Data Analytics to Make the Case for the Women's Market: VPBank, Vietnam

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7 am EST

Photo Credit: VP Bank Vietnam

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Speakers

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Agenda

1. Introductions

2. The basics of strategic data analysis for the women's market

3. Case study: VPBank women's market data analysis (2017) – how the bank used data to make a strategic decision

4. VPBank's Women Entrepreneur (WE) initiative and progress to date

5. Tips for financial institutions

Photo Credit: VP Bank Vietnam

Poll

1. Does your financial institution (or most FIs you work with) have a women's market strategy/products?

2. Does your financial institution (or most FIs you work with) use data analysis to support strategic decision-making?

Photo Credit: VP Bank Vietnam

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- VPBank SME
  - 100,000 SME customers; among top banks in Vietnam
  - 243 branches and 64 SME service centers
  - Cash management product offering to facilitate SME and Micro SME payment and collection services
- Initial decision to pursue women's market (2017)
  - Part of overall SME credit card product analysis
  - Drive to make the bank more data-focused
- How data analytics played a part
  - VPBank contacted Andafin for SME credit card product analysis and training for VPBank business intelligence (BI) department
  - Initial women's market strategy launch was focused on the card product

Andafin: Consulting and data analytics

- We help close global financial inclusion gaps and improve the sustainability of financial services by providing consulting and data analytics for MSME finance and mobile money

- Analysis of financial institutions' internal data – billions of transactions analyzed to date, largely at FIs in Asia and Africa, with tens of thousands to millions of customers

- Highly scalable cloud-based data analytics platform; custom software based on the R language

- Data analytics implementation:

  - Transaction-based analysis for most detailed findings possible
  - Customer behavioral segmentation, using machine learning where appropriate
  - Strategic dashboards for senior management
  - Operational and policy monitoring to fill gaps in bank internal systems

Photo Credit: Andafin

Nigerian bank customer onboarding

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Data analytics foundations

Data	Capabilities
❑ Product data including transactions, fees, interest *(and merchant fees for cards)*	❑ Analytics capability (ex. BI department or external resource)
❑ Customer demographics, particularly gender	❑ Data warehouse (and sufficient access)

❑ SMEs: Gender calculated according to a WSME definition (ex. IFC)	❑ Institutional data mindset / buy-in
	   ❑ Getting data
	   ❑ Using data

❑ Data available from all systems involved in product delivery (core, LOS, card mgmt. sys)	*Does your financial institution check all the boxes? Where do you need to make improvements?*
❑ Deeper dive: Staff gender data from HRIS – especially relevant in retail or microfinance	

Data analysis for the women's market

Step	Goal	Data analytics
Making the case for change	Get board/management buy-in for women's market strategy	• **Quantifying the opportunity** • **Presenting findings to board/management**
Building/improving products for women	Get organizational alignment for new strategy, and launch related products	• Segmenting women customers to understand potential targets and build customer value proposition for new products • Identifying shortcomings in current product offerings/operations • Market research
Monitoring and improvement	Adjusting products/strategy based on findings (ex. VPBank interest rate discount for women)	• Analyze product roll-out and operations • Customer surveys combined with customer behavior data

Quantifying the opportunity

	Traditional market research	Internal data analytics
Method	• Externally focused • Product team looks outside the bank, does market research	• Internally focused • Gather customer data from across the bank and conduct detailed analysis
Customers analyzed	• Estimates customer behavior based on surveys • Minimal consideration of current customers • Finds customers who aren't currently served by the bank	• Quantifies customer behavior based on actual performance • Doesn't analyze unserved customers, but can find "hidden customers" elsewhere in the bank (ex. SME customers currently served by the retail division)
Outputs	• Estimated market size • Anticipated market segments	• Understanding of current customers • Customer lifetime value by segment • Basis for focus group research

Why analyze internal data?

How do you feel when you think about your financial institution's data (or the data of most FIs you work with)?

Why analyze internal data?

What do you want to learn more about from your gender-disaggregated data?
(Choose as many as you like)

Customer behavior

Staff performance

Geographic trends

Product usage patterns

Customer lifetime value

Customer retention

Gender gaps

Cross-selling opportunities

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Why analyze internal data?

- Uncover "hidden" opportunities in the business

- Reduce bias in decision-making

- Ensure that we are serving customer segments well

- Understand staff performance and incentives

- Gender-related findings may include:
  - Loan size, repayment, and retention by gender *(and by staff gender!)*
  - Transaction behavior by gender *(especially in mobile money)*
  - Customer gender gap and staff gender gap
  - Geographic/regional behavior trends *(reflecting the society the FI operates in)*
  - Staff performance by gender *(and how male/female staff serve women)*
 - Product uptake and customer lifetime value by gender

However, each financial institution faces its own challenges in unlocking these insights

- Analyze the SME credit card product
  - Including customer demographics, behavior, supply chain finance usage, spend patterns
  - Analysis from the transaction level – get a "full picture" of the customer, while identifying the CLV of different types of customers/products
- Provide training to VPBank's business intelligence (BI) department
- Women's market analysis was just one part of the project; our focus for this workshop
- Management buy-in: Support of SME business unit head and BI department head

WSME business profile
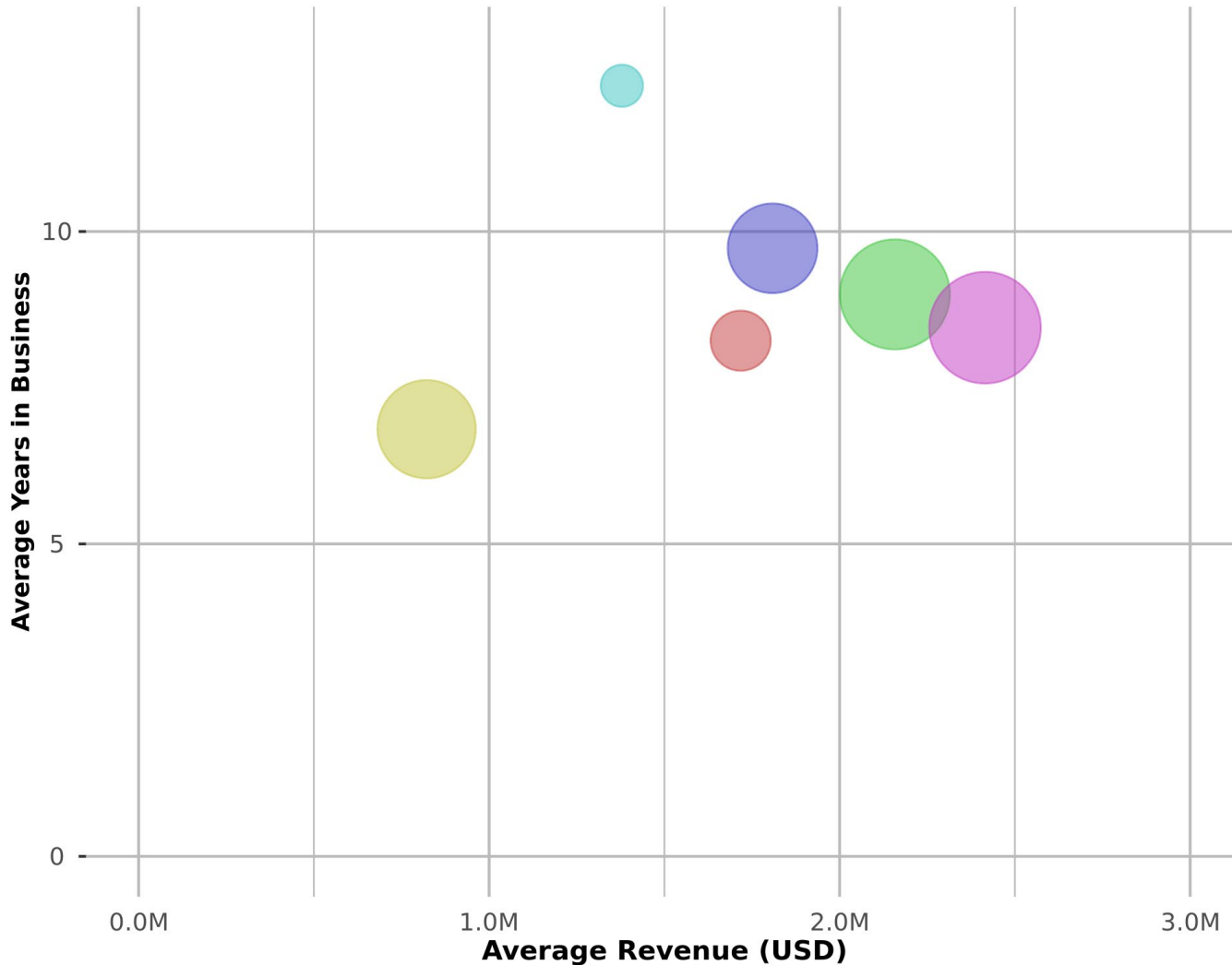
- The WSMEs in our data have an average of 8 years in business and around $2 million in yearly revenue

- The size of each bubble represents the share of WSMEs that are in that industry

Legend:
- Construction
- Logistics
- Manufacturing
- Mining
- Services
- Trading

Chart axes:
- Y-axis: Average Years in Business (0, 5, 10)
- X-axis: Average Revenue (USD) (0.0M, 1.0M, 2.0M, 3.0M)

Data analysis project highlights

1. Get data: *Locate and extract relevant data from the bank's systems*

- Customer data was stored in a data warehouse, but access was still siloed
- Permission from various departments required to assemble full customer data
- Data was stored in an unprocessed state
- Some data not collected – ex. credit card onboarding process not yet using the bank's CRM

2. Clean and transform data: *Fix errors and convert data into a usable state*

- Messy data at times, as drawn from multiple systems – some relevant data stored in transaction remarks (rather than structured columns)
- Data needed to be summarized to be useful – built a new data structure
- Too many categories (common problem) – for example 327 industries in 32 categories

Following our project, the BI department worked to upgrade processes/systems to address the issues we encountered – for example improving data transformation in the data warehouse

3. Analyze data and visualize results: *Produce insights to support decision-making*

- Baseline analysis to confirm portfolio figures / completeness of data set with VPBank
- Analysis of gender trends as well as overall customer engagement, supply chain finance
- Feedback loop with SME BU for further follow-up on findings

4. Decision-making process: *Strategic and operational*

- VPBank's decision to pursue the women's market was a key strategic outcome
- Analysis also revealed:
  - Opportunities in supply chain finance
  - Effectiveness of past promotions
  - Usage and profitability of various products (ex. Classic and Platinum cards)

Overview: how credit cards work
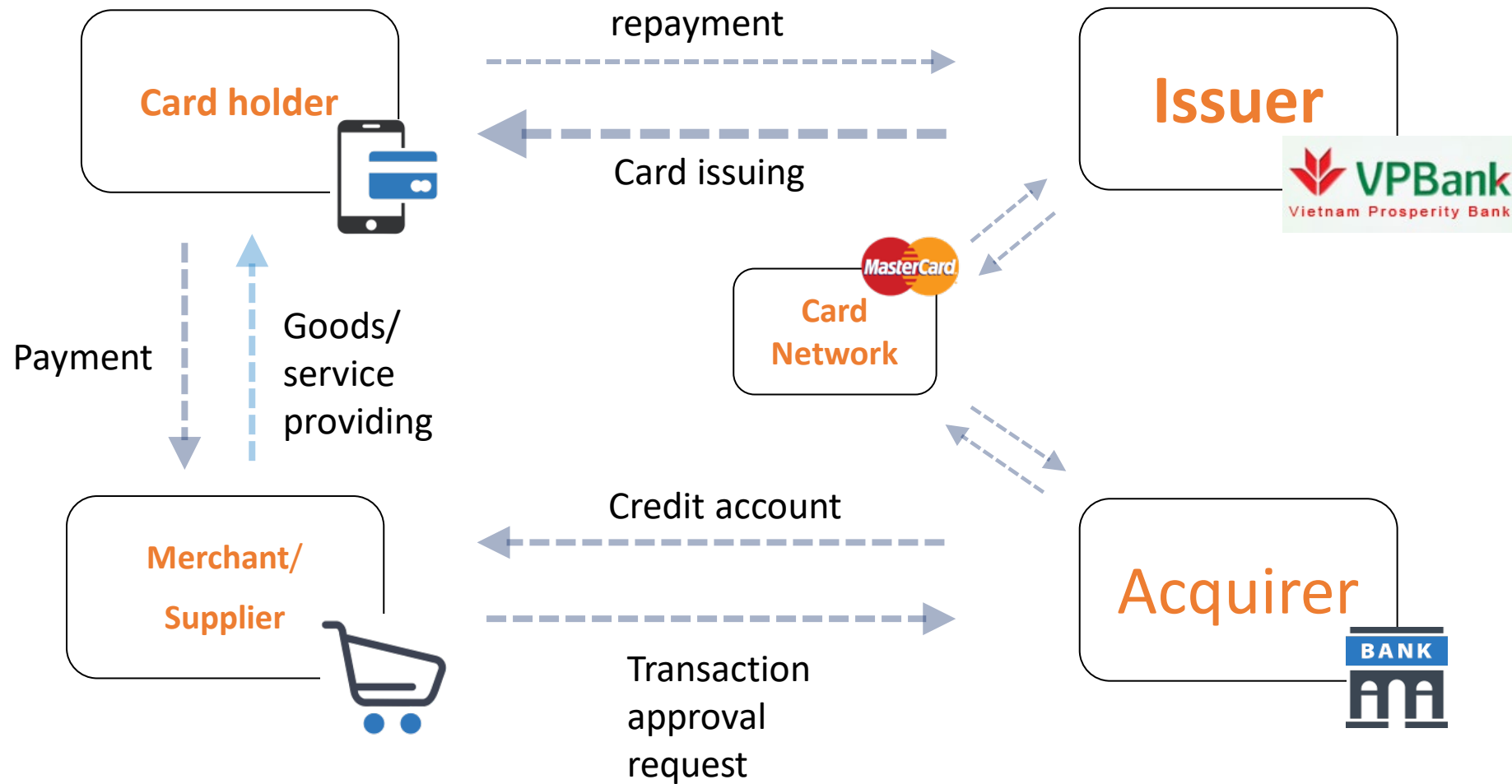
Overview: how credit cards work

The customer lifetime value (CLV) for a credit card product depends in part on the marginal revenue and costs associated with issuing a card:

| Marginal revenue per card	Marginal costs per card
• Interest and fees • Interchange *Interchange: Income that the bank issuing the card receives from a transaction (% of spend). The amount varies based on the country of the transaction, the merchant category, and the type of card being used.*	• Cost of funding (capital) • Provisioning/write-offs and collection cost • Customer incentives – ex. loyalty points or cashback • Customer acquisition costs – ex. sales incentives and marketing

Pause for short Q+A

Workshop dashboard: 6 types of analysis

1. Revenue: Segmentation of balance, transaction volume, and revenue per contract (SME customer). Revenue is composed of interest/fees/penalties and credit card interchange fees.
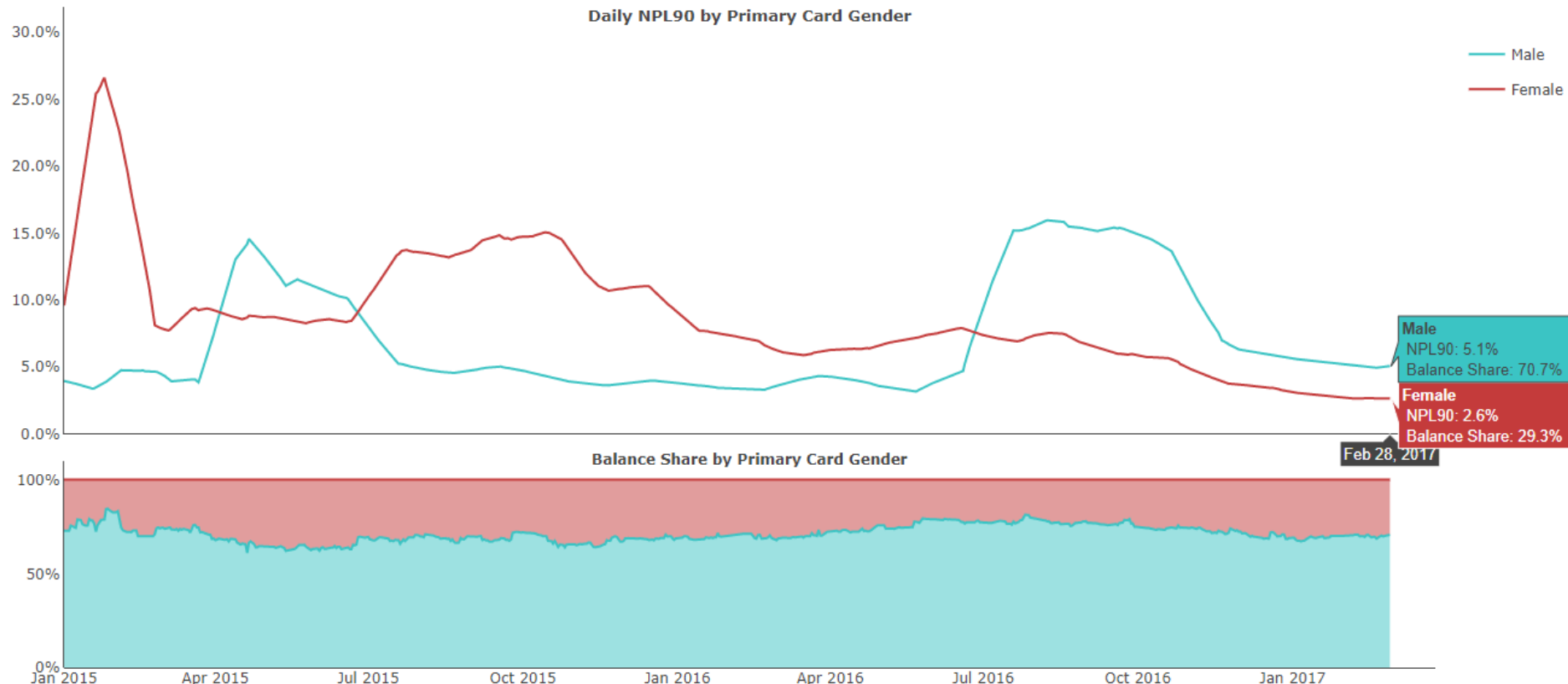
Preview, segmented by owner gender:
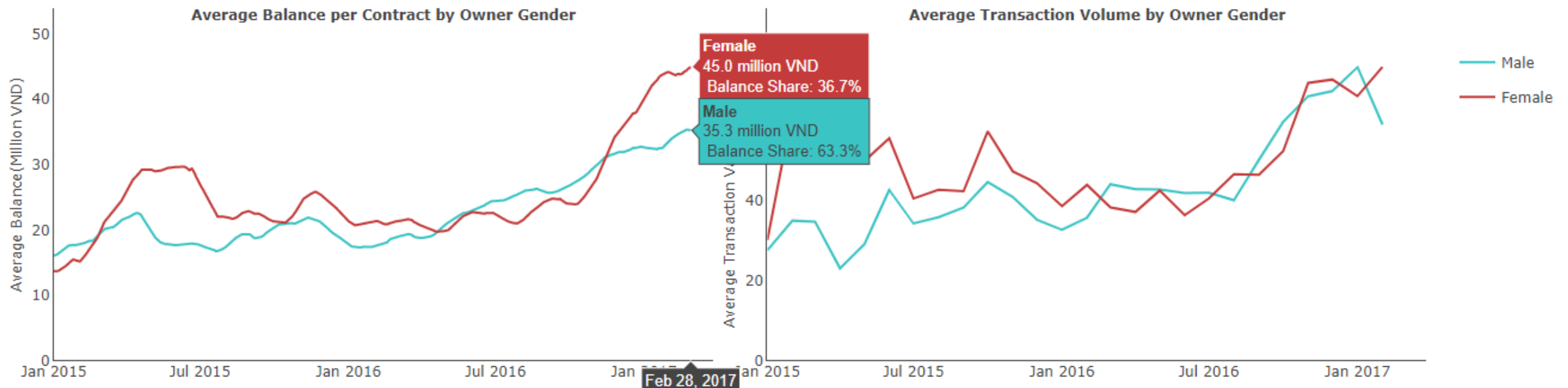
Workshop dashboard: 6 types of analysis

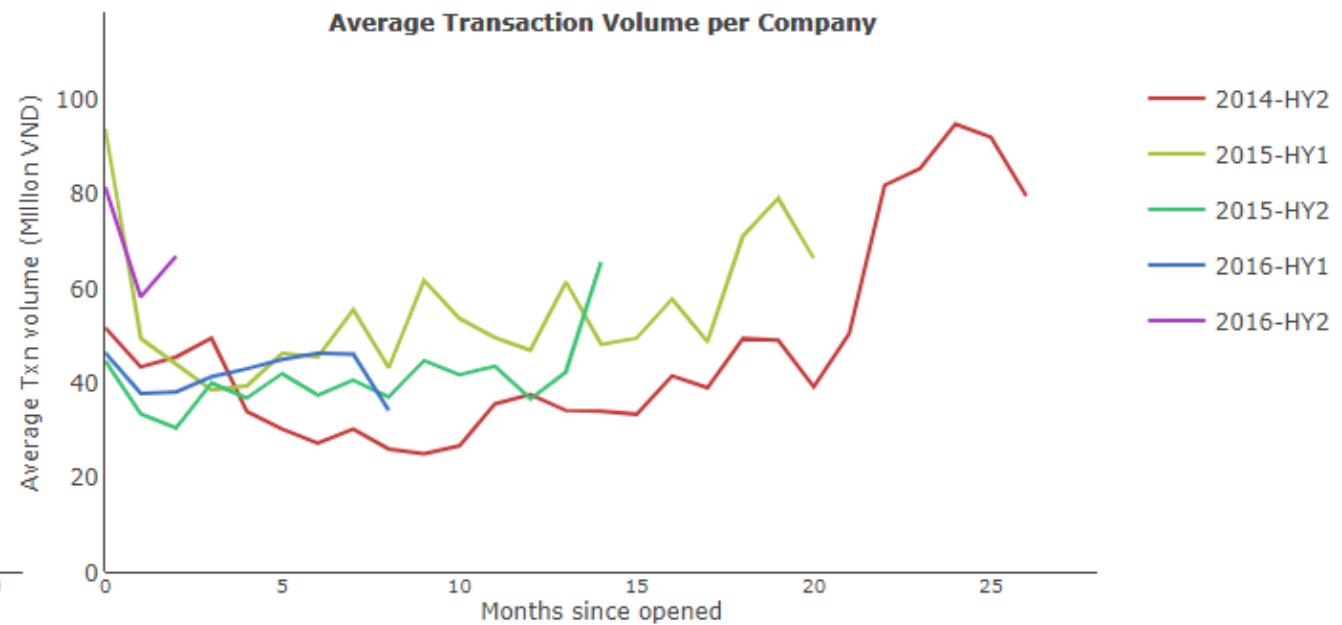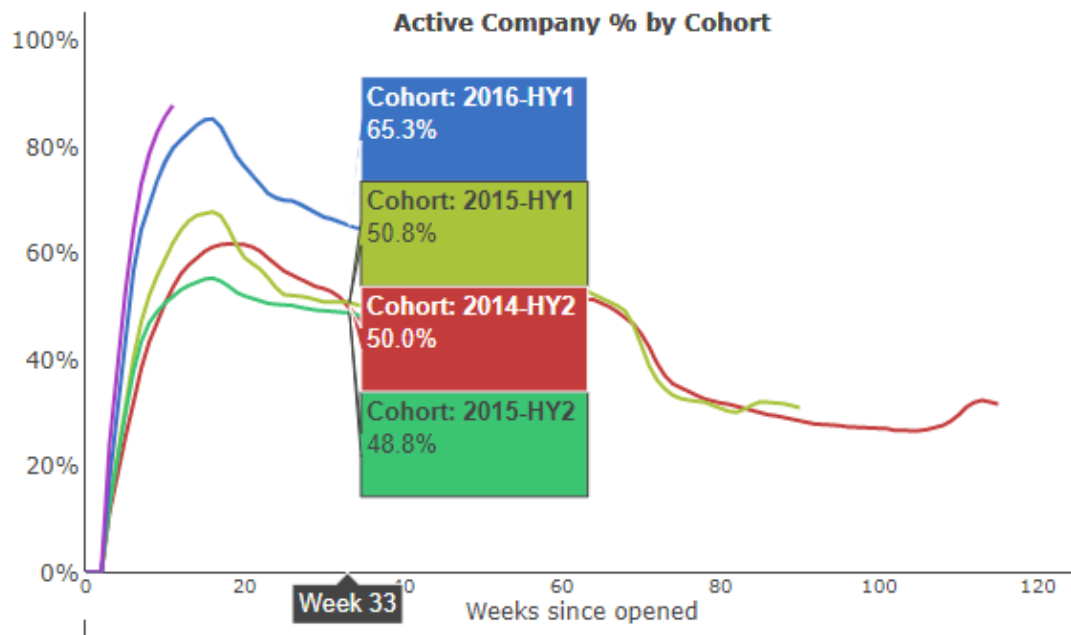**2. NPL90:** Segmentation of the NPL90 ratio (non-performing loans past 90 days overdue)

Preview, segmented by primary cardholder gender:

3. Cohort analysis: Measuring from the half-year of each customer's on-boarding, we look at customer retention and account activity. This allows us to see how the performance of each half-year cohort compares with past cohorts.
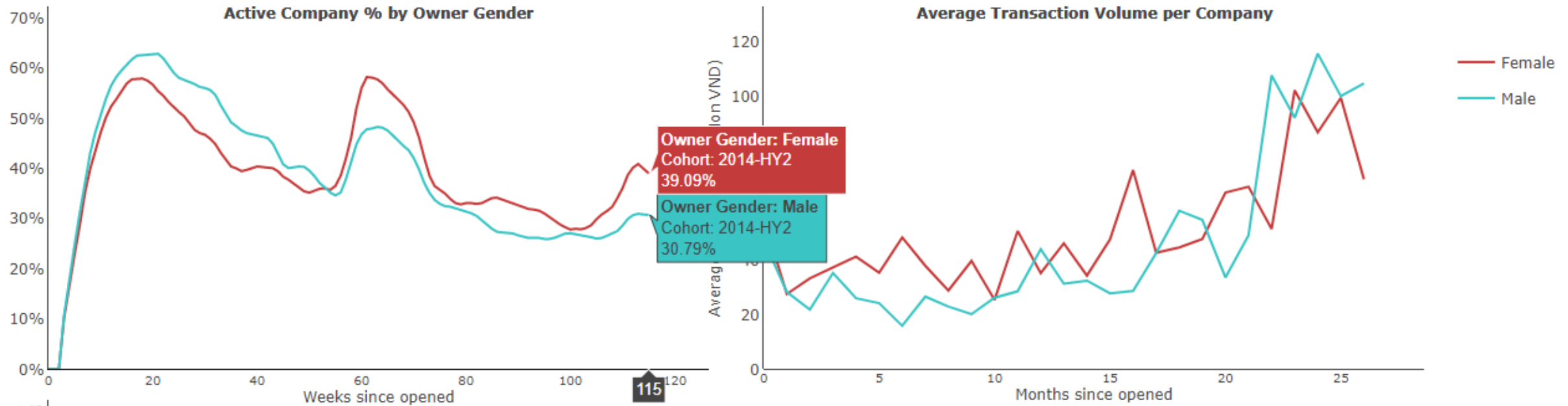
Preview:

Workshop dashboard: 6 types of analysis

4. Cohorts by gender: This analysis splits each half-year cohort by owner gender.

Preview, 2014-H1 cohort:

5. Female vs. Male:
Comparison of gender patterns by segment, i.e. which are more heavily female- or male-owned businesses. *(at right)*

6. Customer Lifetime Value:
Calculation of estimated CLV based on our analysis of historical customer profitability and retention by segment.

Gender Difference by Segment

Positive/negative values = more/fewer women in segment

Industry	Primary Card Holder	Owner
Construction	-8%	-5%
Logistics	-1%	-0%
Manufacturing	-0%	4%
Mining	-1%	-1%
Services	2%	-1%
Trading	8%	5%
Missing	1%	-2%

Audience poll

Have you had a look at the workshop dashboard? *[Annotate]*

Yes, a bit

Yes, in detail

Not yet

What dashboard?

What stood out? *[Reply in chat]*

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To vote, click
Annotate then **Stamp** ✓

Zoom Ratio   Fit to Window >
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Hypothesis testing

We can use the data analysis to understand VPBank's women customers at multiple levels; moving from "who should we target?" to "how should we serve them?" to "how can we improve?". Here we will focus on the first question, so to structure our thinking about the data, consider this hypothesis:

The women's market represents a good opportunity for VPBank SME; specifically, **metrics such as profitability and retention of WSMEs are equal to or greater than that of male-owned businesses.**

As we examine the data, we may find evidence that:

1. Proves the hypothesis

2. Disproves the hypothesis

3. Is not relevant to the hypothesis

Examining the analysis

[Live demo on dashboard system]

Presenting results to senior management

- Less is more: Highlight 3-5 key metrics that back up conclusions. Detailed analysis should be provided only as a follow-up to questions from the management/board, with backup analysis included in an appendix to the presentation.

- In the VPBank project, Andafin produced separate reports for the SME business unit and the BI department, focusing on the business and the data analytics process, respectively. Parts of the business unit report were then taken to senior management to make the case for the WE initiative.


Maybe not <u>this</u> senior – Ms. Nguyen Thi Hong is the governor of the State Bank of Vietnam

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Presenting results to senior management

Example: To maintain VPBank's leadership in credit cards, we analyzed our customers' usage of the SME credit card product from 2015 to 2017. We found *[based on the simplified analysis presented in the workshop dashboard]*:

- WSMEs have above-average card balances and spend; the trend has recently intensified

- WSME customer retention is 55% after one year, vs. 52% for men, and retention has been much higher than this in recent quarters thanks to SME BU initiatives

- Due to these and other factors, the estimated CLV of our WSME card customers is 25% higher than that of male-owned SMEs (16.8 million VND vs. 13.4 million VND)
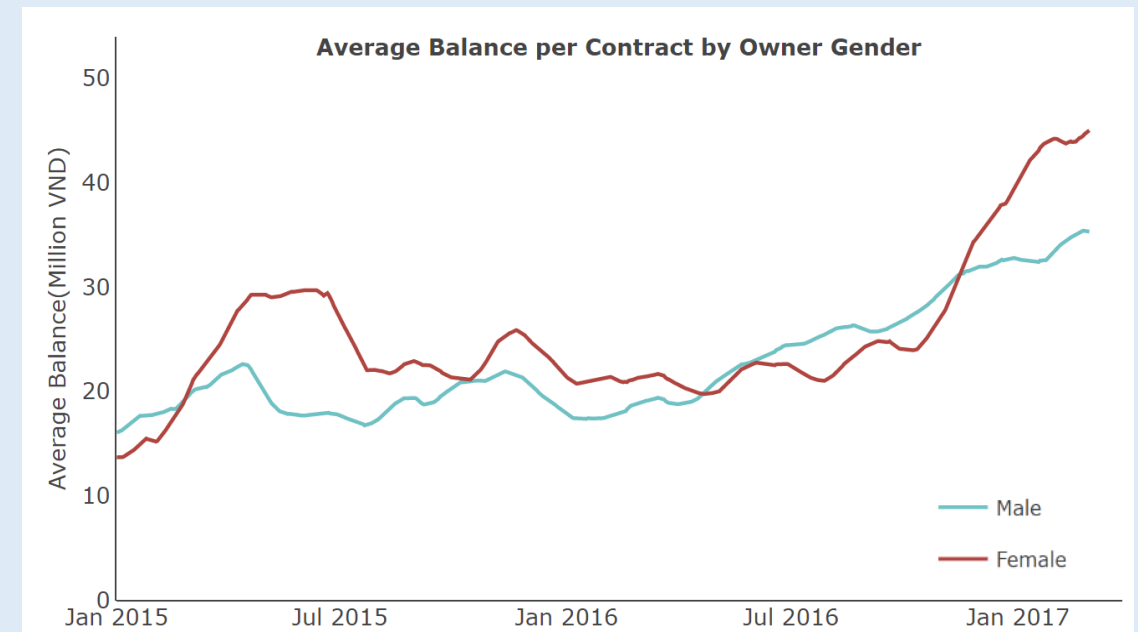
Average Balance per Contract by Owner Gender

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- WSMEs have above-average card balances and spend; the trend has recently intensified

- WSME customer retention is 55% after one year, vs. 52% for men, and retention has been much higher than this in recent quarters thanks to SME BU initiatives

- Due to these and other factors, the estimated CLV of our WSME card customers is 28% higher than that of male-owned SMEs (16.9 million VND vs. 13.2 million VND)

Average Balance per Contract by Owner Gender
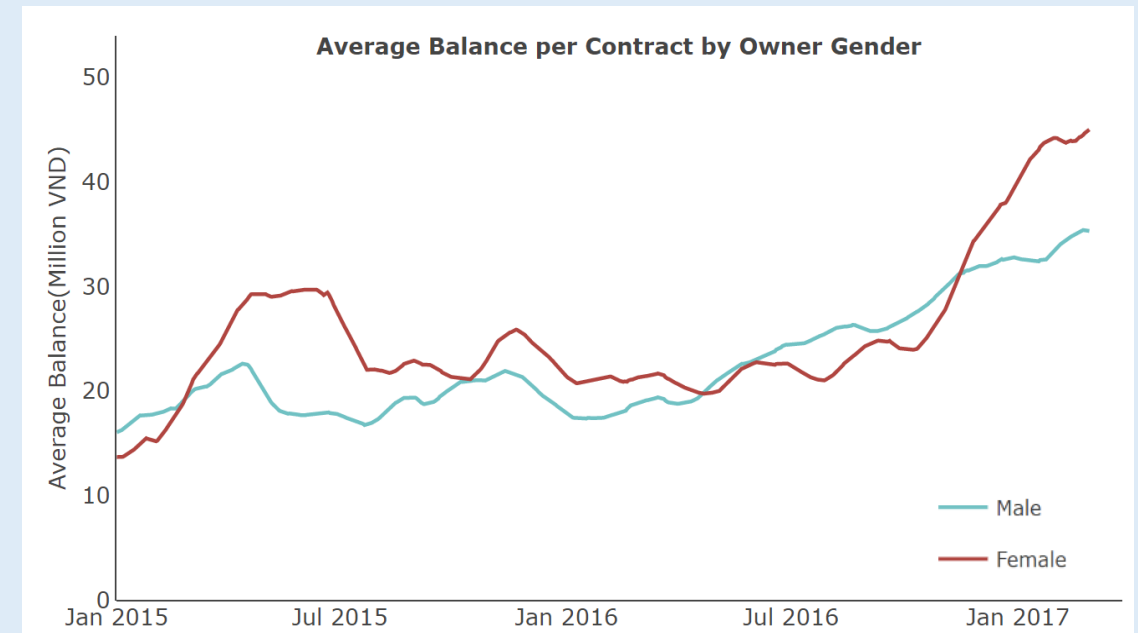
Therefore, we conclude that WSMEs are an attractive segment. As our previous market research has found that Vietnamese WSMEs are underserved, we propose that the bank develop a women's market strategy with products and services targeted to WSMEs, which will be unique in the market. We have already identified trends in our data that can guide us to develop an appealing customer value proposition for the WSME segment.

Presenting results to senior management

Backup slides cover details that management/board members may ask about – think "what about this?" or "how did you reach that conclusion?"

Here's an example explaining the 25% difference in customer lifetime value in more detail:

- WSMEs produce 23% higher revenue, due to better retention and greater spend

- However, collection and write-off costs are only 8% more

- WSMEs are good at taking advantage of cashback promotions, but this is more than offset by increased spend

NPV of marginal contribution by category
In millions of VND

| | | Owner gender: | | |
		Female	Male	Difference
Revenue *(interest, fees, interchange)*		22.6	18.3	23%
Costs:	Capital	2.8	2.3	22%
	Cashback	0.6	0.4	33%
	Collection + write-off	1.4	1.3	8%
	Acquisition	0.9	0.9	0%
CLV		16.8	13.4	25%

VPBank took action (2017-present)

Based on outputs of analysis project:

- Launched Women Entrepreneur product; card and other lending programs

- BI department became more proactive, expanded reporting to product team

- WE card remains a differentiator for VPBank

- **2017 - Building WE segment:** Launch of WE Segment with key product being WE credit card and business connection event

- **2019 - IGNITE partnership:** Launch of preferential loans, and expansion of non-financial services such as diagnostic tool and business connection events

- **2021 - Comprehensive WE solution:** Financial solution focused on addressing business capital needs

2% discount on interest for WSMEs (200 bps) Maximum discount around $10,000 USD

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Next step: Product development

Data analysis to support product development could include:

- Detailed segmentation of women customers (ex. by geography, business income, etc.)

- Deep dive on sectors where WSMEs are prevalent (ex. trading)

- Spend pattern analysis by customer segment

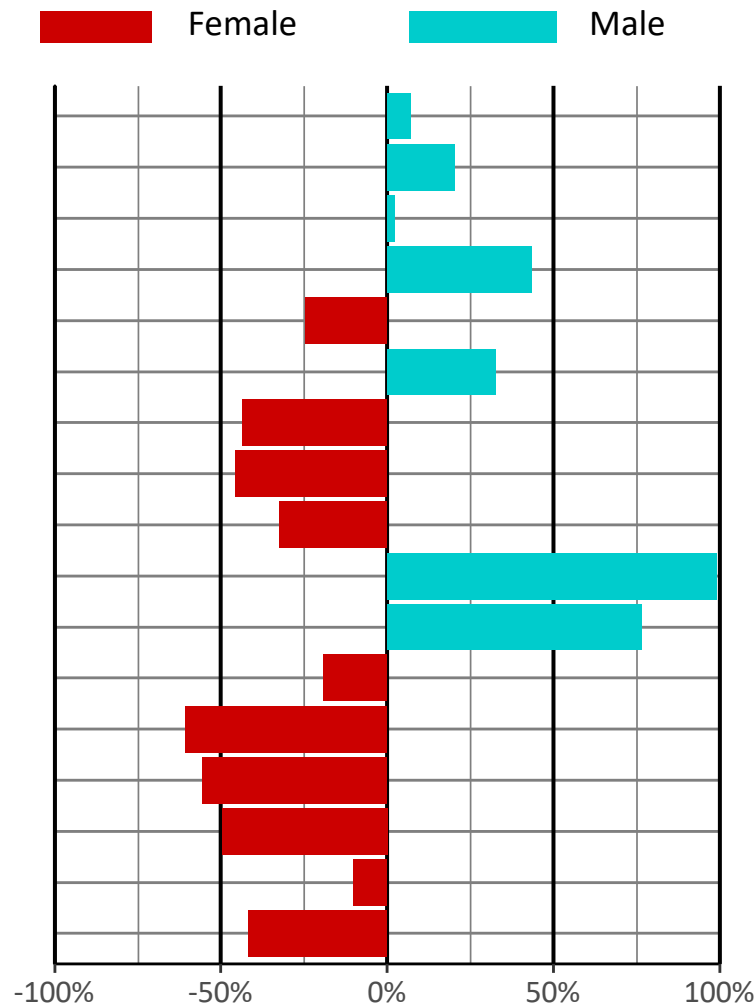- Customer behavioral clustering using machine learning

Photo Credit: VP Bank Vietnam

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Product development: Spend trends by gender

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Goal: Develop cashback incentive for the WE credit card product.

Positive/negative values = one gender dedicates greater % of spend to category; zero values = genders spend equally on category.

Merchant categories are listed with interchange revenue rate that accrues to the bank.

Company owner Gender (IFC definition)

Primary Card Holder Gender

Merchant categories (center axis labels):
- Telecommunications (0.5-1.9%)
- Jewelry/watches (1.9%)
- Other retail (1.9%)
- ATM
- Clothing/apparel (1.9%)
- Restaurants (0.75/1.9%)
- Hotels (1.9%) and travel (0%)
- Electronics (0.95%)
- Supermarkets (0.75%)
- Liquor stores (1.9%)
- Airlines (0%)
- Other services (0-1.9%)
- Gov/edu (0.5%)
- Utilities (0.5%)
- Marketing/ads (1.9%)
- Health/beauty (1.9%)
- Furniture (1.9%)

Legend: Female | Male

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Product development: Spend trends by gender

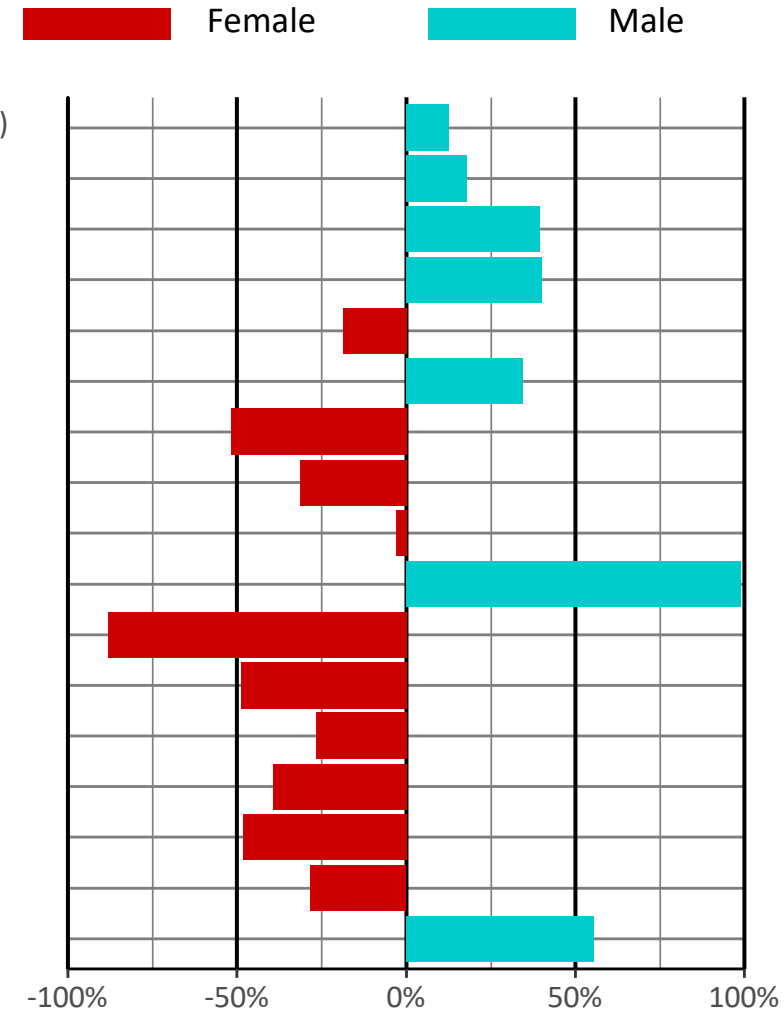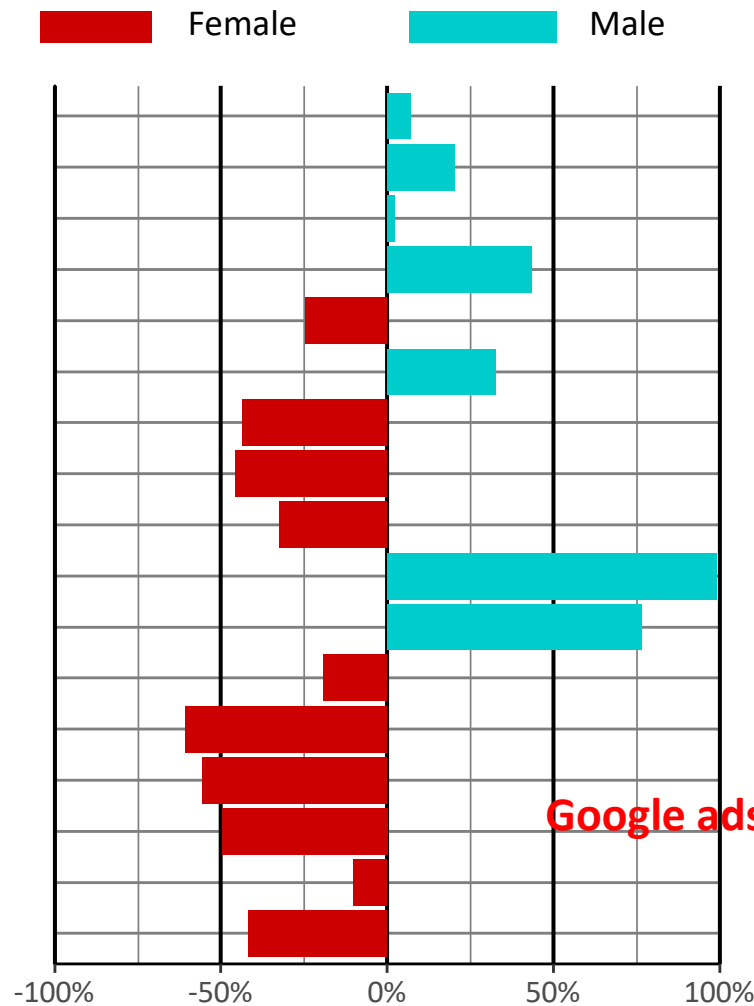**Goal:** Develop cashback incentive for the WE credit card product.

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Merchant categories are listed with interchange revenue rate that accrues to the bank.

Company owner Gender (IFC definition)

Female   Male

WE cashback on:

Telecommunications (0.5-1.9%)
Jewelry/watches (1.9%)
Other retail (1.9%)
ATM
Clothing/apparel (1.9%)
Restaurants (0.75/1.9%)
Hotels (1.9%) and travel (0%)
Electronics (0.95%)
Supermarkets (0.75%)
Liquor stores (1.9%)
Airlines (0%)
Other services (0-1.9%)
Gov/edu (0.5%)
Utilities (0.5%)
Marketing/ads (1.9%)
Health/beauty (1.9%)
Furniture (1.9%)

Google ads

Primary Card Holder Gender

Female   Male
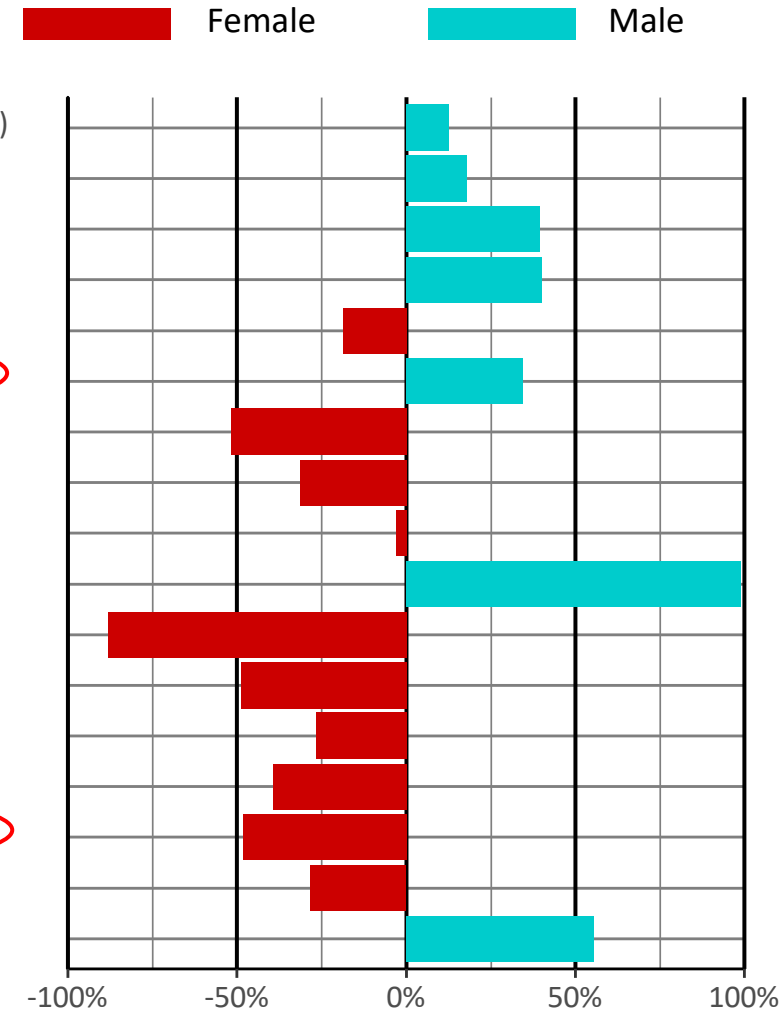
And cross-border transactions

Tips for financial institutions: Getting the data

	Commercial banks *(and some large MFIs)*	Microfinance institutions
Issues	Data collection is built into many processes/systems, but may be fragmented, siloed across departments – so it is <u>time-consuming to assemble a picture of a whole customer relationship</u>	Fewer departments/products/systems, and most data may be in the core banking system. However, <u>field data collection may be limited.</u>
Suggestions	Pay attention to evolution of bank's data warehouse and seek ways to unify data – an iterative process	Upgrade data collection (lengthy but necessary process); data warehouse useful as data becomes more complex

Tips for financial institutions: Cleaning the data

	Commercial banks *(and some large MFIs)*	Microfinance institutions
Issues	Variety of systems and data formats; key information may be stored in transaction remarks	Data quality standards may not yet be present; data may be incorrect (ex. gender) or too detailed (ex. sector)
Suggestions	Budget plenty of time for data cleaning; state analysis goals up front. Build data cleaning and summarization into data warehouse processes to reduce cleaning time per data analysis project.	Use cleaning process as input for data collection and processing upgrades (ex. field tablets and/or digital products)

Tips for financial institutions: Analyzing the data

	Commercial banks *(and some large MFIs)*	Microfinance institutions
Issues	BI departments give you what you ask for; general requests ("give me analysis on product X") may produce a lot of analysis but few insights	In-house analytics capacity limited; available reporting largely operational
Suggestions	1) Provide an idea of the strategic "why" behind requests, but still get down to specifics ("what are retention rates by segment for product X?") 2) Talk to BI to understand available data and how the product's operation plays a role in data quality	1) Top-down strategic capability building process – hire relevant talent to build data culture, grow analytics 2) Contract out – treat external analytics resource as strategic partner, rather than taking an ad-hoc approach to data analytics

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