing decisions, this thesis adopts an exploratory case study approach. Specifically, it focuses on Einride's rationale for choosing convertible debt, recognizing that no single model can fully account for the complexity of such firm-specific decisions.

This approach follows Yin (2018, p. 50), whose definition of the case study highlights that it is “an empirical method that investigates a contemporary phenomenon (the ‘case’) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident”. The case of Einride's convertible debt financing represents such a complex phenomenon where both internal and external factors played a role. Furthermore, Yin (2018) argues for the merits of this method in answering the “how” and “why” research questions for contemporary events that do not require the researcher to have control over behavioral factors, in line with the research question we pose for our thesis. Finally, case study research is also favored as a basis for developing a teaching case, which is one of the objectives of this paper.

#### 3.2. Data collection

As suggested by Yin (2018), we employ interviews as the main tool for in-depth exploration of our research questions. We followed the semi-structured interview approach proposed by Adeoye-Olatunde & Olenik (2021).

We sampled and recruited the informants based on their level of involvement in the events studied in the case. As a result, we selected five stakeholders. This included the two most involved decision-makers of Einride's convertible round: the Founder and Executive Chairman, Robert Falck, who served as a Chief Executive Officer (CEO) until May 2025 and was the main architect and driver of the fundraising strategy, and Linnéa Kornehed Falck, Founder and Board Member, then Deputy CEO, who was involved in developing investor relationships. Additionally, we interviewed three independent stakeholders, defined as those who have no influence on Einride's financing decision-making. This included Stefan Lundell, Founder at Breakit – one of Sweden's largest business and startup news websites. He was chosen due to his active role in covering Einride as a journalist. The other independent stakeholders were Erik Arnetz and Gent Elezi from SV Ventures – a corporate finance advisory firm specializing in high-tech

deals in the Nordics. They were selected as local industry experts and Einride’s secondary shares brokers. This interviewee selection allowed us to obtain a holistic range of perspectives on the case.

Before conducting the interviews, we prepared an interview guide that included open-ended main and optional follow-up questions. The guide was used during the interviews to ensure that all relevant topics were covered during each conversation. We encouraged the interviewees to discuss freely what they considered relevant and to digress into topics outside of the interview guide. This allowed us to capture unexpected perspectives and explore angles that we had not considered during the research design. When needed, we followed up with the interviewees via email to ask clarifying questions, which helped ensure that we accurately interpreted their points of view.

We conducted a total of six interviews with five informants in October and November 2025. All interviews were conducted via an online video meeting. The conversations were recorded and transcribed right after they took place. The information about each interview is summarized in Table 1.

**Table 1.** Description of interviews conducted by the authors.

Date	Interviewee	Company	Position	Length (min)	Stakeholder type
03/10/2025	Robert Falck	Einride	Executive Chairman and Founder	40	Dependent
10/10/2025	Linnéa Kornehed Falck	Einride	Board Member and Founder	55	Dependent
16/10/2025	Linnéa Kornehed Falck	Einride	Board Member and Founder	30	Dependent
11/11/2025	Stefan Lundell	Breakit	Founder and Reporter	15	Independent
14/11/2025	Erik Arnetz, Gent Elezi	SV Ventures	CEO and Founder, Analyst	35	Independent
24/11/2025	Linnéa Kornehed Falck	Einride	Board Member and Founder	30	Dependent

In addition to the interview materials, we relied on other data sources, including news publications, Einride’s annual reports, and IPO materials, to complement our analysis.

### 3.3. Quality and validity

Despite the merits of the case study method for our research purposes outlined in section 3.1, it is criticized for facing issues with validity and generalizability (Yin, 2018). Therefore, we follow Yin (2018) in analyzing and ensuring the quality of our research by

assessing it across the following dimensions: *construct validity*, *internal validity*, *external validity*, and *reliability*.

*Construct validity* suggests that the research accurately measures what it claims to measure. In a case study, the primary concern regarding construct validity is related to the subjective nature of the data collection process. This can be mitigated by utilizing data from multiple sources and maintaining a “chain of evidence” that enables one to clearly follow the steps by which the case study findings were reached from the collected evidence (Yin, 2018, p. 206). With that in mind, we selected multiple dependent and independent interviewees as well as additional data sources, ensuring that all sources are properly referenced and that the information is used in the same context as it was obtained. We deliberately cross-checked major data points across various sources, including asking the same questions to multiple interviewees to ensure we interpret the information correctly.

*Internal validity* refers to the degree to which causal conclusions drawn within the case are justified. While internal validity primarily concerns the explanatory case studies, we still incorporate a step to strengthen it with pattern matching, as suggested by Yin (2018), by comparing our empirical findings with theories from the literature in Chapter 6.

External validity is satisfied if the study’s conclusions can be statistically generalized. Although a single case study is insufficient for achieving external validity in a statistical sense, it can expand and generalize the theories on which it is based, as noted by Yin (2018). In this research, we aim to make analytical rather than statistical generalizations, and we formulate the research questions as “why” and “how,” which, according to Yin (2018), reduces the likelihood of a statistical generalization. In Chapter 6, we discuss how the findings of this case study can be integrated into the context of current academic discussions.

The case study is *reliable* if it can be reproduced with the same result. While the semi-structured interview methodology may affect the possibility of precisely replicating this study, we ensured that we maintained the “chain of evidence”, as well as transcribed and stored the interview recordings and any other relevant data, as suggested by Yin (2018). Where possible, we relied on publicly available data sources to enhance the reliability of our study.

To conclude, we followed the key steps to ensure the quality and validity of our study across the most important dimensions. As such, we believe that this case study meets our goal of contributing to existing research in the field of convertible debt by extending the academic theory via a specific example from the industry.

## 4. Case background

This chapter provides the case background by giving an overview of Einride and the industry.

### 4.1. Einride

#### 4.1.1. Company history

Einride was founded in Stockholm, Sweden, in 2016 by Robert Falck, Linnéa Kornehed Falck, and Filip Lilja with the mission of transforming road freight through electrification, automation, and digitalization (Einride, 2021).

“From the start, Einride has been about more than just technology, it has been about transforming an entire industry” (Falck, 2025).

Robert Falck’s background at Volvo Group exposed him to the environmental and efficiency challenges of diesel-powered heavy vehicles (Bellan, 2021). Falck’s insight was that electric vehicles optimized for autonomous operation without the driver’s cab could reduce trip costs by up to 50% (Coates, 2021). Motivated by a moral obligation to decarbonize freight, Falck envisioned an electric vehicle optimized for freight rather than retrofitted from diesel platforms (Bellan, 2021). More information about the background of Robert Falck and other leaders at Einride can be found in Appendix A.

Einride achieved global recognition in November 2018 with the launch of the first commercial autonomous electric truck installation in the world (Einride, 2018). In May 2019, Einride became the first company in the world to operate an autonomous, electric heavy truck on public roads (Einride, 2019). This achievement established Einride’s regulatory leadership and demonstrated the viability of purpose-built autonomous freight vehicles. In 2022, the Group was also the first to be licensed to operate an electric autonomous truck on public roads in the US (Einride, 2022a). Overall, this shows that Einride is among the global pioneers in autonomous electric heavy-duty transport. As of 2024, Einride employs one of the largest operational fleets of heavy electric trucks among operators active in Europe and the US (Einride, 2024).

#### 4.1.2. Business model

Einride designs, develops, and delivers technology for electric and autonomous freight mobility to enable sustainable and cost-effective transport of goods (Einride, 2025d). Einride’s business model is built around a dual approach combining Freight-Capacity-as-a-Service (FCaaS) and Software-as-a-Service (SaaS), enabled by its proprietary artificial intelligence (AI)-powered platform (Einride, 2025d). Einride’s offering includes an

integrated network of electric and autonomous heavy-duty trucks, charging infrastructure, and a digital operating system (see Appendix B).

With its FCaaS model, Einride delivers comprehensive freight solutions using both driver-operated and fully autonomous electric trucks (Einride, 2025d). Customers can choose between a combined electric and autonomous offering or implement only one of the two transportation types. In parallel, its SaaS offering licenses the company's technology platform to third parties, encompassing operational planning software and an autonomous driving system. This dual approach creates diversified revenue streams and enhances scalability opportunities (Einride, 2025d).

Einride employs multi-year *all-inclusive take-or-pay contracts* within its FCaaS model to secure predictable revenue and guarantee capacity for customers (Einride, 2025e, 2025d). These agreements bundle freight capacity, software access, charging infrastructure, and operational support into a single end-to-end service offering, simplifying cost structures for clients (see Appendix C for an exemplary customer case study). The contract structure combines a fixed monthly rate based on minimum transport capacity with a variable rate for additional capacity utilized beyond the minimum, creating flexibility while maintaining baseline revenue (Einride, 2025d).

Einride serves a diversified portfolio of enterprise clients, including multiple Fortune 500 companies across sectors such as consumer goods, retail, logistics, industrial manufacturing, and food and beverage (Einride, 2025e). Key customers include Carlsberg, DP World, GE Appliances, and Heineken. Approximately two-thirds of revenue is generated in Europe, with the remaining one-third from the US market, underscoring the strategic importance of North America for future growth (Einride, 2024). In 2023, Einride expanded its operations to Austria and the United Arab Emirates. As of 2024, the company is leading the electric transport transformation in eight countries (Einride, 2024), and processes approximately 20,000 shipments per day (Einride, 2025a).

Einride operates from three main hubs. In Sweden, that corresponds to Stockholm headquarters for technology development and global operations coordination, and an engineering facility in Gothenburg (Einride, 2024). In North America, the company runs its operations from Austin, Texas, which serves as the regional hub for the US market (Einride, 2025d). At the end of 2023, Einride employed 462 individuals (Einride, 2024).

#### 4.1.3. Technology

Einride's technological solution is composed of three integrated components (Einride, 2025d). First, it provides the AI-driven operational planning software Saga that optimizes the deployment of electric and autonomous vehicles. Second, it delivers transport capacity through electric trucks sourced from leading original equipment manufacturers (OEMs) or via its purpose-built cab-less autonomous vehicles. Third, it ensures strategically deployed charging infrastructure for efficient operations (Einride, 2025c).

Recent studies conducted with the Fraunhofer Institute demonstrate that Einride's planning AI can reduce fleet-level Total Cost of Ownership by 8-13% compared to diesel baselines over an 8-year holding period, significantly outperforming the average 3% savings achieved through simple vehicle substitution (Engholm et al., 2025).

Supported by the software layer, Einride is deploying connected electric trucks and autonomous electric transport vehicles (Einride, 2025c). The electric fleet is sourced from leading OEM partners such as Scania, Daimler, and BYD Auto. All vehicles are built to Einride's specifications and are fully integrated into the Saga system for real-time data exchange and standardized connectivity. Using an asset-light strategy, the company focuses on design and technology while outsourcing production (Einride, 2025c).

Einride's autonomous vehicles (AVs) are built at their Gothenburg facility, and if it becomes necessary to mass-produce the pods, they will be built by VDL Groep, a Dutch company that also produces vehicles for companies such as Volvo (Wahlström et al., 2023). VDL Groep currently produces the chassis for the vehicles (Einride, 2025e). The proprietary technology stack consists of the Einride Driver system for autonomous navigation and the Control Tower for remote fleet oversight with human intervention when needed (Einride, 2025c). The Einride Driver is developed in-house and is vehicle-agnostic, making it deployable across multiple platforms. The company maintains a zero-incident safety record (Einride, 2025c).

Einride's Smartcharger network is a critical enabler of its business model. Einride deploys charging solutions through three complementary approaches: proprietary stations developed with infrastructure partners, private installations at customer sites, and collaborations with third-party networks to extend coverage (Einride, 2025e). The network supports both Einride's fleet and third-party vehicles, creating network effects and additional revenue streams (Einride, 2025e).

In total, Einride demonstrates strong operational performance supported by its integrated technology platform. Einride provides nearly 90% accuracy in energy forecasts, a 70% reduction in charging time, and 50% higher utilization of charging infrastructure (Einride, 2025c).

#### 4.1.4. Funding and ownership

As of mid-2024, Einride had raised approximately \$374 million in equity and \$300 million in debt, with its valuation increasing from \$3 million in 2017 to \$1.1 billion in the Series C round in December 2022 (see Appendix D). The \$200 million Series C equity financing was led by EQT Ventures and complemented by a debt facility from Barclays, which represented the largest asset-backed debt facility for heavy-duty electric vehicles at the time (Einride, 2022b). This round enabled global fleet expansion and infrastructure deployment. A Series C extension in Fall 2023 and Spring 2024 provided additional capital to fulfill customer orders in Europe and the US (Bergman, 2024; NKP, 2023).

Einride's investor base includes venture capital firms such as EQT and Northzone, strategic investors like Temasek and Ericsson, institutional investors such as Capital Group and AMF, infrastructure investors like Polar Structure, and private equity (PE) players such as Build Capital (Einride, 2025a, 2025e). In addition, angel investors participated in early rounds (Nordic 9, 2017). In 2024, Einride's voting shares were spread among a group of investors and the founders. The largest holder was EQT Ventures with 14.5%, followed by Capital Group at 8.3%, Robert and Linnéa Falck at 7.8%, Northzone at 6.2%, and Nordic Ninja at 5.5% (Einride, 2025a). Employees also play a role in Einride's capital structure through option programs.

#### 4.1.5. Financials

Einride's financial trajectory in 2023, prior to the case events unfolding, reflects a duality of rapid commercial expansion and heightened financial strain. Einride's historical financial figures are provided in Appendix E. Net sales more than tripled to Swedish kroner (SEK) 185.5 million in 2023, driven by growth across Europe and the US (Einride, 2024). The order backlog for transport services more than doubled to SEK 4.0 billion, showcasing existing demand for Einride's services. However, only 6% was expected to materialize in 2024, with the remainder deferred until 2025–2031 (Einride, 2024).

Despite strong top-line growth, operating losses increased 65.8% from SEK -808.6 million to SEK -1,340.6 million (Einride, 2024), underscoring the capital-intensive nature of scaling electric and autonomous freight solutions. Yet, the operating margin increased, showcasing a path to profitability if the trend continues. While the electric fleet business is already profitable, a heavy investment in the autonomous technology development drives the overall losses (L. Kornehed Falck, October 10, 2025). As a result of a net loss and an absence of external financing, the liquidity deteriorated sharply through 2023, as cash and cash equivalents fell by 83.4% to SEK 221 million (Einride, 2024). This reflected heavy upfront investments and operating cash burn. Concurrently, short-term debt was SEK 72.9 million, with overall debt totaling SEK 257 million at year-end – higher than cash reserves (Einride, 2024). The combination of limited cash reserves and upcoming debt repayment raises concerns about financial sustainability at that time.

In 2023, Einride's quarterly burn rate was SEK 386 million. We calculate Einride's burn rate as the sum of cash flow from operations and the acquisition of tangible fixed assets, divided by 4 to obtain the quarterly value. This aligns with Einride's methodology for calculating the burn rate in the industry and ensures consistency with Einride's reported burn rate for the year 2025, for which no financial statements are available (Einride, 2025e).

In aggregate, Einride's model exhibits strong growth potential but exposes the firm to liquidity risk and refinancing pressure, making future performance contingent on successful capital raising.

## 4.2. Industry

Einride's reliance on external funding, particularly venture capital, makes the broader VC funding environment a critical determinant of the company's funding options and constraints. This section provides a detailed description of the trends in VC funding from 2021 to 2024. To ensure relevance for Einride, we focus, where possible, specifically on the European mobility sector, including electric and autonomous technology startups. The section also offers insights into the Swedish VC market to provide a more accurate reflection of the local context for Einride. Furthermore, we discuss recent market trends related to convertible debt issued by startups.

### 4.2.1. Market and fundraising environment

#### *The investment boom of 2021–2022*

Globally, the VC funding in 2021 sharply reached record-high levels. The European mobility sector was on the rise, having grown twice as fast as that in the US for the last seven years (*State of European Mobility Startups 2021, 2022*). More specifically, the European mobility startup investment volume doubled from 2020 to 2021, driven by an increase in both the number and size of deals (see Figure F1). Sector-wise, clean energy was the fastest-growing segment of mobility investment, with a 5.1x growth in 2021, reflecting Europe, with Nordics in particular, being a leader in EV adoption (*State of European Mobility Startups 2021, 2022*). In 2022, the autonomous mobility segment also reached its highest investment volume, a 5.3x increase from 2020 (see Figure F2).

The valuations also reached their peak. According to the *State of European Mobility Startups 2021 (2022)*, the combined value of all mobility startups in Europe increased by a factor of two from 2020 to 2021. In 2021 and 2022, 13 and 8 companies, respectively, reached a valuation of above \$1 billion, compared to the average of 4.25 companies over the prior four years (*State of European Mobility Startups 2024, 2025*).

Such high investment activity and attractive investment terms prompted many companies to raise additional funding and grow to large valuations at an accelerated pace. Among the closest Einride's competitors, Kodiak Robotics and Waymo raised \$125 million and \$2.5 billion, respectively (Alamalhodaie, 2021; Korosec, 2021). At the same time, TuSimple and Aurora Innovations marked the first IPOs for autonomous freight (Oitzman, 2021; Thorne, 2021), serving as examples of a clear path to exit in the sector. Einride also pursued two investment rounds in 2021–2022.

“We completed our Series B in 2021, and it was a massive race. Our competitors were raising enormous amounts of capital at extremely high valuations, and there was strong pressure for us to do the same. We then moved quickly into a Series C in 2022 – perhaps, in hindsight, a bit too quickly. But at the time, we felt compelled by

the dynamics of the market: when you are in a race for market share, the race is happening right now” (L. Kornehed Falck, October 10, 2025).

### *The slowdown of 2023–2024*

By the end of 2022, global VC investment activity started to slow down. Due to a lack of macroeconomic and regulatory clarity, the mobility funding in Europe was more vulnerable than other sectors, decreasing at three times the rate of total European VC funding in 2024 (*State of European Mobility Startups 2024*, 2025). Late-stage deals beyond Series C were the most affected, reaching a 37% decline in funding volume between 2023 and 2024. Only one new company in each year reached a valuation of above \$1 billion. Given these adversities, the investor sentiment on the European mobility sector quickly adjusted from potential- to profit-oriented (*State of European Mobility Startups 2022*, 2023).

“In 2021–2022, there was a problem: some investors told us that we were not spending enough money. And then in 2023, they were saying, ‘Oh, you need to get profitable now’” (L. Kornehed Falck, October 10, 2025).

As a result, the electric and autonomous mobility sub-sectors in Europe both performed poorly in terms of fundraising. Electric mobility funding volumes declined by 73% in 2024 (see Figure F3). Autonomous mobility declined by 64% in 2023 and 33% in 2024, excluding a \$1 billion round raised by Wayve in 2024 as a clear outlier that represented ~80% of the whole funding volume that year (*State of European Mobility Startups 2024*, 2025).

Poor fundraising markets led to liquidity pressures, prompting many mobility companies to scale back or go out of business. A leading autonomous trucks manufacturer, TuSimple, pulled back from its key market – the US (Korosec, 2023). Northvolt, a Swedish EV battery manufacturer, filed for bankruptcy in the US in 2024, after raising \$14 billion in funding (Billing, 2025). British EV truck maker Arrival entered administration in early 2024, after listing on Nasdaq in 2021 at \$13 billion valuation (Nicol-Schwarz, 2025). The bankruptcies further redirected the investors’ focus to profitable businesses, away from capital-intensive and unproven models.

“We had strong investor interest in the profitable electric carrier business, but there was little enthusiasm for autonomy at that time. TuSimple was withdrawing from the US, and companies that had been among our biggest competitors for many years went bankrupt. As a result, investors were not excited about autonomous technology at all” (L. Kornehed Falck, October 10, 2025).

In Sweden, a total of 27 bankruptcies happened in 2021–2022 across the broader but overlapping sector of impact companies (Kjellén et al., 2025). Within the mobility sector, the bankruptcies included EV scooter manufacturer Cake (O’Kane, 2024) and EV truck manufacturer Volta Trucks (Sustainable Truck&Van, 2025). Consequently, the investor

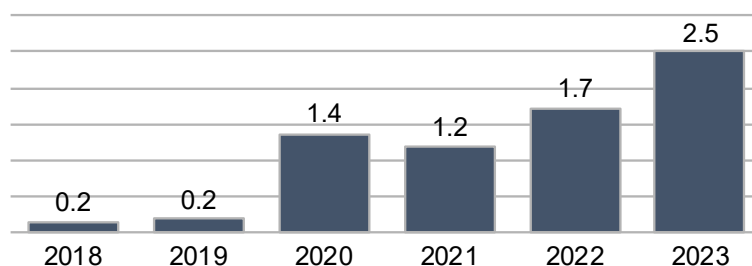
sentiment was depressed, leading to a further slowdown in VC dealmaking and more aggressive deal terms. The bankruptcy of Northvolt was especially painful for the ecosystem. The investor community in Sweden has been aware of the crisis unfolding within Northvolt since late 2023, and the information spread more widely in 2024 (E. Arnetz & G. Elezi, November 14, 2025). That contributed to the market for EVs, AVs, and green technologies being highly disadvantaged in terms of funding opportunities (L. Kornehed Falck, October 10, 2025).

Overall, this section established that the volatility of the 2021-2024 VC funding environment has left many companies with a high burn rate and valuations, yet with no clear trajectory for further funding and valuation increases. To understand how convertible debt fits into this context, we turn to the next section, which discusses the trends related to convertible debt in European startups.

#### 4.2.2. Convertible debt

In Europe, as shown in Figure 1, convertible debt in startups reached record-high numbers as of 2023, despite the overall VC funding decline (Howcroft, 2024). The instrument became increasingly complex and investor-oriented. The terms gaining popularity included dynamic discounts that increase with more time to the next round, as well as profit margin-dependent conversion terms. This reflected the generally unfriendly fundraising environment for founders at that time (Howcroft, 2024).

**Figure 1.** Convertible debt volume for European startups in 2018–2023, in \$ billion



Note: The figure is constructed by the authors and reported in billions of dollars. Source: retrieved from Dealroom by Howcroft (2024).

L. Kornehed Falck (November 24, 2025) explains that the use of convertible debt in Europe is driven by the region’s limited capital depth. This forces startups to raise smaller funding rounds and operate leaner, which often results in running out of funds before achieving the milestones for the next major round. In such cases, convertible debt allows entrepreneurs to extend their runway, enabling them to reach the milestones that would trigger the successful raise of the larger, priced round. The increasing popularity of convertible notes in Europe in recent years, as per L. Kornehed Falck’s (November 24, 2025) explanation, is driven by the overall deglobalization in the VC scene. This is especially relevant for industries that allow certain regions to establish technological

dominance if only local players are supported. As a result, less external capital flows to European companies, which makes the need for intermittent small rounds, often raised via convertible securities, even more frequent.

“When we began raising our Series B and Series C, globalization was still the prevailing doctrine. Innovation was expected to emerge anywhere, and capital followed talent rather than flags. That assumption collapsed in 2022. The United States made a deliberate political choice to channel capital into American companies. China did the same for Chinese companies. Europe, by contrast, made no comparable choice at all; it neither protected nor capitalized its own industrial base” (L. Kornehed Falck, November 24, 2025).

E. Arnetz & G. Elezi (November 14, 2025) note the special relevance of convertible debt in Sweden during adverse conditions. According to them, convertible instruments in Sweden often feature more founder-friendly terms compared to other regions. Such a trend originates from the founder-oriented approach of local investors, which results in more investor support through market downturns, including less aggressive terms on bridge instruments. Despite this, R. Falck (November 24, 2025) highlights that the convertible debt market in Sweden is clearly less mature and standardized than that in the US. This results in slower and more nuanced negotiations.

These insights highlight the high relevance of convertible debt instruments for the European and Swedish markets, particularly in crisis situations and for strategic industries that require primarily local funding support.

## 5. The Case

This chapter presents the case of Einride's 2024 convertible debt financing, examining the strategic decision-making process that led to the issuance of a \$50 million convertible note and its conversion into Series D equity. We trace the chronological development from a financing crisis in early 2024, which necessitated alternative financing, to the successful completion of a \$100 million Series D round in 2025.

### 5.1. The fundraising crisis in 2024

#### 5.1.1. Money that never arrived

In late 2023, Einride was preparing for a major priced equity round (L. Kornehed Falck, October 10, 2025, November 24, 2025). The initial connection with the lead investor in the round emerged through secondary market activity. The investor had begun approaching Einride's existing shareholders, expressing interest in purchasing secondary shares representing approximately 15% of the company. Einride's leadership became concerned about a large, unknown party accumulating a significant stake without the company's involvement or knowledge. Furthermore, Einride was approaching a time when it would need to raise its next funding round. This prompted direct engagement, leading the investor to propose a transaction that combined both secondary purchases and primary capital injection into the company (L. Kornehed Falck, October 10, 2025).

The investor profile appeared strategically aligned and well-connected (L. Kornehed Falck, October 10, 2025). Available positive references for the main contact provided substantial credibility to the transaction. While the specific valuation negotiated for the round is not disclosed by Einride, the round was supposed to happen at an increased valuation from the Series C (L. Kornehed Falck, October 10, 2025).

The deal progressed to an advanced negotiation stage during December 2023, where both the investor and the selling shareholders signed all necessary documentation (L. Kornehed Falck, October 10, 2025). The raised funds were expected to arrive during the first weeks of 2024. However, despite the formal agreements, the investor never transferred the promised funds. This failure was characterized by ongoing false promises, with the investor continuously claiming that the money would be coming within a week. The founders do not know fully why this occurred. Both the investor and their bank continued to confirm the plan to invest, citing a late bond payment as the reason for the delay. The investor has not formally withdrawn from the process as of October 2025, claiming that the deal will eventually proceed (L. Kornehed Falck, October 10, 2025).

After one month of waiting and receiving continued assurances that funds were imminent, Einride's founders concluded that the money was unlikely to arrive and began exploring alternative ways to fund the company (L. Kornehed Falck, October 10, 2025).

While Einride does not disclose its runway at a time, it is known that by August 2024, the company was in urgent need of cash as it could not pay salaries without the new funding (Hävner, 2024a; Lundell, 2024a). The limited runway put Einride in a vulnerable position, while the disappearance of the major investor created significant confusion and eroded trust among both internal and external stakeholders.

### 5.1.2. Compounding external shocks

The fundraising crisis coincided with significant external market shocks that affected investor sentiment toward Einride. Firstly, the overall decline in the venture capital investment market compounded Einride's fundraising challenges. Moreover, the autonomous business of Einride, previously favored by investors, was falling out of trend due to an unclear path to profitability. Finally, despite having no operational connection to Northvolt, Einride was perceived as associated with the failed EV battery startup due to its Swedish origin and sustainability positioning (L. Kornehed Falck, October 10, 2025).

## 5.2. Management approach to crisis

Faced with the need for financing amid internal and external shocks, Einride's leadership was urgently looking for a solution. In practice, the convertible debt strategy emerged as the clear path forward from the beginning (R. Falck, October 3, 2025). Despite this early conviction, the team conducted a comprehensive review of other potential scenarios.

To quantify the decision-making, the team worked through financial models, asking fundamental questions about each strategic alternative. Scenario testing included evaluating consequences across the stakeholder ecosystem.

“You sit with your financial models and ask a very basic question: do the terms this investor is proposing actually work in our numbers, yes or no? Sometimes the answer is that it could work, but only if we fundamentally change how we operate. Other times, it simply doesn't work, because the fundamental reality of the business does not match the cost of capital being imposed” (L. Kornehed Falck, October 10, 2025).

Yet, the team did not build extensive models, considering it not feasible in the given circumstances. The process was iterative and fast-paced, and it accounted for non-quantifiable components, such as investor relationships.

“You don't have the luxury of sitting around trying to model everything. The only viable strategy is to keep trying again and again. Progress comes from action and from relationships: who you can bring on board, and which strategies you can mobilize support around. Large companies can afford time, structure, and extensive modeling. Start-ups cannot. In my experience, start-ups that try to operate that way are rarely successful” (L. Kornehed Falck, October 10, 2025).

Leadership explicitly recognized the short-term versus long-term tensions in various scenarios, aiming to find a solution that would save the company in the short term without compromising its long-term value. However, it was clear that the trade-offs were unavoidable.

“That’s the real difference between being an entrepreneur and not being one: the ability to keep problem-solving and to always find a way forward. I coach many entrepreneurs, and when they face pressure, they often say, ‘We need this capital because our runway is too short, but it won’t work perfectly in the long term, so we can’t do it – therefore the business doesn’t work.’ But that is what running a business actually looks like. It is never perfect. At Seed or Series A, things are simpler. Once you reach scale – large volumes, many people, many dependencies – it stops being straightforward altogether” (L. Kornehed Falck, October 10, 2025).

The decision-making approach required constant, high-frequency communication with stakeholders. Robert Falck’s role was particularly critical in maintaining these connections.

“If it hadn’t been for Robert’s stubbornness, his refusal to stop calling, talking to people, and working through every financing problem, we would not still be here. When we look at the companies that were once our peers, we are essentially the only ones left” (L. Kornehed Falck, October 10, 2025).

Throughout the crisis, the team coordinated closely with shareholders to understand their mandate limitations and preferences (L. Kornehed Falck, October 10, 2025). Furthermore, the goal of communicating with investors was to mitigate the reputational damage resulting from the failed investment round.

Considerable effort was invested in tailoring interactions with potential investors to align with general market trends, such as a focus on profitability and a reduction in mentions of sustainability (L. Kornehed Falck, October 10, 2025).

“At a certain point, using the word ‘sustainability’ became a liability. In venture capital, it was treated as a signal that a business lacked real economics. Customer demand remained, but investor sentiment was clear: capital had moved on. The sustainability narrative was effectively over in the VC market – and largely still is” (L. Kornehed Falck, October 10, 2025).

### 5.3. Alternatives considered

As Einride’s leadership considered multiple strategic alternatives to combat the financing crisis, each presented distinct advantages and disadvantages. In this section, we outline key responses considered but ultimately deprioritized by the management team. Then, in Section 5.4, we delve into the chosen option of raising convertible debt.

### 5.3.1. Equity

#### *General considerations*

The option of raising a priced equity round faced significant challenges from both internal and external investors. Among internal investors, many were running out of funds and could not participate significantly, either due to the late stage of the deal or given the adverse market conditions, which resulted in large portfolio losses and limited dealmaking overall (L. Kornehed Falck, October 10, 2025). In particular, a steep increase in company bankruptcies and distress also made it more difficult to call new capital from Limited Partners (LPs). Some of the shareholders who could still invest were limited by internal covenants. For example, one investor was unable to exceed their pro rata participation due to ownership covenants (L. Kornehed Falck, October 10, 2025).

“Very few European VCs have the capacity to fund companies all the way to an IPO. When the downturn hit, they were capital-constrained, watching large parts of their portfolios collapse, and unable to follow on. Their LPs were in the same position” (L. Kornehed Falck, October 10, 2025).

External fundraising also faced considerable obstacles. The eroded trust from the failed investment round required time to restore, while the generally poor market conditions meant minimal dealmaking activity. Initial attempts by management to raise funds from infrastructure and pension funds revealed slow-moving decision processes at the time, as well as difficulties in making the investment case (L. Kornehed Falck, October 10, 2025, October 16, 2025).

The timing challenge was substantial, as raising a traditional equity round with both internal and external investors typically would require 6–9 months (L. Kornehed Falck, October 10, 2025). The market and internal turbulence would likely have extended this timeline significantly, which would make Einride run out of funds in the case of no additional interventions.

Notably, in February 2024, Einride still managed to onboard minor investors who initially planned to participate in the broken financing round (L. Kornehed Falck, November 24, 2025). The investment was made as a Series C extension, totaling approximately \$26 million (see Appendix D).

#### *Raising at a valuation above Series C*

It was difficult to raise a priced (i.e., a Series D) round at a valuation higher than Series C, as the company could not motivate a valuation uptick while generating sufficient market demand. This resulted from eroded trust stemming from the broken financing, combined with decreased investment return and company growth expectations (R. Falck, October 3, 2025; L. Kornehed Falck, October 10, 2025). The expectations were driven by the generally unfavorable VC market and declining sentiment around AVs and

sustainability. If an up-valued Series D round were an option, it would have represented the *optimal scenario* from Einride's leadership team perspective, eliminating pricing uncertainty and reducing short-term volatility. Notably, in Summer 2024, Einride received a letter of intent for a \$500 million investment from a major investor who aimed to become the largest shareholder in Einride (R. Falck, October 3, 2025; L. Kornehed Falck, November 24, 2025). The deal was abandoned at the last moment due to internal shareholder conflicts, creating another round of turbulence (R. Falck, October 3, 2025; L. Kornehed Falck, November 24, 2025).

### *Raising at a valuation below Series C*

Raising a round at a lowered valuation, i.e., a down round, presented multiple risks that made this option unavailable. A major consideration from the leadership's perspective was the employee stock option program, which would become out of the money in the event of a down round, potentially creating an employee retention crisis (L. Kornehed Falck, October 10, 2025). The average exercise price of the employee options was \$34 as of 31 December 2024 (Einride, 2025a). This approximately equals the price per share of the previous priced round, calculated based on the Series C valuation from Appendix D and the fully diluted shares as reported by Einride (2025a). This means that even a small decrease in valuation would trigger the out-of-the-money issue.

The down round scenario also presented cascading failure risks across multiple stakeholder relationships. Debt covenant triggers were of significant concern, as the company's valuation was connected to covenants on electric fleet financing held at subsidiary levels (L. Kornehed Falck, October 16, 2025). The risk was that the debt providers could claim the assets in the event of a down round. Some of the customer and other stakeholder relationships were also anchored to Einride's valuation. For example, Einride issued warrants to A.P. Moller-Maersk – one of its major customers (L. Kornehed Falck, November 24, 2025).

Beyond the operational implications, lowering the valuation was viewed by the management and the shareholders as sending weak market signals and undermining investor confidence (R. Falck, November 24, 2025). The down round risked creating a negative feedback loop that would make subsequent fundraising even more challenging.

For internal investors, the down round setup was especially unattractive due to immediate shareholder dilution and concerns about future valuation growth. The entire fundraising mechanism, as R. Falck (October 3, 2025) emphasized, should work to retain value and continuously up-price the asset. Due to high return expectations of investors, lowering the valuation meant that the future valuation step-up must be larger, which would be difficult to achieve due to the loss of leverage and weak signaling (R. Falck, November 24, 2025). As a result, internal investors were motivated to only set a valuation when it would be high enough to support the target return profiles.

### 5.3.2. Splitting the business

The option of dividing Einride into separate EV carrier and autonomous businesses represented another potential solution. Under this scenario, Einride would be split into two separate companies, with the profitable carrier business being fundraised for independently (L. Kornehed Falck, October 10, 2025). The fundraising and survival likelihood of the separated autonomous business, which was loss-making, would be limited.

The advantages of this approach included unlocking faster fundraising for the carrier business due to its attractive characteristics for both VC and PE investors (L. Kornehed Falck, October 10, 2025). The carrier business featured stable growth patterns and AAA customer profiles with above five-year contracts, making it especially suitable for PE acquisition. The hypothesis of positive investor interest was additionally confirmed when Einride received an offer from a buyer to acquire the carrier business (L. Kornehed Falck, October 10, 2025).

However, this scenario faced strong opposition from the founding team due to their conviction regarding the high potential of autonomous technology, especially when connected with the rest of the business. If the autonomous division were to be separated or sold, both co-founders would leave Einride. Beyond founder preferences, the separation would result in significant lost synergies.

“Einride is a platform, and the platform only works if all parts remain intact. Once autonomy is removed, it is no longer the company we set out to build. Without that component, we would not remain involved” (L. Kornehed Falck, October 10, 2025).

Overall, the leadership would consider splitting the business only if no options remained. To prepare for such a worst-case scenario, the autonomous business was legally separated as a wholly-owned subsidiary (L. Kornehed Falck, October 10, 2025). This structural preparation reflected the urgency of securing financing to keep autonomous and carrier operations integrated, preserve the founders’ vision, and avoid forced business separation.

### 5.3.3. Acquisition by a private equity player

Einride’s leadership viewed the possibility of a PE firm acquiring the entire business as undesirable, due to a conviction that such a scenario would lead to the same outcome as splitting the business (L. Kornehed Falck, October 10, 2025). This conclusion followed from the generally recognized preference of PE firms to hold steady-growth assets, which would then mean a potential scale-down of the autonomous part of the business post-acquisition (L. Kornehed Falck, October 16, 2025).

#### 5.3.4. Debt

Debt financing for the parent company was limited to venture debt strategies due to the company's negative cash flows. Generally, venture debt is not an established instrument in Swedish private capital markets (E. Arnetz & G. Elezi, November 14, 2025). Specifically for Einride, it was undesirable due to the company's strategy of keeping the parent structure debt-free (L. Kornehed Falck, October 16, 2025). As venture debt is expected to be repaid with the next equity round, the debt-free setup provided substantial fundraising advantages for future equity rounds, both in terms of the required fundraising amount and from an investment attractiveness perspective. Not raising venture debt also avoided the friction created by debt covenants (L. Kornehed Falck, October 16, 2025).

However, debt was utilized in 2022–2024 as a complement to equity financing to more affordably finance assets, such as the fleet and charging infrastructure (L. Kornehed Falck, October 16, 2025). This debt was held at subsidiary levels, secured against assets. The ultimate goal of such a funding strategy was to optimize the cost of financing without raising debt at the parent level (L. Kornehed Falck, October 16, 2025).

#### 5.3.5. Factoring

In addition to utilizing debt, Einride pursued invoice purchase agreements to supplement its funding sources, benefiting from its AAA-rated customer base. In September 2024, Einride entered into an agreement with Norra Finans Sverige for a factoring facility with a credit limit of SEK 50 million (Einride, 2025a). This facility enabled Einride to sell its outstanding customer invoices and finance up to eight months of future invoicing according to Einride's signed customer contracts. In December 2024, the credit limit was raised to SEK 300 million, and later to SEK 450 million (Einride, 2025a).

### 5.4. The choice of convertible debt

To summarize the strategic landscape, raising equity at a higher valuation would have been the most preferred scenario, yet market and internal conditions made it impossible. Raising venture debt or equity at a lower valuation was unpreferred and not necessarily viable or attractive long-term, given the cascading risks. Splitting the business into carrier and autonomous companies was opposed by the founders but represented a possible scenario if other approaches failed. It likely would have occurred absent an alternative. The final option, convertible debt, emerged as the solution that Einride pursued. It allowed the company to avoid the undesirable split scenario while proving more attractive and appropriate than either priced equity or venture debt. The strategic rationale and structure of this convertible financing are outlined in detail in this section.

#### 5.4.1. Strategic rationale

Einride selected convertible debt due to multiple converging factors that made it the optimal choice given market conditions and company circumstances.

The high-level driver behind the decision to set up a convertible debt round was the right product-market fit. It was discovered by the leadership that the market was not ready for a priced equity round and that convertible debt represented a more suitable product. Initially, an effort was made to maintain the same terms for fundraising as those of the late-2023 round (L. Kornehed Falck, November 24, 2025). L. Kornehed Falck (October 16, 2025) explained a key insight of these efforts:

“We realized we were presenting the wrong financial product for the market environment we were in. At that moment, capital was driven by fear and demanded perceived security rather than long-term potential.”

In addition, investors were uncomfortable with committing on the terms at which another major investor did not show up (L. Kornehed Falck, November 24, 2025). The efforts to raise convertible debt, in contrast, yielded higher investor interest:

“Once we reframed the financial product, market response changed immediately. Interest increased, and execution accelerated” (L. Kornehed Falck, October 16, 2025).

A higher investor interest in convertible debt stemmed from the fact that it could provide attractive benefits for investors via aggressive terms, such as high PIK interest and a low valuation cap, without triggering the negative effects associated with the lower valuation in the event of raising the equity round (R. Falck, October 3, 2025; L. Kornehed Falck, October 10, 2025). Such effects included the operational implications for the business as well as shareholder dilution, as outlined in Section 5.3.1.

Since the company’s vulnerable position prompted Einride to primarily rely on the support of existing shareholders, the argument of preserving company value was especially relevant for investors (R. Falck, October 3, 2025). Both parties could benefit from delaying company pricing via the convertible, which combined attractive investor terms with the preservation of Einride’s short- and long-term value.

“The core appeal of a convertible instrument lies in its ability to defer valuation. By allowing parties to postpone pricing until ‘what happens next’ becomes clearer, this approach enables aggressive, flexible deal terms while avoiding the need to lock in a valuation prematurely. This is a mutually preferred structure: both sides signal belief in the company but acknowledge uncertainty around an appropriate price.” (R. Falck, October 3, 2025)

“Convertibles also act as a protective mechanism against dilution or short-term volatility. When the current market price is not seen as a fair reference point, a convertible lets founders and investors align on capital needs without anchoring the deal to transient conditions.” (R. Falck, October 3, 2025)

Besides the potential to develop attractive terms while minimizing negative consequences for the business and the shareholders, investors preferred a convertible instrument given an unusually high uncertainty surrounding the fundraising. This uncertainty prompted them to choose a simpler path of postponing the company’s pricing, outsourcing it to the lead investors of the later round. According to R. Falck (October 3, 2025), this preference could be explained by a general tendency among investors to avoid taking personal risks:

“From the investor’s standpoint, the key driver is the ability to avoid pricing altogether. Investors dislike taking primary valuation risk and prefer situations where another party prices the company first. They love it when someone else takes the risk. A convertible enables this dynamic, making the investment decision psychologically and politically easier. When a future round sets the valuation, investors can point to that third party as the basis of their decision.”

Delaying pricing was the primary argument for investors to prefer a convertible structure, while specific terms of the convertible were secondary.

“Features such as PIK interest or discounts to the next priced round serve largely as retrospective justification mechanisms. A conversion discount allows investors to claim they ‘got in smart’ relative to the later valuation, reinforcing the appeal of the structure even when its economic impact is modest.” (R. Falck, October 3, 2025)

General convertible instrument characteristics provided additional benefits to Einride. It was faster to implement than equity, requiring less time for investors to commit (L. Kornehed Falck, October 10, 2025). This provided Einride with the necessary cash in satisfactory terms. Einride’s strategy was to convert the debt into the next priced round. It would keep the cap table less complex, which was relevant to Einride, given the company was aiming for an IPO in the near term. The convertible debt structure also maintained the parent company debt-free from the perspective of the next priced round. This preserved flexibility for future fundraising compared to venture debt (L. Kornehed Falck, October 10, 2025). Finally, convertible debt allowed Einride to avoid scaling down the autonomous technology part of the business, preserving the founder vision.

Overall, the convertible round served a crucial bridge function for Einride, designed to extend the runway to the next priced round while providing time to stabilize external sentiment and restart the fundraising process after the unsuccessful round. By delaying pricing, the company was able to provide more comfort to investors and offer aggressive terms without lowering its valuation. This avoided triggering the severe consequences associated with other financing alternatives.

#### 5.4.2. Structuring and terms

In August 2024, CEO Robert Falck sent a letter to shareholders asking for \$20 million to \$50 million in convertible debt by the end of the month to secure short-term financing needs, describing investor participation as essential for the company going forward (Lundell, 2024a). At the beginning of September, the convertible promissory note was secured (Lundell, 2024b). The total amount raised was approximately \$50 million, composed of existing and new investors, including EQT and Capital Group (Lundell, 2025a). The reported amount also included a strategic investment from American quantum computing company IonQ, which occurred in the first quarter of 2025, on modified terms that Einride does not disclose (L. Kornehed Falck, November 24, 2025).

The loan structure incorporated both nominal and PIK interest components (see Appendix G), with an annual nominal interest rate of 10% and an annual PIK interest rate of 49% (Einride, 2025a). The nominal interest was paid quarterly to noteholders, while PIK interest was capitalized quarterly and added to both the loan principal and the amount to be converted. The PIK interest accrued only over the first 18 months of the loan term. Conversion mechanisms were anchored to the next priced round, i.e., Series D in Einride's case, and were structured to occur automatically on the maturity date in September 2026, unless a subsequent equity round was obtained. Einride could request conversion at any time during the loan term. Noteholders could request conversion during three specified windows between March and September 2026. Upon conversion, the lower of \$34 or the prevailing "market value" would be applied. That meant the maximum price per share one would convert at was \$34 per share, roughly equivalent to the Series C price. In addition, the PIK interest would increase the principal to be converted into shares, which can be viewed as an increasing "discount" on the conversion price. The governance structure required a decision by the Board of Directors, with notification at the annual general meeting, but not requiring full shareholder approval (Einride, 2025a).

The convertible round resulted in approximately 10 months of runway, meaning that Einride would have to secure the next funding by the end of June 2025. We calculate the runway based on the quarterly burn rate of \$8.8 million for 2024 and \$20 million for 2025. These numbers are based on Einride's 2024 cash flow statement, converted from SEK at the year-end closing exchange rate, and the IPO presentation (Einride, 2025a). A low burn rate in 2024 was mostly achieved by accumulating accounts payable and reducing accounts receivable. This seems to have been a temporary measure, given the rebounding burn rate of 2025. Furthermore, the lower burn rate was partly attributed to a range of cost-cutting initiatives that Einride implemented shortly after raising the convertible round, including a major workforce reduction (Hävner, 2024b). It is not clear whether these initiatives were enforced by convertible noteholders. Given the \$34 million quarterly burn rate in 2023, Einride has clearly prioritized cash-saving in 2024, confirming the importance of the convertible fundraising.

### 5.4.3. Quantitative scenario analysis

In this section, we undertake a detailed modeling of the convertible debt instrument to address the complexity and uncertainty inherent in the bridge financing structure. We quantify decision-making considerations through scenario analysis, including expected dilution and implied valuation. These considerations are relevant both for the founding team and participating investors when negotiating the terms and evaluating the notes.

Convertible notes' contingent payoffs and terms lead to significant variability in investor outcomes (Becker & Chaplinsky, 2019; Puca, 2020). This complexity makes it difficult to assess the economic implications without quantitative analysis. Founders should carefully consider the extent of ownership dilution that may occur upon conversion (Wilson, 2018). Meanwhile, investors are concerned on which terms, i.e., at which discount, they can participate in the next financing round when a more reliable company valuation can be achieved (Orcutt, 2019). Both founders and investors base their analysis on informal heuristics rather than formal valuation methods (Orcutt, 2019; Wilson, 2018). Scenario-based modeling of potential outcomes, therefore, provides transparency for both issuers and investors, enabling informed decision-making and alignment of incentives (Orcutt, 2019).

Internally, Einride's management iteratively modeled various scenarios to compare financing alternatives. We take a similar approach to quantify the impact of the convertible debt issue. To achieve this, we model the potential outcomes of the convertible notes for existing shareholders and note investors through scenario analysis. Methodologically, the convertible notes are evaluated on an "as if converted" basis, which is standard for short-term bridge notes expected to convert into equity (Puca, 2020, p. 299). Under this method, the note is evaluated based on the number of shares it will convert into at the next qualified financing round, using the transaction price of that round as the reference point (Puca, 2020). Since the price and timing of the next financing are not known ex-ante, we evaluate different possible scenarios.

There are several approaches to calculate the number of shares noteholders receive at conversion (Colla, 2014). In this analysis, we adopt the percentage-ownership method, where ownership is determined based on the proportion of shares that next round investors aim to acquire (Colla, 2014). Thus, both previous shareholders and noteholders get diluted by new round investors. Yet, prior shareholders bear most of the dilution. Hence, this method is the preferred method in the industry (Chaplinsky & Becker, 2020).

The model incorporates Einride's actual loan terms as well as benchmark terms for Swedish convertible debt offerings. The benchmark includes: no cash interest, PIK interest of 10%, and a flat discount of 25% (E. Arnetz & G. Elezi, November 14, 2025). Furthermore, the maturity is set to equal the actual maturity, as this reflects an industry standard (L. Kornehed Falck, October 10, 2025). For comparability, the valuation cap was also assumed to mirror the actual terms. Using these inputs, we conducted a scenario

analysis to evaluate the impact of varying conversion dates and next round pre-money valuations on key metrics: noteholder ownership, i.e., dilution to Einride, investors' discount relative to new investors, as well as their total internal rate of return (IRR) and multiple on invested capital (MOIC). This structured approach allows us to quantify the economic outcomes of Einride's convertible debt decision.

For the ex-ante scenario analysis, we modeled different valuations and conversion timings (see Appendix H). Einride's last valuation of \$1.1 billion and the new \$50 million investment add up to \$1.15 billion and serve as a basis for possible next round valuations, with modeled deviations ranging from -80% to +80% in 20% increments. Conversion timing was simulated for each subsequent quarter after issuance until maturity. Based on Einride's estimated runway of 10 months, conversion between March 1, 2025, and September 1, 2025, is the most probable. For bridge rounds, the valuation cap is closely based on the potential next round valuation (Wilson, 2018), and serves as a "shadow valuation" (Bernthal, 2018, p. 834). With a valuation cap of \$34 per share and 35 million shares outstanding, Einride's implied shadow valuation equals ~\$1.17 billion, which closely aligns with Einride's last reported valuation. Therefore, we deem deviations of up to 20% from \$1.15 billion, i.e., \$1.1 billion plus the \$50 million investment, to be most relevant for estimating the future valuation, as this also incorporates the shadow valuation. This results in nine core scenarios for further analysis, which will be covered in the following paragraphs.

In these scenarios, noteholders receive an ownership of 5.1% to 8.6% at conversion (see Appendix H). Later conversion dates yield higher ownership due to the accrual of PIK interest. Absent PIK interest and the valuation cap, ownership would be 21% to 43% lower. Effectively, the \$50 million loan converts at a total discount of 21% to 43% relative to Series D pricing. This *total discount* reflects the combined effect of the valuation cap and accrued PIK interest: the cap-driven component increases with the next-round valuation, while the PIK component grows over time. Formally:

$$Total\ Discount = 1 - (Discounted\ Share\ Price / Share\ Price)$$

where

- *Discounted Share Price* equals the principal of the convertible loan divided by shares issued to noteholders at conversion;
- *Share Price* corresponds to the price per share at conversion.

Additionally, investors benefit from \$2.7 million to \$6.0 million in cash interest depending on the holding period across the nine scenarios (see Appendix H). Collectively, the original investment and total returns factors yield a total IRR between 73% and 118% and a MOIC of 1.3x to 1.9x. The total IRR is the annualized effective compounded return, calculated as the discount rate that sets the net present value of all cash flows and

unrealized gains from an investment equal to zero (Allied Venture Partners, n.d.). The MOIC is the ratio of the total realized and unrealized gains from an investment relative to the capital invested (Lehman, 2025). The IRR has a theoretically unlimited upside and is downside-protected at 56%, assuming successful interest payments and the next funding round with a valuation above the principal of convertible debt. MOIC increases over time due to PIK and cash interest, with an additional contribution from the valuation cap if it is exceeded in the next round.

Benchmarking against typical Swedish convertible bridge note terms, noteholders would obtain 5.0% to 7.8% ownership based on a 29% to 32% discount to Series D pricing (see Appendix I). Compared to the actual terms, ownership declines less with time due to the flat discount and small PIK component, whereas Einride’s PIK interest increases substantially with time. Without cash interest, IRR would range from 47% to 97%, and MOIC from 1.4x to 1.5x. Relative to the actual terms, IRR exhibits a sharper decline over time and offers weaker downside protection, primarily due to the lower PIK interest and the absence of cash interest. Consistent with this, MOIC increases only marginally over time compared to the actual terms. Overall, these benchmarking outcomes differ considerably from the actual terms, especially over time, with differences primarily attributable to the difference in PIK interest.

The high PIK interest in Einride’s terms prompts us to extend Bernthal’s (2018) shadow valuation idea by incorporating the total discount that note investors receive. While Bernthal focuses on the valuation cap as a price ceiling at which note investors will convert, we adjust the concept to portray a range of possible valuations given the terms of the notes. We argue that looking only at the valuation cap to determine a shadow valuation provides limited insight, as note investors who receive PIK interest will always convert their original principal at a lower effective price than the valuation cap. More specifically, the final ownership of note investors is driven by a combination of the future equity price at the time of conversion, the investment amount, and the total discount, which includes the principal accrual effect from the PIK interest. Therefore, we introduce an *adjusted shadow valuation*: the implied pre-money valuation at which the stake of a direct equity investment at the time of note issuance equals the final ownership of convertible note investors after conversion at the future conversion price. Formally:

$$\text{Adjusted Shadow Valuation} = \text{Valuation at Conversion} * (1 - \text{Total Discount}) - \text{Investment Amount}$$

where

- *Valuation at Conversion* is the pre-money valuation of the next financing round;
- *Total Discount* is the combined effect of valuation cap, flat discount, and accrued PIK interest on the final conversion price, as defined earlier;
- *Investment Amount* is the original principal and size of a convertible note round.

For example, investing \$50 million in a loan that converts nine months later at a total discount of 29% to a Series D investor at a \$1.15 billion valuation gives investors the same ownership as investing \$50 million in priced equity at a current valuation, i.e., adjusted shadow valuation, of \$763 million without any discount (see Appendix H). Given the terms of the convertible, Einride's adjusted shadow valuation lies between \$529 million and \$931 million, demonstrating a clear discount towards the Series C price. The benchmarking yields similar results, ranging from \$588 million to \$948 million. The adjusted shadow valuation rises with the Series D pre-money valuation until capped, and declines over time as PIK interest accumulates, which increases the total discount.

This metric enables issuers and investors to benchmark convertible debt against priced equity, thereby facilitating informed decision-making. Although valuation is deferred until conversion, both investors and founders likely hold expectations regarding the timing and size of future financing. Founders additionally possess superior insider information about the company's value at the time of issuance. Investors, however, avoid pricing the company due to information asymmetry. Instead, they establish terms under which they would provide funding immediately in the form of a note and convert it in the subsequent round. These terms allow us to back-solve the adjusted shadow valuation for Einride at issuance. Einride can use this metric to assess whether the proposed terms align with its expectations of current valuation and future potential. Conversely, investors can infer the adjusted shadow valuation by back-solving from Einride's anticipated timing and size of future funding rounds with the proposed terms. Consequently, the adjusted shadow valuation enables both parties to agree on the instrument's terms despite asymmetric information and differing expectations about the next round. This fosters a more flexible negotiation process, supported by scenario modeling.

## 5.5. Series D conversion event

In June 2025, the convertible note converted upon Einride's Series D priced round fundraising (L. Kornehed Falck, November 24, 2025). In addition to the converted notes from the earlier raise, Einride raised \$50 million in common equity (L. Kornehed Falck, November 24, 2025; Lawrence-Geschwindt, 2025). The investor base included EQT Ventures as the largest shareholder, and other existing and new investors. The Series D achieved a post-money valuation of \$1.2 billion (R. Falck, October 3, 2025). Assuming the quarterly burn rate of \$20 million, which is the reported burn rate for the first two quarters of 2025, the round extended Einride's runway for an extra 5 quarters (Einride, 2025e). This provided Einride sufficient liquidity to maintain operations and pursue strategic investments in growth and autonomous technology.

According to our quantitative model (see Appendix H), noteholders received 2.3 million shares in Einride, corresponding to 6.3% ownership on a fully diluted basis prior to dilution from Series D investors, and 6.0% thereafter. The conversion of the \$50

million loan occurred at an effective discount of 31% relative to Series D pricing. Absent PIK interest and the valuation cap, ownership would therefore be 31% lower. In addition, investors earned \$4.5 million in cash interest during the holding period. Collectively, these factors resulted in an IRR of 74% and a MOIC of 1.5x. Benchmarking against typical Swedish convertible bridge note terms yields similar outcomes with differences primarily attributable to the inclusion of cash interest (see Appendix I). Noteholders would have received 6.2% ownership at conversion and 5.9% ownership after the Series D. Without cash interest, however, the IRR would be lowered to 59%, and the MOIC would be 1.4x.

The conversion event marked the completion of the bridge financing cycle that enabled Einride to navigate a critical liquidity period and secure strategic capital for continued growth.

## 5.6. Epilogue

In the first half of 2025, concurrent with Einride's Series D raise, investor sentiment began to shift back in favor of AV businesses, concluding the tough investment period of 2023–2024 (S. Lundell, November 11, 2025). In Spring 2025, Einride's main competitors achieved significant milestones. Kodiak Robotics announced going public, valued at \$2.5 billion, while Aurora Innovation launched its first commercial route with self-driving trucks in the US (Lundell, 2025a). Furthermore, signals of eased legislation in the US began to emerge, as the National Highway Traffic Safety Administration announced plans to improve regulations to facilitate faster AV adoption, including adjusting the requirements that earlier trumped the cabless AV's go-to-market (Shepardson, 2025).

“By 2025, sentiment had reversed again. Autonomy returned to favor, and the same market that had rejected it now questioned why anything else existed” (L. Kornehed Falck, October 10, 2025).

In May 2025, Robert Falck transitioned from CEO to Executive Chairman, with Roozbeh Charli, the former CFO, stepping into the CEO role. This leadership transition represented a strategic shift, with Robert Falck's move to a board role enabling focus on IPO preparation (Lundell, 2025b).

On November 12, 2025, Einride announced its plans to go public on the New York Stock Exchange in the first half of 2026 (Einride, 2025e). This will be done through a special purpose acquisition company deal with Legato Merger Corp. III, valuing the company at \$1.8 billion pre-money. The deal is expected to bring \$279.4 million in cash to Einride's balance sheet, including up to \$100 million estimated to be raised from private investors in public equity.

Pursuing an IPO on the US market was a logical step for Einride, given that the US is implementing significant measures to accelerate the adoption of AVs, as part of its

effort to establish itself as an AI leader, while Europe is lagging in terms of stricter regulations and an uncompetitive cost base (Bejerano, 2025). This results in a more conservative investor outlook in Einride's home market of Sweden and, broadly, Europe (L. Kornehed Falck, October 10, 2025). Furthermore, both of Einride's main competitors – Kodiak Robotics and Aurora Innovation – are listed on the Nasdaq stock exchange, ensuring a higher level of familiarity with the topic of autonomous trucks among the local investor base. The US is also the second-largest market for Einride, described as key to the company's success (Einride, 2025e).

From a commercial standpoint, Einride has reached a base of 26 customers across seven countries, including two customers who exclusively utilize autonomous vehicles. These metrics outperform Aurora and Kodiak, which serve 6 and 11 customers with 2 and 1 fully autonomous customers, respectively. In terms of its fleet, Einride operates 3 autonomous (as of November 2025) and 185 electric (as of June 2025) trucks (Einride, 2025e). The autonomous fleet is expected to increase in the short term, given Einride's customer commitments. For example, in the Middle East region, Einride secured the largest deployment of autonomous freight mobility through its partnership with DP World at Jebel Ali Port, planning on delivering the first vehicles in 2025 (Westerheide, 2025).

As of June 2025, Einride's annualized recurring revenue stands at \$45 million, or \$65 million, accounting for the signed customer contracts that have not yet commenced (Einride, 2025e). This is below the management's projections of achieving SEK 1 billion revenue in 2025, or \$105.7 million at the exchange rate of June 30, 2025 (Hävner, 2024c). Still, the annualized revenue figure represents the increase from 2024, when the revenue was \$41.3 million, converted from SEK at the year-end exchange rate of 2024 (Einride, 2025a). It is important to note that the only disclosed 2025 figures are calculated based on the monthly average revenue of the second quarter of 2025, annualized. This makes it not fully comparable to the previous year's revenue number and would bias the annualized 2025 revenue upwards, assuming lower revenue in the first quarter. Thus, the top-line performance of Einride following the convertible round is inconclusive.

Overall, Einride's navigation of the 2024 crisis through convertible financing and its subsequent conversions preserved the integrated business model that the founding leadership viewed as essential to Einride's long-term value creation. Indeed, the management's conviction about keeping the autonomous and carrier business interconnected proved correct as of late 2025. While the long-term viability of Einride's AV business remains to be seen, it is clear that the autonomous technology, combined with the traction from the carrier business, has become a key factor in Einride's ability to pursue an IPO. If not a convertible note, the next likely alternative during the 2024 crisis was to split the business, which would have pushed Einride off the IPO trajectory. As a result, the convertible loan of 2024 was essential, if not for Einride's continuous operations, then for its ability to grow into a public markets company.

## 6. Discussion

This chapter discusses the findings of the Einride case in relation to our research questions. The aim is to formalize practical insights from a real-world case and evaluate their relevance to academic concepts.

### 6.1. Einride's fundraising approach

We begin by addressing the first research question:

*How did Einride approach its fundraising strategy in response to its 2024 liquidity crisis?*

First, we discuss the key efforts taken by management to choose a path forward and secure the required funding. Then, we discuss the specific terms of the convertible note that Einride ultimately settled on, and how those terms impacted the round's outcomes.

#### 6.1.1. Mitigating the liquidity crisis

We find that Einride assessed the appropriateness of possible liquidity crisis solutions by conducting iterative quantitative analyses of strategic alternatives. Yet, the management avoided extensive modeling, recognizing that no single fully optimal alternative existed. The modeling took the form of scenario analyses to quantify the impact of financing options and other resolutions on runway, dilution, and strategic flexibility. This approach mirrors informal modeling practices documented in the literature on bridge financings in startups.

The Einride case stands out for highlighting the effort invested in tailoring interactions with investors to align with market trends. Maintaining recurring communication and engaging in ongoing negotiations with investors proved critical, as they faced their own limitations regarding available capital, investment mandates, and limited partner restrictions. Einride's experience stresses the importance of stakeholder relationship management and extends the academic literature on bridge financing. In particular, we find adaptive messaging to be critical for crisis fundraising.

#### 6.1.2. Structuring the convertible instrument

In this section, we discuss the key structural features of the convertible note that Einride issued to investors. We find that, in aggregate, Einride's convertible note terms can be characterized as aggressive to match the prevailing investor sentiment. Literature suggests that convertible debt terms vary depending on the level of distress and investor expectations, while industry practitioners note that Swedish market terms are typically more favorable to founders. Einride's case represents a departure from this norm,

reflecting the severity of the company’s situation and the adverse market conditions it faced.

The convertible note stands out for fully substituting the traditional flat conversion discount with a 49% PIK interest, compared to a much lower benchmark of 7.5% to 12.5%. The high PIK interest creates an incentive for management to pursue the next equity round rapidly to limit dilution. This results from the total discount being dependent on the PIK interest, increasing the dilution to founders over time. Interestingly, the simultaneous application of the PIK “discount” and a valuation cap presents a more investor-friendly variation from standard practice, where investors must choose between applying a flat discount or converting at the valuation cap.

The 10% cash interest offered by Einride is also uncommon for unprofitable startups. According to the literature, investors would be expected not to demand cash interest payments, preferring that cash be used for ongoing operations. For Einride, the inclusion of cash interest served multiple purposes, according to R. Falck (November 24, 2025). First, it compensated investors during the waiting period before conversion. This made the instrument attractive to a broader set of fund types, including credit-focused investors. Second, it provided the risk-adjusted yield expected in structured late-stage deals. Indeed, the cash interest is investor-friendly as it boosts investor IRR and MOIC compared to benchmarks as outlined in Section 5.4.3. In sum, the inclusion of cash interest reinforces the PIK interest insight: both features improve investor returns and create incentives for the company to promptly complete the next equity round.

Next, the literature highlights the valuation cap as an investor-friendly component against aggressive future valuations. Einride’s valuation cap of \$1.17 billion, according to our model, was set only marginally higher than the previous Series C valuation. This reflects the poor investor sentiment and the company’s weakened negotiating position.

Our results also indicate strong downside protection for investors. Through subordinated debt status, Einride’s convertible notes granted investors priority over equity holders in a liquidation scenario. However, structuring a round as preferred equity one class above Series C shares would have offered a similar protection for investors. However, our scenario analysis in Section 5.4.3 revealed a major downside protection of convertible debt in terms of IRR, with a minimum of 56% across scenarios. This result reflects the combined effect of cash interest and PIK accrual. While academic literature emphasizes downside protection through seniority in the capital structure, Einride’s case extends this insight by demonstrating how high PIK and cash interest can provide additional protection in scenarios where the company’s valuation drops significantly.

Interestingly, while Einride and investors did not want to explicitly price the company through the convertible round, the valuation cap and PIK interest partly reintroduce valuation dynamics. This prompted us to introduce the “adjusted shadow valuation” metric, which extends Bernthal's (2018) shadow valuation idea. The adjusted

shadow valuation accounts for the combined effects of the valuation cap, flat discount, and accrued PIK interest. It represents the implied pre-money valuation at which a direct equity investment at the time of note issuance yields the same ownership percentage as the convertible note investors receive upon conversion. We find that Einride's adjusted shadow valuation lies between \$529 million and \$930 million across selected scenarios. This demonstrates a discount towards the Series C price. The adjusted shadow valuation enables issuers and investors to benchmark convertible debt against priced equity rounds despite information asymmetry and deferred pricing. This can facilitate informed negotiation and decision-making, especially in countries like Sweden, where equity instruments are more mature and familiar to shareholders compared to convertible debt.

The two-year maturity and automatic conversion provision of Einride's note had limited relevance in negotiations and assessment of loan attractiveness. Scholars and Einride's management characterize both terms as an industry standard. From Einride's perspective, automatic conversion was founder-friendly, leaving capital in the company with certainty. Regardless, the loan would have to be converted before maturity due to Einride's liquidity constraints and low likelihood of obtaining funds via instruments that would not trigger conversion.

Our quantitative analysis from Section 5.5 reveals that economic outcomes differ unsubstantially when benchmarking Einride's terms against typical Swedish convertible bridge note terms, with differences in IRR and MOIC arising primarily from cash interest. This is largely attributable to the relatively quick conversion to Series D equity. Despite the chosen investor-friendly terms, the outcomes of the round ended up close to benchmarks, thus limiting dilution.

Einride also implemented significant cost reductions during the crisis period. It remains unclear whether cost-cutting was an explicit provision of the convertible financing or a prudent management response to extend the runway. The distinction matters for understanding the governance dimensions of the instrument, though in practice the economic effect was similar.

Overall, Einride incorporated aggressive, investor-oriented terms via high PIK and cash interests, combined with a low valuation cap, which limits investor downside. This finding goes beyond the typical cases found in literature by providing an example where both PIK and cash interests notably differ from benchmarks. Our thesis contributes to the literature on the use of convertible debt in startups by highlighting how these terms are employed to establish positive signaling, appeal to a broader set of investors, and compensate them properly for the associated risk.

## 6.2. Reasons for choosing convertible debt

We now turn to the second research question:

*Why did Einride choose convertible debt over other financing alternatives?*

First, we discuss key reasons related to overcoming adverse selection. We continue by discussing operational motives and lastly agency-related aspects.

### 6.2.1. Overcoming adverse selection

We find that the circumstances surrounding Einride's failed financing round created significant adverse selection problems due to information asymmetry, impeding favorable equity issuance. Eroded trust among stakeholders complicated further fundraising and placed Einride in a vulnerable position due to its limited runway. Potential investors faced difficulty distinguishing whether Einride's troubled fundraising stemmed from fundamental business problems or the imprudent actions of the investor who did not deliver the committed funding. As this complicated the valuation of the business, an equity up-round was unattainable.

Notably, while management faced external uncertainty regarding valuation, they maintained a firm conviction in the underlying business. That disqualified such liquidity-providing alternatives as the scale-down of the autonomous business or acquisition by PE, as they would have represented an abandonment of the original vision of Einride as an autonomous technology leader.

Our findings highlight that convertible debt was chosen as a suitable instrument to address the adverse selection issue. Adverse selection was mitigated by deferring valuation until a later date, when information asymmetry would be reduced, allowing future investors to price the company. Convertible debt ensured that participating investors do not have to take the risk of pricing the company, thereby promoting funding commitment. This aligns with Stein's (1992) delayed equity hypothesis.

While communicating with investors, Einride positioned the convertible note as a mechanism to reassure them during a period of uncertainty. Literature suggests that high PIK and cash interest rates serve as signals of founders' confidence in the firm's ability to secure future financing and deliver operational performance. This signaling proves particularly effective when management possesses superior information regarding future earnings potential, as was the case for Einride. Furthermore, Einride portrayed the total discount as terms that will always be favorable compared to what future equity investors can secure.

Moreover, convertible debt was chosen because it served as a protective instrument for both parties, enabling Einride to secure funds without triggering the negative effects associated with a down-round equity financing. These effects are

discussed in Section 5.3.1, and include signaling concerns, shareholder dilution at depressed valuations, and option repricing. The convertible note provided Einride enough runway for market conditions to improve, allowing the leadership to restart the Series D process from a position of strength and transparency rather than weakness and opacity.

Importantly, the market conditions in 2024 also played a role in Einride's decision to choose convertible debt over alternatives. Given the poor general equity market sentiment towards Einride's industry in 2024, the company faced specific challenges in finding instrument-market fit with potential investors, reflecting both external market dynamics and internal constraints on the investors' side. While scholars acknowledge that capital rationing during adverse market periods can influence the decision to pursue convertible debt (Lewis et al., 2001), we extend this by highlighting unique investor constraints regarding available capital, investment mandates, and limited partner restrictions.

#### 6.2.2. Operational motives

We find that multiple operational advantages further motivated Einride to issue convertible debt. Speed proved especially important given Einride's urgency to extend the runway. Convertible debt was faster to implement than other alternatives, as it required less time for investors to commit. Additionally, convertible debt required approval only by the Board of Directors, rather than a full shareholder vote. This provided Einride with the necessary capital on acceptable terms within a compressed timeframe.

Academic literature highlights speed and costs as major advantages of implementing convertible debt. Chaplinsky and Becker (2020) and Williams (2018) document that convertible debt enables startups to raise capital more quickly and with fewer legal complexities than equity financing, primarily by avoiding immediate valuation negotiations and minimizing documentation requirements. Coyle and Green (2014) note that legal fees for convertible financings can be 2–4 times lower than those for traditional equity rounds, though this gap has been decreasing over time. Interestingly, for Einride, speed was the critical factor influencing the choice of convertible debt, while cost savings appeared less important. This likely reflects the company's late-stage status and larger transaction size, where legal fees represent a smaller percentage of the total funding round than would be the case for early-stage companies.

Our thesis suggests that the structural flexibility of convertible debt was another factor in Einride's decision. By implementing aggressive terms, Einride could attract investors without triggering some of the negative signaling effects and complications associated with low valuations in a priced equity round. Scholars confirm that convertible debt accommodates varied terms depending on the specific situation (Coyle & Green, 2014; Williams, 2018), but do not acknowledge this as a reason to choose convertible debt over alternatives. For Einride, this flexibility was instrumental in securing financing

and ensuring organizational survival. The structure allowed investors to achieve their required return profile while enabling the company to avoid some the downsides of alternatives.

We find that maintaining the parent company debt-free was another consideration in favor of convertible debt from Einride's perspective, as it preserves flexibility for future fundraising. Traditional debt, on the other hand, was intentionally limited to lower fleet financing costs at the subsidiary level. Convertible debt avoids repayment problems for further fundraising by converting into equity, ensuring that all invested capital remains in the company to fund operations. This overcomes the main disadvantage of venture debt, where new equity investors must allocate a portion of their investment to repaying the debt, which complicates equity fundraising. On the contrary, convertible debt results in higher dilution compared to a scenario where venture debt must be repaid. However, for Einride, as a cashflow-negative, high-growth company, the preservation of capital and facilitation of subsequent equity financing outweighed the dilution costs. Einride's case extends current literature by highlighting that the debt-free objective makes convertible debt substantially more attractive than venture or traditional debt for non-profitable companies planning near-term equity fundraising.

Our results also indicate that maintaining a less complex capitalization table was another relevant factor in Einride's decision to pursue convertible debt, given the company's intention to pursue an IPO in the near term. However, this advantage has important limitations. While convertible debt is beneficial for cap table management when bridging to a single subsequent equity round, the benefits diminish or reverse if multiple sequential convertible rounds become necessary. Notably, R. Falck (October 3, 2025) describes executing two consecutive convertible rounds as problematic due to the difficulty of managing multiple layers of convertible instruments with different terms.

Furthermore, we find that Einride chose convertible debt because it enables high-risk, high-reward projects without the operational constraints of debt alternatives. Notably, this dynamic differs from Green's (1984) risk-shifting argumentation for mature corporations. For Einride as a startup, the motivation was to enable rather than curb risk-taking behavior.

### 6.2.3. Agency theory motives

Our research reveals that Einride did not actively consider any agency theory-related motives to pursue convertible debt. Schmidt's (2003) framework for addressing double-sided moral hazard through convertible debt represents a theoretical insight rather than a conscious motivation in this case. Similarly, Mayers' (1998) overinvestment avoidance framework does not apply to Einride because automatic conversion eliminates the repayment option that underpins the disciplining effect. We also find that Einride likely did not use convertible debt in line with Brennan and Kraus' (1987) and Brennan and

Schwartz's (1988) sweetened debt theory, as the high PIK and cash interest were likely similar to other debt alternatives, thereby not reducing interest burden.

Notably, while not explicitly mentioned by Einride, the convertible debt terms align with literature on curbing short-term performance manipulation. In line with Cornelli and Yosha (2003), Einride's valuation cap may effectively act as a favorable pre-specified conversion ratio and thereby reduce the founders' motivation to window-dress.

Overall, we find that Einride chose convertible debt as a means to delay valuation in times of high adverse selection costs and market rationing. The choice of convertible debt avoided triggering the negative effects associated with a down round equity financing. Convertible debt also enabled Einride to preserve the company's debt-free status for the next fundraising round and avoid business scale-down. The instrument provided further operational benefits that included the speed of implementation, structural flexibility, and a clean cap table. The convertible debt was especially suitable as it kept the investors and the founders aligned in pursuing risky projects due to the equity upside.

## 7. Conclusion

This chapter concludes our study by summarizing the main findings, discussing research limitations, and identifying opportunities for future research on convertible debt financing in startups.

### 7.1. Concluding remarks

This thesis examined Einride's financing decision to issue convertible debt in response to its 2024 liquidity crisis. Our research is motivated by the increasing relevance of convertible debt in European markets and limited research on the rationales behind its use in late-stage startups. We investigated how Einride approached its fundraising strategy and why it selected convertible debt over alternative instruments.

Our findings reveal that Einride continuously adapted its fundraising strategy and investor messaging in response to evolving investor sentiment and identified investor constraints. Internally, Einride quantified strategic alternatives through iterative scenario modeling to evaluate financing options. We find that Einride chose convertible debt to delay valuation while maintaining the company debt-free for subsequent rounds and avoiding business restructuring. Furthermore, the instrument provided operational advantages, including rapid implementation, structural flexibility, and a clean cap table. Notably, convertible debt aligned investor and founder incentives toward pursuing high-risk projects through equity upside. Upon selecting the instrument, Einride incorporated aggressive terms via a high PIK and cash interest, combined with a low valuation cap. This investor-friendly structure facilitated positive signaling, broadened investor appeal, and appropriately compensated investors for heightened risk.

In the ongoing trend of convertible debt use in Europe and Sweden, our thesis offers important implications for founders and investors navigating fundraising decisions during periods of market stress and valuation uncertainty. Founders confronted with fundraising crises should recognize that convertible debt, when coupled with high PIK and cash interest, can function as both a bridge financing tool and a positive signal. The instrument allows founders to preserve strategic flexibility rather than accepting forced business restructuring or equity dilution at depressed valuations. Investors, particularly in less mature markets like Sweden, should consider convertible debt as a relevant financing instrument that effectively functions as a downside-protected equity investment at a discounted valuation. The total discount that convertible note investors receive compared to future rounds represents the central negotiation theme. To facilitate negotiations, investors and founders can utilize the adjusted shadow valuation to benchmark convertible debt against priced equity.

This case study provides empirical documentation of late-stage startup financing, a segment underexplored in academic research. We contribute to the literature by linking the broad theoretical rationales for utilizing convertible debt to the context of Einride as a late-stage startup. Unlike industry standards studied in literature, Einride provides a scenario where both PIK and cash interest rates exceed conventional benchmarks. Furthermore, we advance academic work on convertible notes by introducing the concept of an adjusted shadow valuation. By accounting for the combined effect of valuation cap, flat discount, and PIK interest, this metric enables stakeholders to benchmark convertible debt against priced equity rounds despite information asymmetry and deferred pricing.

## 7.2. Research limitations

This study has important limitations that should be acknowledged when interpreting the findings. As a single case study, this research offers limited generalization to a broader population of startups. Low visibility across Einride and similar cases, driven by the limited publicity of the startup industry, makes it difficult to potentially extend or further validate the research. Moreover, the findings may be region- and timing-specific, and might not be fully applicable in a different context.

Finally, due to Einride's IPO preparation, the information we could obtain on the case was not fully comprehensive, as it was subject to confidentiality restrictions. Only two dependent stakeholders, albeit key, were available for the interviews, which limited the range of perspectives and potentially led to the exclusion of important details that the interviewees deemed confidential. This introduces a risk of subjectivity, while the ambiguity of the events could further lead to interpretation bias.

## 7.3. Areas for future research

Future research could advance understanding of convertible debt in late-stage bridge financings through multi-case studies across startups in different sectors and regions. This would improve the generalizability of our case study findings beyond single-case evidence, validate insights, and facilitate the exploration of the investor perspective. Additionally, large-scale quantitative empirical analysis, where data accessibility permits, would allow further investigation of convertible debt use trends and a comparison of its outcomes to other fundraising strategies. Furthermore, an analysis of the trade-offs between the aggressiveness of terms and fundraising or operational outcomes could clarify which structural features most effectively balance investor risk mitigation with founder flexibility. This would inform both theory and practice regarding optimal convertible structuring under distress in startups. Overall, the research on the motives and mechanisms behind convertible debt in late-stage startups remains underdeveloped and should be integrated into coherent theoretical frameworks to formalize the currently practitioner-driven field.

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## Appendices

### Appendix A. Einride's key personnel

#### **Robert Falck**

Robert Falck serves as Einride's Executive Chairman of the Board of Directors and has been CEO until May 2025. Prior to co-founding Einride in 2016, he led several smaller ventures across various industries. Robert Falck spent 4.5 years at Volvo Trucks, rising to Director of Manufacturing Engineering Assembly at Volvo GTO Powertrain. He completed a total of three BSc degrees in Mechanical Engineering, Business, and Economics and Finance, as well as an MSc degree in Mechanical Engineering.

Source: *Robert Falck* (n.d.)

#### **Linnéa Kornehed Falck**

Linnéa Kornehed Falck serves as a Board Member of Einride and has been Deputy CEO until May 2025. She is a Member of the World Economic Forum and a recurring volunteer at the Stockholm School of Economics Business Lab, where she was responsible for admissions and mentorship of startups. Prior to Einride, Linnéa Kornehed Falck completed a BSc in Computer Science and a BA in Graphic Design. She also holds an Executive Master in Business Administration degree.

Source: *Linnéa Kornehed Falck* (n.d.)

#### **Roozbeh Charli**

Roozbeh Charli has been appointed as Einride's CEO since May 2025. Prior to that, he spent five years at Einride, playing a central role in developing operational infrastructure and commercializing the business. Before joining Einride, he worked across several other organizations, including Groupon, Lazard, and Billhop. Roozbeh Charli obtained his education from the Stockholm School of Economics.

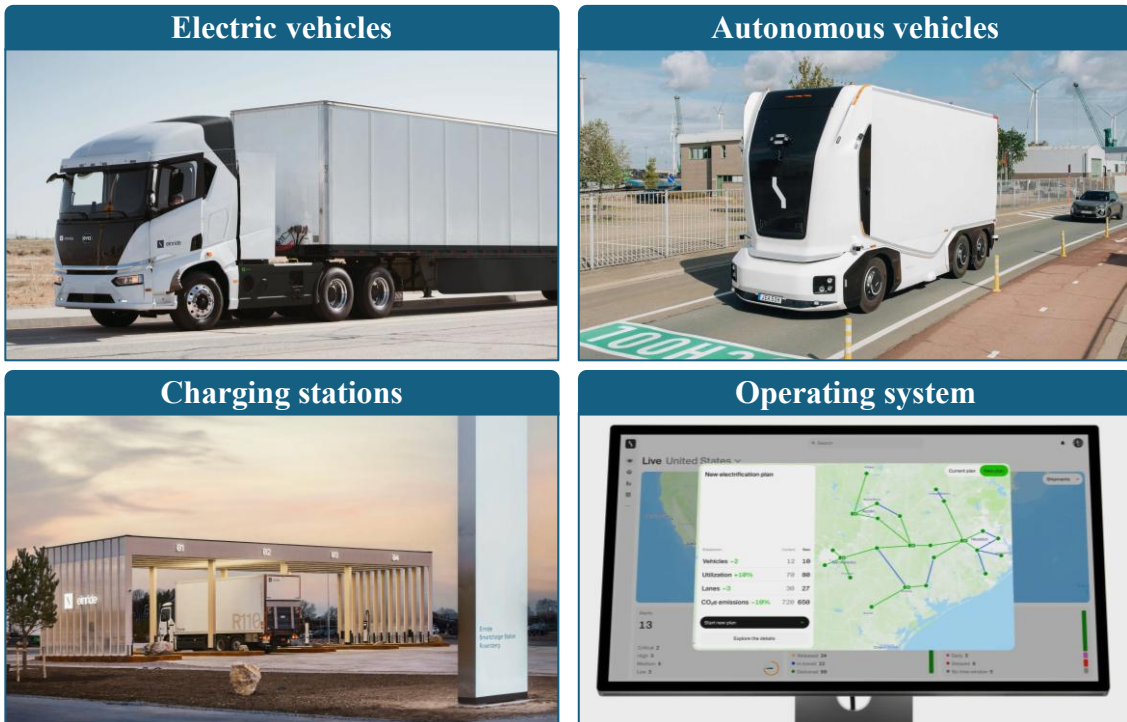
Source: *Roozbeh Charli* (n.d.)

#### **Executive Board Members**

- Anders Böös – Former Executive Chairman (until May 2025), Investor
- Robert Falck – Executive Chairman (since May 2025), Founder of Einride
- Linnéa Kornehed Falck – Founder of Einride
- Lorne Abony – General Partner at Texas Venture Partners
- Karin Markides – President and CEO of Okinawa Institute of Technology
- Marek Kiisa – Co-founder & Managing Partner at NordicNinja VC
- Ted Persson – Partner at EQT Ventures

Source: Einride (2025d)

## Appendix B. Einride's service offering components



Note: The figure is created by the authors.

Sources: Einride (n.d.-b, n.d.-a, 2023, 2025b)

## **Appendix C. Exemplary Einride customer case study**

The collaboration between GE Appliances, a Haier company, and Einride began in 2021, when the two companies signed their first operational contract to introduce electric and autonomous freight solutions into GE Appliances' US transport network. This marked the starting point for integrating Einride's technology into existing logistics flows.

The parties developed a joint business plan that describes a pathway for deploying more than 200 electric vehicles. The plan combines conventional electric trucks operated by drivers with cab-less autonomous trucks for driverless operation. As of mid-2025, the phased roll-out resulted in the deployment of 17 conventional electric trucks and 2 autonomous vehicles.

The relationship is structured under Einride's Freight-Capacity-as-a-Service model, in which GE Appliances commits to take-or-pay contracts with fixed monthly fees tied to minimum transport capacity. By June 2025, the partnership has generated ~\$5 million in annual recurring revenue, with potential expansion up to ~\$55 million under the joint business plan.

Between January 2024 and June 2025, the cab-less trucks were used to carry out transport assignments that together resulted in more than 32,000 units delivered and over 900 tonne-kilometers transported. During this period, the vehicles completed over 500 shipments, with approximately 95% of the distance driven in autonomous driving mode, and a recorded delivery precision of 98.9%.

Source: Einride (2025c)

## Appendix D. Einride's funding history

Timing	Round	Financing Type	Amount (\$ million)	Valuation <sup>1</sup> (\$ million)
06/2017	Pre-Seed	Equity	~0.7	~3
12/2017	Seed	Equity	~2.8	~20
07/2018	Seed	Equity	~4.0	~20
12/2018	Bridge to Series A	Convertible debt	~1.8	/
10/2019	Series A	Equity	~23.2	~50
10/2020	Series A Extension	Equity	~10	~50
05/2021	Series B	Equity	~110	~300
01/2022	Bridge to Series C	Convertible debt	~90	/
12/2022	Series C	Equity	~110	~1,100
10/2023	Series C Extension	Equity	~44	~1,100
02/2024	Series C Extension	Equity	~26	~1,100
09/2024	Bridge to Series D	Convertible debt	~50	/
06/2025	Series D	Equity	~50	~1,200
Total		Equity <sup>2</sup>	~524	

<sup>1</sup> Post-money valuation

<sup>2</sup> Including convertible debt

Note: The table is constructed by the authors and represents an approximation.

Sources: Crunchbase (n.d.); R. Falck (October 3, 2025); Karlsson (2024); L. Kornehed Falck (November 24, 2025)

## Appendix E. Einride's historical financials

**Table E1.** Einride's income statements for the years 2022 to 2024.

Income Statement	2024	2023	2022
<i>All figures in thousand SEK</i>			
<b>Group Operating Revenues</b>			
Net sales	457,833	185,467	59,854
Other operating revenues	14,682	36,383	81,743
Capitalized work for own account	–	22,436	55,045
<b>Operating Revenues</b>	<b>472,515</b>	<b>244,286</b>	<b>196,642</b>
<b>Group Operating Expenses</b>			
Raw materials and consumables	–329,885	–179,360	–81,499
Other external costs	–225,958	–336,844	–360,388
Personnel costs	–549,387	–626,583	–450,377
Depreciation and write-downs of tangible and intangible assets	–244,788	–328,206	–112,918
Other operating expenses	–	–113,854	–12
<b>Operating Result</b>	<b>–877,503</b>	<b>–1,340,562</b>	<b>–808,552</b>
<b>Financial Net</b>			
Financial Revenues	65,615	36,156	12,504
Financial Expenses	–210,710	–53,277	–208,531
Gains/Losses on Financial Items Remeasured to Fair Value	90,428	8,139	298,443
<b>Financial Net</b>	<b>–54,667</b>	<b>–8,982</b>	<b>102,416</b>
<b>Result Before Tax</b>	<b>–932,170</b>	<b>–1,349,544</b>	<b>–706,137</b>
Tax	2,778	1,464	–623
<b>Year's Result</b>	<b>–929,392</b>	<b>–1,348,080</b>	<b>–706,760</b>
<b>Year's Result Attributable To:</b>			
Parent company shareholders	–929,392	–1,348,080	–706,760
<b>Year's Result</b>	<b>–929,392</b>	<b>–1,348,080</b>	<b>–706,760</b>

Note: The table is constructed by the authors based on Einride's annual reports.

Sources: Einride (2024, 2025a)

**Table E2.** Einride's balance sheets for the years 2022 to 2024.

Balance Sheet	2024/12/31	2023/12/31	2022/12/31	2022/01/01
<i>All figures in thousand SEK</i>				
Assets				
Fixed Assets				
Intangible fixed assets	105,374	147,075	130,440	85,430
Tangible fixed assets	956,861	817,087	647,653	146,890
Right-of-use assets	495,143	504,196	182,665	120,681
Financial investments	23,677	17,621	12,760	11,716
Deferred tax assets	7,983	113,813	34,720	22,573
Total fixed assets	1,589,039	1,599,791	1,008,237	387,291
Current Assets				
Accounts receivable	52,101	49,469	33,146	2,907
Advances to suppliers	–	–	–	99,455
Current tax receivables	–	3,727	1,496	571
Other receivables	69,033	218,056	12,405	17,823
Prepaid expenses and accrued income	57,602	35,067	16,862	4,153
Cash and cash equivalents	74,165	221,048	1,336,235	509,832
Total current assets	252,901	527,367	1,400,144	634,741
Total Assets	1,841,940	2,127,158	2,408,381	1,022,032
Equity and Liabilities				
Equity				
Share capital	319	309	240	232
Other contributed capital	3,733,784	3,422,694	2,122,849	1,318,933
Translation reserves	–39,285	–9,966	–16,724	–2,848
Retained earnings, including year's result	–3,539,198	–2,609,807	–1,263,043	–555,001
Equity attributable to parent company's shareholders	155,620	803,231	843,321	761,316
Total Equity	155,620	803,231	843,321	761,316
Long-term Liabilities				
Liabilities to credit institution	–	184,528	–	–
Convertible bond debt	379,795	–	–	–
Other financial liabilities	1,702	87,410	93,863	–
Lease liabilities	481,616	481,104	110,031	75,556
Deferred tax liability	1,786	111,201	35,343	22,573

Provisions	–	–	1,668	1,522
Total long-term liabilities	864,899	864,243	240,905	99,652
<b>Short-term Liabilities</b>				
Liabilities to credit institutions	–	72,896	–	–
Convertible bond debt	–	–	982,894	–
Accounts payables	401,943	134,657	59,938	89,356
Lease liabilities	79,211	71,387	58,534	34,022
Other financial liabilities	–	36,319	50,990	–
Current tax payable	4,862	–	–	–
Other liabilities	192,221	36,319	23,311	9,328
Accrued expenses and deferred income	143,183	144,425	148,487	28,359
Total short-term liabilities	821,421	459,684	1,324,155	161,064
Total Liabilities	1,686,320	1,323,927	1,565,060	260,716
Total Equity and Liabilities	1,841,940	2,127,158	2,408,381	1,022,032

Note: The table is constructed by the authors based on Einride's annual reports.

Sources: Einride (2024, 2025a)

**Table E3.** Einride's cash flow statements for the years 2022 to 2024.

Cash Flow Statement	2024	2023	2022
<i>All figures in thousand SEK</i>			
<b>Operating activities</b>			
Operating result	–877,503	–1,340,562	–808,552
Adjustments for non-cash items			
Depreciation and amortization	244,788	328,081	132,387
Unrealized foreign exchange differences	–1,926	–	–21,735
Gains/losses on sale of fixed assets	–21,198	–1,245	–782
Share-based compensation	1,643	7,481	–
Increase/(decrease) in accrued items	–6,675	–	–
Increase/(decrease) in provisions	–	–1,668	146
Interest received	21,777	31,278	2,993
Interest paid	–34,856	–39,581	–7,352
Income tax paid	–3,020	–3,937	–925
Cash flow from operating activities before changes in working capital	–676,970	–1,020,153	–703,820
Increase (-)/decrease (+) in operating receivables	161,742	–248,163	65,487

Increase (+)/decrease (-) in operating liabilities	432,435	96,807	103,772
Cash flow from operating activities	-82,793	-1,171,509	-534,561
<b>Investing activities</b>			
Acquisition of subsidiaries/businesses, net	–	-675	-679
Sale of tangible fixed assets	57,493	13,871	13,849
Acquisition of tangible fixed assets	-308,517	-373,245	-581,853
Acquisition of intangible fixed assets	-685	-48,839	-64,478
Investments in financial instruments	–	–	89,540
Acquisition of financial assets	-6,525	-4,931	-1,045
Cash flow from investing activities	-258,234	-413,819	-544,666
<b>Financing activities</b>			
New borrowings	6,650	312,320	781,376
Costs related to new borrowings	–	-84,895	–
Repayment of borrowings	-320,000	–	–
Amortization of lease liabilities	-118,688	-58,534	-34,022
New share issue	309,515	301,245	1,157,672
Issue of convertible loan	319,887	–	–
Option premiums	-59	–	–
Changes in long-term subsidy liabilities	-270	–	–
Long-term receivables/deposits	-468	–	–
Amortization of interest derivative	-3,787	–	–
Cash flow from financing activities	192,780	470,136	1,905,026
<b>Net cash flow for the year</b>			
Net cash flow for the year	-148,247	-1,115,192	825,799
Cash and cash equivalents, beginning of year	221,048	1,336,235	509,832
Exchange rate differences in cash and cash equivalents	1,364	5	604
Cash and cash equivalents at year-end	74,165	221,048	1,336,235

Note: The table is constructed by the authors based on Einride's annual reports.

Sources: Einride (2024, 2025a)

**Table E4.** Einride’s net sales per geographic region for the years 2022 to 2024.

Geographic Region	2024	2023	2022
<i>All figures in thousand SEK</i>			
Europe	298,861	123,892	7,093
USA	158,972	61,575	12,761
Total Net Sales	457,833	185,467	59,854

Note: The table is constructed by the authors based on Einride’s annual reports.

Sources: Einride (2024, 2025a)

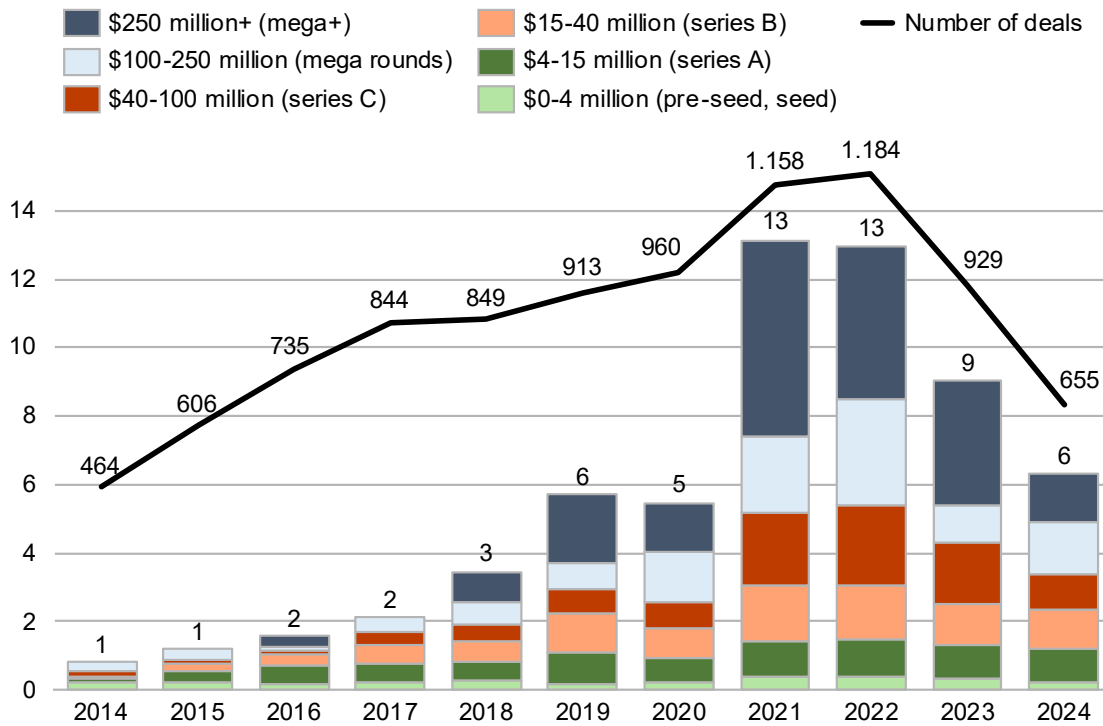
**Table E5.** Einride’s obligations for the performance of transport services as of the years 2022 to 2024.

Obligations for the performance of transport services	2024/12/31	2023/12/31	2022/12/31
<i>All figures in thousand SEK</i>			
Total	3,675,598	4,000,226	1,800,729

Note: The table is constructed by the authors based on Einride’s annual reports. Obligations for the performance of transport services represent the transaction price allocated to performance obligations that are unfulfilled (or partially unfulfilled) at the end of the financial year.

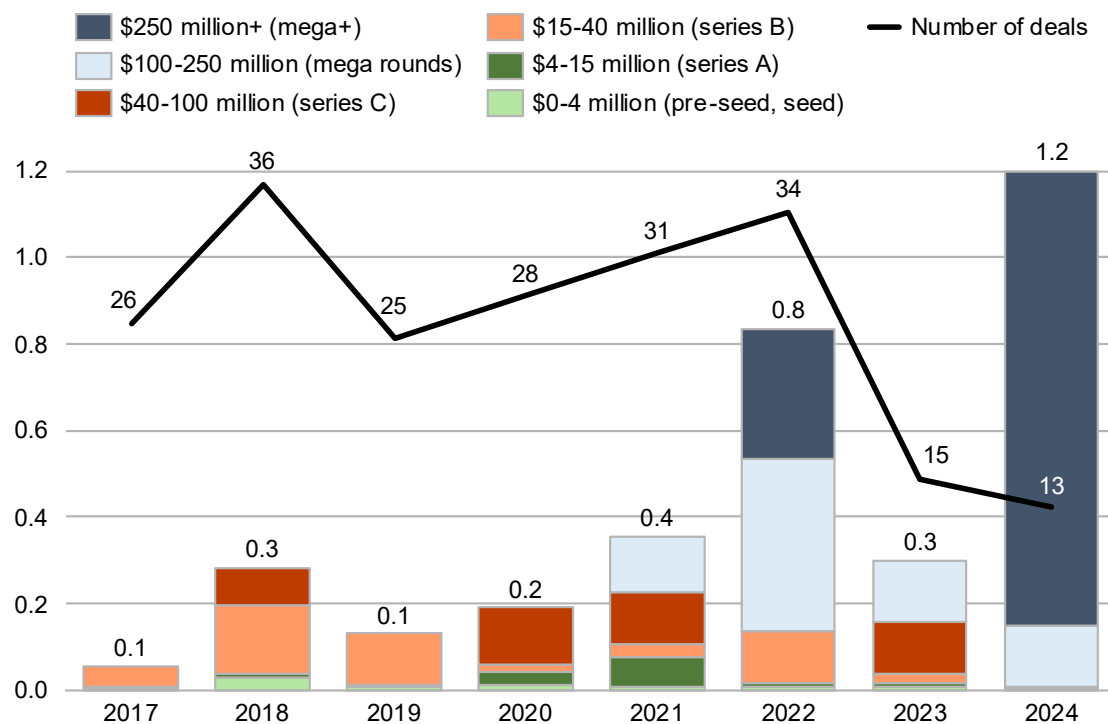
Sources: Einride (2024, 2025a)

## Appendix F. The state of the mobility startup industry



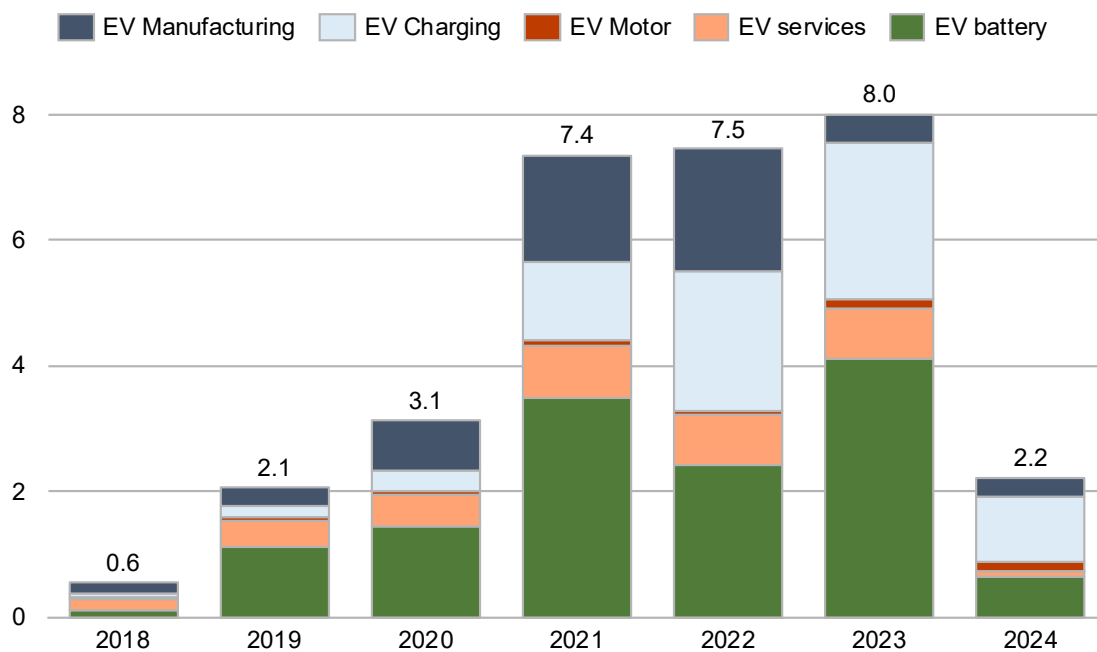
Note: The figure is constructed by the authors. The bar values are reported in billions of dollars and represent the investment volume in European mobility startups across various financing stages, documented in the legend, and years on the x-axis. The line values represent the total number of deals annually. Source: *State of European Mobility Startups (2025)*.

**Figure F1.** The volume of VC investment in European mobility startups by stage, in \$ billion, and the total number of deals from 2014 to 2023.



Note: The figure is constructed by the authors. The bar values are reported in billions of dollars and represent the investment volume in European mobility autonomous startups across various financing stages, documented in the legend, and years on the x-axis. The line values represent the total number of deals annually. Source: *State of European Mobility Startups (2025)*.

**Figure F2.** The volume of VC investment in European autonomous mobility startups by stage, in \$ billion, and the total number of deals from 2014 to 2023.



Note: The figure is constructed by the authors. The bar values are reported in billions of dollars and represent the investment volume in European electric mobility startups across various sub-sectors, documented in the legend, and years on the x-axis. Source: *State of European Mobility Startups (2025)*.

**Figure F3.** The volume of VC investment in European electric mobility startups by sub-sector, in \$ billion, from 2014 to 2023.

## **Appendix G. Einride's convertible promissory note terms**

In September 2024, Einride issued a convertible bond with a term of 24 months. The loan carries an annual nominal interest rate of 10%, as well as an annual PIK interest rate of 49%. The accrued nominal interest is paid quarterly in arrears to the convertible holders. PIK interest is capitalized quarterly and added to the loan principal and the amount which will be converted. PIK interest is paid only for the first 18 months of the loan.

Conversion of the loan occurs automatically at maturity in September 2026. The company may request conversion to occur during the loan's term. A convertible holder has the right to request conversion during three limited time periods during the term, but no later than September 2026. The conversion will be at the lower of \$34 or the applicable "market value," i.e., the then current preference for Series C preference shares for dividends in accordance with the current articles of association. The holder will receive one share for each full amount of the applicable conversion price.

Source: Einride (2025a)

## Appendix H. Quantitative scenario model

This appendix presents a financial scenario model that quantifies the outcomes of Einride’s convertible promissory note in 2024.

**Table H1.** Modeling Inputs.

Inputs		
<b>Convertible debt terms</b>		Source
Cash interest, paid quarterly	10% per annum	(Einride, 2025a)
PIK interest, capitalized quarterly for first 18 months	49% per annum	(Einride, 2025a)
Valuation cap, per share	\$34	(Einride, 2025a)
Flat discount to next equity round	0%	(Einride, 2025a)
Convertible loan issue date	01.09.2024	Authors’ assumption based on L. Kornehed Falck (November 24, 2025); Breakit (n.d.)
Convertible loan maturity	01.09.2026	(Einride, 2025a)
Investment amount (original principal)	\$50,000,000	(R. Falck, October 3, 2025); approximate value
<b>Number of shares as of 2024</b>		Source
Shares outstanding	31,978,515	(Einride, 2025a)
+ Warrants	2,169,008	(Einride, 2025a)
+ Options	350,382	(Einride, 2025a)
<b>= Fully diluted shares (FDS)</b>	<b>34,497,905</b>	
<b>Conversion terms (ex-post)</b>		Source
Conversion event	Series D	(L. Kornehed Falck, November 24, 2025)
Conversion date	15.06.2025	Authors’ assumption based on L. Kornehed Falck (November 24, 2025)
Series D post-money valuation	\$1,200,000,000	(R. Falck, October 3, 2025); approximate value
- Series D equity investment	\$50,000,000	(L. Kornehed Falck, November 24, 2025); approximate value
<b>= Series D pre-money valuation</b>	<b>\$1,150,000,000</b>	

Note: Cash interest is paid quarterly at 2.5% of outstanding principal including accrued PIK interest. PIK interest is capitalized quarterly at 12.25% of outstanding principal and afterwards added to the principal amount such that the principal increases each quarter for the first 18 months.

**Table H2.** Convertible debt development per quarter.

<b>Convertible debt development per quarter</b>									
	01.09.2024	01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Investment (original principal)	\$50,000,000								
Cash interest on principal		\$1,250,000	\$1,403,125	\$1,575,008	\$1,767,946	\$1,984,520	\$2,227,623	\$2,500,507	\$2,500,507
Accumulated cash interest		\$1,250,000	\$2,653,125	\$4,228,133	\$5,996,079	\$7,980,599	\$10,208,222	\$12,708,729	\$12,708,729
PIK interest on principal		\$6,125,000	\$6,875,313	\$7,717,538	\$8,662,937	\$9,724,146	\$10,915,354	\$0	\$0
Accumulated PIK interest		\$6,125,000	\$13,000,313	\$20,717,851	\$29,380,788	\$39,104,934	\$50,020,288	\$50,020,288	\$50,020,288
<b>Principal (including PIK)</b>	<b>\$50,000,000</b>	<b>\$56,125,000</b>	<b>\$63,000,313</b>	<b>\$70,717,851</b>	<b>\$79,380,788</b>	<b>\$89,104,934</b>	<b>\$100,020,288</b>	<b>\$100,020,288</b>	<b>\$100,020,288</b>

Note: All figures are as of the beginning of the quarter. PIK and cash interest are calculated at the quarterly rate based on last quarter's principal, including any accrued PIK interest. PIK interest is only added for the first 18 months. The principal is calculated by adding accumulated PIK interest to the outstanding principal. This creates an exponential interest growth in both cash and PIK interest for the first 18 months.

**Table H3.** Convertible debt at conversion date.

<b>Convertible debt at conversion date</b>	
<b>Principal</b>	
<b>Last full quarter</b>	<b>01.06.2025</b>
Investment	\$50,000,000
+ Accumulated PIK interest	\$20,717,851
<b>= Principal at last full quarter</b>	<b>\$70,717,851</b>
<b>Conversion date</b>	
	<b>15.06.2025</b>
+ Additional PIK, pro-rata until conversion	\$1,329,108
<b>= Principal at conversion date</b>	<b>\$72,046,959</b>
<b>Cash interest</b>	
Accumulated cash interest at last full quarter	\$4,228,133
+ Additional cash interest, pro-rata until conversion	\$271,247
<b>= Total cash interest until conversion date</b>	<b>\$4,499,379</b>

Note: To calculate the principal at the conversion date as well as the total cash interest until the conversion date, we take the respective values for the last full quarter preceding the conversion date and add additional cash and PIK interest pro rata for all additional days since the last full quarter until the conversion date. The additional pro rata PIK interest is equal to: (principal at the last full quarter \* (49% \* (15.06.2025 – 01.06.2025) / 365)) where (15.06.2025 – 01.06.2025) = 14. The additional pro rata cash interest equals: (principal at the last full quarter \* (10% \* (15.06.2025 – 01.06.2025) / 365)) where (15.06.2025 – 01.06.2025) = 14.

**Table H4.** Share price calculations.

Share price calculations		
	Convertible	Series D
Post-money valuation	\$1,150,000,000	\$1,200,000,000
- Outstanding principal (Investment amount incl. accrued PIK interest)	\$72,046,959	\$50,000,000
= Pre-money valuation	\$1,077,953,041	\$1,150,000,000
/ FDS prior to investment	34,497,905	36,803,635
= Undiscounted share price	\$31.2	\$31.2
Adjust for flat discount	0%	/
= Discounted share price (Undiscounted price per share * (1 - flat discount))	\$31.2	\$31.2
Vs. valuation cap per share	\$34.0	/
= <b>Share price (minimum of discounted share price and valuation cap per share)</b>	<b>\$31.2</b>	<b>\$31.2</b>
Discount towards undiscounted share price (1 - (share price / undiscounted share price))	0%	0%

Note: According to the percentage-ownership method, the outstanding principal must be reduced from the Series D pre-money valuation (=post-money valuation of the convertible debt) to get to the pre-money valuation of the convertible debt investment (Chaplinsky & Becker, 2020; Colla, 2014).

**Table H5.** Outcomes of the convertible debt and Series D financing.

<b>Outcomes</b>		
<b>Ownership after conversion</b>	<b>Convertible</b>	<b>Series D</b>
Investment amount incl. accrued interest	\$72,046,959	\$50,000,000
/ Share price	\$31.2	\$31.2
= Shares issued	2,305,730	1,600,158
+ FDS prior to investment	34,497,905	36,803,635
= FDS after investment	36,803,635	38,403,794
Acquired ownership prior to dilution	6.3%	4.2%
Acquired ownership post-dilution	6.0%	4.2%
<b>Valuation of shares upon conversion</b>		
= Shares issued	2,305,730	
* Series D share price	\$31.2	
= <b>Value of shares</b>	<b>\$72,046,959</b>	

Note: The acquired ownership prior to dilution represents the convertible debt investors' ownership before dilution due to Series D investors. This is equal to: (Shares issued / FDS after investment), per column. The acquired ownership post dilution is equal to: (Shares issued / FDS after Series D investment), per column.

**Table H6.** Return analysis.

<b>Return Analysis</b>	01.09.2024	01.12.2024	01.03.2025	01.06.2025	15.06.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Quarterly cash flows	- \$50,000,000	\$1,250,000	\$1,403,125	\$1,575,008	\$0	\$0	\$0	\$0	\$0
+ Additional pro-rata cash interest	\$0	\$0	\$0	\$0	\$271,247	\$0	\$0	\$0	\$0
+ Value of shares	\$0	\$0	\$0	\$0	\$72,046,959	\$0	\$0	\$0	\$0
= <b>Total returns to investors</b>	<b>- \$50,000,000</b>	<b>\$1,250,000</b>	<b>\$1,403,125</b>	<b>\$1,575,008</b>	<b>\$72,318,205</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

Note: We add the value of the shares received upon conversion to the total returns, as it represents priced equity in the company which can be sold in the future.

**Table H7.** Further analysis.

<b>Further Analysis</b>	
<b>“Shadow valuation”</b>	
Valuation cap per share	34.0\$
* FDS pre-investment	34,497,905.0
<b>= Shadow valuation</b>	<b>\$1,172,928,770</b>
<b>Total discount for convertible investors</b>	
Investment amount	\$50,000,000
/ Shares issued	2,305,730.4
= Total discounted share price	21.7\$
vs Series D share price	31.2\$
<b>Total discount to Series D price</b>	<b>31%</b>
<b>“Adjusted shadow valuation”</b>	
Total discounted share price	21.7\$
* FDS pre-investment	34,497,905.0
<b>= Adjusted shadow valuation</b>	<b>\$748,090,591</b>

Note: We calculate the “shadow valuation” according to Bernthal (2018). The Total discounted share price represents the effective price at which the convertible noteholders acquired their equity stakes. Since the noteholders invested \$50 million, we divide this by the number of shares they received to determine the total discounted price for those shares. The shares received are influenced by the PIK interest, the valuation cap, and the flat discount into account. The total discount is calculated as:  $(1 - \text{Total discounted share price} / \text{Series D share price})$  and represents the discount that convertible debt investors received when comparing their original investment and the equity stakes they received to what they would have had to pay, had they invested in the Series D round.

**Table H8.** Ex-post key performance indicators of convertible investors.

<b>Key performance indicators (KPIs) of convertible investors (ex-post)</b>	<b>15.06.2025</b>
<b>Acquired ownership prior to dilution</b>	<b>6.3%</b>
<b>Acquired ownership post-dilution</b>	<b>6.0%</b>
<b>Total discount to Series D share price</b>	<b>31%</b>
<b>Total cash interest until conversion</b>	<b>\$4,499,379</b>
<b>Total IRR</b>	<b>74%</b>
<b>MOIC</b>	<b>1.5x</b>
<b>Adjusted shadow valuation</b>	<b>\$748,090,591</b>

Note: The acquired ownership prior to dilution and the acquired ownership post dilution are equal to the respective equivalent values in Table H5. The total discount to the Series D share price and the adjusted shadow valuation are equal to the respective equivalent values in Table H7. The total cash interest until conversion is equal to the equivalent value in Table H3. The total IRR is the annualized effective compounded return, calculated as the discount rate that sets the net present value of all cash flows and unrealized gains from an investment equal to zero (Allied Venture Partners, n.d.). We therefore include all the total returns in Table H6 in our calculation. The IRR is calculated by applying Excel’s XIRR function on Table H6. The “values” are the total returns in row six of the Table H6, while the “dates” are the dates in row two of Table H6. The MOIC is the ratio of the total realized and unrealized gains from an investment relative to the capital invested (Lehman, 2025). The MOIC is calculated by dividing the sum of the positive total return in Table H6 by the investment of \$50 million.

**Table H9.** Ex-ante scenario analysis.

**Scenario analysis (ex ante)**

Acquired ownership prior to dilution		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Pre-money valuation of Series D	\$230,000,000	24.4%	27.4%	30.7%	34.5%	38.7%	43.5%	43.5%	43.5%
	\$460,000,000	12.2%	13.7%	15.4%	17.3%	19.4%	21.7%	21.7%	21.7%
	\$690,000,000	8.1%	9.1%	10.2%	11.5%	12.9%	14.5%	14.5%	14.5%
	<b>\$920,000,000</b>	6.1%	<b>6.8%</b>	<b>7.7%</b>	<b>8.6%</b>	9.7%	10.9%	10.9%	10.9%
	<b>\$1,150,000,000</b>	4.9%	<b>5.5%</b>	<b>6.1%</b>	<b>6.9%</b>	7.7%	8.7%	8.7%	8.7%
	<b>\$1,380,000,000</b>	4.6%	<b>5.1%</b>	<b>5.7%</b>	<b>6.3%</b>	7.1%	7.9%	7.9%	7.9%
	\$1,610,000,000	4.6%	5.1%	5.7%	6.3%	7.1%	7.9%	7.9%	7.9%
	\$2,070,000,000	4.6%	5.1%	5.7%	6.3%	7.1%	7.9%	7.9%	7.9%

Total discount to Series D share price		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Pre-money valuation of Series D	\$230,000,000	11%	21%	29%	37%	44%	50%	50%	50%
	\$460,000,000	11%	21%	29%	37%	44%	50%	50%	50%
	\$690,000,000	11%	21%	29%	37%	44%	50%	50%	50%
	<b>\$920,000,000</b>	11%	<b>21%</b>	<b>29%</b>	<b>37%</b>	44%	50%	50%	50%
	<b>\$1,150,000,000</b>	11%	<b>21%</b>	<b>29%</b>	<b>37%</b>	44%	50%	50%	50%
	<b>\$1,380,000,000</b>	21%	<b>29%</b>	<b>37%</b>	<b>43%</b>	49%	54%	54%	54%
	\$1,610,000,000	33%	40%	46%	52%	57%	61%	61%	61%
	\$2,070,000,000	48%	54%	59%	63%	67%	70%	70%	70%

Total cash interest until conversion		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
		\$1,250,000	<b>\$2,653,125</b>	<b>\$4,228,133</b>	<b>\$5,996,079</b>	\$7,980,599	\$10,208,222	\$12,708,729	\$15,209,237

Total IRR		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Pre-money valuation of Series D	\$230,000,000	74%	74%	74%	73%	73%	74%	63%	56%
	\$460,000,000	74%	74%	74%	73%	73%	74%	63%	56%
	\$690,000,000	74%	74%	74%	73%	73%	74%	63%	56%
	<b>\$920,000,000</b>	74%	<b>74%</b>	<b>74%</b>	<b>73%</b>	73%	74%	63%	56%
	<b>\$1,150,000,000</b>	74%	<b>74%</b>	<b>74%</b>	<b>73%</b>	73%	74%	63%	56%
	<b>\$1,380,000,000</b>	179%	<b>118%</b>	<b>100%</b>	<b>91%</b>	86%	83%	71%	62%
	\$1,610,000,000	425%	199%	146%	123%	111%	103%	86%	75%
	\$1,840,000,000	806%	293%	195%	155%	135%	122%	101%	87%
\$2,070,000,000	1363%	400%	245%	187%	158%	140%	115%	98%	

MOIC		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Pre-money valuation of Series D	\$230,000,000	1.1x	1.3x	1.5x	1.7x	1.9x	2.2x	2.3x	2.3x
	\$460,000,000	1.1x	1.3x	1.5x	1.7x	1.9x	2.2x	2.3x	2.3x
	\$690,000,000	1.1x	1.3x	1.5x	1.7x	1.9x	2.2x	2.3x	2.3x
	<b>\$920,000,000</b>	1.1x	<b>1.3x</b>	<b>1.5x</b>	<b>1.7x</b>	1.9x	2.2x	2.3x	2.3x
	<b>\$1,150,000,000</b>	1.1x	<b>1.3x</b>	<b>1.5x</b>	<b>1.7x</b>	1.9x	2.2x	2.3x	2.3x
	<b>\$1,380,000,000</b>	1.3x	<b>1.5x</b>	<b>1.7x</b>	<b>1.9x</b>	2.1x	2.4x	2.4x	2.5x
	\$1,610,000,000	1.5x	1.7x	1.9x	2.2x	2.5x	2.8x	2.8x	2.9x
	\$1,840,000,000	1.7x	2.0x	2.2x	2.5x	2.8x	3.2x	3.2x	3.3x
\$2,070,000,000	2.0x	2.2x	2.5x	2.8x	3.2x	3.6x	3.6x	3.7x	

Adjusted shadow valuation		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Pre-money valuation of Series D	\$230,000,000	\$154,899,777	\$132,538,777	\$112,618,064	\$94,871,327	\$79,061,316	\$64,976,673	\$64,976,673	\$64,976,673
	\$460,000,000	\$359,799,555	\$315,077,554	\$275,236,128	\$239,742,653	\$208,122,631	\$179,953,346	\$179,953,346	\$179,953,346
	\$690,000,000	\$564,699,332	\$497,616,331	\$437,854,193	\$384,613,980	\$337,183,947	\$294,930,019	\$294,930,019	\$294,930,019
	<b>\$920,000,000</b>	\$769,599,109	<b>\$680,155,108</b>	<b>\$600,472,257</b>	<b>\$529,485,307</b>	\$466,245,262	\$409,906,692	\$409,906,692	\$409,906,692
	<b>\$1,150,000,000</b>	\$974,498,886	<b>\$862,693,885</b>	<b>\$763,090,321</b>	<b>\$674,356,634</b>	\$595,306,578	\$524,883,365	\$524,883,365	\$524,883,365
	<b>\$1,380,000,000</b>	\$1,044,925,408	<b>\$930,891,232</b>	<b>\$829,301,765</b>	<b>\$738,798,900</b>	\$658,172,740	\$586,345,425	\$586,345,425	\$586,345,425
	\$1,610,000,000	\$1,044,925,408	\$930,891,232	\$829,301,765	\$738,798,900	\$658,172,740	\$586,345,425	\$586,345,425	\$586,345,425
	\$1,840,000,000	\$1,044,925,408	\$930,891,232	\$829,301,765	\$738,798,900	\$658,172,740	\$586,345,425	\$586,345,425	\$586,345,425
	\$2,070,000,000	\$1,044,925,408	\$930,891,232	\$829,301,765	\$738,798,900	\$658,172,740	\$586,345,425	\$586,345,425	\$586,345,425

Note: The scenario analysis presents a prospective sensitivity matrix examining how the KPIs from Table H8 vary under different combinations of Series D pre-money valuation and conversion timing. For more information on the respective KPIs across the seven scenario matrices, please refer to Table H8, including the note. This ex-ante framework is constructed from the view of the date of investment to evaluate payoff profiles before the Series D outcome was known. The rows represent nine pre-money valuation scenarios capturing a spectrum from severe downside (up to -80%) to substantial upside (up to +80%) relative to the realized valuation of \$1,150 million. The columns are nine potential conversion dates spanning from December 1, 2024, to September 1, 2026, thereby representing every subsequent quarter after the issuing date and bracketing the instrument's contractual maturity.

The scenario matrices were constructed using Excel's Data Table function, a parametric sensitivity tool that automates recalculation across multiple input combinations. The Data Table function operates by designating two input variables and a target formula that depends on both variables. The row input is the pre-money valuation and column input is the conversion date. Excel then systematically recalculates the target formula for every combination of row and column inputs, populating the resulting matrix with outcomes.

## Appendix I. Quantitative scenario model – Benchmarking

This appendix presents a financial scenario model that quantifies the benchmarking of Einride’s convertible promissory note in 2024.

**Table II.** Modeling Inputs.

Inputs		
<b>Convertible debt benchmarking terms</b>		Source
Cash interest, paid quarterly	0% p.a.	(E. Arnetz & G. Elezi, November 14, 2025)
PIK interest, capitalized quarterly for first 18 months	10% p.a.	(E. Arnetz & G. Elezi, November 14, 2025)
Valuation cap, per share	\$34	Authors’ assumption, (Einride, 2025a)
Flat discount to next equity round	25%	(E. Arnetz & G. Elezi, November 14, 2025)
Convertible loan issue date	01.09.2024	Authors’ assumption based on L. Kornehed Falck (November 24, 2025); Breakit (n.d.)
Convertible loan maturity	01.09.2026	(Einride, 2025a)
Investment amount (original principal)	\$50,000,000	(R. Falck, October 3, 2025); approximate value
<b>Number of shares as of 2024</b>		Source
Shares outstanding	31,978,515	(Einride, 2025a)
+ Warrants	2,169,008	(Einride, 2025a)
+ Options	350,382	(Einride, 2025a)
<b>= Fully diluted shares (FDS)</b>	<b>34,497,905</b>	
<b>Conversion terms (ex-post)</b>		Source
Conversion event	Series D	(L. Kornehed Falck, November 24, 2025)
Conversion date	15.06.2025	Authors’ assumption based on L. Kornehed Falck (November 24, 2025)
Series D post-money valuation	\$1,200,000,000	(R. Falck, October 3, 2025); approximate value
- Series D equity investment	\$50,000,000	(L. Kornehed Falck, November 24, 2025); approximate value
<b>= Series D pre-money valuation</b>	<b>\$1,150,000,000</b>	

Note: Cash interest is paid quarterly at 2.5% of outstanding principal including accrued PIK interest. PIK interest is capitalized quarterly at 12.25% of outstanding principal and afterwards added to the principal amount such that the principal increases each quarter for the first 18 months.

**Table I2.** Convertible debt development per quarter.

<b>Convertible debt development per quarter</b>									
	01.09.2024	01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Investment (original principal)	\$50,000,000								
Cash interest on principal		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Accumulated cash interest		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PIK interest on principal		\$1,250,000	\$1,281,250	\$1,313,281	\$1,346,113	\$1,379,766	\$1,414,260	\$0	\$0
Accumulated PIK interest		\$1,250,000	\$2,531,250	\$3,844,531	\$5,190,645	\$6,570,411	\$7,984,671	\$7,984,671	\$7,984,671
<b>Principal (including PIK)</b>	<b>\$50,000,000</b>	<b>\$51,250,000</b>	<b>\$52,531,250</b>	<b>\$53,844,531</b>	<b>\$55,190,645</b>	<b>\$56,570,411</b>	<b>\$57,984,671</b>	<b>\$57,984,671</b>	<b>\$57,984,671</b>

Note: All figures are as of the beginning of the quarter. PIK and cash interest are calculated at the quarterly rate based on last quarter's principal, including any accrued PIK interest. PIK interest is only added for the first 18 months. The principal is calculated by adding accumulated PIK interest to the outstanding principal. This creates an exponential interest growth in both cash and PIK interest for the first 18 months.

**Table I3.** Convertible debt at conversion date.

<b>Convertible debt at conversion date</b>	
<b>Principal</b>	
<b>Last full quarter</b>	<b>01.06.2025</b>
Investment	\$50,000,000
+ Accumulated PIK interest	\$3,844,531
<b>= Principal at last full quarter</b>	<b>\$53,844,531</b>
<b>Conversion date</b>	
	<b>15.06.2025</b>
+ Additional PIK, pro-rata until conversion	\$206,527
<b>= Principal at conversion date</b>	<b>\$54,051,058</b>
<b>Cash interest</b>	
Accumulated cash interest at last full quarter	\$0
+ Additional cash interest, pro-rata until conversion	\$0
<b>= Total cash interest until conversion date</b>	<b>\$0</b>

Note: To calculate the principal at the conversion date as well as the total cash interest until the conversion date, we take the respective values for the last full quarter preceding the conversion date and add additional cash and PIK interest pro rata for all additional days since the last full quarter until the conversion date. The additional pro rata PIK interest is equal to: (principal at the last full quarter \* (49% \* (15.06.2025 – 01.06.2025) / 365)) where (15.06.2025 – 01.06.2025) = 14. The additional pro rata cash interest equals: (principal at the last full quarter \* (10% \* (15.06.2025 – 01.06.2025) / 365)) where (15.06.2025 – 01.06.2025) = 14.

**Table I4.** Share price calculations.

Share price calculations		
	Convertible	Series D
Post-money valuation	\$1,150,000,000	\$1,200,000,000
- Outstanding principal (Investment amount incl. accrued PIK interest)	\$54,051,058	\$50,000,000
= Pre-money valuation	\$1,095,948,942	\$1,150,000,000
/ FDS prior to investment	34,497,905	36,766,439
= Undiscounted share price	\$31.8	\$31.8
Adjust for flat discount	25%	/
= Discounted share price (Undiscounted price per share * (1 - flat discount))	\$23.8	\$31.8
Vs. valuation cap per share	\$34.0	/
= <b>Share price (minimum of discounted share price and valuation cap per share)</b>	<b>\$23.8</b>	<b>\$31.8</b>
Discount towards undiscounted share price (1 - (share price / undiscounted share price))	25%	0%

Note: According to the percentage-ownership method, the outstanding principal must be reduced from the Series D pre-money valuation (=post-money valuation of the convertible debt) to get to the pre-money valuation of the convertible debt investment (Chaplinsky & Becker, 2020; Colla, 2014).

**Table 15.** Outcomes of the convertible debt and Series D financing.

<b>Outcomes</b>		
<b>Ownership after conversion</b>	<b>Convertible</b>	<b>Series D</b>
Investment amount incl. accrued interest	\$54,051,058	\$50,000,000
/ Share price	\$23.8	\$31.8
= Shares issued	2,268,534	1,573,883
+ FDS prior to investment	34,497,905	36,766,439
= FDS after investment	36,766,439	38,340,322
Acquired ownership prior to dilution	6.2%	4.1%
Acquired ownership post-dilution	5.9%	4.1%
<b>Valuation of shares upon conversion</b>		
= Shares issued	2,268,534	
* Series D share price	\$31.8	
= <b>Value of shares</b>	<b>\$72,068,078</b>	

Note: The acquired ownership prior to dilution represents the convertible debt investors' ownership before dilution due to Series D investors. This is equal to: (Shares issued / FDS after investment), per column. The acquired ownership post dilution is equal to: (Shares issued / FDS after Series D investment), per column.

**Table 16.** Return analysis.

<b>Return Analysis</b>									
	01.09.2024	01.12.2024	01.03.2025	01.06.2025	15.06.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Quarterly cash flows	- \$50,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
+ Additional pro-rata cash interest	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
+ Value of shares	\$0	\$0	\$0	\$0	\$72,068,078	\$0	\$0	\$0	\$0
= <b>Total returns to investors</b>	<b>- \$50,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$72,068,078</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

Note: We add the value of the shares received upon conversion to the total returns, as it represents priced equity in the company which can be sold in the future.

**Table I7.** Further analysis.

<b>Further Analysis</b>	
<b>“Shadow valuation”</b>	
Valuation cap per share	34.0\$
* FDS pre-investment	34,497,905.0
<b>= Shadow valuation</b>	<b>\$1,172,928,770</b>
<b>Total discount for convertible investors</b>	
Investment amount	\$50,000,000
/ Shares issued	2,268,534.2
= Total discounted share price	22.0\$
vs Series D share price	31.8\$
<b>Total discount to Series D price</b>	<b>31%</b>
<b>“Adjusted shadow valuation”</b>	
Total discounted share price	22.0\$
* FDS pre-investment	34,497,905.0
<b>= Adjusted shadow valuation</b>	<b>\$760,356,720</b>

Note: We calculate the “shadow valuation” according to Bernthal (2018). The Total discounted share price represents the effective price at which the convertible noteholders acquired their equity stakes. Since the noteholders invested \$50 million, we divide this by the number of shares they received to determine the total discounted price for those shares. The shares received are influenced by the PIK interest, the valuation cap, and the flat discount into account. The total discount is calculated as:  $(1 - \text{Total discounted share price} / \text{Series D share price})$  and represents the discount that convertible debt investors received when comparing their original investment and the equity stakes they received to what they would have had to pay, had they invested in the Series D round.

**Table 18.** Ex-post key performance indicators of convertible investors.

<b>Key performance indicators of convertible investors (ex-post)</b>	<b>15.06.2025</b>
<b>Acquired ownership prior to dilution</b>	<b>6.2%</b>
<b>Acquired ownership post-dilution</b>	<b>5.9%</b>
<b>Total discount to Series D share price</b>	<b>31%</b>
<b>Total cash interest until conversion</b>	<b>\$0</b>
<b>Total IRR</b>	<b>59%</b>
<b>MOIC</b>	<b>1.4x</b>
<b>Adjusted shadow valuation</b>	<b>\$760,356,720</b>

Note: The acquired ownership prior to dilution and the acquired ownership post dilution are equal to the respective equivalent values in Table H5. The total discount to the Series D share price and the adjusted shadow valuation are equal to the respective equivalent values in Table H7. The total cash interest until conversion is equal to the equivalent value in Table H3. The total IRR is the annualized effective compounded return, calculated as the discount rate that sets the net present value of all cash flows and unrealized gains from an investment equal to zero (Allied Venture Partners, n.d.). We therefore include all the total returns in Table H6 in our calculation. The IRR is calculated by applying Excel’s XIRR function on Table H6. The “values” are the total returns in row six of the Table H6, while the “dates” are the dates in row two of Table H6. The MOIC is the ratio of the total realized and unrealized gains from an investment relative to the capital invested (Lehman, 2025). The MOIC is calculated by dividing the sum of the positive total return in Table H6 by the investment of \$50 million.

**Table I9.** Ex-ante scenario analysis.

**Scenario analysis (ex ante)**

Acquired ownership prior to dilution		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Pre-money valuation of Series D	\$230,000,000	27.7%	28.3%	29.0%	29.6%	30.3%	31.0%	31.0%	31.0%
	\$460,000,000	14.3%	14.7%	15.0%	15.4%	15.8%	16.1%	16.1%	16.1%
	\$690,000,000	9.7%	9.9%	10.1%	10.4%	10.6%	10.9%	10.9%	10.9%
	<b>\$920,000,000</b>	7.3%	<b>7.5%</b>	<b>7.7%</b>	<b>7.8%</b>	8.0%	8.2%	8.2%	8.2%
	<b>\$1,150,000,000</b>	5.9%	<b>6.0%</b>	<b>6.1%</b>	<b>6.3%</b>	6.5%	6.6%	6.6%	6.6%
	<b>\$1,380,000,000</b>	4.9%	<b>5.0%</b>	<b>5.1%</b>	<b>5.3%</b>	5.4%	5.5%	5.5%	5.5%
	\$1,610,000,000	4.2%	4.3%	4.4%	4.5%	4.6%	4.7%	4.7%	4.7%
	\$2,070,000,000	4.2%	4.3%	4.4%	4.5%	4.6%	4.7%	4.7%	4.7%

Total discount to Series D share price		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Pre-money valuation of Series D	\$230,000,000	27%	29%	30%	32%	34%	35%	35%	35%
	\$460,000,000	27%	29%	30%	32%	34%	35%	35%	35%
	\$690,000,000	27%	29%	30%	32%	34%	35%	35%	35%
	<b>\$920,000,000</b>	27%	<b>29%</b>	<b>30%</b>	<b>32%</b>	34%	35%	35%	35%
	<b>\$1,150,000,000</b>	27%	<b>29%</b>	<b>30%</b>	<b>32%</b>	34%	35%	35%	35%
	<b>\$1,380,000,000</b>	27%	<b>29%</b>	<b>30%</b>	<b>32%</b>	34%	35%	35%	35%
	\$1,610,000,000	27%	29%	30%	32%	34%	35%	35%	35%
	\$2,070,000,000	43%	45%	46%	47%	49%	50%	50%	50%

Total cash interest until conversion	Conversion date							
	01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Total IRR		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Pre-money valuation of Series D	\$230,000,000	250%	97%	62%	47%	39%	34%	28%	24%
	\$460,000,000	250%	97%	62%	47%	39%	34%	28%	24%
	\$690,000,000	250%	97%	62%	47%	39%	34%	28%	24%
	<b>\$920,000,000</b>	250%	<b>97%</b>	<b>62%</b>	<b>47%</b>	39%	34%	28%	24%
	<b>\$1,150,000,000</b>	250%	<b>97%</b>	<b>62%</b>	<b>47%</b>	39%	34%	28%	24%
	<b>\$1,380,000,000</b>	250%	<b>97%</b>	<b>62%</b>	<b>47%</b>	39%	34%	28%	24%
	\$1,610,000,000	250%	97%	62%	47%	39%	34%	28%	24%
	\$1,840,000,000	500%	158%	94%	68%	54%	46%	38%	33%
\$2,070,000,000	875%	230%	128%	90%	70%	58%	48%	41%	

MOIC		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Pre-money valuation of Series D	\$230,000,000	1.4x	1.4x	1.4x	1.5x	1.5x	1.5x	1.5x	1.5x
	\$460,000,000	1.4x	1.4x	1.4x	1.5x	1.5x	1.5x	1.5x	1.5x
	\$690,000,000	1.4x	1.4x	1.4x	1.5x	1.5x	1.5x	1.5x	1.5x
	<b>\$920,000,000</b>	1.4x	<b>1.4x</b>	<b>1.4x</b>	<b>1.5x</b>	1.5x	1.5x	1.5x	1.5x
	<b>\$1,150,000,000</b>	1.4x	<b>1.4x</b>	<b>1.4x</b>	<b>1.5x</b>	1.5x	1.5x	1.5x	1.5x
	<b>\$1,380,000,000</b>	1.4x	<b>1.4x</b>	<b>1.4x</b>	<b>1.5x</b>	1.5x	1.5x	1.5x	1.5x
	\$1,610,000,000	1.4x	1.4x	1.4x	1.5x	1.5x	1.5x	1.5x	1.5x
	\$1,840,000,000	1.6x	1.6x	1.6x	1.7x	1.7x	1.8x	1.8x	1.8x
\$2,070,000,000	1.8x	1.8x	1.9x	1.9x	1.9x	2.0x	2.0x	2.0x	

Adjusted shadow valuation		Conversion date							
		01.12.2024	01.03.2025	01.06.2025	01.09.2025	01.12.2025	01.03.2026	01.06.2026	01.09.2026
Pre-money valuation of Series D	\$230,000,000	\$130,792,683	\$126,687,983	\$122,683,398	\$118,776,486	\$114,964,865	\$111,246,209	\$111,246,209	\$111,246,209
	\$460,000,000	\$299,085,366	\$290,875,967	\$282,866,797	\$275,052,972	\$267,429,729	\$259,992,419	\$259,992,419	\$259,992,419
	\$690,000,000	\$467,378,049	\$455,063,950	\$443,050,195	\$431,329,459	\$419,894,594	\$408,738,628	\$408,738,628	\$408,738,628
	<b>\$920,000,000</b>	\$635,670,732	<b>\$619,251,933</b>	<b>\$603,233,594</b>	<b>\$587,605,945</b>	\$572,359,458	\$557,484,838	\$557,484,838	\$557,484,838
	<b>\$1,150,000,000</b>	\$803,963,415	<b>\$783,439,917</b>	<b>\$763,416,992</b>	<b>\$743,882,431</b>	\$724,824,323	\$706,231,047	\$706,231,047	\$706,231,047
	<b>\$1,380,000,000</b>	\$972,256,098	<b>\$947,627,900</b>	<b>\$923,600,390</b>	<b>\$900,158,917</b>	\$877,289,188	\$854,977,256	\$854,977,256	\$854,977,256
	\$1,610,000,000	\$1,140,548,780	\$1,111,815,883	\$1,083,783,789	\$1,056,435,404	\$1,029,754,052	\$1,003,723,466	\$1,003,723,466	\$1,003,723,466
	\$1,840,000,000	\$1,144,320,751	\$1,116,410,489	\$1,089,180,965	\$1,062,615,575	\$1,036,698,122	\$1,011,412,802	\$1,011,412,802	\$1,011,412,802
	\$2,070,000,000	\$1,144,320,751	\$1,116,410,489	\$1,089,180,965	\$1,062,615,575	\$1,036,698,122	\$1,011,412,802	\$1,011,412,802	\$1,011,412,802

Note: The scenario analysis presents a prospective sensitivity matrix examining how the KPIs from Table I8 vary under different combinations of Series D pre-money valuation and conversion timing. For more information on the respective KPIs across the seven scenario matrices, please refer to Table I8, including the note. This ex-ante framework is constructed from the view of the date of investment to evaluate payoff profiles before the Series D outcome was known. The rows represent nine pre-money valuation scenarios capturing a spectrum from severe downside (up to -80%) to substantial upside (up to +80%) relative to the realized valuation of \$1,150 million. The columns are nine potential conversion dates spanning from December 1, 2024, to September 1, 2026, thereby representing every subsequent quarter after the issuing date and bracketing the instrument's contractual maturity.

The scenario matrices were constructed using Excel's Data Table function, a parametric sensitivity tool that automates recalculation across multiple input combinations. The Data Table function operates by designating two input variables and a target formula that depends on both variables. The row input is the pre-money valuation and column input is the conversion date. Excel then systematically recalculates the target formula for every combination of row and column inputs, populating the resulting matrix with outcomes.

## AI Disclosure

In writing this paper, such AI tools as ChatGPT, Microsoft Copilot, Google Gemini, Grammarly, and DeepL were used for varying purposes. The use of AI tools in academic work can come with risks and concerns, which is why we dedicate this section to full disclosure of AI use in this Master's thesis.

### *What AI tools have been used and how*

As non-native English speakers, we utilized ChatGPT to refine the wording of important sentences, ensuring clear and concise formulations. We mainly used this tool for complex sentences and paragraphs that were integral to understanding our thesis. To further ensure that we use linguistically correct formulations, we employed Grammarly for grammar and spelling checks. Furthermore, since we conducted our interviews via Microsoft Teams and Google Meet online meeting platforms, we obtained the automatic transcriptions as part of the meeting recordings. These transcriptions were provided by Microsoft Copilot and Google Gemini. Finally, we used DeepL to translate Einride's annual financial reports, which were originally written in Swedish, a language outside our proficiency.

### *How these tools contributed to increasing the quality of the thesis*

ChatGPT and Grammarly enabled us to enhance the readability of our thesis. We are convinced that these tools have value in ensuring that we deliver our message clearly, which reduces the risk of misinterpretation by future readers. At the same time, AI-transcribed interview materials served as a useful basis for further manual transcription, mainly providing a time-saving benefit. Last but not least, translating Einride's financial reports with the help of DeepL was key to our ability to further analyze these materials.

### *Potential risks found using AI and measures taken to reduce these risks*

We found that AI can occasionally make errors across all three use cases. When utilizing AI for writing, we made sure to always proofread the generated output and adjust it as needed to preserve our original message. In case of transcription, we used the AI output only as a draft for further transcription, which was done manually on the basis of the meeting recordings. When analyzing financial reports, we always relied on the numbers posted in the original documents and used the translated files only to understand the meaning of some financial terms and the context in which the numbers were provided.

### *Insights gained from using AI tools in the thesis writing process*

We find AI tools to be useful as efficiency enhancers. They improve clarity and save time, but also reinforce the importance of human oversight to maintain accuracy and preserve intent. Overall, AI served as a supportive aid and not a decision-maker in our work.