

Managing Customers as Investments

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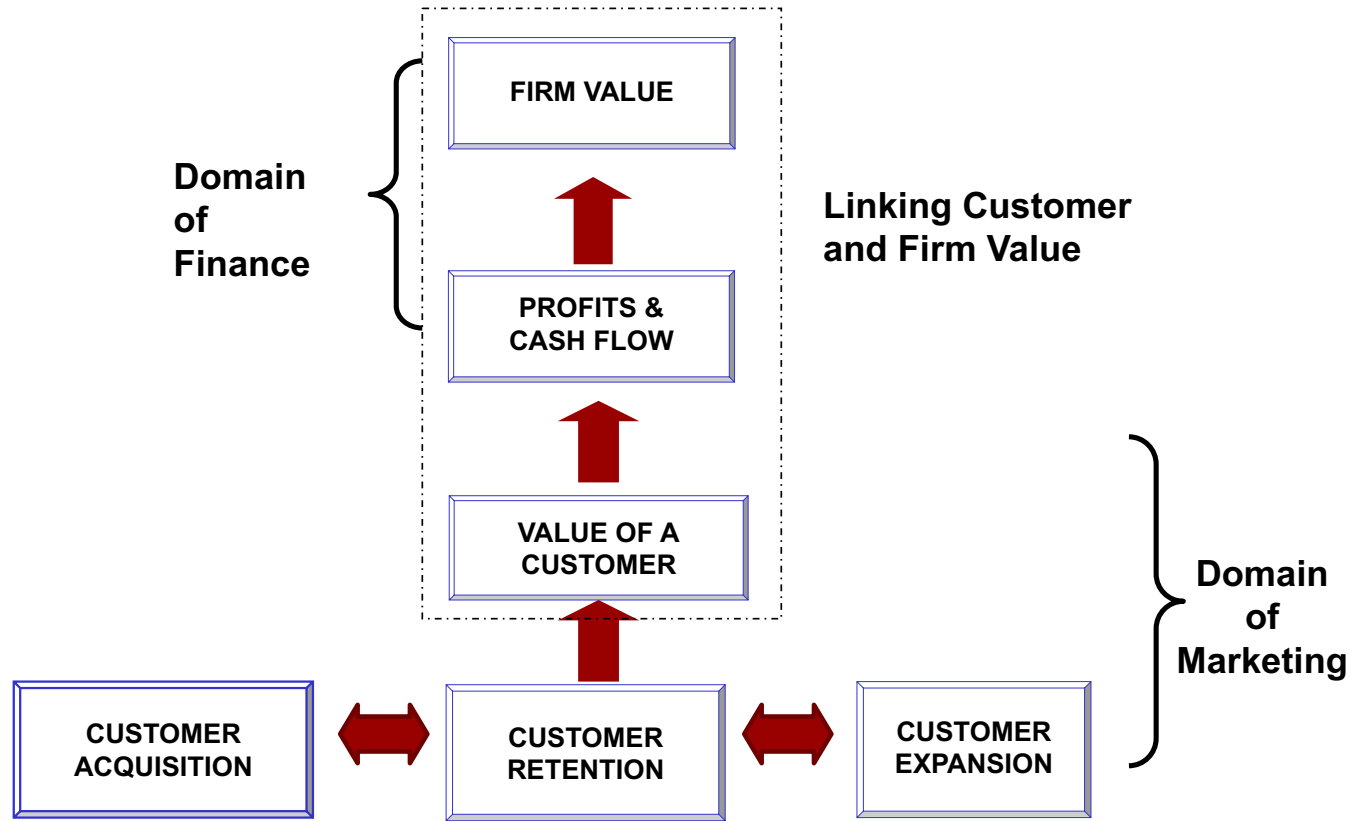
Overview

- Lifetime value of customers (CLV)
- Measuring CLV
- Strategies for increasing CLV

The Role of Marketing

- “Success is getting the right customers ... and keeping them.” — Charles Cawley, Founder MBNA

Customer and Firm Value

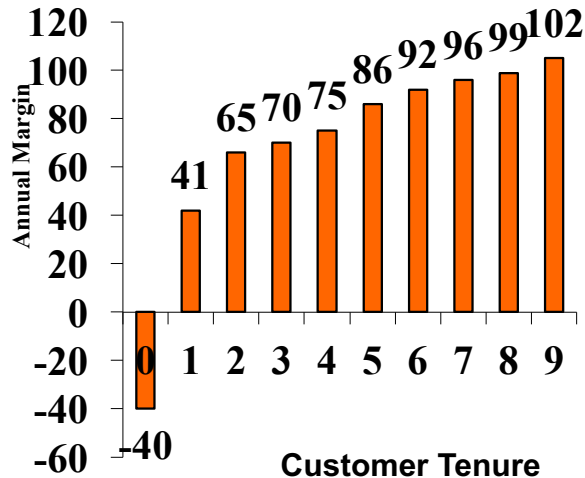


What is Customer Lifetime Value (CLV)?

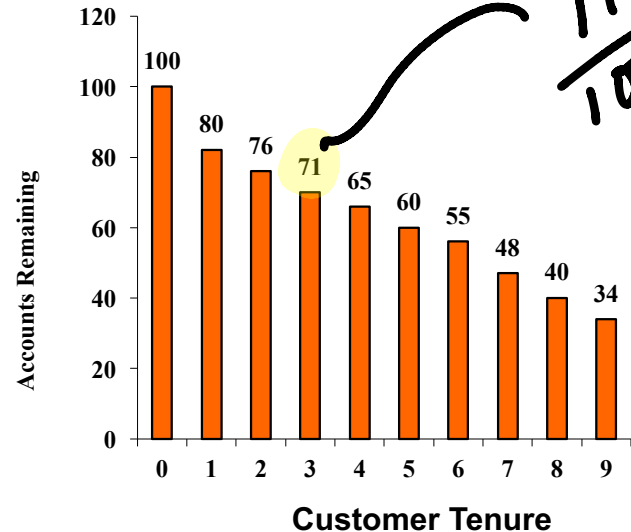
- Customer Lifetime Value is the **net present value** of all future streams of **profits** that a customer generates over the life of the **relationship** with the firm

Measuring CLV

Profit Pattern



Defection Pattern



$$CLV = \frac{(\$41) * (.80)}{(1 + 0.1)} + \frac{(\$65) * (.76)}{(1 + 0.1)^2} + \dots$$

Measuring CLV

- Constant **annual margin** m
- Constant **annual retention** rate r
- Discount rate i and Acquisition cost AC

$$CLV = \left(\frac{m \times r}{1+i} \right) + \left(\frac{m \times r^2}{(1+i)^2} \right) + \dots - AC$$

$$= m \left(\frac{r}{1+i-r} \right) - AC$$

Margin Multiple (Constant Margins)

- $CLV = \text{Profit Margin} * \text{Margin Multiple}$
- Margin Multiple

$$\frac{r}{1 + i - r}$$

$$\frac{0.9}{1 + 0.16 - 0.9} = 3.46$$

Margin Multiple

Retention Rate	Discount Rate			
	10%	12%	14%	16%
60%	1.20	1.15	1.11	1.07
70%	1.75	1.67	1.59	1.52
80%	2.67	2.50	2.35	2.22
90%	4.50	4.09	3.75	3.46

Customer Acquisition

- 140 customer accounts of a company use 2,285 units per month
- Price is \$12.50 and variable cost is \$4.25
- Retention rate = 0.9, discount rate = 12%
- What is the maximum the company should be willing to spend to acquire a new account?
- What is the maximum that company should spend/customer to increase retention rate to 0.95?

Increasing Customer Value: Strategies

- Customer acquisition
- Customer expansion
- Customer retention

$$LV = m \left(\frac{r}{1+i-r} \right) - AC$$

Customer Acquisition

I. Customer Acquisition Strategies

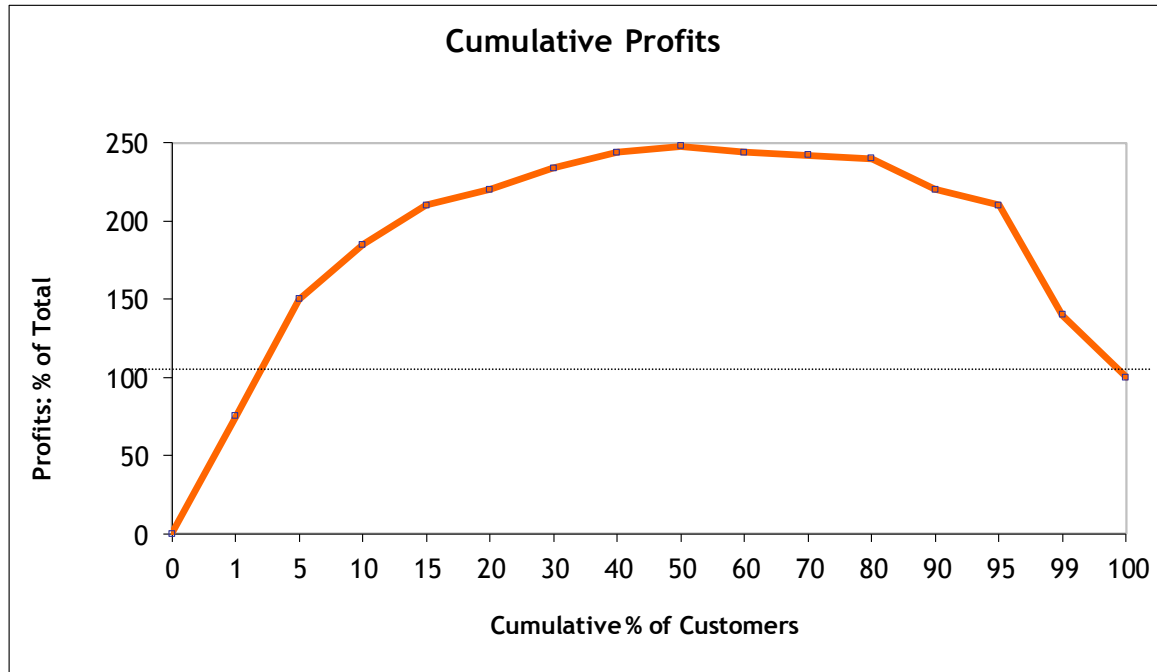
- Advertising/Communications
- Affiliations
 - Amazon
 - EBay partner network
- Acquisitions
 - Facebook has made 65 acquisitions till now
 - Instagram (2012) \$1B
 - WhatsApp (2014) \$19B
 - Oculus VR (2014) \$2B

Customer Acquisition Costs

- Decrease cost per acquisition (Example)

Activity	Cost/New Customer	Cost Per Solicitation
Personal Selling	\$500	\$100
Direct Mail	\$115	\$1.50
Telemarketing	\$95	\$3.30
Website, e-mail	\$30	\$0.06

All Customers are important, but...



Customer Acquisition Strategies

- Scale up volume

- Spend more on existing channels
- Develop new acquisition channels

- Improve performance

- Decrease cost per acquisition
- Shift mix towards high-value customers

Customer Acquisition Strategies: A Channel Story

- Top 3 US discount store
 - Big gap in performance vs. competition in terms of sales per store in children's apparel
- How should they close this gap?

Customer Acquisition Strategies

Develop new acquisition channels

- Identify complementary channels
 - What channels out there have contact with our target customers?
 - Will our target customers be open to engaging with our product/service within those channels?
 - Fedex – Kinkos
 - MBNA – Affinity Groups

Customer Acquisition Strategies

Develop new acquisition channels

- Design new channels
 - Understand customers “how to buy” needs, by segment
 - Identify channel alternatives and their fit vis a vis these needs
 - Netflix, Dell, Amazon and Calyx flowers

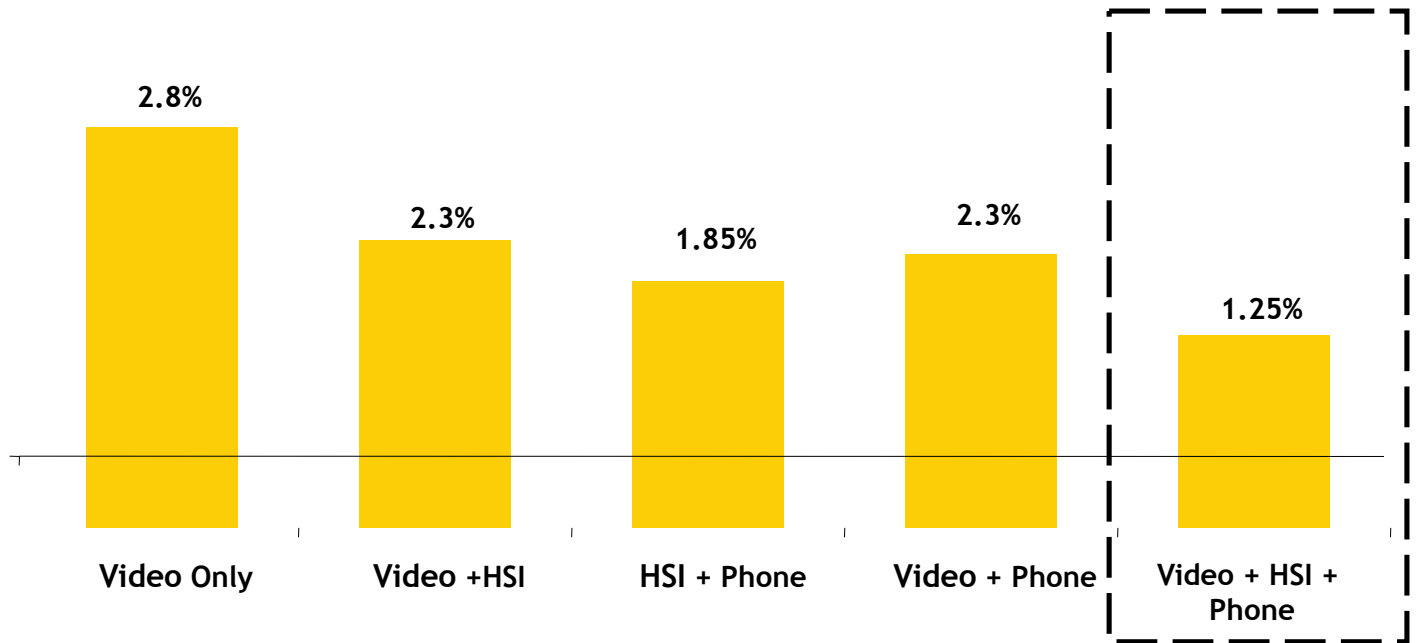
Customer Expansion

Managing Customer Expansion

- Increase usage
- Upsell (switch customers to higher priced product or service)
- Bundling/cross-selling
- Reduce cost

Impact of Bundling on Churn

Average Monthly Customer Churn



Customer Recommendation Systems

- Recommender systems are popular in ecommerce and digital content settings
- Useful in context involving a large number of users facing a large number of products
- Users unaware or uncertain about products
- Considerable heterogeneity in user preferences for attributes
- Constantly evolving – cold start problems

Customer Recommendation

- User ratings of items (e.g., Netflix)

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
User 1	5	.	5	2	.	3	4	2
User 2	1	2	.	.	4	3	1	5
User 3	3	1	5	.	4	.	.	.
User 4	1	3	2	.	1	3	1	5
User 5	1	.	.	.	4	3	2	5
User 6	.	.	4	.	1	2	4	1
User 7	5	.	4	2	2	3	4	2
User 8	4	3	.	5	.	.	.	3
User 9	4	3	5	.	.	1	5	.
User 10	1	2	.	5	.	.	3	4

Recommender System Algorithms

- Collaborative filtering
 - User based
 - Item based
- Matrix factorization methods

Matrix Factorization Methods

■ Predict unknown ratings using latent factors

- User factors – p
- Item factors – q

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
User 1	5	.	5	2	.	3	4	2
User 2	1	2	.	.	4	3	1	5
User 3	3	1	5	.	4	.	.	.
User 4	1	3	2	.	1	3	1	5
User 5	1	.	.	.	4	3	2	5
User 6	.	.	4	.	1	2	4	1
User 7	5	.	4	2	2	3	4	2
User 8	4	3	.	5	.	.	.	3
User 9	4	3	5	.	.	1	5	.
User 10	1	2	.	5	.	.	3	4

K
latent
factors

$$\hat{r}_{u,v} = p_{u,1}q_{v,1} + p_{u,2}q_{v,2} + p_{u,3}q_{v,3} + \cdots p_{u,K}q_{v,K}$$

$p_u^T q_v$

Matrix Factorization

- Matrix factorization involves finding the values of the user and item latent factors that minimize the error sum of squares, according to the following optimization

$$\min_{P,Q} \sum_{(u,v)} \left[\underbrace{(r_{u,v} - p_u^T q_v)^2}_{\lambda_{u,v}} + \mu_P \sum_{k=1}^K |p_{u,k}| + \mu_Q \sum_{k=1}^K |q_{v,k}| \right] + \underbrace{\lambda_P \sum_{k=1}^K p_{u,k}^2 + \lambda_Q \sum_{k=1}^K q_{v,k}^2}_{L_2 \text{ norm}}$$

L_1 norm

Regularization

to avoid overfitting

Customer Retention

Customer Churn: Leaky Bucket

- Telecommunication companies suffer from considerable customer churn
- Average monthly churn rates: Approximately 1% to 2.5%

Causes of Churn

■ Company

- Structural (poor ongoing customer experience)
- Event-based (a specific incident causes serious customer dissatisfaction)

■ Competition

- Promotion (switching)
- Product/Service (superior value proposition)

■ Customer (customer's needs change, location)

Impact of Retention on Market Share

		Case-1	Case-2	Case-3
		time 2		
time 1	A	0.8	A	0.95
	B	0.2	B	0.2

defection rate (pointing to the 0.2 in Case-1, time 2, row B)

retention rates (pointing to the 0.8 in Case-1, time 2, row A)

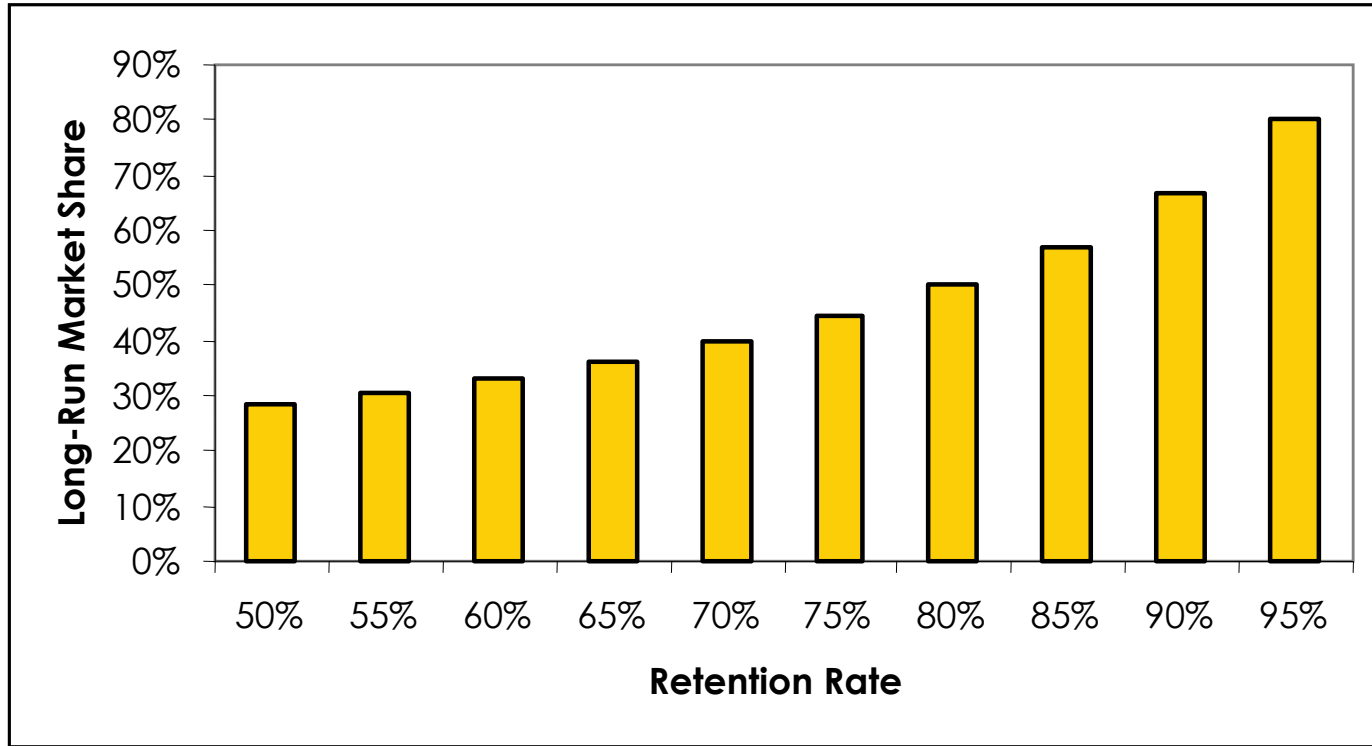
What is the long-run market share of A in the three cases?

50%

67%

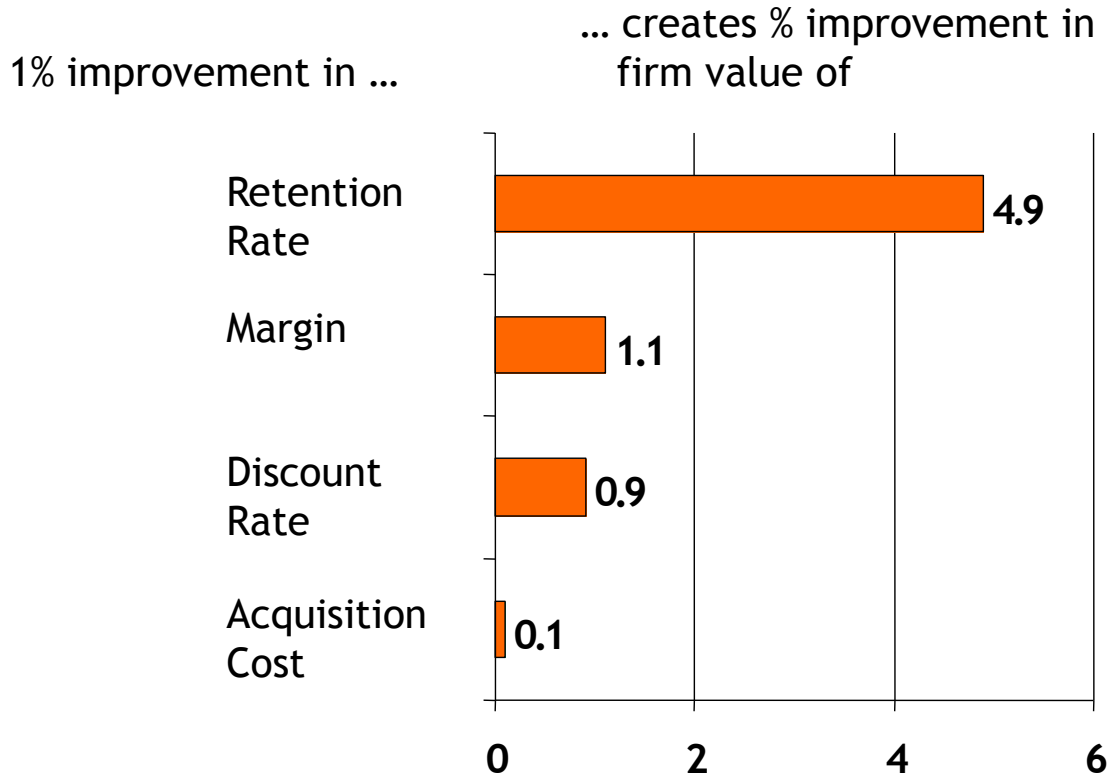
80%

Impact of Retention on Long-Run Share

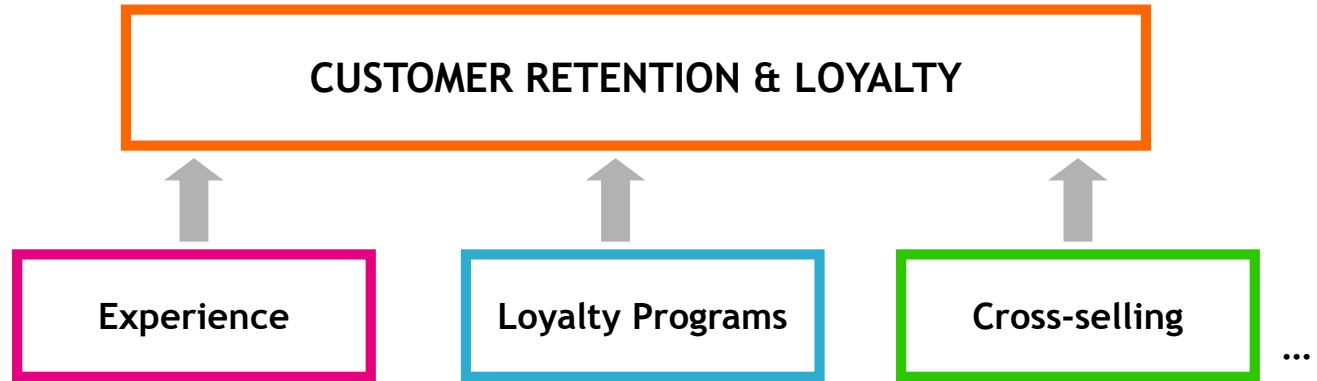


Assumes competitor's retention rate remains constant at 80%.

Impact of Retention on Firm Value



What Drives Retention and Loyalty?



Conclusion

- Customers are assets
- Lifetime value of a customer is $LV = m \left(\frac{r}{1+i-r} \right) - AC$
- Three key levers of growth
 - customer acquisition (AC)
 - customer retention (r)
 - customer expansion (m)
- “Success is getting the right customers ... and keeping them.” Charles Cawley, Founder MBNA