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## Executive Summary

We initiate coverage on Toast, Inc. (NYSE:TOST) with a SELL recommendation based on a target price of \$12.10, implying 30.9% downside to the latest share price of \$17.52 as of January 4<sup>th</sup>, 2024. Our blended target price results from a 50:25:25 split between our discounted cash flow (“DCF”), comparable company (“CompCo”), and sum-of-the-parts (“SOTP”) analysis.

## Investment Summary Highlights

### 1) Spread Thin: Overstated Serviceable Addressable Market (“SAM”)

Toast is overestimating their targetable locations to be 860,000 U.S. restaurants despite only 91,000 restaurants currently planning to adopt a new POS system, per our primary research. We surveyed 200 randomly selected U.S. restaurant managers on their intention to obtain or switch POS systems, learning that Toast is more penetrated than expected and is likely to fall short of long-term penetration projections.

### 2) Stale Upsell Options: Unrealistic Average Revenue Per Unit (“ARPU”) Growth Amidst Competitive Market

On average, restaurants spend 2.9% of their revenue on Toast and operate with a profit margin of only 5.7%, leaving little room for increased expenditure. As competition intensifies and Toast adds restaurant locations with lower transaction volumes, we believe revenue per unit expansion will become increasingly difficult and underperform the Street’s expectations.

### 3) Buttered Too Thick: Limited Margin Expansion Opportunities

Toast has essential expenses that limit margin improvement and free cash flow (“FCF”) generation. At a unit level, Toast would need to either increase gross payment volume (“GPV”) per location by 24.8% or increase subscription services revenue per location by 55.7% to breakeven on a cash-EBIT basis in recent performance. With lower gross margins than competitors, Toast’s expenses are essential to the company’s operations and fixed for the medium term.

NYSE: TOST - SELL Rating		
Date	1/4/2024	
Current Price	\$17.52	
Target Price	\$12.10	
Gap to Target	(30.9%)	
Market Capitalization (\$mn)	\$10,576	
Enterprise Value (\$mn)	\$ 9,568	
Fully Diluted Shares Outstanding	607 mn	
52-week Low	\$ 13.77	
52-week High	\$ 27.00	
Valuation Summary	Weight	Price
DCF	50%	\$12.21
CompCo	25%	\$12.25
SOTP	25%	\$11.73

Exhibit 1: Valuation Football Field

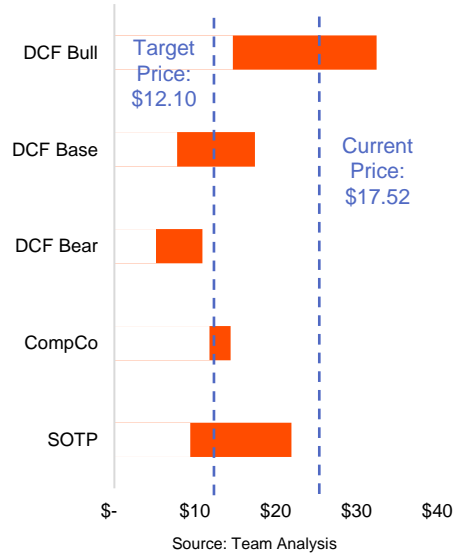


Exhibit 2: Financial Catalysts

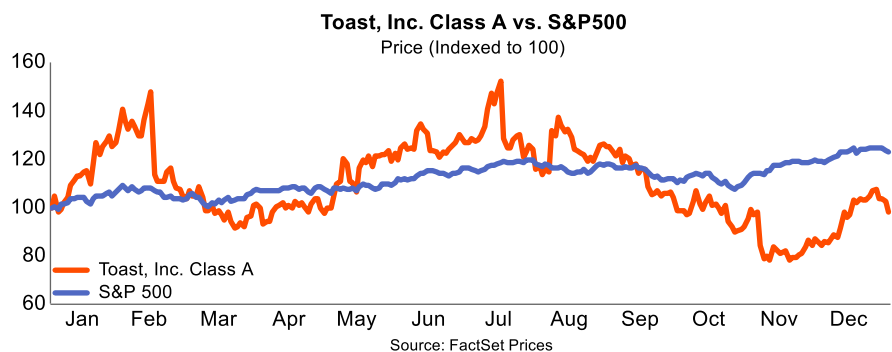
Date	Event	Catalyst
2/15/2024	4Q23 Earnings Call	2024 guide including ARPU expectations
3/5/2024	Morgan Stanley TMT Conference	Updated sentiment on ARR and location growth
1H24	Launch of new Kitchen Display System by Clover	Threat of increased competition

Sources: Company Websites, Team Analysis

## Valuation Summary

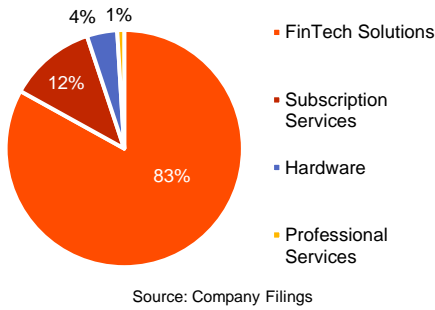
The team believes that Toast is currently overvalued, and we issue a SELL rating with a target price of \$12.10, derived by weighing our DCF analysis 50%, our CompCo analysis 25%, and our SOTP analysis 25%. Our target price implies a potential downside of -30.9% based on the latest share price close of \$17.52 as of January 4<sup>th</sup>, 2024. Our DCF analysis reflects the impact of market penetration, average revenue per location growth, and operating leverage over our 2023-2028 forecast period. Our CompCo and SOTP valuation analyze Toast’s current multiple relative to peers. This analysis is corroborated with a downside and upside financial forecast scenario to assess Toast’s potential share price movement over the next 12-18 months.

Exhibit 3: Toast Stock Performance Chart



Source: FactSet Prices

Exhibit 4: Revenue Segmentation as of FY22



# Business Description

## Overview

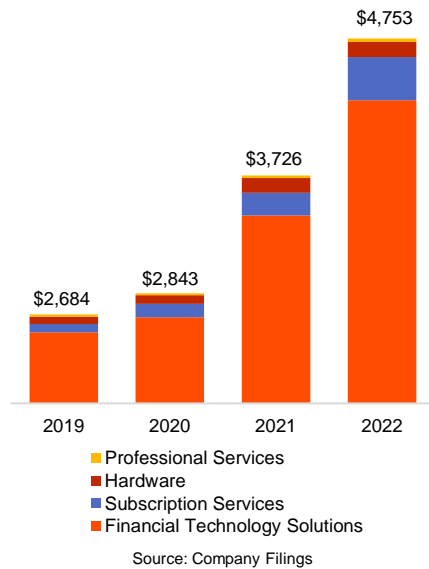
Toast is a cloud-based platform providing software as a service (“SaaS”) products and financial technology (“FinTech”) solutions to restaurants, predominantly in the U.S. Beyond payment processing, Toast offers reporting and analytics, ordering and delivery, kitchen display systems, and more through their current 4,500 employees. Founded in 2011 and taken public in 2021, the company has grown to serve 99,000 U.S. restaurant locations (11.5% of all U.S. locations), generating annual revenue of \$2.7 billion in FY22. At the same time, Toast processed \$118 billion in GPV in the trailing twelve months as of November 30, 2023, corresponding to 13.1% of total U.S. restaurant consumption.

## Business Model

**Segments:** **1) FinTech Solutions** (FY22: 83.0% of revenue; 21.0% gross margin): Toast provides solutions to manage orders, sales, and payments, and offers purchase financing through their lending facility Toast Capital. **2) Subscription Services** (FY22: 11.9% of revenue; 65.4% gross margin): Toast charges a subscription fee based on a rate per location, dependent on the number of software products purchased, the hardware configuration, and the employee count at each location. **3) Hardware** (FY22: 4.1% of revenue; -90.3% gross margin): The company sells and manages pre-configured hardware enabled with self-installation, often at a discounted price to acquire new customers. **4) Professional Services** (FY22: 1.0% of revenue; -269.2% gross margin): Toast charges fees for installation of hardware and training services delivered on-site, remotely, or asynchronously.

**Drivers:** New location wins have the greatest impact on revenue growth, with Toast’s main segments being driven by the following: **1) FinTech** revenue drivers include the number of adopted software products per location, the number of employees per location, and total GPV processed. GPV translates to revenue through Toast’s take rate, which is the percentage of GPV recognized as revenue. **2) Subscription** services revenue is driven by modules per location and subscription pricing.

Exhibit 5: Yearly Revenue



# Industry Overview & Competitive Positioning

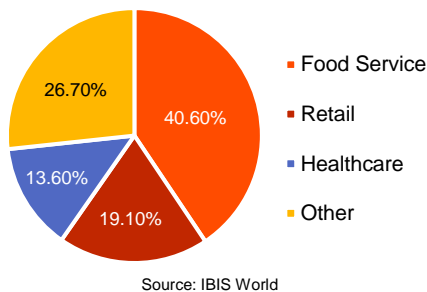
## Industry: POS Software Developers

**Saturated Market Dynamics:** Toast operates in the retail software subsector, specifically in the restaurant-focused point-of-sale (“POS”) software industry. Comprising 40.6% of all POS developers (Exhibit 6), this niche is fragmented with over 20 restaurant-exclusive systems, the major competitors being Square, Toast, Clover, and Aloha.

**Evolving Business Models:** According to IBIS World, the U.S. POS software industry is currently estimated to be worth \$10.7 billion, with a forecasted growth to \$11.3 billion by 2028, implying a 1.1% CAGR. While cloud-based software is poised to grow faster than the rest of the space, demand was pulled forward as a result of the pandemic, and 76% of U.S. restaurants now utilize cloud-based POS systems.

**Reliance on Consumer Dynamics:** Dependence on consumer spending makes the industry relatively susceptible to economic fluctuations. Small and Medium restaurants (“SMBs”) grappled with labor shortages and rising food costs, prompting 36% to raise menu prices in 2023. Discretionary spending is a driver of GPV, which hinges on the broader economic landscape.

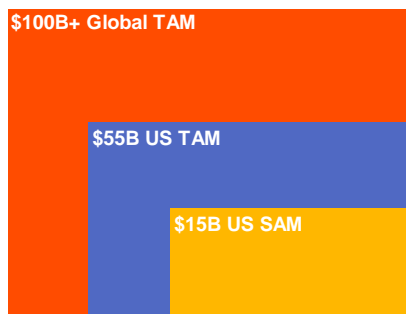
Exhibit 6: POS Software Developer by Niche



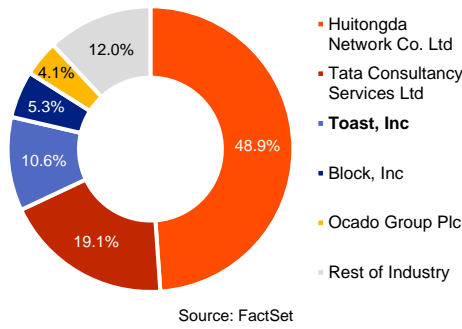
## Competitive Positioning

Toast considers their SAM the 860,000 U.S. restaurant locations including full-service restaurants, chains, coffee shops, and bars, exclusive of street vendors, of which they service approximately 11.5%. Toast’s net location additions are evenly split between new restaurant openings (“NROs”) and switchers from other POS systems. Additionally, Toast’s annual recurring run rate is 2% of the total U.S. addressable market (“TAM”) opportunity of approximately \$55 billion (Exhibit 7). This TAM includes the entirety of restaurant technology spend expected in 2024, which stretches beyond the company’s current product capabilities.

Exhibit 7: Toast Total Addressable Market



**Exhibit 8: Market Share by Revenue in Retail Software Industry**



**Limited International Presence:** While Toast’s reputation is well-known within the U.S. (Exhibit 8), it lacks global recognition as a payment processor where the TAM is estimated to be \$110 billion (Exhibit 7). To date, Toast has launched in Canada, the UK, and Ireland where the company competes against better-established global competitors, such as Lightspeed (27.8% non-U.S. revenue) and Block (6.9% non-U.S. revenue; parent company of Square).

**Strategic Pricing:** In a saturated industry, lack of differentiation leads pricing to be used as a lever, as it is crucial for restaurants in selecting their POS system. Toast targets businesses with \$100,000 of revenue per month, distinguishing itself from its primary competitor Square, where 60% of sellers process less than \$125,000 per year. Additionally, Toast’s lowest tier plan comes with a higher take rate. Generally, it is cheaper for vendors to start on Square or another platform. In addition to pricing, POS systems are valued on their customization to restaurant-specific operations, ease of use, and ability to minimize downtime.

## Investment Summary

### 1) Overstated Serviceable Addressable Market

New location wins contribute the most to revenue growth. Thus, failure to meet restaurant penetration expectations will weigh heavily on GPV, subscription revenue, and ultimately Toast’s valuation.

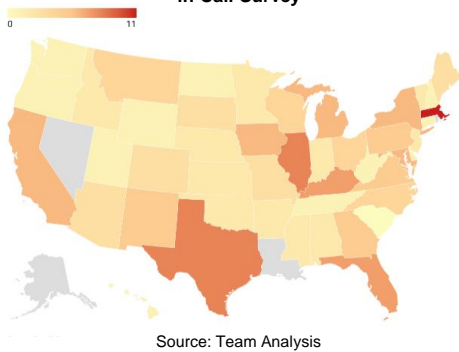
Toast defines the addressable number of restaurants in the U.S. as 860,000 locations. The company’s current location count of 99,000 implies they have captured 11.5% of potential locations. Toast’s current valuation of \$9.6 billion hinges on a 2.0x 2024 EV/Sales multiple, based on the consensus sales estimate of \$4.8 billion. **To justify this aggressive valuation, Toast must add 31,000 locations by the end of 2024 (holding revenue per location constant). To put this into perspective, that is 1.4x the number of locations added in 2022 and would bring their penetration from 11.5% to 15.1%.** However, in an increasingly competitive and price sensitive market, the next 4% of incremental penetration will be substantially more challenging than the last 4%. It is likely Toast captured the low hanging fruit, launching in wealthier states, and historical penetration growth cannot be extrapolated to the rest of the U.S., based on our primary research.

**We spoke to 200 restaurant managers/owners over the phone, randomly sampled throughout the U.S.** Of locations surveyed, 14.0% were users of Toast, compared to Toast’s 11.5% penetration, leading us to believe it is an accurate representation of the company’s SAM. Exhibit 9 shows the concentration of POS systems across our sample compared to GDP by state. Toast’s rapid uptake in the Northeast region is not reflective of the adoption rate achievable in traditional, single-location restaurants which comprise 70% of all U.S. restaurants. Restaurants in regions with low penetration, such as the West and Midwest, are smaller, have less resources, and are more price sensitive (Exhibit 9). Toast’s platform will be too costly to onboard these restaurants, or Toast will sacrifice ARPU to meet penetration expectations.

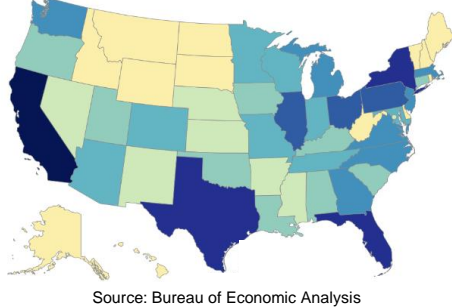
**While Toast quantifies their potential location additions as all 860,000 U.S. restaurants, we quantify their realistic SAM as 91,000 locations.** Out of our random sample, restaurants with no POS and no intention to acquire one accounted for 14.9% of the total, eliminating 14.9% – or 128,000 restaurants – from Toast’s expected SAM. Additionally, restaurants currently with a POS and no intention of switching comprise 75.0% of our sample, representing 640,000 restaurants. Multiple restaurant owners viewed switching systems as a risky venture, citing, “If it ain’t broke, don’t fix it”. Convincing restaurants to adopt a new technology, stripping away their current operational backbone, poses a challenge.

According to our revised market opportunity, the SAM implied in consensus estimates and company guidance is too high. The long-term goal of 761,000 locations (outside of their own) they believe they can target is several orders of magnitude larger than the realistic number – 91,000 open to adopting a new POS – based on our primary research. This discrepancy is reinforced by an interview with a former Senior District Sales Manager at Toast who mentioned the company is unlikely to surpass 20% penetration in the U.S. **As a result, we forecast penetration of 18.9% in 2027 vs consensus’ 21.1%** (Exhibit 18). Ultimately, growth opportunities are overstated in this highly competitive market, which will prevent Toast from meeting high revenue expectations and scaling to profitability.

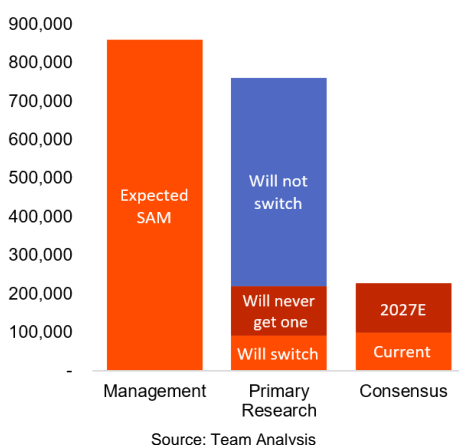
**Exhibit 9: Number of Restaurants Using a POS in Call Survey**



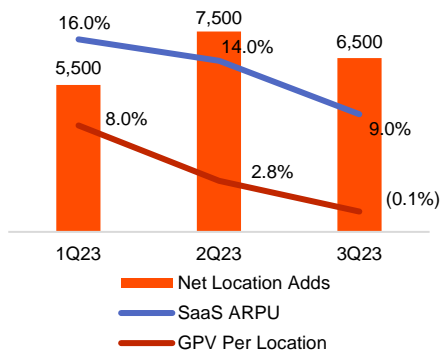
**Exhibit 10: U.S. GDP By State**



**Exhibit 11: Expected SAM vs. Primary Estimates**

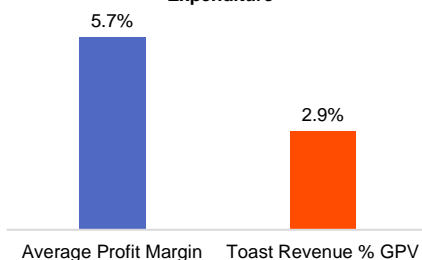


**Exhibit 12: SaaS ARPU and GPV Per Location Growth Y/Y**



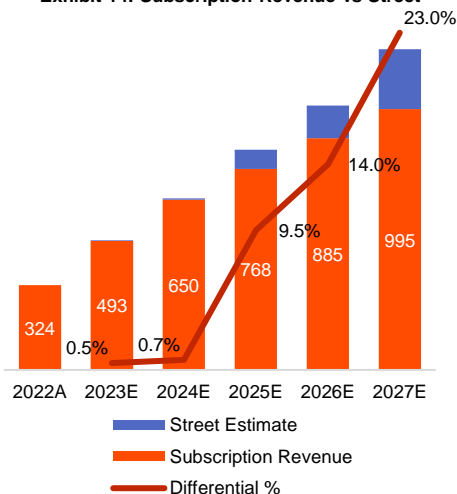
Sources: Toast Investor Presentations (1Q23-3Q23)

**Exhibit 13: Restaurant Margins vs Toast Expenditure**



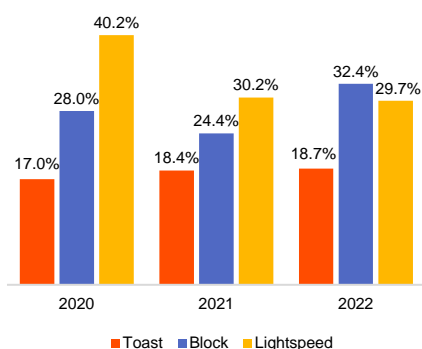
Sources: Company Filings, IBIS World

**Exhibit 14: Subscription Revenue vs Street**



Sources: FactSet, Team Analysis

**Exhibit 15: Toast and Competitor Gross Margins**



Source: FactSet

## 2) Unrealistic SaaS ARPU Growth Amidst Competitive Market

Given Toast's revenue composition and margin profile, increases in ARPU must come from the company's subscription services to drive operating leverage as it seeks to become more of a restaurant 'operating system' rather than a standard POS system. However, as shown in Exhibit 12, Toast's year-over-year subscription ARPU growth has declined from 16% in 1Q23 to 9% in 3Q23. Over the same period, year-over-year GPV per location growth has slowed from 8.0% to -0.1%, respectively. Simultaneously, Toast added net locations of 5,500, 7,500, and 6,500 in the first three quarters of 2023. By comparing declining subscription ARPU and GPV per location growth with Toast's strong net location additions, we arrive at two conclusions: **1) Toast is adding restaurant locations with less revenue;** and **2) The restaurants that Toast has added in recent quarters are more price-sensitive and less apt to purchase elective software modules.**

Toast is sacrificing subscription ARPU and GPV per location growth to garner location wins over competitors. Furthermore, Toast has become more reliant on its upsell team to drive subscription growth, rather than launching new restaurants with several elective modules. We expect a further slowdown in subscription revenue growth for the following reasons: **1) Competing hardware launches and Square's salesforce verticalization efforts serve as competitive threats.** Clover is launching a new Kitchen Display System in the first half of 2024, which will be followed by additional offerings to help the company grow into larger restaurants. Additionally, Square finalized the verticalization of its U.S. inbound sales team in April 2023, which has grown the company's software attach rates and gross profit added per account executive. **2) Toast's current restaurants are spending 2.9% of their revenue on Toast alone (FinTech and subscription revenue as a percentage of total GPV processed during 3Q23).** This figure is significant considering that **the average chain restaurant in the U.S. operates with a profit margin of only 5.7%** (Exhibit 13). As Toast continues to shift down-market in the face of competition, we believe revenue per location expansion will become increasingly difficult.

While tech-savvy, early-adopter restaurants have continuously spent more money on Toast, it is unlikely that future spending will grow at the same rate as competition increases and the company targets restaurants with lower transaction volumes. Our expectation of lagging subscription ARPU growth aligns with our 200 restaurant surveys, as **the number one deterrent cited by managers and owners of initiating upgrades and switching POS systems was cost.** Accordingly, **we forecast subscription revenue per location growth at a CAGR of 6.1% through 2027, below the consensus estimate of 10.2%.** Ultimately, we expect competitive pressures to limit Toast's ability to drive subscription pricing higher and increase the number of subscription products purchased by restaurants.

## 3) Limited Margin Expansion Opportunities

While Toast's overstated SAM and unrealistic pricing assumptions will negatively impact future revenue growth, the company also has limited ability to improve margins, which are critical to material cash flow generation. As of FY22, Toast's gross margin of 18.7% lagged those of main competitors Block and Lightspeed (Exhibit 15).

On a unit level, Toast generated a cash-EBIT loss of -\$1,735 per location in FY22. Holding gross margin, operating expenses, and locations constant, this implies that **Toast would have had to either increase GPV per location processed by 24.8% or increase subscription services revenue per location by 55.7% to breakeven on an operating basis** (Exhibit 16).

However, as evidenced by Toast's declining subscription ARPU and GPV per location growth in 2023, driving leverage through pricing and adding locations with higher transaction volumes remains a challenge. Moreover, given that cost is the most important consideration for restaurants choosing POS systems – as evidenced by our 200 restaurant surveys – competing on price is necessary to win locations, further hindering ARPU growth capabilities.

While increasing ARPU remains difficult, Toast's operating expenses are necessary to maintaining the company's growth. Research and development, which accounted for 30.4% of cash operating expenses in 2022, is primarily driven by custom-built designations. Building specialized solutions is key to driving location wins, as expressed by a former VP of Finance and Strategy of Toast in April 2022.

Exhibit 16: Per Location Breakeven Point

	GPV Processed	Subscription Revenue
FY2022	\$1,348,529	\$3,118
Breakeven	\$1,682,772	\$4,853
Variance	24.8%	55.7%

Sources: Company Filings, Team Analysis

He asserted that during the pandemic, if the company wanted to “take 10 engineers for 6-12 months to focus on one large account, that could consume up to 10% of their engineering department,” which was resource intensive and unscalable.

As such, employees are essential to support Toast’s business model. While peers have cut staff, Toast has focused on growth. Lightspeed laid off 300 employees at the beginning of 2023, while Block announced the termination as much as 10% of its workforce due to increased labor costs. Contrastingly, Toast’s total number of employees in 2022 was 4,500, a 41.9% increase compared to 2021. As the company continues to hire and advertise job openings on various platforms, operating expenses per employee and per location have continued to increase (Exhibit 17). Toast’s historical revenue has been driven by employees, particularly in sales and R&D, and we expect the company to maintain its current model to remain competitive in the market. **Accordingly, we forecast 2028 cash-EBIT margin at 4.4%, below the consensus estimate of 6.1%.**

## Financial Analysis

### Penetration: Unlikely to Meet Consensus Expectations

Based on Toast’s defined TAM of 860,000 restaurants, their current penetration stands at 11.5%. Due to the majority of restaurants being satisfied with their current POS and a low number of addressable locations without POS systems, we estimate Toast’s increase in total U.S. penetration each year will decline below the historical, 2% annual additions, falling short of consensus’ 21.1% estimate (Exhibit 18).

### ARPU: No Levers Remain to Increase Pricing

Toast has multiple levers to increase ARPU: take rate, upselling, and price increases. Regarding take rate, Toast can either lower fees charged to them per transaction, or raise their fee to customers, to increase their net take rate. Toast is dependent on outside processors, lacking bargaining power to lower their fees.

Additionally, they have no pricing power to hike restaurant fees per transaction; the POS market is highly competitive, and a variety of alternatives exist for customers to avoid high fees. The majority of restaurants we spoke with indicated pricing as the most critical factor in deciding on their POS. Therefore, we forecast a flat take rate.

The next lever is the number of software products per restaurant, which would increase subscription revenue. Toast’s number of restaurants using over six elective modules has recently plateaued at 43%. We expect this flat level to continue, as the majority of restaurants surveyed with Toast had no intention of upgrading to additional applications. Thus, we model low increases in subscription services pricing (Exhibit 20). The final lever is price increases across their hardware and services. With pressure to onboard price sensitive locations, we expect Toast to compromise on pricing, modeling an average annual price change of -5.2% and -1.9% for Hardware and Professional Services, respectively.

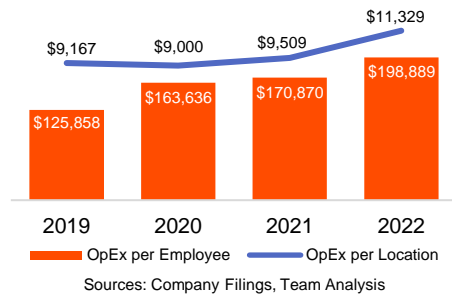
### ARR: High Growth Is Unsustainable

Toast defines ARR as their last month’s subscription billings, plus net transaction volumes, annualized. Since 3Q21, year-over-year ARR growth has declined from a peak of 77% to 40% in 3Q23. In 2021, the company was able to grow ARR rapidly due to large incremental penetration growth and high subscription ARPU growth (Exhibit 19). However, decelerating location penetration (Exhibit 18) will hinder GPV volumes, while limited upselling opportunities cap subscription service per location growth (Exhibit 20). Historical rapid ARR growth will not be maintained by either new locations or subscription pricing moving forward.

### Expenses: Continued Cost Cutting Momentum Unlikely

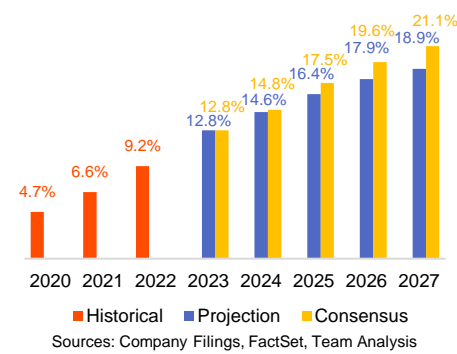
Toast’s operating expenses are comprised of selling and marketing (“S&M”), general and administrative (“G&A”), and research and development (“R&D”). Within these categorical expenses, a portion is derived from stock-based compensation (“SBC”). S&M expense as a percent of revenue as well as G&A expense as a percent of revenue have both steadily declined due to limited historical headcount investment prior to 2022 (Exhibit 22). Since 2019, S&M margin has decreased from 19.2% to 11.1% in 2021. The subsequent increase to 11.7% in 2022 indicates that Toast has limited opportunity to cut these costs further, particularly after increasing their headcount.

Exhibit 17: Operating Expenses per Location and Employee



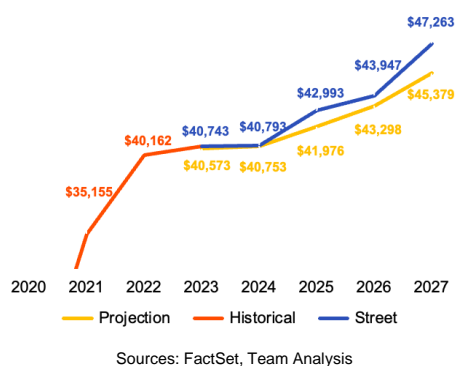
Sources: Company Filings, Team Analysis

Exhibit 18: Toast SAM Penetration Projections



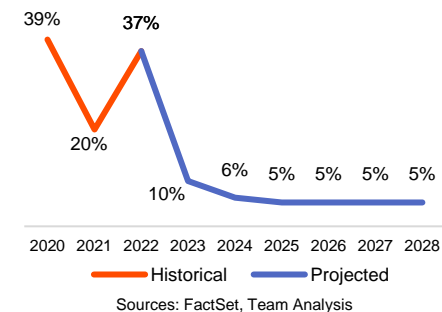
Sources: Company Filings, FactSet, Team Analysis

Exhibit 19: ARPU Projection vs Street



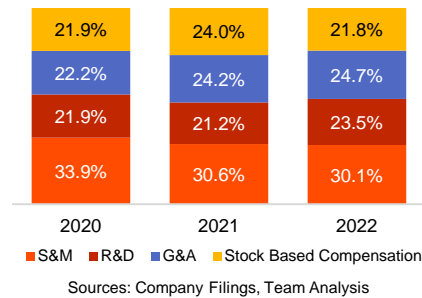
Sources: FactSet, Team Analysis

Exhibit 20: Annual Subscription Service Price Change Per Location

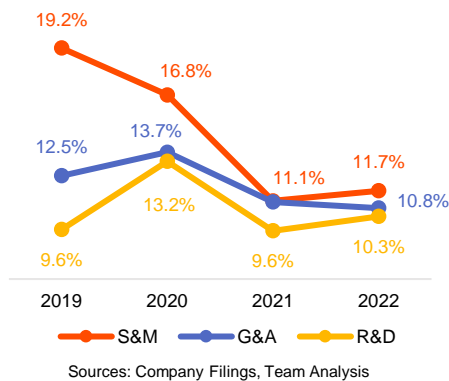


Sources: FactSet, Team Analysis

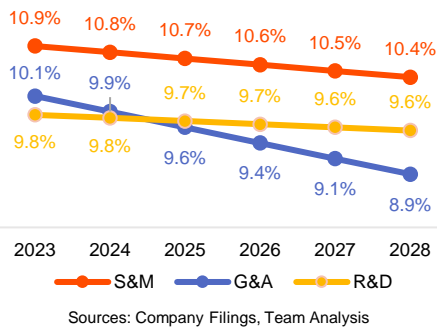
**Exhibit 21: Composition of Operating Expenses**



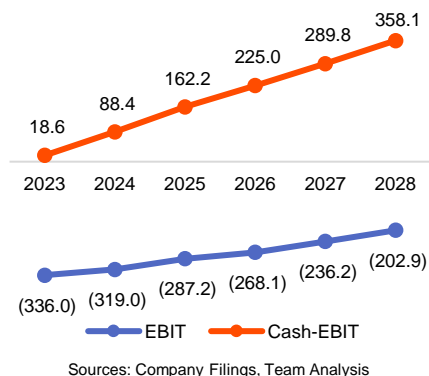
**Exhibit 22: Historical Expense Margins**



**Exhibit 23: Projected GAAP Operating Expense Margins**



**Exhibit 24: GAAP EBIT vs Cash-EBIT Projections**



Similarly, G&A margin has decreased from 12.5% in 2019 to 10.8% in 2022. Due to recent dramatic increases in headcount impacting both S&M and G&A, expenses are unlikely to decrease rapidly going forward. We project the increased headcount to result in an S&M margin of 10.9% in 2023, tapering by 10 basis per year over the next 5 years (Exhibit 23). Furthermore, we project G&A margin to decrease to 10.1% in 2023, tapering by 25 basis points annually through 2028.

Additionally, Toast has steadily invested in R&D, offering advanced products to attract and maintain its customer base while ensuring competitiveness within the increasingly active restaurant technology space. As a percent of revenue, R&D has increased from 9.6% in 2019 to 10.3% in 2022 (Exhibit 22). Although R&D spending fluctuates, Toast still requires significant investment in R&D to maintain pace with peers. We expect R&D as a percent of revenue to remain in line with Street expectations at 9.8% in 2023, as management has guided for increased R&D spending. We project this expense to decline over our projection period to 9.6% of revenue in 2028, enabling Toast to trim development costs slightly (Exhibit 23).

### Stock-Based Compensation: Highly Impactful, Highly Ignored

A critical component of Toast's expenses is stock-based compensation. In our discussion with management, we were told that equity grants as a proportion of compensation have been adjusted, but SBC is unlikely to drop dramatically as a percentage of revenue and instead trend with the company's headcount. Since management has not guided for reduction in headcount, we project SBC to maintain its historical percentage of revenue at 8.3% in 2023, accounting for equity grant adjustments. SBC, whilst being a large portion of expenses, maintains an important role in Toast's cash flow. Toast's 2023 EBIT is expected to be negative (Exhibit 24). However, the Street commonly utilizes cash-EBIT for valuation purposes with the largest add-back being SBC. This enables the Street to project free cash flow beginning in 2023 (Exhibit 24). Although we utilize cash-EBIT in our valuation analysis to ensure parity with Street metrics, we believe these cash flow adjustments misrepresent the true cash flows Toast will generate over our forecast period. While SBC is not an immediate cash outflow, it does not come without a cost. To prevent equity dilution for Toast's shareholders, the company must repurchase shares, resulting in cash outflows that must be acknowledged.

### Liquidity: Unleveraged Balance Sheet Poses Low Risk

Toast maintains sufficient capital for operation with minimal debt obligations. This is not expected to change over our forecast period. To effectively analyze the financial health of the company, we utilized a quick ratio analysis. Historically, Toast has not fallen below a quick ratio of 1.0x, maintaining a ratio of 2.2x in 2022. This indicates the strength of the balance sheet as short-term liabilities can be accounted for with highly liquid assets even in a liquidity crisis. Over our projection period, the quick ratio is not expected to fall below 2.5x, demonstrating low liquidity risk.

## Valuation

We reiterate our SELL rating with a target price of \$12.10, derived by weighting our DCF 50%, our CompCo 25%, and our SOTP 25%. Our target price implies a potential downside of -30.9% based on the latest share price close of \$17.52 as of January 4<sup>th</sup>, 2024. We performed a DCF analysis to reflect the impact of market penetration, average revenue per location growth, and operating leverage over our 2023-2028 forecast period. Our CompCo valuation analyzes Toast's current multiple, and our SOTP analysis accounts for the company's different business segments. This analysis is corroborated with a downside and upside financial forecast scenario, the sensitizing of key fundamental variables, and a Monte-Carlo simulation to assess Toast's potential share price movement over the next 12-18 months.

### Discounted Cash Flow Analysis: \$12.21 TP

Our DCF analysis is a free cash flow model that incorporates an EV/Gross Profit exit multiple to capture Toast's growth beyond our forecast period. Through forecasting cash flows between 2023 and 2028, we incorporate 1) reduced market penetration; 2) declining average subscription revenue per location growth; and 3) slower-than-anticipated margin expansion, as conveyed in our investment summary. Our DCF valuation results in a target price of \$12.21 and potential downside of 30.3%.

⊕ **Discount Rate:** We discount Toast's future cash flows by a WACC of 11.9% and calculated the company's cost of equity based on the capital asset pricing model.

Exhibit 25: Valuation Football Field

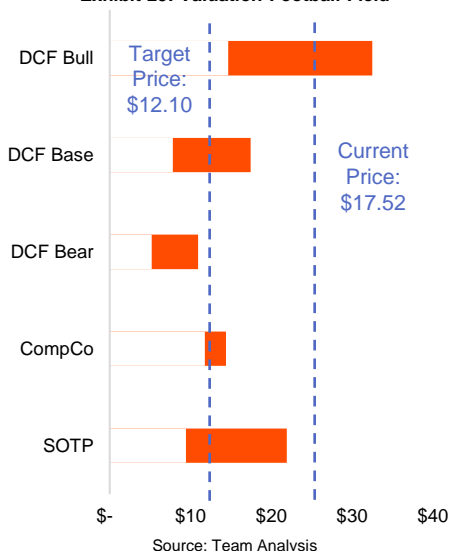


Exhibit 26: Valuation Matrix

Methodology	Weight	Price
DCF	50.0%	\$12.21
CompCo	25.0%	\$12.25
SOTP	25.0%	\$11.73
<b>Target Price</b>		<b>\$12.10</b>
Downside*	(30.9%)	

Source: Team Analysis  
\*As of January 5, 2024

Exhibit 27: Cost of Debt Assumptions

Input	Figure
Pre-Tax Cost of Debt	5.35%
Corporate Tax	21.00%
<b>After-Tax Cost of Debt</b>	<b>4.22%</b>

Sources: Company Filings, Team Analysis

Exhibit 28: Cost of Equity Assumptions

Input	Figure
Risk-Free Rate	3.92%
Beta	1.59
Equity Risk Premium	5.00%
<b>Cost of Equity</b>	<b>11.88%</b>

Source: Team Analysis

Exhibit 29: DCF Output

Base Case (\$mn)	
PV of Forecast Period	\$551
Terminal Value	\$10,255
PV of Terminal Value	\$5,848
<b>Enterprise Value</b>	<b>\$6,399</b>
Less: Gross Debt	(\$22)
Add: Cash	\$1,030
<b>Equity Value</b>	<b>\$7,407</b>
Shares Outstanding	607
<b>Implied Share Price</b>	<b>\$12.21</b>
Downside to Latest Close	(30.3%)

Sources: Team Analysis, FactSet

We assume a risk-free rate of 3.92% as per the 10-year U.S. Treasury Yield, as well as a 5.0% equity risk premium. Through applying the median 5-year unlevered beta of Toast's peers that have robust historical trading data, we arrive at an implied beta of 1.59 after adjusting for the company's capital structure. We utilize this methodology given that Toast went public in 2021 and therefore has limited trading data within a volatile market. Using Toast's market beta of 1.66 increases the company's WACC to 12.2%. We approximate the company's cost of debt as the most recent SOFR, as per management guidance in annual filings.

- Terminal Value:** While we do not believe Toast can replicate its historical revenue growth, the durability of the company's growth beyond 2028 remains uncertain. Since we are unable to predict an accurate long-term growth rate for Toast's free cash flow, we calculate the company's terminal value by applying a 5.0x multiple to our 2028 gross profit estimate. This multiple is the median EV/Gross Profit multiple of Toast's peer group and is in-line with how mature companies in the industry trade. While this implies a 38.5% step-down from Toast's current EV/2024 Gross Profit multiple of 8.1x, we believe this is warranted given the company's tapering revenue growth and limited ability to drive operating leverage.
- Scenario Analysis:** Our base, downside, and upside financial forecast scenarios provide a holistic representation of Toast's share price trajectory: 1) Our base scenario includes the assumptions most aligned with our company, industry, and primary research. This scenario incorporates lower market penetration, declining ARPU growth, and slower margin expansion than the street expects. 2) Our downside scenario accounts for a further slowdown in GPV per location and subscription revenue per restaurant growth, as well as the company's inability to expand upmarket and internationally. 3) Our upside scenario includes higher-than-anticipated margin expansion, international and upmarket growth, and increased subscription revenue per restaurant resulting from the strong performance of Toast's upsell sales team. Our DCF downside and upside scenarios yield target prices of \$8.20 (53.2% downside) and \$22.85 (30.4% upside), respectively.
- Sensitivity Analysis:** Exhibit 30 illustrates how variances in our assumed WACC and EV/Gross Profit exit multiples impact our DCF share price. Through sensitizing WACC through a range of 9.9% – 13.9% and our applied EV/Gross Profit multiple through a range of 3.0x – 7.0x, we arrive at a share price range of \$7.79 – \$17.42, yielding downside of 55.6% and 0.6%, respectively. Additionally, we performed a Monte-Carlo simulation with 100,000 iterations. We sensitized our financial technology solutions and subscription services revenue projections as well as our gross margin estimates for each revenue segment. Our \$12.21 DCF target price is within the 4<sup>th</sup> percentile of the mean output of \$12.29, providing us confidence in our projections. \$13.55 was the maximum share price generated based on our sensitized variables, indicating that the simulation predicts Toast's share price to decline with 100% certainty. While a share price direction with 100% probability is unlikely, this analysis supports our SELL recommendation.

Exhibit 30: Sensitivity Analysis

WACC	Exit Multiple				
	3.0x	4.0x	5.0x	6.0x	7.0x
13.9%	\$7.79	\$9.56	\$11.34	\$13.11	\$14.89
12.9%	\$8.05	\$9.90	\$11.76	\$13.62	\$15.47
11.9%	\$8.33	\$10.27	<b>\$12.21</b>	\$14.15	\$16.09
10.9%	\$8.62	\$10.65	\$12.68	\$14.71	\$16.74
9.9%	\$8.93	\$11.05	\$13.17	\$15.30	\$17.42

Source: Team Analysis

## Relative Valuation: \$11.99 TP

Our relative valuation is the result of an equally weighted CompCo and SOTP analysis, which yields a target price of \$11.99, implying 31.6% downside from Toast's latest share price close as of January 4<sup>th</sup>. This analysis compares Toast's valuation to the broader peer set and accounts for the company's different business segments.

- CompCo Analysis:** Our CompCo analysis is based on an EV/Gross Profit multiple and arrives at a target price of \$12.25. The five selected companies in our analysis are most comparable to Toast given that they compete within similar verticals of the POS industry and maintain similar geographic concentrations. Given the margin structure of POS companies, using EV/Gross Profit is the best metric to value Toast relative to its peers, as doing so normalizes for differences in net take rate. An EV/Sales valuation would not factor in these company differences.

Exhibit 31: Comparable Company Peer Set

Ticker	EV/GP 2024E	GP Growth 2024E	EBIT Margin 2024E
SQ	4.8x	17.2%	5.3%
LSPD	4.7x	23.5%	(4.0%)
VYX	5.0x	(10.7%)	28.7%
PAR	12.0x	24.9%	(4.5%)
FOUR	5.9x	38.0%	28.1%
<b>Median</b>	<b>5.0x</b>	<b>23.5%</b>	<b>5.3%</b>
<b>TOST</b>	<b>8.1x</b>	<b>30.6%</b>	<b>1.6%</b>

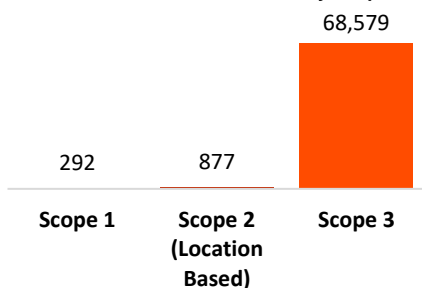
Sources: FactSet, Team Analysis

Exhibit 32: Toast ESG Score vs. Industry

	Industry	MSCI	Team
<b>Environment</b>	<b>8.5</b>	<b>7.0</b>	<b>6.9</b>
<b>Social</b>	<b>4.0</b>	<b>3.9</b>	<b>4.0</b>
Human Capital	3.5	1.5	1.6
Data Security	5.4	6.3	6.5
Access Finance	3.2	5.0	5.0
<b>Governance</b>	<b>5.5</b>	<b>4.9</b>	<b>4.1</b>
Corp Governance	6.4	4.1	3.9
Corp Behavior	5.7	5.8	5.2
<b>Total Score</b>	<b>4.90</b>	<b>4.43</b>	<b>4.19</b>

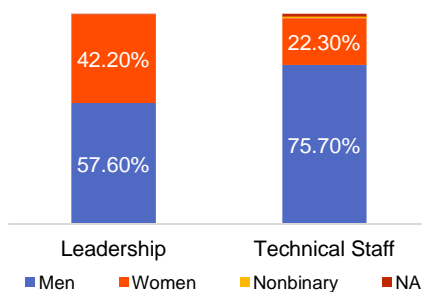
Source: MSCI Report

Exhibit 34: Toast Emissions by Scope



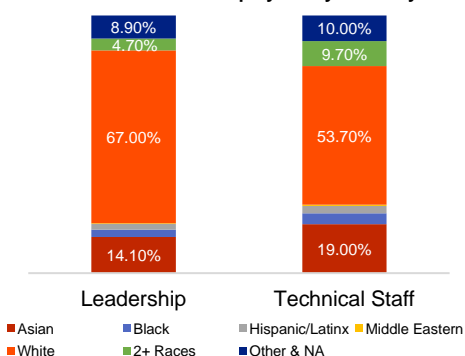
Source: MSCI Report

Exhibit 35: Toast Employees by Gender



Source: Toast FY22 ESG Report

Exhibit 36: Toast Employees by Ethnicity



Source: Toast FY22 ESG Report

We benchmarked Toast relative to peers on 2024 gross profit growth and 2024 cash EBIT margin expectations and believe that the company should trade at the 63rd percentile of its peer set. While Toast is expected to deliver superior growth in 2024, the company lags peers in converting its gross profit into operating income (Exhibit 31). This leads us to apply a 5.4x multiple to our 2024 gross profit estimate, which arrives at a target price of \$12.25 (implying 30.1% downside).

☉ **SOTP:** We conducted a SOTP analysis based on Toast's different business segments by applying industry-wide multiples across Toast's Vertical SaaS, POS & Restaurant Operations, Tier 1 Commerce Facilitator, and Food Delivery revenue streams. We weighted each segment by its corresponding proportion of revenue and arrived at a weighted average EV/2024 Gross Profit multiple of 5.2x and a target price of \$11.73, implying 33.1% downside (Exhibit 33).

Exhibit 33: SOTP Analysis

Industry	Median EV/2024 GP	Weight
Vertical SaaS	9.0x	12.0%
POS & Restaurant Operations	3.4x	41.5%
Tier 1 Commerce Facilitators	6.0x	2.5%
Food Delivery	5.8x	2.5%
Legacy POS	5.7x	41.5%
<b>Weighted Average</b>	<b>5.2x</b>	<b>100.0%</b>

Sources: FactSet, Team Analysis

## Consensus View

Currently, the Street values TOST with a \$18.66 target price and a general Overweight rating. However, due to the latest stock price rally, this target price represents only 6.5% upside. The Street predominantly values by applying a multiple to their 2024 gross profit estimate. Other analysts use an EV/Sales multiple or DCF analysis with an exit multiple to calculate the company's terminal value.

## Environmental, Social, Governance

The MSCI ESG ratings methodology employs a 0 to 10 scale for each ESG category, culminating in a weighted average (5% Environmental, 58% Social, 37% Governance) for the overall ESG score and subsequent categorization into one of five groups. In January 2023, Toast secured a score of 4.43, situating it in the Average/BBB category, trailing the industry average of 4.90 (Exhibit 32). We examined what we foresee as potential adjustments to Toast's ESG scores. While adjustments to scores can range from 0 to 10, historical data for Toast's adjustments have fallen within the 0.1 to 0.7 range, so we wanted to align our adjustments with the MSCI scorers. Higher adjustment values signify severity of impact, whether positive or negative. Upon our calculations, we predict an adjusted score of 4.19 for Toast, positioning it in the Below Average/BB category. A detailed breakdown of adjustments can be found in Appendix J.

### Environmental

**Carbon Emissions:** Toast took steps to improve their environmental impact in 2022. For instance, their transition to 100% renewable energy in both offices and configuration centers made their Scope 1 and Scope 2 emissions minimal. Despite these strides, Toast's carbon intensity ranking appears weaker compared to industry peers. Their business and value chain emissions (Scope 3) were 68,579 (mtCO<sub>2</sub>e) total for FY2022, with 41,427 coming from the use of hardware by customers. Toast has not discussed any programs or actions to reduce the emissions intensity of their core operations, nor has the company provided a reduction target. As Toast tries to integrate into more restaurants, we assume that Scope 3 emissions will grow. Although Toast launched a pilot program to recycle old hardware in 2022, the low hardware turnover limits its potential impact. As a result, we project the Environment score decreasing by 0.1.

### Social

**Human Capital:** Although Toast was deemed one of GlassDoor's best places to work in 2023, they rank poorly on human capital development according to MSCI. This is due to a lack of evidence on the following: support for degree programs, formal talent pipeline development strategies, partnerships with educational institutions, and work/life balance. Toast faced controversies in this area in 2022, having to pay \$2.3 million to settle arbitration over failure to pay overtime wages.

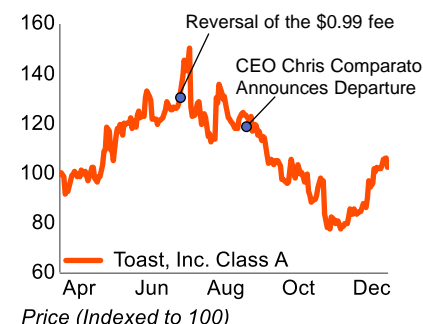
While Toast is committed to Diversity, Equity, and Inclusion ("DEI"), the company's overall employee base was comprised of 55.0% men, with technical staff comprising 75.7% men (Exhibit 35). Furthermore, Toast's employees are 62.6% white.

Exhibit 37: Insider Ownership

1	Tech. Invst. Dining Grp.	8.90%
2	Greenoaks Capital Partners	1.89%
3	Stephen Fredette	1.31%
4	Dragonereers Invst. Grp.	1.07%
5	Harbourvest Partners	0.54%

Source: FactSet

Exhibit 38: \$0.99 Fee Impact on Share Price



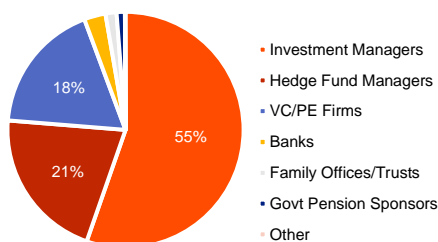
Source: FactSet

Exhibit 39: Toast & Peers CEO Pay Ratio

Company	Name	Ratio
Block	Jack Dorsey	0:1
NCR	Michal Hayford	297:1
PAR	Savneet Singh	29:1
Shift4	Jared Issacman	78:1
<b>Toast</b>	<b>Chris Comparato</b>	<b>55:1</b>

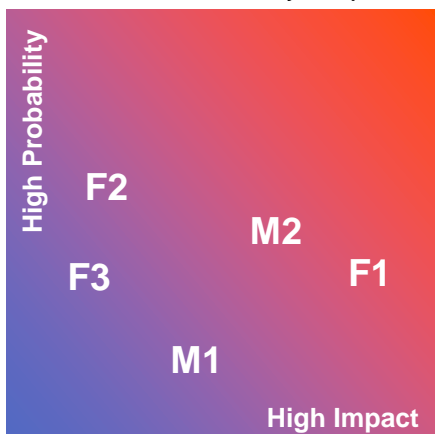
Source: Most Recent Proxy Statements

Exhibit 40: Toast Ownership



Source: Capital IQ

Exhibit 41: Risk Probability vs Impact



Source: Team Analysis

While efforts to improve this dynamic include implementing a DEI Scorecard as part of the senior leader bonus plans, diversity recruiting appears to be a slow-moving process. As of 2022, management only increased the percentage of women at the director or above level by 1.5%. For these reasons, we project the DEI Scorecard to increase their Human Capital score by 0.1.

**Data Security:** Toast demonstrates a robust commitment to data protection. Notably, their risk management assessment scores higher than the industry average. In April 2023, Toast announced a partnership with Bluefin's Decrypt solution, enhancing payment data security through point-to-point encryption at the point of sale. We believe this will increase Toast's data security score by 0.2.

**Access to Finance:** Regarding Access to Finance, Toast Capital provides loans to underserved communities and donates to charities through their impact fund. A lack of changes to these leads us to estimate an unchanged score.

## Governance

### Corporate Governance:

- Board of Directors:** 10 members comprise Toast's Board of Directors, with 70% being independent of management. Executives on the Board include the former CEO Chris Comparato and co-founders Aman Narang (COO, current CEO) and Stephen Fredette (President). Additionally, only 20% of the Board is female, once again leaving room for improvement in gender diversity throughout the firm.
- Executive Management:** The executive management team encompasses 17 members (Appendix A), six of which are female. The average tenure is 5.76 years. A pivotal shift is on the horizon as the CEO departed in January after eight years of leading the firm. This decision comes after the scrutiny Chris Comparato faced triggered by the contentious \$0.99 fee for orders surpassing \$10.00 in July 2023, which was passed onto restaurant consumers. The ensuing backlash from the restaurant community is implied to have played a pivotal role in shaping this impending leadership transition. (Exhibit 38) The new CEO, Aman Narang, is a cofounder of the company and current COO. A CEO transition has left the current Corporate Governance an uncertain position. As a result of this we project the Corporate Governance score to decrease by 0.2. The CEO pay ratio remains at 55:1, Exhibit 39 which is moderate, ranking in the middle of their peers.
- Remuneration:** Toast's remuneration policy incorporates fixed short-term cash salaries, short-term incentive bonus plans, and equity-based compensation. While the specifics of the equity-based compensation policy remain unclear, the 2022 allocation comprised 60% in stock options and 40% in RSUs. This transparency gap is an area for improvement in governance practices.
- Ownership:** Approximately 84.1% of shares account for Toast's free float, and each share carries one voting right. Toast has a diversified base of institutional investors, with 54.68% of institutional ownership consisting of traditional investment managers such as Vanguard, FMR LLC, and BlackRock, and 20.71% comprising Venture Capital and Private Equity firms (Exhibit 40). Despite a diversified institutional shareholder base, concerns linger around concentration, with ~8.90% being held by a single investor, Steve Papa (Technology Investment Dining Group), who was an initial investor. Insiders hold approximately 13.70% of shares, with cofounder and President Stephen Fredette owning ~1.31% (Exhibit 37). Short interest in the stock is currently 7.64% of float and 5.44% of all shares outstanding, which is average for the industry.

**Corporate Behavior:** The \$0.99 fee was met with strong backlash, as it was perceived as contradictory to Toast's commitment to keeping costs low for their customers. The fee was implemented but rescinded after nine days, highlighting a lapse in ethical judgment and the need for improvement in customer communication and trust. We project this action will decrease their corporate behavior score by 0.6.

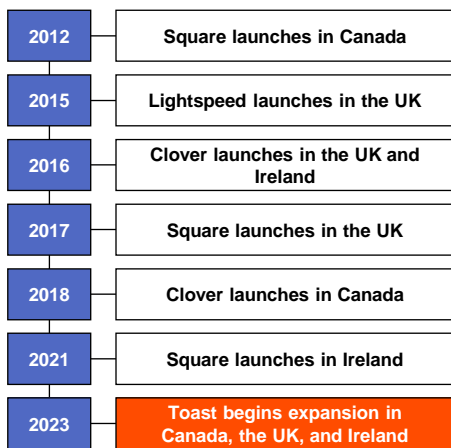
## Investment Risks

### [F1] Firm Risk | Flywheel Effect Driving Higher Penetration

Toast optimizing its flywheel effect allows the company to capture more of its stated SAM. If Toast's sales team outpaces peers in reaching new markets and upselling customers, market penetration may exceed our forecast.

**Valuation Impact:** Our upside case assumes U.S. restaurant penetration of 25.6% by 2028 and subscription revenue growth at an annualized rate of 34.7%, increasing our valuation by 50.6%.

Exhibit 42: International Expansion vs Peers



Source: Company Websites

**Mitigant:** Dependence on the flywheel effect to attract new customers is inherently risky, as the network and referrals can eventually get saturated. According to a former Senior District Sales Manager at Toast, it will be difficult for the company to surpass 20% market share in the U.S. While Toast’s flywheel effect bodes well for gaining share in major cities, the flywheel effect cannot be relied upon beyond these locations.

**[F2] Firm Risk | Accelerated International Expansion**

Toast estimates that its global TAM is \$110 billion, and the company has already launched in Canada, Ireland, and the UK as of 2023. Accelerated expansion into international markets could lead to revenue growth beating our expectations.

**Valuation Impact:** Increasing locations serviced to 200,000 in 2028 (165,000 base case estimate) due to international expansion increases our valuation by 6.4%.

**Mitigant:** Toast lags key competitors who have been established in Canada, Ireland, and the UK as early as 2012 (Exhibit 42). Additionally, the restaurant culture in major international markets, such as Europe, is less centered around table-turning and speed, making the market risky. Furthermore, the EU regulates payment processing rates to be sub 1%. Adding 55 basis points to this, which is Toast’s typical net take rate, would appear much more expensive to restaurants in the region.

Exhibit 43: U.S. Enterprise Market

Enterprise Market Opportunity	
U.S. Enterprise Locations Estimate	150,000
Estimated Market Size (\$mn)	\$6,079
2028 Market Share Estimate	10.0%
Revenue Opportunity (\$mn)	\$607

Sources: Company Filings, Team Analysis

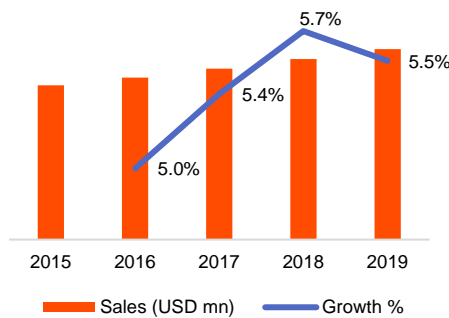
**[F3] Firm Risk | Upmarket Expansion into Enterprise Restaurants**

Toast is currently concentrated in the SMB space, which is comprised of restaurants with 1-20 locations. Upmarket expansion into enterprise restaurants, with at least 200 locations, could lead revenue growth opportunities.

**Valuation Impact:** We estimate that there are approximately 150,000 enterprise restaurant locations in the U.S., with a market size of approximately \$6.1 billion (Exhibit 43). Toast achieving 10% market share equates to \$607 million in revenue over our projection period and a 5.6% increase in valuation.

**Mitigant:** Given the custom R&D required at the enterprise level, it is unlikely that Toast will be able to move upmarket in the near term, according to a Senior District Sales Manager at the company. Additionally, the CEO of Dine Technology (a restaurant technology company), Scott Gillman, opined that it will be an expensive and difficult challenge to move upmarket given that its system was not originally built to serve enterprise restaurants.

Exhibit 44: Pre-Pandemic U.S. Restaurant Sales



Source: FRED

**[M1] Market Risk | Aggressive Consumer Restaurant Spend**

Toast’s revenue is tied to consumer spending, as restaurants are discretionary. If consumer restaurant expenditure increases at unprecedented rates, this will drive GPV growth for Toast.

**Valuation Impact:** Increasing our annual GPV per location growth estimate by 3.0% per year through 2028 results in a 7.2% increase to our DCF target price.

**Mitigant:** Since 1993, retail restaurant sales have grown at an average rate of 5.7% (Exhibit 44). The restaurant industry’s stable historical growth suggests that near-term GPV growth will remain near the long-term average. Additionally, total monthly spending intentions for consumers fell to a two-year low in October 2023, while the percentage of U.S. citizens feeling anxious about personal finances increased to 45% (up 13% since July), decreasing the likelihood of GPV growth faster than the street expects.

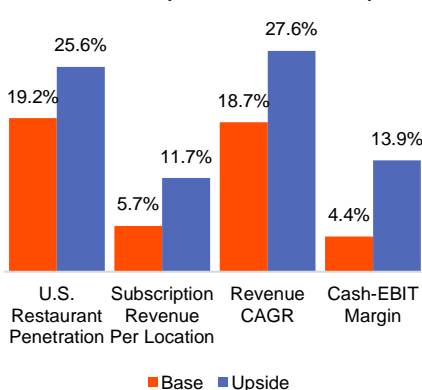
**[M2] Market Risk | Accelerated Restaurant IT Expenditure**

At 65.4% gross margin and only 11.9% of revenue as of FY22, software subscription revenue has the greatest impact on Toast’s margins. Industry-wide surges in SMB restaurant technology expenditure will drive revenue growth for Toast’s subscription services segment by increasing the number of elective modules utilized by the company’s restaurants, allowing cash flow generation to accelerate.

**Valuation Impact:** Subscription revenue growth per location at an annualized rate of 12.0% yields a positive adjustment to our target price of 9.1%.

**Mitigant:** After the impact of the Covid-19 pandemic, the Restaurant Revitalization Fund bolstered restaurant investment. This government stimulus provided \$272,000 in grants to 105,000 restaurants between May and June during 2021. Without these incremental funds, it is unlikely that restaurants will grow their technology spending as rapidly as in 2021 and 2022.

Exhibit 45: 2028 Upside Scenario Assumptions



Source: Team Analysis

# Appendix

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## Appendix A: Executive Management

Name	Position	Joined Toast	Education	Work Experience
Chris Comparato	Chief Executive Officer (until Jan 2024), Chairman	2015	Union College	SVP of Customer Success at Acquia (2012-2015); SVP of Customer Solutions at Endeca (now Oracle) (2008-2012)
Aman Narang	President, Chief Operating Officer, Chief Executive Officer (as of Jan 2024)	2012 Co-founder	MIT BS & MS	Product Manager and Software Engineer at Endeca (2006-2012)
Steve Fredette	President	2012 Co-founder	MIT BS	Development Manager and Software Engineer at Endeca (2005-2012)
Jonathan Grimm	Chief Technical Officer	2012 Co-founder	MIT BS	Application Lead at Oracle (2012-2012); Solution Engineer at Endeca (2007-2009)
Elena Gomez	Chief Financial Officer	2021	UC Berkeley BS:	CFO at Zendesk (2016-2021), SVP of Finance at Salesforce (2010-2016), Senior Leader at Visa (2009-2010)
Anne Drapeau	Chief People Officer	2019	Bucknell BS;	Operating Partner at Bain Capital (2015-2016); EVP, Strategy & Talent at Iron Mountain (2010-2015); CPO at Vistaprint (2005-2008);
Megan Anderson	Chief Customer Officer	2022	UC Berkeley BS; Stanford MBA	SVP Global Care at Toast (2022-2022); Operating Director at Berkshire Partners (2018-2022); VP Customer Service at Booking (2013-2017);
Dean Crutchfield	Chief Information Security Officer	2022	Central Michigan University	EVP at CDK Global (2016-2021); CIO at Zebra Technologies (2013-2016); Executive Director at Dell (1999-2013)
Kevin Hamilton	Chief Marketing Officer	2018	U South Carolina BA; UNC MBA	CMO & CVP at Benefitfocus (2015-2018); VP of Marketing at Oppower (2010-2015)
Debra Chrapaty	Chief Technology Officer	2022	Temple U BA; NYU Stern MBA	VP and COO of Alexa at Amazon (2020-2022); CTO at Wells Fargo (2018-2020)
Jonathan Vassil	Chief Revenue Officer	2017	UMD BS; UVA MBA	SVP at Toast 2017-2022; GM at Groupon (2015-2017); VP at GolfNow (2009-2014)

## Appendix B: Glossary

- ☐ DCF: Discounted Cash Flow
- ☐ SOTP: Sum of the Parts
- ☐ CompCo: Comparable Company
- ☐ SAM: Serviceable Addressable Market
- ☐ ARPU: Average Revenue per User
- ☐ FCF: Free Cash Flow
- ☐ GPV: Gross Payment Volume
- ☐ FinTech: Financial Technology
- ☐ SaaS: Software as a Service
- ☐ ARR: Annual Recurring Revenue
- ☐ MRR: Monthly Recurring Revenue
- ☐ POS: Point of Sale
- ☐ SMBs: Small and Medium Businesses
- ☐ NRO: New Restaurant Openings
- ☐ TAM: Total Addressable Market
- ☐ GDP: Gross Domestic Product
- ☐ SBC: Stock-Based Compensation
- ☐ DEI: Diversity, Equity, and Inclusion

## Appendix C1: Income Statement

Income Statement (\$mn)								
Year	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E
Financial Technology Solutions Revenue	1,406.0	2,268.0	3,161.6	4,190.9	5,275.7	6,504.3	7,934.3	9,545.7
Subscription Services Revenue	169.0	324.0	495.9	714.4	950.3	1,226.1	1,550.8	1,935.9
Other Revenue	130.0	139.0	177.3	208.8	236.9	267.2	295.7	323.0
<b>Total Revenue</b>	<b>1,705.0</b>	<b>2,731.0</b>	<b>3,834.8</b>	<b>5,114.1</b>	<b>6,462.9</b>	<b>7,997.6</b>	<b>9,780.8</b>	<b>11,804.6</b>
COGS	1,364.0	2,169.0	2,925.5	3,746.3	4,649.4	5,645.3	6,736.1	8,044.1
Cash Gross Profit	341.0	562.0	909.3	1,367.8	1,813.5	2,352.3	3,044.7	3,760.5
Sales & Marketing	165.0	265.0	349.0	450.0	549.3	655.8	772.7	897.2
R&D	112.0	207.0	279.9	358.0	433.0	511.8	596.6	684.7
G&A	107.0	208.0	272.3	337.5	394.2	447.9	498.8	543.0
<b>Total Cash Operating Expenses</b>	<b>384.0</b>	<b>680.0</b>	<b>901.2</b>	<b>1,145.6</b>	<b>1,376.6</b>	<b>1,615.5</b>	<b>1,868.1</b>	<b>2,124.8</b>
<b>Cash EBIT</b>	<b>(43.0)</b>	<b>(118.0)</b>	<b>8.1</b>	<b>222.2</b>	<b>436.9</b>	<b>736.8</b>	<b>1,176.5</b>	<b>1,635.7</b>
Interest Expense	(12.0)	-	-	-	-	-	-	-
Interest Income	-	11.0	-	-	-	-	-	-
Other Expense	(255.0)	93.0	-	-	-	-	-	-
Pretax Profit	(490.0)	(277.0)	8.1	222.2	436.9	736.8	1,176.5	1,635.7
Income Tax Expense	(3.0)	(2.0)	1.7	46.7	91.7	154.7	247.1	343.5
<b>Net Income</b>	<b>(487.0)</b>	<b>(275.0)</b>	<b>6.4</b>	<b>175.5</b>	<b>345.1</b>	<b>582.1</b>	<b>929.5</b>	<b>1,292.2</b>

## Appendix C2: Income Statement Drivers

Revenue Build (\$mn)								
Year	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E
<b>Financial Technology Solutions</b>								
Volume Per Location	\$ 1,175,258	\$ 1,348,529	\$ 1,348,529	\$ 1,341,787	\$ 1,382,040	\$ 1,423,502	\$ 1,494,677	\$ 1,569,410
% Increase GPV Per Location	62%	15%	0.0%	-0.5%	3.0%	3.0%	5.0%	5.0%
Gross Payment Volume	\$ 57,000	\$ 91,700	\$ 127,351	\$ 157,524	\$ 182,158	\$ 205,374	\$ 230,425	\$ 253,756
Gross Take Rate %	2.47%	2.47%	2.47%	2.47%	2.47%	2.47%	2.47%	2.47%
Gross Transaction Based Fees	\$ 1,406	\$ 2,268	\$ 3,146	\$ 3,891	\$ 4,499	\$ 5,073	\$ 5,692	\$ 6,268
Toast Capital Revenue	\$ 7	\$ 11	\$ 16	\$ 23	\$ 29	\$ 37	\$ 46	\$ 51
<b>Financial Technology Solutions Revenue</b>	<b>\$ 1,406</b>	<b>\$ 2,268</b>	<b>\$ 3,162</b>	<b>\$ 3,914</b>	<b>\$ 4,528</b>	<b>\$ 5,110</b>	<b>\$ 5,738</b>	<b>\$ 6,318</b>
% of Total Revenue	82%	83%	83%	82%	82%	82%	82%	83%
% Growth			39%	24%	16%	13%	12%	10%
<b>Subscription Services</b>								
SS Revenue per location	\$ 3,485	\$ 4,765	\$ 5,217	\$ 5,478	\$ 5,752	\$ 6,040	\$ 6,342	\$ 6,659
% Increase SS Per Location	20%	37%	9.5%	5.0%	5.0%	5.0%	5.0%	5.0%
<b>Subscription Services Revenue</b>	<b>\$ 169</b>	<b>\$ 324</b>	<b>\$ 493</b>	<b>\$ 643</b>	<b>\$ 758</b>	<b>\$ 871</b>	<b>\$ 978</b>	<b>\$ 1,077</b>
% of Total Revenue	10%	12%	13%	14%	14%	14%	14%	14%
% Growth			52%	31%	18%	15%	12%	10%
<b>Hardware</b>								
<b>Hardware Revenue</b>	<b>\$ 112</b>	<b>\$ 113</b>	<b>\$ 141</b>	<b>\$ 158</b>	<b>\$ 169</b>	<b>\$ 181</b>	<b>\$ 189</b>	<b>\$ 195</b>
% of Total Revenue	7%	4%	4%	3%	3%	3%	3%	3%
% Growth			25%	12%	7%	7%	5%	3%

**Professional Services**

Setup Services \$ Per New Location	\$	371	\$	382	\$	382	\$	373	\$	363	\$	354	\$	347	\$	340
% Increase Setup Services \$ Per New Local		11%		3%		0.00%		-2.50%		-2.50%		-2.50%		-2.00%		-2.00%
<b>Professional Services Revenue</b>	<b>\$</b>	<b>18</b>	<b>\$</b>	<b>26</b>	<b>\$</b>	<b>36</b>	<b>\$</b>	<b>44</b>	<b>\$</b>	<b>48</b>	<b>\$</b>	<b>51</b>	<b>\$</b>	<b>54</b>	<b>\$</b>	<b>55</b>
% of Total Revenue		1%		1%		1%		1%		1%		1%		1%		1%
% Growth						39%		21%		9%		7%		5%		3%
<b>Total Revenue</b>																
<b>Total Revenue</b>	<b>\$</b>	<b>1,705</b>	<b>\$</b>	<b>2,731</b>	<b>\$</b>	<b>3,832</b>	<b>\$</b>	<b>4,759</b>	<b>\$</b>	<b>5,503</b>	<b>\$</b>	<b>6,213</b>	<b>\$</b>	<b>6,958</b>	<b>\$</b>	<b>7,645</b>
Implied Y/Y Revenue Growth		107%		60%		40%		24%		16%		13%		12%		10%

**TAM Penetration**

Addressable Locations	860,000	860,000	860,000	860,000	860,000	860,000	860,000	860,000	860,000
Penetration	6.6%	9.2%	12.8%	14.5%	16.1%	17.4%	18.4%	19.2%	
Penetration Growth %	42.5%	38.6%	39.1%	13.7%	11.0%	8.1%	5.7%	4.1%	
Incremental Penetration Growth %	2.0%	2.6%	3.6%	1.8%	1.6%	1.3%	1.0%	0.8%	

**Control Room (\$mn)**

Year	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E
COGS % of Revenue	81.6%	81.3%	78.0%	76.3%	75.4%	74.9%	74.5%	74.2%
Gross Margin %	18.4%	18.7%	22.0%	23.7%	24.6%	25.1%	25.5%	25.8%
S&M % of Revenue	9.7%	9.7%	9.1%	9.0%	8.9%	8.8%	8.7%	8.6%
R&D % of Revenue	6.6%	7.6%	7.3%	7.3%	7.2%	7.2%	7.1%	7.1%
G&A % of Revenue	6.3%	7.6%	7.1%	7.1%	7.1%	7.0%	7.0%	7.0%

**Appendix D1: Balance Sheet****Balance Sheet (\$mn)**

Year	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E
<b>Assets</b>								
<b>Current Assets</b>								
Cash & Cash Equivalents	1,266.0	1,021.0	1,273.6	1,899.5	2,784.4	4,048.0	5,795.2	8,068.3
Accounts Receivable	55.0	77.0	115.9	154.6	195.4	241.7	295.6	356.8
Inventory	63.0	130.0	188.3	219.0	271.8	314.3	375.0	447.8
Prepaid Expenses	25.0	27.0	49.2	65.7	83.0	102.7	125.6	151.6
Other Current Assets	76.0	152.0	156.3	208.4	263.4	325.9	398.6	481.1
<b>Total Current Assets</b>	<b>1,485.0</b>	<b>1,407.0</b>	<b>1,783.4</b>	<b>2,547.2</b>	<b>3,597.9</b>	<b>5,032.6</b>	<b>6,990.0</b>	<b>9,505.6</b>
<b>Long Term Assets</b>								
Gross PPE	151.0	186.0	209.0	239.7	278.5	326.5	385.1	456.0
Accumulated Depreciation	(31.0)	(48.0)	(59.8)	(73.4)	(89.2)	(107.7)	(129.6)	(155.4)
Net, PPE	120.0	138.0	149.2	166.3	189.3	218.7	255.6	300.6
Goodwill	74.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0
Other Intangibles	16.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
Deferred Tax Assets	25.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
Other Long-term Assets	15.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0
<b>Total Assets</b>	<b>1,735.0</b>	<b>1,761.0</b>	<b>2,148.5</b>	<b>2,929.5</b>	<b>4,003.1</b>	<b>5,467.4</b>	<b>7,461.6</b>	<b>10,022.2</b>
<b>Liabilities</b>								
<b>Current Liabilities</b>								
Accounts Payable	40.0	30.0	45.0	57.4	71.2	86.4	103.1	123.2
Accrued Expense	64.0	119.0	150.3	200.4	253.3	313.4	383.3	462.7
Short-term Borrowings	-	-	-	-	-	-	-	-
Current Portion of Leases	22.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Unearned Revenue, Current	44.0	39.0	54.8	73.0	92.3	114.2	139.7	168.6
Other Current Liabilities	182.0	294.0	292.9	390.6	493.6	610.8	746.9	901.5
<b>Total Current Liabilities</b>	<b>352.0</b>	<b>496.0</b>	<b>556.9</b>	<b>735.4</b>	<b>924.3</b>	<b>1,138.8</b>	<b>1,387.1</b>	<b>1,669.9</b>
<b>Long Term Liabilities</b>								
Long-term Debt	-	-	-	-	-	-	-	-
Long-term Leases	77.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
Unearned Revenue, Long-term	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Other Long-term Liabilities	203.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
<b>Total Liabilities</b>	<b>644.0</b>	<b>663.0</b>	<b>723.9</b>	<b>902.4</b>	<b>1,091.3</b>	<b>1,305.8</b>	<b>1,554.1</b>	<b>1,836.9</b>
<b>Shareholder's Equity</b>								
Common Stock	-	-	-	-	-	-	-	-
Preferred Stock	-	-	-	-	-	-	-	-
Additional Paid in Capital	2,194.0	2,477.0	2,797.2	3,224.1	3,763.7	4,431.4	5,247.9	6,233.4
Treasury Stock	-	-	-	-	-	-	-	-
Retained Earnings	(1,102.0)	(1,377.0)	(1,370.6)	(1,195.0)	(849.9)	(267.8)	661.6	1,953.9
Accumulated Other Comprehensive Loss	(1.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)
<b>Total Shareholder's Equity</b>	<b>1,091.0</b>	<b>1,098.0</b>	<b>1,424.6</b>	<b>2,027.1</b>	<b>2,911.8</b>	<b>4,161.5</b>	<b>5,907.5</b>	<b>8,185.3</b>
<b>Total Liabilities and Shareholder's Equity</b>	<b>1,735.0</b>	<b>1,761.0</b>	<b>2,148.5</b>	<b>2,929.5</b>	<b>4,003.1</b>	<b>5,467.4</b>	<b>7,461.6</b>	<b>10,022.2</b>

## Appendix E: Cash Flow Statement

Cash Flow Statement (\$mn)								
Year	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E
Net Income	(487.0)	(275.0)	6.4	175.5	345.1	582.1	929.5	1,292.2
D&A	9.0	10.0	11.8	13.6	15.8	18.5	21.8	25.8
Stock-based Compensation	140.0	228.0	320.2	427.0	539.6	667.7	816.6	985.5
Change in Accounts Receivable	(23.0)	(35.0)	(38.9)	(38.7)	(40.8)	(46.4)	(53.9)	(61.2)
Change In Inventories	(23.0)	(68.0)	(58.3)	(30.7)	(52.8)	(42.5)	(60.7)	(72.8)
Change in Accounts Payable	15.0	(11.0)	15.0	12.3	13.8	15.2	16.7	20.0
Other CFO	371.0	(5.0)	19.4	97.5	102.8	117.0	136.0	154.3
<b>Total CFO</b>	<b>2.0</b>	<b>(156.0)</b>	<b>275.6</b>	<b>656.6</b>	<b>923.6</b>	<b>1,311.6</b>	<b>1,805.9</b>	<b>2,343.9</b>
CAPEX	(12.0)	(16.0)	(23.0)	(30.7)	(38.8)	(48.0)	(58.7)	(70.8)
Other CFI	(491.0)	(82.0)	-	-	-	-	-	-
<b>Total CFI</b>	<b>(503.0)</b>	<b>(98.0)</b>	<b>(23.0)</b>	<b>(30.7)</b>	<b>(38.8)</b>	<b>(48.0)</b>	<b>(58.7)</b>	<b>(70.8)</b>
Change in Debt	(245.0)	-	-	-	-	-	-	-
Change in Equity	984.0	15.0	-	-	-	-	-	-
Dividends	-	-	-	-	-	-	-	-
Other CFF	20.0	23.0	-	-	-	-	-	-
<b>Total CFF</b>	<b>759.0</b>	<b>38.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Foreign Effect	(1.0)	-	-	-	-	-	-	-
<b>Net Change in Cash</b>	<b>257.0</b>	<b>(216.0)</b>	<b>252.6</b>	<b>625.9</b>	<b>884.8</b>	<b>1,263.6</b>	<b>1,747.2</b>	<b>2,273.1</b>
BOP Cash			1,021.0	1,273.6	1,899.5	2,784.4	4,048.0	5,795.2
EOP Cash		1,021.0	1,273.6	1,899.5	2,784.4	4,048.0	5,795.2	8,068.3

## Appendix F1: Discounted Cash Flow

Discounted Cash Flow Analysis (\$mn)							
Year	2023E	2024E	2025E	2026E	2027E	2028E	
Revenue	3,831.6	4,758.8	5,502.9	6,213.0	6,958.0	7,644.7	
Revenue Growth %	40.3%	24.2%	15.6%	12.9%	12.0%	9.9%	
Cash EBIT	6.8	74.9	146.8	207.5	270.0	335.6	
Operating Margin %	0.2%	1.6%	2.7%	3.3%	3.9%	4.4%	
NOPAT	5.3	59.2	116.0	163.9	213.3	265.2	
Tax Rate %	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	
Plus: D&A	11.8	13.5	15.3	17.4	19.8	22.4	
Minus: CAPEX	(23.0)	(28.6)	(33.0)	(37.3)	(41.7)	(45.9)	
Minus: Change in NWC	(62.9)	31.7	12.3	24.0	13.2	12.3	
Unlevered Free Cash Flow	(68.7)	75.8	110.6	168.1	204.5	254.0	
Unlevered Free Cash Flow Growth %	-50.3%	-210.3%	45.9%	52.0%	21.6%	24.2%	
Unlevered Free Cash Flow Margin %	-1.8%	1.6%	2.0%	2.7%	2.9%	3.3%	
FCFF - Perpetual Growth Rate	(68.7)	75.8	110.6	168.1	204.5	254.0	
FCFF - Exit EBITDA Method	(68.7)	75.8	110.6	168.1	204.5	10,508.7	
Discount Period	0.0	1.0	2.0	3.0	4.0	5.0	
Discount Factor	1.0	0.9	0.8	0.7	0.6	0.6	
PV of Unlevered Free Cash Flow	(0.2)	67.7	88.4	120.0	130.5	144.9	

PV of Forecast Period	551.3
Terminal Year FCFF	254.0
Terminal Value	10,254.7
PV of Terminal Value	5,848.0
Implied EV	6,399.3

Less: Debt	(22.0)
Less: Preferred Stock	-
Less: Minority Interest	-
Plus: Cash & Cash Equivalents	1,030.0

Implied Equity Value	7,407.3
Diluted Shares Outstanding	606.8
Implied Share Price	\$12.21
Current Share Price	\$17.52
Downside	-30.3%

### Sensitivity Analysis

#### Exit Multiple

	3.0x	4.0x	5.0x	6.0x	7.0x
13.9%	\$7.79	\$9.56	\$11.34	\$13.11	\$14.89
12.9%	\$8.05	\$9.90	\$11.76	\$13.62	\$15.47
11.9%	\$8.33	\$10.27	\$12.21	\$14.15	\$16.09
10.9%	\$8.62	\$10.65	\$12.68	\$14.71	\$16.74
9.9%	\$8.93	\$11.05	\$13.17	\$15.30	\$17.42

WACC

## Appendix F2: Discount Rate (WACC)

Inputs	
Risk-free rate	3.92%
Weighted-average cost of debt	23.92%
Equity risk premium	5.00%
Beta	1.59
Corporate tax rate	21.0%
Fully diluted shares outstanding	607
Share price	\$17.52
Debt	22

Cost of Debt Calculation	
Pre-tax cost of debt	5.35%
After-tax cost of debt	4.22%

Cost of Equity Calculation	
Risk-free rate	3.92%
Equity risk premium	5.00%
Beta	1.59
Cost of equity	11.90%

WACC Calculation			
	Amount	% Total	Cost of Capital
Value of Debt	22	0.2%	4.2%
Market Value of Equity	10,631	99.8%	11.9%
	\$10,653	100.0%	11.9%

Bottoms-Up Beta						
Company	Market Beta	Debt	Equity	Debt / Equity	Tax Rate	Unlevered Beta
SQ	2.56	\$4,994.5	\$39,978.8	12.5%	21.0%	2.33
VYX	1.63	\$6,110.0	\$2,420.2	252.5%	21.0%	0.54
PAR	2.01	\$393.4	\$1,196.2	32.9%	21.0%	1.59
Median						1.59
TOST	1.66	\$22.0	\$10,630.6	0.2%	21.0%	
<b>Bottoms-Up Beta</b>	<b>1.59</b>					

## Appendix G1: Monte-Carlo Simulation

Our team performed a Monte-Carlo simulation with 100,000 iterations to gain better view on Toast's price trajectory. We utilized case estimates and sensitized:

- Financial Technology Solutions Revenue Projections
- Subscription Services Revenue Projections
- Financial Technology Solutions Gross Margin
- Subscription Services Gross Margin
- Hardware Gross Margin
- Professional Services Gross Margin

Our \$12.10 DCF target price is within the 4th percentile of the mean output of \$12.29. There is a 90% chance that the stock price is within \$11.70 and \$12.94.

Summary Statistics	
Minimum	\$11.02
Maximum	\$13.55
Mean	\$12.29
90% CI	+ \$0.00629
Mode	\$12.11
Median	\$12.271
Std Dev	\$0.38
Skewness	0.21
Kurtosis	2.67
Values	100,000



## Appendix G2: Sensitivity Analysis for Upside and Downside Cases

### Downside Case

#### Exit Multiple

WACC	Exit Multiple				
	3.0x	4.0x	5.0x	6.0x	7.0x
13.9%	\$5.16	\$6.40	\$7.64	\$8.88	\$10.12
12.9%	\$5.32	\$6.61	\$7.91	\$9.21	\$10.51
11.9%	\$5.49	\$6.84	<b>\$8.20</b>	\$9.56	\$10.91
10.9%	\$5.67	\$7.09	\$8.50	\$9.92	\$11.34
9.9%	\$5.86	\$7.34	\$8.82	\$10.31	\$11.79

### Upside Case

#### Exit Multiple

WACC	Exit Multiple				
	3.0x	4.0x	5.0x	6.0x	7.0x
13.9%	\$14.66	\$17.90	\$21.13	\$24.37	\$27.60
12.9%	\$15.21	\$18.59	\$21.97	\$25.35	\$28.73
11.9%	\$15.78	\$19.31	<b>\$22.85</b>	\$26.38	\$29.92
10.9%	\$16.38	\$20.08	\$23.78	\$27.47	\$31.17
9.9%	\$17.02	\$20.89	\$24.75	\$28.62	\$32.49

## Appendix H: Annotated Share Price Graph



## Appendix I1: Relative Valuation – Comparable Company Analysis

Company Name	Ticker	Share Price	Shares Outstanding	Market Capitalization	Net Debt	Enterprise Value	EV/Gross Profit 2024E
Block, Inc. Class A	SQ	\$69	579	39,687	(2,373)	41,791	4.78x
Lightspeed Commerce Inc	LSPD	\$19	150	2,792	(739)	2,251	4.74x
NCR Voyix Corporation	VYX	\$16	141	2,305	6,908	9,598	4.97x
PAR Technology Corporation	PAR	\$41	27	1,125	315	1,488	12.04x
Shift4 Payments, Inc. Class A	FOUR	\$71	83	5,869	990	5,491	5.86x
<b>Average</b>							6.48x
<b>Median</b>							4.97x
<b>Toast, Inc. Class A</b>	<b>TOST</b>	<b>\$17</b>	<b>512</b>	<b>8,813</b>	<b>(998)</b>	<b>9,623</b>	<b>8.12x</b>
25th Percentile							4.8x
40th Percentile							4.9x
<b>63rd Percentile</b>							<b>5.4x</b>
60th Percentile							5.3x
75th Percentile							5.9x

2024 Metric	EV/Gross Profit
Average	6.48x
Median	5.43x
2024 Gross Profit	\$1,185
Adjusted multiple	5.4x
Implied EV	\$ 6,437
Net debt	(998)
Shares outstanding	607
Implied share price	\$12.25
Upside	(28.8%)
Weight	100.0%
<b>Target Price</b>	<b>\$12.25</b>

## Appendix I2: Relative Valuation – Sum of the Parts Analysis

Company	Ticker	Price as of 1/5/2024	% of 52 Week High	Shares Outstanding (mm)	Market Cap	Net Debt	Enterprise Value	EV/Gross Profit
<b>Toast, Inc. Class A</b>	<b>TOST</b>	<b>\$17</b>	<b>63.7%</b>	<b>607</b>	<b>\$387</b>	<b>(\$998)</b>	<b>\$9,623</b>	<b>8.12x</b>
<b>Vertical SaaS</b>								
Veeva Systems Inc Class A	VEEV	\$186	82.4%	162	\$134	(\$3,885)	\$27,674	13.44x
Shopify, Inc. Class A	SHOP	\$72	89.8%	1,266	\$1,137	(\$3,796)	\$66,917	15.72x
nCino Inc	NCNO	\$33	95.2%	111	\$105	(\$41)	\$3,136	8.59x
Varonis Systems, Inc.	VRNS	\$43	94.2%	109	\$103	(\$214)	\$3,128	6.59x
BILL Holdings, Inc.	BILL	\$75	53.5%	106	\$57	(\$833)	\$10,764	8.80x
Procore Technologies Inc	PCOR	\$64	83.7%	137	\$114	(\$541)	\$8,788	9.18x
<b>Average</b>			<b>83.1%</b>	<b>315</b>	<b>\$275</b>	<b>(\$1,552)</b>	<b>\$20,068</b>	<b>10.38x</b>
<b>Median</b>			<b>86.8%</b>	<b>124</b>	<b>\$110</b>	<b>(\$687)</b>	<b>\$9,776</b>	<b>8.99x</b>
<b>POS &amp; Restaurant Operations</b>								
Lightspeed	LSPD	\$19	85.5%	150	\$129	(\$739)	\$1,427	3.00x
Block	SQ	\$69	76.2%	579	\$441	(\$2,373)	\$24,700	2.82x
Olo	OLO	\$5	55.9%	161	\$90	(\$359)	\$635	3.88x
DoorDash	DASH	\$94	90.4%	371	\$336	(\$3,328)	\$27,930	5.69x
<b>Average</b>			<b>77.0%</b>	<b>316</b>	<b>\$249</b>	<b>(\$1,700)</b>	<b>\$13,673</b>	<b>3.85x</b>
<b>Median</b>			<b>80.9%</b>	<b>266</b>	<b>\$232</b>	<b>(\$1,556)</b>	<b>\$13,063</b>	<b>3.44x</b>
<b>Tier 1 Commerce Facilitators</b>								
Shopify	SHOP	\$72	89.8%	1,266	\$1,137	(\$3,796)	\$66,917	15.72x
Block	SQ	\$69	76.2%	579	\$441	(\$2,373)	\$24,700	2.82x
Fiserv	FI	\$132	96.6%	648	\$626	\$22,072	\$91,824	7.47x
Paypal	PYPL	\$59	66.3%	1,158	\$768	(\$311)	\$63,878	4.61x
<b>Average</b>			<b>82.2%</b>	<b>913</b>	<b>\$743</b>	<b>\$3,898</b>	<b>\$61,830</b>	<b>7.66x</b>
<b>Median</b>			<b>83.0%</b>	<b>903</b>	<b>\$697</b>	<b>(\$1,342)</b>	<b>\$65,398</b>	<b>6.04x</b>
<b>Food Delivery</b>								
DoorDash	DASH	\$94	90.4%	371	\$336	(\$3,328)	\$27,930	5.69x
Uber	UBER	\$58	92.1%	1,975	\$1,818	\$5,138	\$103,268	5.95x
<b>Average</b>			<b>88.5%</b>	<b>1,083</b>	<b>\$950</b>	<b>\$156</b>	<b>\$65,532</b>	<b>5.89x</b>
<b>Median</b>			<b>91.2%</b>	<b>1,173</b>	<b>\$1,077</b>	<b>\$905</b>	<b>\$65,599</b>	<b>5.82x</b>
<b>Legacy POS</b>								
NCR	VYX	\$16	52.7%	141	\$74	\$6,908	\$10,983	5.68x
Par Technology	PAR	\$41	88.9%	27	\$24	\$315	\$1,374	11.12x
Shift4	FOUR	\$71	92.7%	83	\$77	\$990	\$4,422	4.72x
<b>Average</b>			<b>78.1%</b>	<b>84</b>	<b>\$58</b>	<b>\$2,738</b>	<b>\$5,593</b>	<b>7.17x</b>
<b>Median</b>			<b>88.9%</b>	<b>83</b>	<b>\$74</b>	<b>\$990</b>	<b>\$4,422</b>	<b>5.68x</b>

Multiple	EV/Gross Profit	Weight
Vertical SaaS median	8.99x	12.0%
POS & Restaurant Operations median	3.44x	41.5%
Tier 1 Commerce Facilitators median	6.04x	2.5%
Food Delivery median	5.82x	2.5%
Legacy POS median	5.68x	41.5%
<b>Weighted Average</b>	<b>5.16x</b>	<b>100.0%</b>
<b>TOST 2024 Metric</b>	<b>\$1,185 2024 Gross Profit</b>	
Implied EV	\$6,116	
Net debt	(\$998)	
Shares outstanding	607	
Implied share price	\$11.73	
Upside	(31.85%)	
Weight	100.0%	

## Appendix J: ESG Scorecard

Environmental Pillar Score	Weight	MSCI Score	Team Score	Rationale
Carbon Emission	5%	7.0	6.9	▼ Increase in hardware production, further increasing emissions,
Weighted Average	0.35		0.35	
<b>Total</b>	<b>5%</b>	<b>7.00</b>	<b>6.90</b>	

Social Pillar Score				
Human Capital Development	26%	1.5	1.6	▲ Addition of DEI Scorecard which directly affects management bonuses as incentive to improve DEI.
Privacy & Data Security	21%	6.3	6.5	▲ Partnership with Bluefin to ensure safety in data encryption.
Access to Finance	11%	5.0	5.0	
Weighted Average	2.26		2.33	
<b>Total</b>	<b>58%</b>	<b>3.90</b>	<b>4.02</b>	

Governance Pillar Score				
<u>Corporate Governance Deductions</u>				
Board		(1.3)	(1.5)	▼ A rushed CEO transition has left the current Corporate Governance an uncertain position.
Pay		(0.8)	(0.8)	
Ownership & Control		(1.3)	(1.3)	
Accounting		(0.1)	(0.1)	
Total Deductions		(3.5)	(3.7)	
<u>Corporate Behavior Deductions</u>				
Business Ethics		(1.6)	(2.2)	▼ The 99 cent fee controversy went against Toast's commitment keeping low costs for their customers.
Tax Transparency		0.0	0.0	
Total Deductions		(1.6)	(2.2)	
Maximum Score		10.0	10.0	
Corporate Governance Deductions		(3.5)	(3.7)	
Corporate Behavior Deductions		(1.6)	(2.2)	
<b>Total</b>	<b>37%</b>	<b>4.90</b>	<b>4.10</b>	

Total ESG Score		4.43	4.19
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## Appendix K: Primary Research

Our primary research methodology was designed to be random, unbiased, and representative of Toast's SAM. We used a random coordinate generator to pick a set of coordinates in the U.S. Then, we called the nearest full-service restaurant, chains, coffee shops, or bar. We asked to speak to a manager or owner of the restaurant.

If we were able to speak to a decision maker, we asked at least three questions:

- ⊕ Do you use a POS?
- ⊕ What are the pros and cons of your current system?

If they did not have a POS System

- ⊕ Do you intend to upgrade to a POS system?

If they had a POS system:

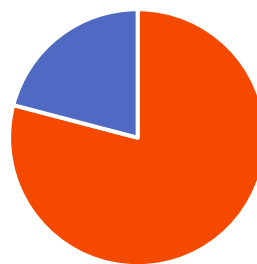
- ⊕ Which POS system do you use?
- ⊕ Do you intend to switch POS systems?

If they had Toast specifically:

- ⊕ Do you plan to upgrade to additional apps?

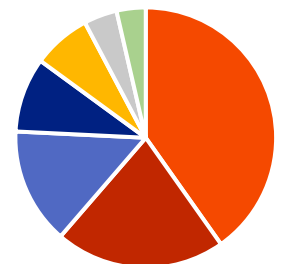
If the respondent was not competent to answer such questions, the datapoint was not used. Approximately 1,000 calls were completed in total to accumulate 200 datapoints to approximate Toast's SAM.

Percent of Restaurants With and Without a POS



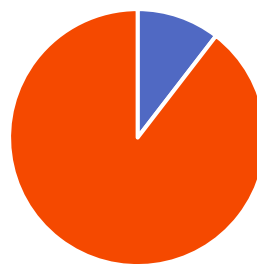
- Restaurants With a POS
- Restaurants Without a POS

Primary Research Breakdown By POS



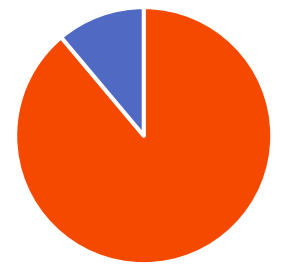
- Other
- None
- Toast
- Clover
- NCR
- Square
- Micros

Intentions of Restaurants Currently With a POS



- Planning to Switch to a New POS
- Keeping Their Current POS

Intentions of Restaurants With No POS



- Planning to Get a POS
- Not Planning to Get a POS

## Appendix L: SWOT Analysis

Strengths	Opportunities
<p><b>Established Market Presence:</b> Toast has a well-established market presence, particularly in the United States, where it serves a significant portion of the restaurant industry.</p> <p><b>Comprehensive Solutions:</b> The company offers a comprehensive suite of solutions for restaurants, covering point-of-sale, online ordering, delivery management, and other essential functions.</p> <p><b>Continuous Innovation:</b> Toast demonstrates a commitment to innovation, regularly updating its software and introducing new features to meet the evolving needs of the restaurant industry.</p>	<p><b>International Expansion:</b> Toast has the opportunity to expand its footprint globally, tapping into markets beyond the United States to diversify its revenue streams.</p> <p><b>Partnerships and Collaborations:</b> Forming strategic partnerships with other players in the foodservice ecosystem, can open new avenues for growth. Such as toast recently partnering with the Marriot Hotels.</p> <p><b>Diversification of Services:</b> While toast has no plans to, exploring additional services or expanding into related industries can be an opportunity for Toast to broaden its offerings and cater to a wider range of business needs.</p>
Weaknesses	Threats
<p><b>Limited Global Presence:</b> While Toast is strong in the United States, its global presence is limited. This could be a weakness as the company faces strong competition from global players in the expanding international market.</p> <p><b>Higher Pricing:</b> Toast's pricing structure, especially for hardware and advanced plans, may be perceived as higher compared to some competitors, potentially limiting its market share.</p> <p><b>Dependence on Restaurant Industry:</b> The company's success is closely tied to the health of the restaurant industry. Economic downturns or disruptions in the foodservice sector could impact Toast's revenue.</p>	<p><b>Intense Competition:</b> The POS software industry is highly competitive, with both established players and new entrants vying for market share. This poses a threat to Toast's growth and requires continuous innovation to stay ahead.</p> <p><b>Pre-profitability:</b> Toast's current status as a pre-profitable company adds financial vulnerability. The need for sustained investment in innovation, sales, and market expansion may strain financial resources, especially if profitability is not achieved within a reasonable timeframe.</p>

## Appendix M: Porter's 5 Forces

\*Score from 1-5 with 5 representing the biggest threat, and 1 being the lowest threat (though not non-existent)

### **Bargaining Power of Suppliers – 2**

Major industry suppliers, including card processors like Visa, Mastercard, American Express, and Discover, play a crucial role by accepting the majority of transactions handled by POS. Their influence is moderate, as system malfunctions could strain relations and impact card acceptance.

### **Bargaining Power of Buyers – 4**

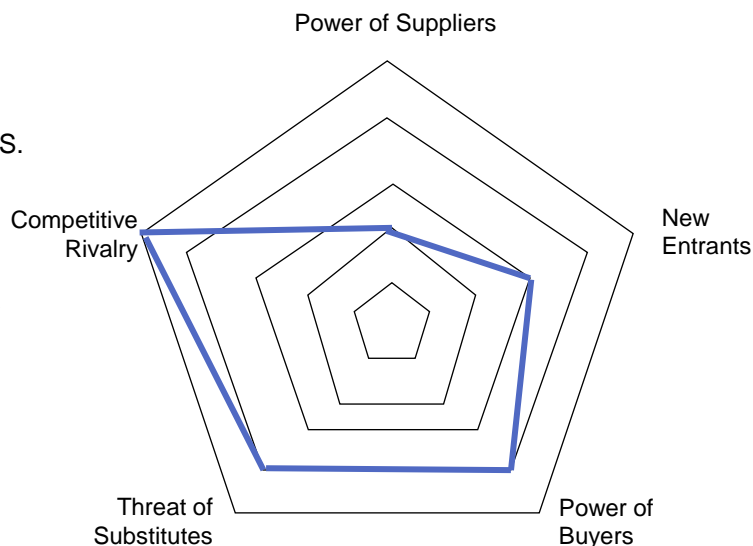
In a saturated market with over 20 restaurant-exclusive POS developers and minimal product differentiation, restaurants exercise considerable bargaining power in selecting their preferred POS system. Cloud-based POS systems typically provide a multiple of subscription and pricing options, which empowers restaurants. Although cloud products do have the presence of take rates, each system offers a different rate, which typically differs based upon the sales of the restaurants.

### **Threat of New Entrants – 3**

Potential entrants in the POS software development industry face hurdles, including legal challenges with copyrights and nondisclosure agreements. High startup costs, negotiation complexities with payment processors, and the need for differentiation are significant barriers. Labor intensity and competition for skilled developers maintain above-average wages, adding to entry challenges.

### **Threat of Substitute Products – 4**

In the restaurant industry's need for payment processing solutions, substitute products are evident, such as traditional POS and cash-based systems. Despite the advantages of cloud-based POS in integration and data collection,



restaurants still have the option to choose conventional POS cloud-based POS in integration and data collection, restaurants still have the option to choose conventional POS and cash-based alternatives. Some establishments even prefer the use of these products, as they do not have to deal with take-rate.

### **Competitive Rivalry – 5**

Competitive Rivalry – 5 Given the abundance of choices and the necessity for Cloud-Based POS providers to differentiate themselves in a market with little distinction and low switching costs, the competitive rivalry in the POS software development sector is intense. Companies in this sector make substantial investments in their sales teams to effectively target a diverse range of restaurants.

## Appendix N: Competitor Costs

POS System	Monthly Subscription Costs		Notes
	Basic	Advanced	
Square POS	\$0	\$24-\$69	
PayPal Zettle	\$0	None	
eHopper	\$0	\$30-\$40	
Lightspeed	\$39	\$289	\$39 per additional register per month
Clover POS	\$15	\$95	
Shopify POS	\$29	\$299	Also \$0 to \$89 per location, per month
<b>Toast</b>	\$0	\$165	

POS System	Credit Card Processing Rates		Notes
	Low End	High End	
Square POS	2.5% + \$0.10	3.5% + \$0.15	Based on plan tier and type of sale
PayPal Zettle	2.29%	3.49% + \$0.09	Based on type of sale
eHopper	0% with program	2.5% + \$0.10	Option to connect a supported third-party payment provider
Lightspeed	2.6% + \$0.10	3.5% + \$0.10	Based on type of card and sale, or connect a supported provider
Clover POS	2.3% + \$0.10	3.5% + \$0.10	Based on plan and type of sale, or connect a supported provider
Shopify POS	2.4% + \$0	2.9% + \$0.30	Based on plan tier and type of sale, or connect a supported payment provider
<b>Toast</b>	Vary by card brand and sale type		

POS System	Hardware Costs		Notes
	Mobile Reader Costs		
Square POS	\$0 to \$49 per reader		\$149 for iPad stand (not including iPad) to \$799 for Square Register
PayPal Zettle	\$29 first reader, \$79 per additional		\$159 for iPad stand (not including iPad) to \$699 for Register Bundles
eHopper	Free		Connect your own
Lightspeed	Per quote with sign-up		Per quote with sign-up
Clover POS	\$49 per reader, \$499 per mobile terminal		\$1,349 for counter registers to \$3647 for full restaurant systems
Shopify POS	\$49 per reader, \$399 per mobile terminal		\$99 to \$185 for iPad stand register (not including iPad)
<b>Toast</b>	\$0 (free terminal), \$450 per added unit		Per quote based on plan, estimate \$1,350 for a countertop register bundle

## Appendix O: Citations

- Block, Inc. "Quarterly Earnings Transcript." Block, Inc. Q3 2023. Accessed 4 January 2024.
- Deloitte. "State of the US Consumer." Deloitte, [www2.deloitte.com/us/en/insights/economy/consumer-pulse/state-of-the-us-consumer.html](http://www2.deloitte.com/us/en/insights/economy/consumer-pulse/state-of-the-us-consumer.html)
- FactSet Research Systems. "Toast, Inc." FactSet, [www.factset.com/](http://www.factset.com/). Accessed 24 December 2023.
- Federal Reserve Bank of St. Louis. "Title of the Data Series." FRED (Federal Reserve Economic Data), [fred.stlouisfed.org/series/MRTSSM7225USN](http://fred.stlouisfed.org/series/MRTSSM7225USN).
- Fiserv. "Investor Conference Details." Fiserv Investor Relations, [investors.fiserv.com/news-events/ir-calendar/detail/20231115-investor-conference](http://investors.fiserv.com/news-events/ir-calendar/detail/20231115-investor-conference).
- Infogram. "Restaurant Operator Insight Report" Toast, Inc., [infogram.com/1t3xwxpr9klpkgsz6gv64ezkr1h622pv944](http://infogram.com/1t3xwxpr9klpkgsz6gv64ezkr1h622pv944).
- Lightspeed. "Lightspeed." Lightspeed, [www.lightspeedhq.com/](http://www.lightspeedhq.com/). Accessed 4 January 2024.
- McGrath, Shawn. "Point of Sales Software Developers in the US: US Industry Report." IBIS World, Jul. 2022, <https://my-ibisworld-com.ezproxy.babson.edu/us/en/industry-specialized/od5897/about>. Accessed 7 December 2023.
- MSCI. "ESG Investing: ESG Ratings." MSCI, [www.msci.com/our-solutions/esg-investing/esg-ratings](http://www.msci.com/our-solutions/esg-investing/esg-ratings). Accessed 1 December 2023.
- MSCI. "MSCI ESG Ratings Methodology." MSCI, [www.msci.com/documents/1296102/34424357/MSCI+ESG+Ratings+Methodology.pdf](http://www.msci.com/documents/1296102/34424357/MSCI+ESG+Ratings+Methodology.pdf).
- ScrapeHero. "ScrapeHero - Data as a Service." ScrapeHero, [www.scrapehero.com/](http://www.scrapehero.com/). Accessed 4 January 2024.
- Shift4. "Shift4." Shift4, [www.shift4.com/](http://www.shift4.com/). Accessed 4 January 2024.
- Smith, Rebekkah. "11 Palatable Restaurant Industry Statistics." NorthOne, [www.northone.com/blog/small-business/restaurant-industry-statistics](http://www.northone.com/blog/small-business/restaurant-industry-statistics).
- S&P Capital IQ. "Toast, Inc." Standard & Poor's Capital IQ. Accessed 23 December 2023.
- Square. "Square." Square, [squareup.com/us/en](http://squareup.com/us/en). Accessed 4 January 2024.
- The New York Times. "Restaurant Grant Program..." The New York Times, [www.nytimes.com/2021/07/01/business/restaurant-revitalization-fund-sba.html](http://www.nytimes.com/2021/07/01/business/restaurant-revitalization-fund-sba.html).
- Toast, Inc. "Form 10-K for Fiscal 2021 to 2022." Toast, Inc., 2023. Accessed 4 January 2024.
- Toast, Inc. "Proxy Statement for Fiscal Year Ended March 1, 2023." Toast, Inc., 2023. Accessed 4 January 2024.
- Toast, Inc. "Quarterly Earnings Transcripts." Toast, Inc., Q3 2021 to Q3 2023. Accessed 4 January 2024.
- Toast, Inc. "Toast POS." Toast, Inc., [pos.toasttab.com](http://pos.toasttab.com). Accessed 4 January 2024.
- TouchBistro. "3 POS Myths Debunked." TouchBistro, [www.touchbistro.com/blog/3-pos-myths-debunked](http://www.touchbistro.com/blog/3-pos-myths-debunked). Accessed 4 January 2024.
- TouchBistro. "State of Restaurants Report." TouchBistro, [www.touchbistro.com/blog/state-of-restaurants-report](http://www.touchbistro.com/blog/state-of-restaurants-report). Accessed 4 January 2024.
- U.S. Securities and Exchange Commission. "EDGAR Company Search." U.S. Securities and Exchange Commission, [www.sec.gov/edgar/searchedgar/companysearch](http://www.sec.gov/edgar/searchedgar/companysearch). Accessed 4 January 2024.