May 8 2023

Valuation

Spring 2023

Professor. Aswath Damodaran

Analyst	Company	Last Price	Intrinsic Valuation	Regressed Pricing	Median Pricing	Recommendation
Bernard Kuperman	FLRY3	R$15.81	R$5.71	R$22.14	R$22.56	Sell
Alan Lee	PVH	$83.61	$99.09	$143.59	$155.24	Buy
Samuel Reyes	PSA	$295.91	$168.7	$391.13	$322.55	Sell
Mohak Saxena	MA	$384.66	$185.95	$231.73	$239.93	Sell

NYU | STERN

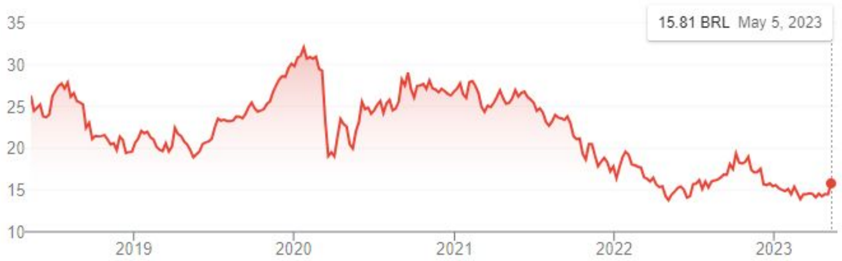
Grupo Fleury - Pricing

GrupoFleury

Company Description

Fleury S.A., together with its subsidiaries, provides medical services in the diagnostic, treatment, clinical analysis, health management, medical care, orthopedics, and ophthalmology areas in Brazil. The company operates through three segments: Diagnostic Medicine, Integrated Medicine, and Dental.

Historical Stock Performance



Investment Profile

Recommendation: **Sell**

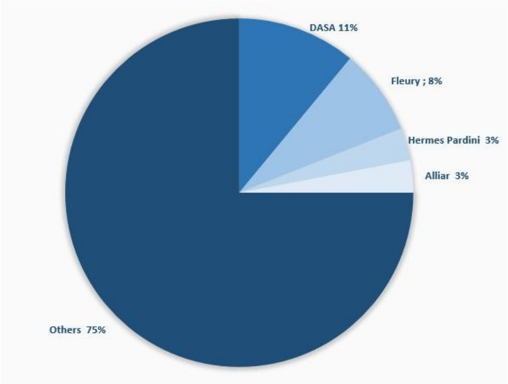
Fair Value: **R$5.71**

Regression Pricing: **R$22.14**

Headquartered: **São Paulo/SP, Brazil**

Based on intrinsic valuation, the recommendation to sell. Even if pricing suggests otherwise, FLRY3 does seem to have strong cash flows to justify a buy.

Industry Market Share



Grupo Fleury - Story to numbers

GrupoFleury

Fleury has been acquiring smaller labs as a growth strategy, growing revenue 15% per year

Growth strategy has not been as successful as the company expects, inflation in Brazil is around 6%

Fleury's margins won't tend to improve, since the businesses they are acquiring are already consolidated, no gains of efficiency and no "Synergy"

Even though Fleury is a mildly profitable company, It's reinvestment rate does not make sense with such high cost of capital

Since Fleury's operations are in Brazil, with high interest rates, Fleury's cost of capital is 14.70%, I expect it to decrease to 11.94, due to a future reduction in interest rates, but ultimately resulting still in a WACC higher than ROIC

Potential growth but Increased risk with acquisitions

FLRY3

Same Brazillian Exams lab following organic and inorganic growth strategy

Fleury continues its organic and inorganic growth program. High cost of capital due to Brazil's unstable situation. Cost of capital as we approach year 10 should decrease due to return of selic to around 8% and stabilization of Brazilian economy.

The Assumptions

	Base year	*Next year*	*Years 2-5*	*Years 6-10*	*After year 10*	*Link to story*
Revenues (a)	$4,366.24	15.2%	15.20%	→	6.00%	Continue organic and inorganic growth to same levels, Brazil has a lot of opportunity and increasing demand for health labs
Operating margin (b)	16.97%	16.2%	→	→	16.20%	Margins won't tend to improve, as the company grows, companies are already efficient, unless Brazil has an unexpected increase in efficiency
Tax rate	26.38%		26.38%	→	34.00%	Not sure if tax rate should converge to 34%
Reinvestment (c)		1.00	1.24	1.24	50.25%	Will increase to reach industry average
Return on capital	11.43%	Marginal ROIC =	19.34%		11.94%	will remain the same
Cost of capital (d)			14.70%	→	11.94%	Will decrease with stabiliziation of Brazilian macrosituation and reasonable control of inflation

Grupo Fleury - Pricing

GrupoFleury

Using Damodaran's EV/EBITDA regression, the equation is as follows:

EV/EBITDA = 30.93 + 4.9*g - 17.3 * DFR - 40.40 * Tax rate

Fleury's fundamentals:
Growth = 15.2%
Total Debt = R$ 3,617 million
Market Value of Equity: R$5,300 Million
Tax rate = 26.38%
EV/EBITDA = 13.99

Fleury currently trades at **10.68x**
The median of the sector is **14.21x**

Note 1: This regression uses emerging-market companies in all industries.
Note 2: The 39 peers selected were all lab-businesses with market-cap above USD 100 million. Below this threshold there were many companies missing data

FLRY3	EV/EBITDA	Pricing
CURRENT	10.68	15.81
REGRESSION	13.99	22.14
MEDIAN	14.21	22.56

Based on pricing, Fleury looks undervalued. However, the intrinsic valuation shows that it is hard to justify a value above what it is currently trading at.

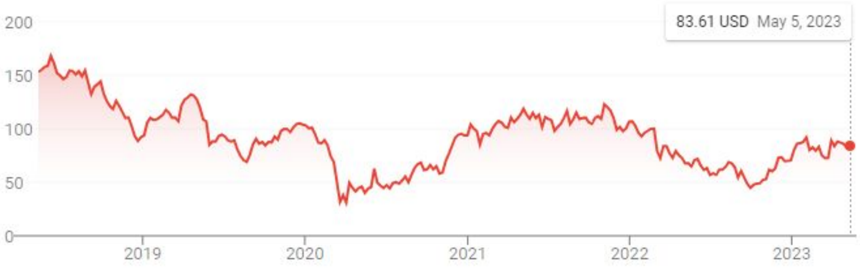
PVH - Summary

PVH
PHILLIPS-VAN HEUSEN CORPORATION

Company Description

PVH Corp. was founded in 1881 and is based in New York, New York. The company has ben divesting other business to focus on its two main brands: Tommy Hilfiger and Calvin Klein

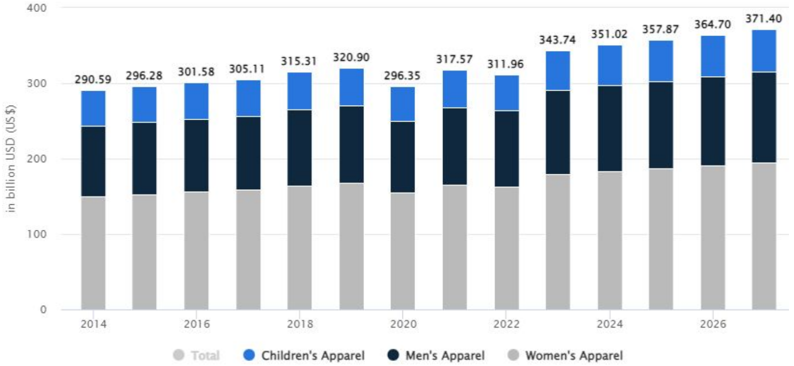
Historical Stock Performance



Investment Profile

Recommendation: Buy
Fair Value: **$99.09**
Regression pricing: **$143.59**
Median pricing: **$155.24**
Last Close: **$83.61** (May/05/2023)
Industry: **Apparel**
Headquarters: **New York/NY**

Industry Performance



Source: statista

PVH - Story

PVH

PHILLIPS-VAN HEUSEN CORPORATION

PVH+ PLAN

PVH has been divesting of not-so-successful brands to focus on Tommy Hilfiger and Calvin Klein (above 80% brand awareness)

TOMMY HILFIGER + Calvin Klein

$933 million impairment in 2020 from ARROW and Geoffrey Beene brands

Strong markets in Europe and Americas, and growth opportunities in Asia (China)

Digital and Direct-To-Consumer focus

PVH is targeting mid-teens in Asia
- Brand awareness in China is 50%
- Main brands struggle with younger consumers

Potential growth

Increased risk

Sensitive to macroeconomic headwinds
- PVH could not pass inflation to consumers
- But saw costs increase
- Also led to inventory management issues

Inventory write-off might be coming
- Inventory levels soared industry-wide
- There is cyclicality to consumer taste in apparel
- Current inventory might need to be sold at heavy discounts

PVH - Story to numbers

PVH
PHILLIPS-VAN HEUSEN CORPORATION

Focus on digital expansion and on the asian market, namely China, where brand awareness is not yet at satisfactory levels. The apparel industry is competitive, however, and growth is unlikely to be a strong factor in the long-run.

Terminal growth gT:
ROIC = 14.9%
RR =15.0%
ROICxRR = gT
14.9% x 15% = 2.2%

Tax rate in the long-term should be 24% as per guidance

FREE CASH FLOWS	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	Forecast FY2025	FY2026	FY2027	Terminal Value
Revenue growth					-28.0%	28.4%	-1.4%	9.0%	7.7%	6.5%	5.3%	4.0%	2.2%
Revenue				9,909.0	7,132.6	9,154.7	9,024.2	9,836.4	10,598.7	11,287.6	11,880.2	12,355.4	12,632.30
Adj. EBIT Margin				6.7%	-0.8%	12.3%	10.4%	7.0%	8.8%	10.5%	12.3%	14.0%	14.0%
Adj EBIT				668.6	(56.3)	1,123.9	939.5	688.5	927.4	1,185.2	1,455.3	1,729.8	1,768.52
(Tax on EBIT)				(43.5)	2.6	(23.9)	(454.5)	(165.3)	(222.6)	(284.4)	(349.3)	(415.1)	(424.4)
NOPAT				625.1	(53.7)	1,100.0	485.0	523.3	704.8	900.8	1,106.0	1,314.6	1,344.1
ROIC				7.6%	-0.5%	12.9%	6.1%	6.4%	8.5%	10.7%	12.9%	14.9%	14.9%
Divestitures				0.0	169.1	222.9	0.0	0.0	0.0	0.0	0.0	0.0	0
Reinvestment rate				65.0%	-	10.7%	230.0%	21.0%	19.8%	18.6%	17.4%	16.2%	15.0%
(Net Reinvestment)				(406.1)	300.4	(117.5)	(1,115.7)	(109.9)	(139.6)	(167.5)	(192.5)	(213.0)	(201.6)
Free Cash Flow to the Firm				**219.0**	**246.8**	**982.5**	**(630.7)**	**413.4**	**565.3**	**733.2**	**913.6**	**1,101.6**	**1,142.5**
													12,435.0

Recent supply-chain and demand issued have led to increase inventory which might have to be sold at discounts, hurting margins in the short-term.
PVH has strong brand names, which should benefit margins in the long-run (median EBIT margin of peers is 13.2%)

Although it is a competitive industry, PVH has strong brands and can maintain ROIC above WACC in the future.

PVH+ plan will require reinvestment, but better inventory management can mitigate some of it.

WACC of 11.13%

Equity - 62%

Debt - 62%

Bottom-up unlevered beta = 1.146
D/E = 0.6
Beta = 1.67

ERP = 7.1%	ERP	weight
US and Canada	5.14%	35%
Europe + Russia	8.74%	47%
Asia-Pacific	6.43%	17%
Other Foreign	12.25%	1%

Risk-free rate:
4.435%
as of May/05/2023

PVH Rating: BBB-
Credit Spread: 2%
Pre-tax cost of debt: = 3.44% + 2%
= 5.44%

PVH - Pricing

PVH
PHILLIPS-VAN HEUSEN CORPORATION

EV/IC = 1.6274 + 4.5405*EBITDA Margin + 7.3778*g - 1.1488*D/E

```
Call:
lm(formula = EV.Invested.Capital ~ EBITDA.Margin + Rev.Growth +
    D.E, data = dados)

Residuals:
    Min      1Q  Median      3Q     Max
-4.3881 -1.4068 -0.3555  0.7324  9.0562

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)     1.6274     0.5222   3.117   0.0025 **
EBITDA.Margin   4.5405     1.7535   2.589   0.0113 *
Rev.Growth      7.3778     3.0036   2.456   0.0161 *
D.E            -1.1488     0.4810  -2.388   0.0191 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 2.181 on 85 degrees of freedom
  (67 observations deleted due to missingness)
Multiple R-squared:  0.2648,	Adjusted R-squared:  0.2389
F-statistic: 10.21 on 3 and 85 DF,  p-value: 8.263e-06
```

Peer group used is all APPAREL companies (160) with more than USD 100 million Market Cap
Below USD 100 million there were many companies missing financial data.

- With an **R^2** of **0.2648** and all independent variables at a significant level, the calculated EV/IC for PVH is **1.64**

PVH	EV/IC	Pricing
CURRENT	1.11	83.61
REGRESSION	1.64	143.59
MEDIAN	1.74	155.24

A few regressions were attempted, before arriving at the best trade-off between prediction power and significant predictors:

- Revenue growth was a better than earnings growth
- ROIC was expected to show a great level of significance, but it was worse than EBITDA margin. When used together, ROIC had a negative coefficient (likely due to multicollinearity)

Public Storage - Summary

Company Description

Public Storage is a REIT that primarily acquires, develops, owns, and operates self-storage facilities. At December 31, 2022, it had interests in 2,869 self-storage facilities located in 40 states with approximately 204 million net rentable square feet in the United States.

Stock Historical Performance

Investment Profile

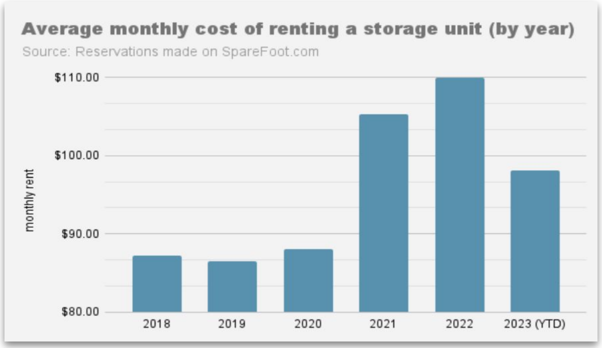
Recommendation: **Sell**

Fair Value: **$168.7**

Comparable Pricing: **$322.5** / Regression: **$391.1**

Headquartered: **Glendale, California**

Industry Performance



Public Storage - Story

Since 2019 up to date PSA has acquired more than 412 facilities across the US,becoming the largest operator of self-storage in the nation.

During early 2023 tried unsuccessfully to acquire one of its peers **Life Storage** that finally ended up been acquired by Extra Storage

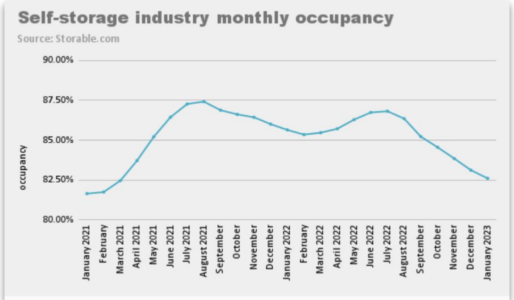
After a massive surge in demand during the pandemic, occupancy rates are declining, causing lower pricing by operators.

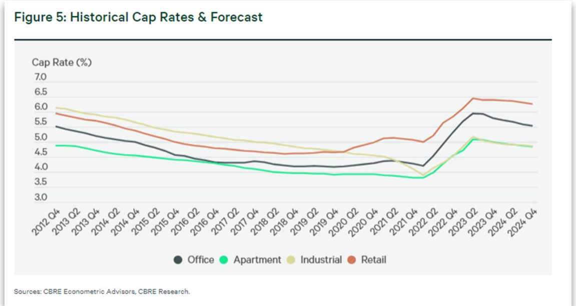
The stagflationary environment has caused the bond- stock correlation to increase, limiting hedge opportunities in low risk assets like REITS

REITs are at high devaluation **risk** due to an disproportionately increase in cap rates that decreases the net value of their assets.

As the pandemic impact have dissipated, many tenants that rented during that time are moving out.

PSA may face decline in EBIT due to overdevelopment of self-storage since 2020.





Public Storage - Story to numbers

Public Storage

Fair Value:
Based on the intrinsic valuation approach we determined that PSA price per share stands at: $168.7. Meaning that PSA is currently overvalued.

A Self-Storage giant going through a uncertain time ahead with several market conditions to be resilient...

Self-storage industry has been historically resilient upon macro enviroments. However inflationary pressures and FED's response, with higher interest rates and the GDP growth decrease, will cause a deceleration for 2023 and 2024 compared to earnings seen in the past 2-3 years of +20% growth. Rents tend to keep pace with inflation in the long term, however, real estate asset values could start falling with interest rate rise. Hence, cap rates have increased disproportionately and they expect to start decreasing towards the end 2024. In terms of growth, PSA could focus during the following two years on developing their new properties at costs below at which existing properties are trading in the marketplace. PSA had distinguished by its constant acquisition strategy, so potential deals could emerge from distressed sellers who cannot refinance debts in the following years. During early 2023 they unsucessfully tried to acquired a competitor Life Storage.

The Assumptions

	Base year	*Next year*	*Years 2-5*	*Years 6-10*	*After year 10*	*Link to story*
Revenues (a)	$4,182,163.00	5.2%	5.50%		3.58%	The next 2 years might hard for them to growth at the same pace as previous years considering all the acquisitions executed. Must of the growth will be linked to recent locations acquired, as well to a contraction in the demand of self-storage services.
Operating margin (b)	50.85%	52.0%			52.50%	Historically, before pandemic the operating margin was allocated in a range between 51.5-52.5%, so based on this and reviewing forecasts from different analyst. I decided to keep it in a the pre-pandemic range.
Tax rate	0.00%		0.00%		0.00%	REITS must distribute at least 90% of its taxable income to shareholders, typically in dividends.
Reinvestment (c)		0.29	0.31	0.30	25.57%	Slightly increase in reinvestment due to the CapEx to be incurred due to new acquisitions and units to be develop over land owned.
Return on capital	13.08%	Marginal ROIC =	16.67%		14.00%	measure return on a self-storage REIT. The most common are using FFO, NOI and Cap Rates. However, I assume an increase in ROC which goes in line with the past performance pre-pandemic.
Cost of capital (d)			7.06%		9.52%	Current cost of capital stands very close to the median of the industry

Public Storage - Pricing

Using Prof. Damodaran's EV/EBITDA regression, the equation is as follows:

EV/EBITDA = 23.93 + 25.40*g - 8.20 * DFR - 34.40 * Tax rate

Public Storage's fundamentals:
g= 5.50%
DFR= .12
Tax Rate= 0%
EBITDA= $3,079.4 m
EV/EBITDA = 24.3x

PSA currently trades at **20.3x**
The median of the sector is **20.4x**

Note 1: This regression uses US companies in all industries.
Note 2: The comparables selected were all REIT Self-storage companies with market-cap above USD 100 million

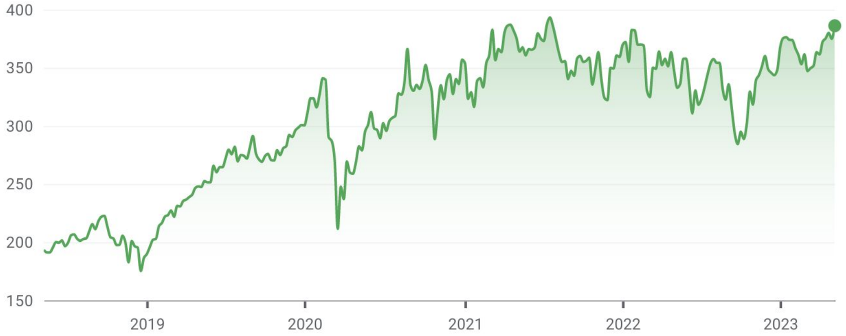
PSA	EV/EBITDA	Pricing
CURRENT	20.3	295.1
REGRESSION	24.3	391.1
MEDIAN	20.4	322.5

Mastercard - Summary

Company Description

Mastercard Incorporated, a technology company, provides transaction processing and other payment-related products and services in the United States and internationally. It facilitates the processing of payment transactions, including authorization, clearing, and settlement, as well as delivers other payment-related products and services. The company offers integrated products and value-added services for account holders, merchants, financial institutions, businesses, governments, and other organizations, such as programs that enable issuers to provide consumers with credits to defer payments; payment products and solutions that allow its customers to access funds in deposit and other accounts; prepaid programs services; and commercial credit, debit, and prepaid payment products and solutions. The company offers payment solutions and services under the MasterCard, Maestro, and Cirrus. Mastercard Incorporated was founded in 1966 and is headquartered in Purchase, New York.

Historical Performance



Investment Profile

Recommendation: Sell

Fair Value: **$185.95**

Regression pricing: **$231.73**

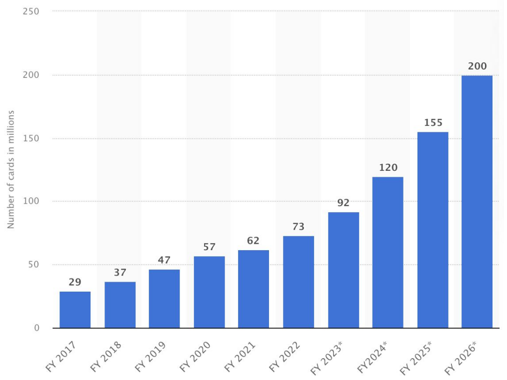
Median pricing: **$239.93**

Last Close: **$384.66** (May/05/2023)

Industry: **Information Services**

Headquarters: **Purchase, NY**

Industry Performance – Credit Card Issuances in India



Source: Statista

Mastercard - Story

Plan

Mastercard can benefit from the acceleration of digital adoption, the introduction of new use cases, and the expansion of card adoption among smaller merchants and micromerchants

Mastercard can leverage its open-loop network and its partnerships with banks and fintech providers to capture more market share

Mastercard expects to grow net revenue at a high-teens percentage compound annual rate from 2022 to 2024 and achieve a minimum annual operating margin of 50%

Mastercard sees a $3 trillion total addressable market in payments with significant untapped opportunities

Mastercard is dependent on the health of the global economy and consumer spending, which could be affected by factors such as inflation, interest rates, pandemics, or geopolitical tensions

Potential growth

Increased risk

Mastercard faces intense competition from other payment networks like Visa, American Express, and Discover, as well as from fintech challengers like PayPal and Square

Mastercard may need to invest heavily in innovation and acquisitions to keep up with the changing consumer preferences and technological advancements

Mastercard - Story to numbers

Mastercard's strong competitive advantage, recurring revenue model, low capital intensity, and pricing power, along with the benefits of network effects, economies of scale, brand recognition, and switching costs that create high barriers to entry and customer loyalty contribute to its high return on capital.

Global payments industry has demonstrated resilience and is expected to exceed pre-pandemic revenue expectations, with a projected TAM of $3 trillion by 2026

	Base year	Next year	Years 2-5	Years 6-10	After year 10
Revenues (a)	$22,237.00	12.0%	12.00%		3.40%
Operating margin (b)	55.38%	55.0%			60.00%
Tax rate	15.40%		15.40%		25.00%
Reinvestment (c)		1.58	1.58	1.58	38.46%
Return on capital	74.07%	Marginal ROIC =	70.92%		8.84%
Cost of capital (d)			12.53%		8.84%

One reason for the profitability of Mastercard is its ability to future-proof its business through partnerships and collaborations with other fintech startups and technology giants.

Additionally, Mastercard's gross margins essentially stand at 100%, as both companies record no incremental expenses for every transaction, and operating profit margins of 55% for Mastercard are slightly lower than Visa's 67%, but this gap is expected to narrow down as the company grows

Tax rate in the long-term should be 25% as per guidance

Mastercard's financial stability, global presence, and increasing revenue may contribute to its ability to maintain a favorable sales to capital ratio

WACC of 11.13%

Equity - 62%

Debt - 62%

Bottom-up unlevered beta = 1.34
D/E = 3.9%
Beta = 1.38

ERP = 6.86%	ERP	
US and Canada	5.44%	34%
Europe	6.95%	32%
AMEA	7.37%	28%
LATAM	12.01%	6%

Risk-free rate:
3.4%
as of Mar/31/2023

Mastercard Rating: Aaa3
Credit Spread: 1.62%
Pre-tax cost of debt: = 3.4% + 1.62%
= 5.02%

Mastercard - Pricing

Using Damodaran's PE regression, the equation is as follows:

PE = 8.63 + 2.23 Beta + 46.20 g_EPS + 19.90 Payout

Mastercard's inputs:
Beta = 1.11
Expected EPS growth = 18.7%
Payout ratio = 22.8%
Regression PE ratio = 24.15

Mastercard currently trades at **38.42x**
The median of comparables is **23.936x**

Note 1: The PE regression used companies market-wide
Note 2: The comparables were 8 companies involved in payment processing

Mastercard	PE	Pricing
CURRENT	38.42	384.66
REGRESSION	24.15	241.74
MEDIAN	23.96	239.84

Based on pricing, Mastercard looks undervalued. Since both the intrinsic valuation and relative pricing are well below the current price, we recommend to SELL Mastercard.