

APAC Regional Webinar: Insights into Quantitative Investing in an Evolving World



Luis Seco

CEO, Sigma Analysis & Management

23 September 2020, 6:30-7:30 PM HKT

*Moderated by Qi Wang, CFA
Founder and Managing Director,
MegaTrust Investments*



CFA Institute

SESSION CHAIR



Qi Wang, CFA

Founder and Managing Director,
MegaTrust Investments

HOUSEKEEPING

- Today's webinar is scheduled for 60 minutes
- All participants are muted, we welcome questions via the Q&A function on your screen
- Audience can use CHAT to share comments and to see what others are saying
- This webinar will be recorded and be available to view after the presentation concludes
- At the end of the webinar, please take a moment to complete the short survey. Your feedback is valuable to us.

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CFA Society India

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SPEAKER



Luis Seco

CEO, Sigma Analysis & Management



Postmodernism and Investment Innovation

Luis A. Seco

GGSJ Center of Digital Management
and Technology Innovation



RiskLab, Director

Professor of Mathematics

Director, Mathematical Finance Program



President and CEO
Sigma Analysis & Management

The investment conundrum



Risk Management

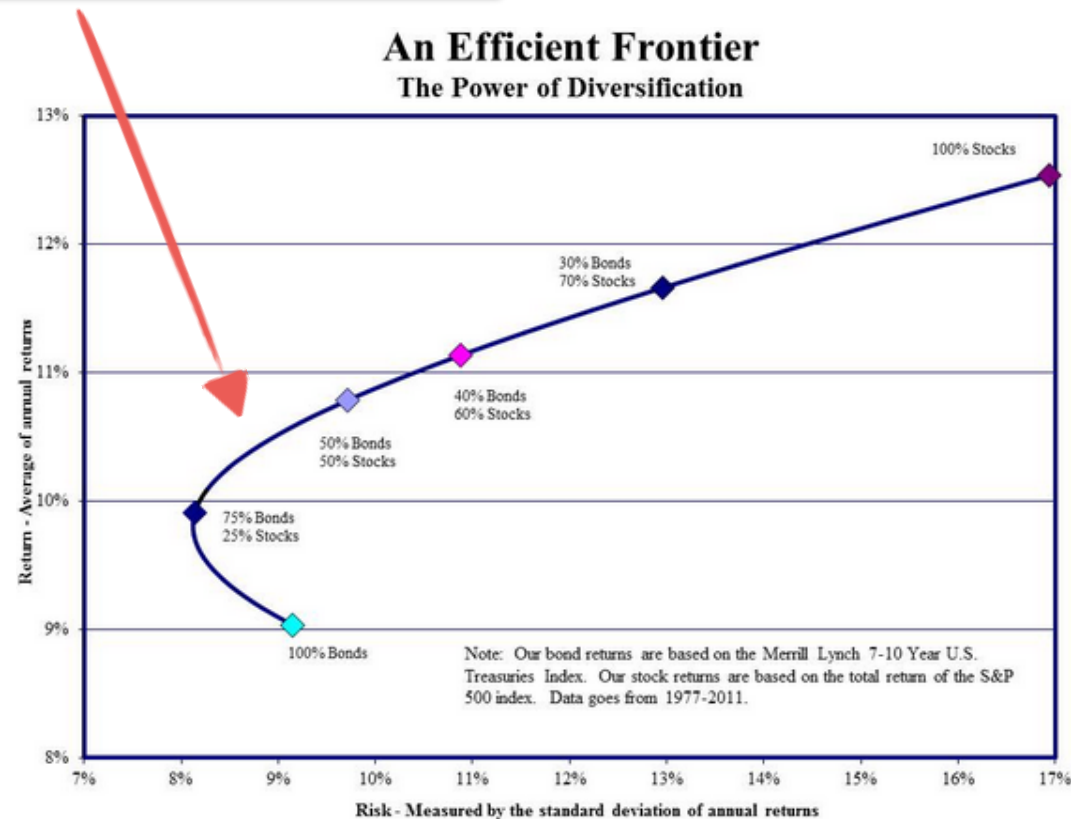


Profitability



Data Compression 1950 style

Portfolios are represented by two numbers



Modern vs. Post-Modern

Equal weights	$w_i = \frac{1}{N}$
Risk Parity	$w_i \sim \frac{1}{\sigma_i}$ <div style="border: 1px solid gray; padding: 5px; display: inline-block; margin-top: 10px;"> $w_i \frac{\partial \sigma}{\partial w_i} = w_j \frac{\partial \sigma}{\partial w_j}$ </div>
Minimum Variance	$w_i \sim \frac{1}{\sigma_i^2}$ <div style="border: 1px solid gray; padding: 5px; display: inline-block; margin-top: 10px;"> $\frac{\partial \sigma}{\partial w_i} = \frac{\partial \sigma}{\partial w_j}$ </div>

AI in Portfolio Management

Choice of Methodology (2013 style)

- During Market Crises:
 - Minimum Variance
- During normal markets:
 - 1/N

Market Crises and the 1/N Asset-Allocation Strategy

Marcos Escobar¹, Michael Mitterreiter², David Saunders³, Luis Seco⁴, Rudi Zagst⁵

Abstract

We consider portfolio management strategies where the investment style switches based on the value of a crisis indicator. A variety of strategies is considered in historical backtests on different datasets. Our findings show that certain simple switching strategies achieve statistically significant out-performance when compared to the equally-weighted portfolio with respect to the Sharpe ratio and Omega. In our backtest, the 1/N strategy and equal-risk contribution portfolio perform best during “normal times”. On the other hand, during turbulent times, risk considerations seem to play a major role leading to minimum variance as the preferred strategy.

Keywords: Portfolio Allocation, Markov Switching, Equally Weighted, Equal-Risk Contribution

1. Introduction

Since the seminal work of [Markowitz \(1952\)](#), an enormous amount of research has been devoted to the problem of optimal portfolio selection. Recent contributions include the work of [Maillard et al. \(2010\)](#), who study *Equal-Risk Contribution* (ERC) portfolios, for which the individual risk contribution of each asset to the total portfolio risk is the same. and show that the standard deviations of these portfolios lie

AI in Portfolio Management

We need to do digital to stay relevant

BitCoin is bad
BlockChain is good

Automation and digitalization
is unstoppable

Automation-inspired job cuts are taboo

Machine learning is a trade-off
between a model I can understand
and another which may have better coefficients

Yes, overfitting is a big problem,
but it is useful for fraud management

you say machine learning; I say overfitting

Market Crises and the 1/N Asset-Allocation Strategy

Marcos Escobar¹, Michael Mitterreiter², David Saunders³, Luis Seco⁴, Rudi Zagst⁵

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Consulting companies want
automated nirvanas devoid of people,
except for their consultants

Data science is exciting yet dangerous,
profitable for some,
a time-sink for others

... amount of research
... at contributions
... ribution (ERC)
... portions, for which the individual risk contribution of each asset to the total port-
... risk is the same, and show that the standard deviations of these portfolios lie

Empirical Analysis in Portfolio Management

Choice of Methodology (2020 style)

- Define Market conditions
 - Let the machine learn
- The Machine Rules:

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Machines learn from humans



Post-modern Portfolio Theory

Agnosticism

Social Science

Negationism

Nicholas Nassim Taleb:
“Your Grandmother’s Intuition about Tail Risk is Usually Right”

HSBC’s Head of Global Risk Strategy:
“it is important to have historians, geographers and political scientists
alongside the mathematicians in formulating scenarios.”

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The Basel Committee has proposed retraction of its AMA to operational risk, preferring “Standardized Measurement Approach” (SMA).

Was AMA too deterministic and hence we seek to reduce the focus of analysis?

Does this allow expanding operational risk to incorporate compliance, fraud, cyber, etc?.

Machines fail just like humans



2014: The Calpers Syndrome

- In 2014, the California Public Employees Retirement System stunned the investment world with the announcement that they were exiting their multi-billion dollar hedge fund portfolios
- While the fund had numerous problems, fees paid to hedge funds was announced to be one reason.



Profitability is at risk

The Talk on Fees

PORTFOLIO

New Fee Structure Offers Hope to Besieged Hedge Funds

Deep in the heart of Texas, hedge funds still feel some love from the state's pension plan for teachers in the form of a new compensation proposal.



Mutual Funds: 0.5-2%
ETF: 5-25 bps
Hedge Funds: 2+20

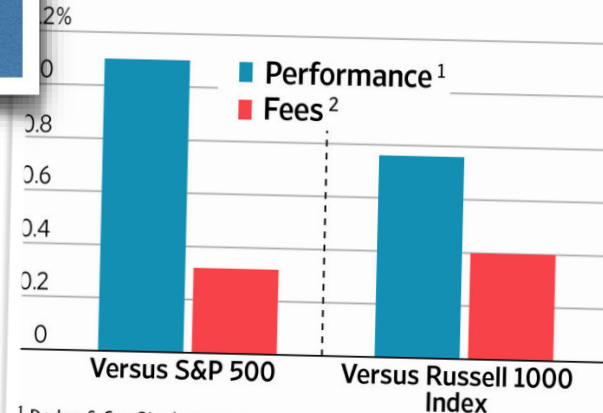
Hedge Funds
Work on 2/20 basis which means they charge 2% a year by way of management fees and 20% of the net profit. They do not share in losses.

Mutual Funds
They charge 1.25% on the first 100 crores of the AUM managed. Annual expenses can go upto 2.25% to 2.50%.

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Different Measure

Examples of how investors might be pay hedge-like fees for modest outperformance



¹ Dodge & Cox Stock percent annualized average excess return

² Dodge & Cox Stock effective performance fee percent

Source: Morningstar

THE WALL STREET JOURNAL.

Optimal Fees

- The Fund manager will build a portfolio to optimize its own utility: **the fee income**
 - The investor can -indirectly- select the fee it pays by choosing to participate in the fund or not
- 24
- The rational investor will aim for a fee that will optimize its own utility: **the return after fees**

Fee Innovation

Fund managers are offering
performance protection
in cash....

...no management fees...

... in exchange for higher
performance fees.

Managers are not investors

Managers write the first
cheque

Fund cash flows look like
bonds

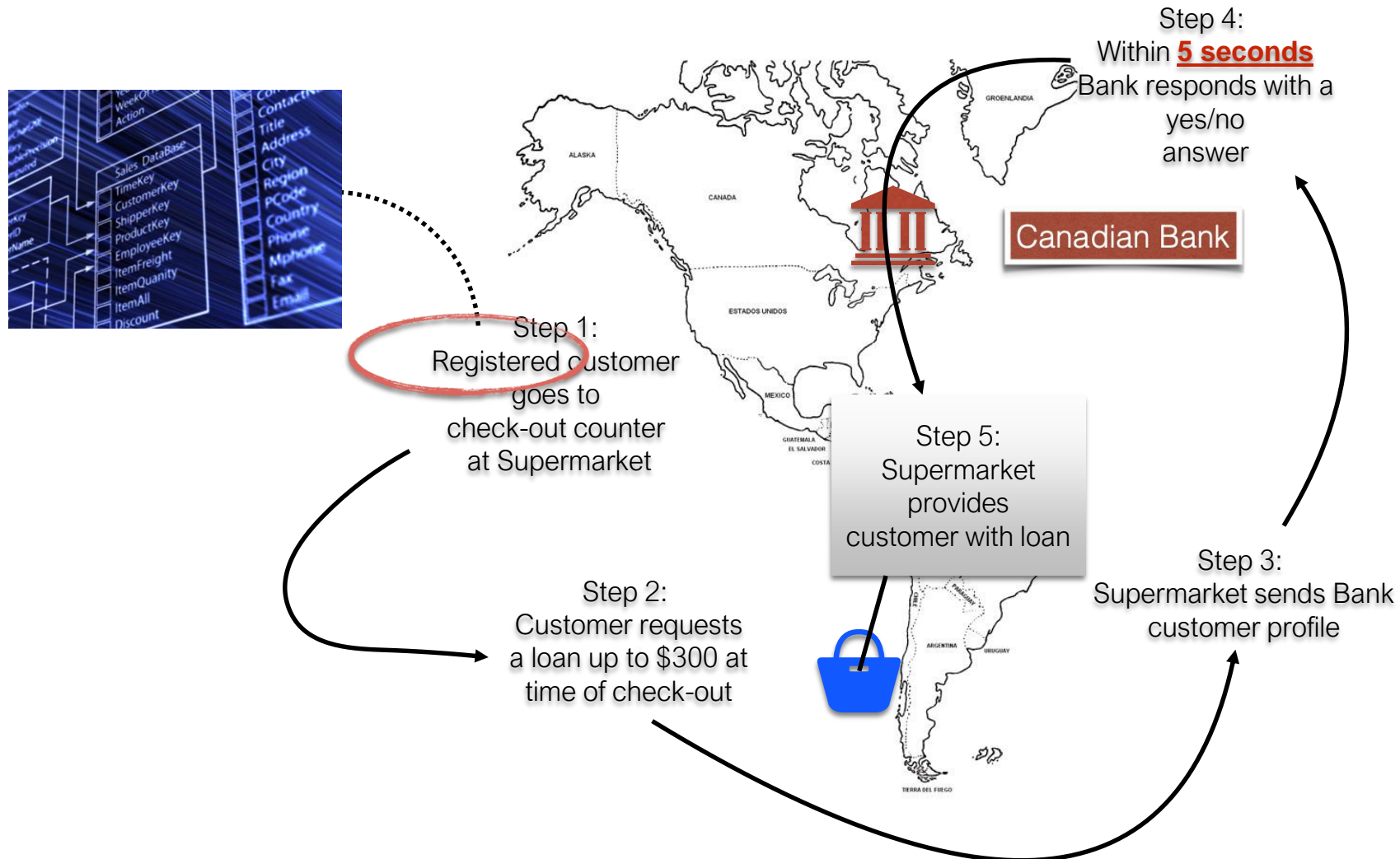
Negative fees?

	Investor	Manager
Invested amount	2000	200
Gross investment gains	100	
Guarantee	0	0
Performance fee	-50	50
Total gains	50	50
Profitability	2.5%	25%

Investor/
manager
roles are
reversed

	Investor	Manager
Invested amount	2000	200
Gross investment gains	-160	
Guarantee	0	-160
Performance fee	0	0
Total gains	0	-160
Profitability	0%	-80%

Post-modern banking



Big data - Big Risk

Customer name
Address
Profession
Income
Address

Shopping patterns by

- time
- goods purchased
- store locations

... etc...

Customer Database



Subject to manipulation

Dynamic database:
updates in real time

Decision and monitoring
systems updated
in real time

Not Bank-owned

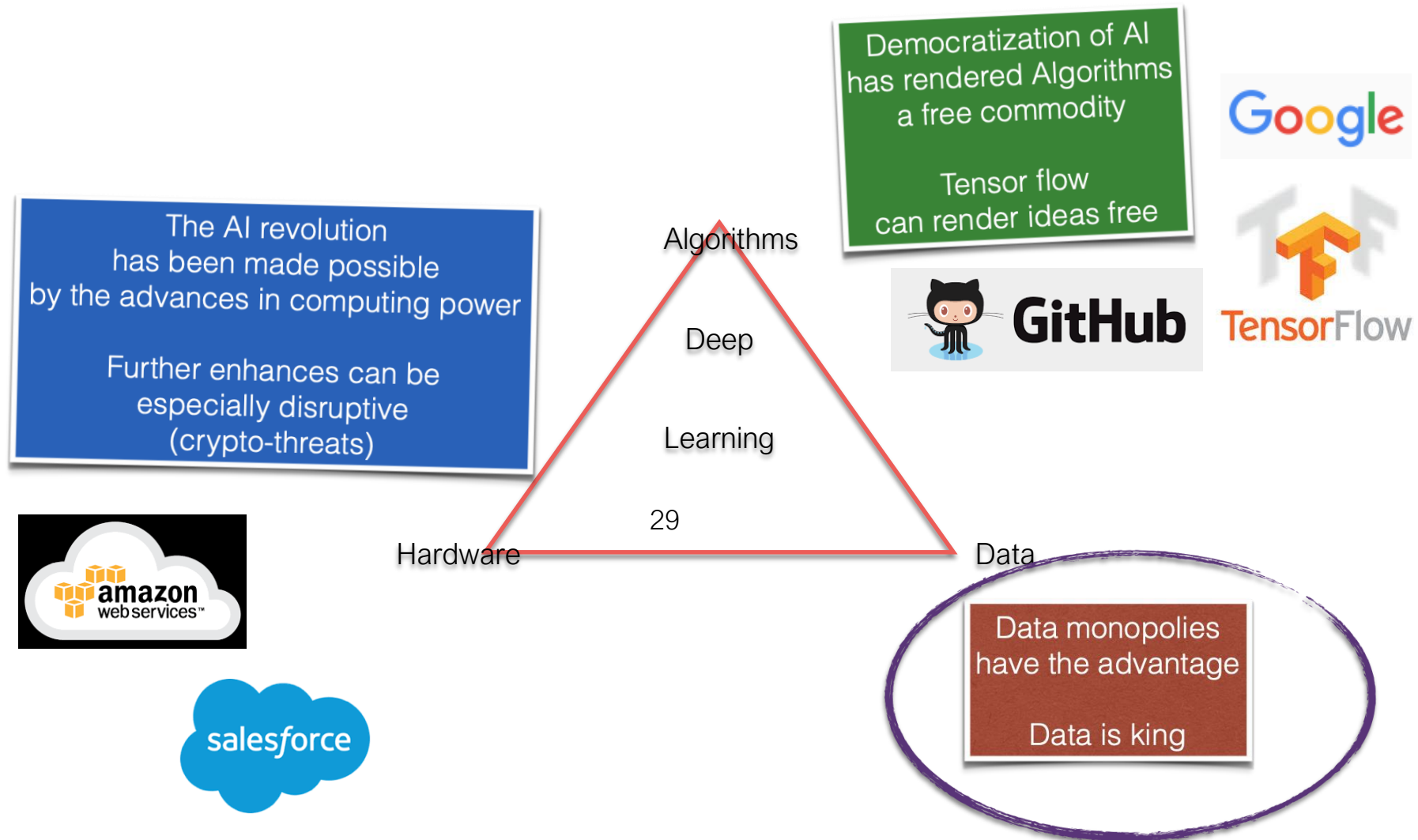
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Unstructured Data

Machine Friendly
Human un-friendly

Customer name vs Household name
Customer address vs. store address
Mining the customer network

AI at work



Scotiabank and Deep Learning

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Elliott Management Discloses Stake in Sky
U.S. 1 Bombardier Didn't Ha

CIO JOURNAL

Scotiabank Deploys Deep Learning to Improve Credit Card Collections

Tool helps identify potentially delinquent customers and suggests ways to approach them

By [Steven Norton](#)

Feb 6, 2017 5:35 pm ET

0 COMMENTS

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Deloitte.

Hashiam Kadhim



DeepLearn.ng

Lead Machine Learning
Engineer

the best way to approach them about it.



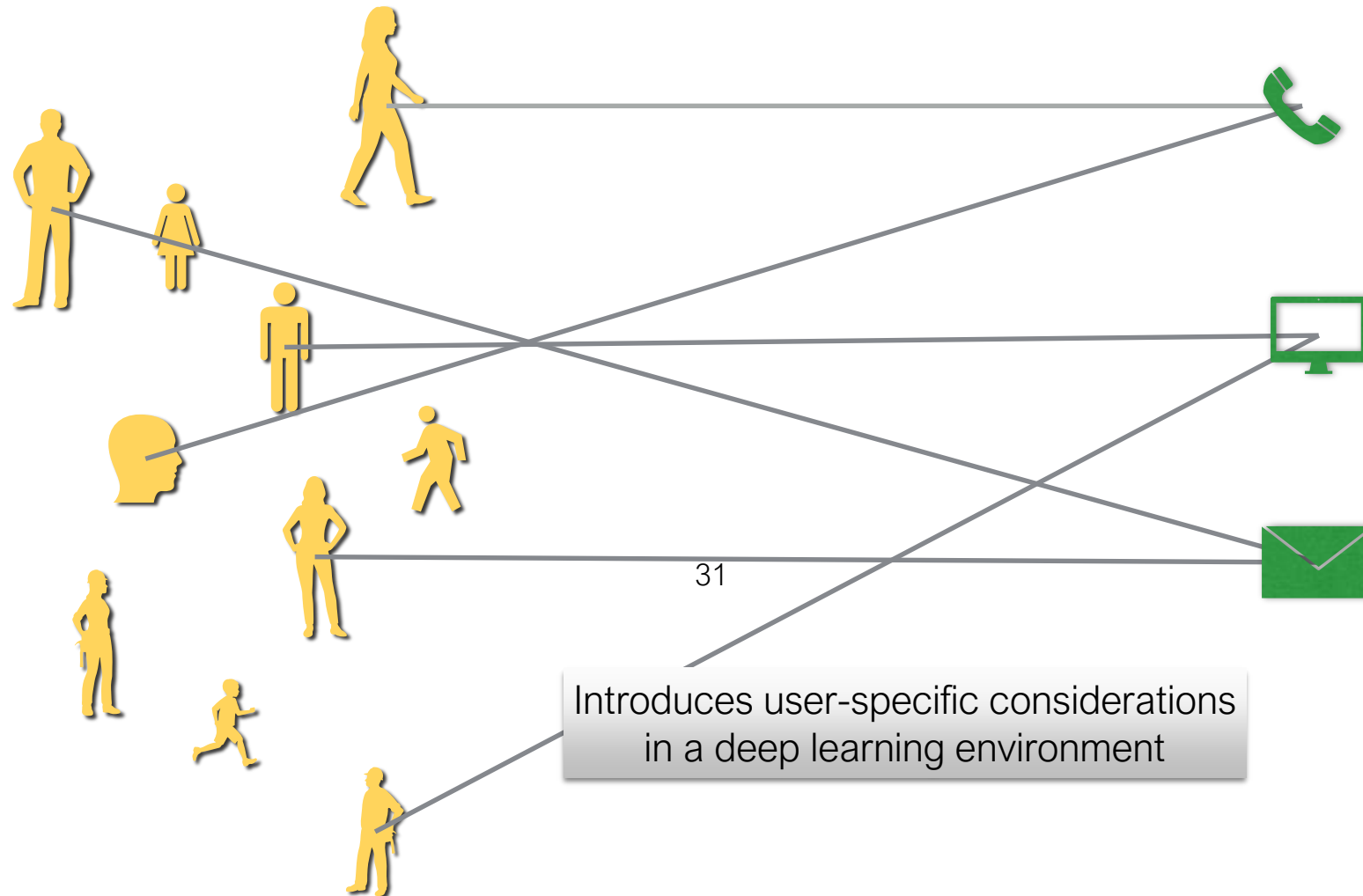
Michael Zerbs, chief technology officer at Scotiabank, hopes to deploy machine learning across the bank to better understand customers. PHOTO: BANK OF NOVA SCOTIA

effective.

Even a small improvement in collections can have a big impact on the bank's bottom line, said Michael Zerbs, chief technology officer at Scotiabank. The challenge is to figure out the best way to interact with customers who may have simply forgotten to pay versus those less likely to pay at all.

For customers who just forgot, "you actually don't want to call them because it's a bad customer experience" and wastes bank resources, Mr. Zerbs said. A simple nudge via text message might be simpler and more

Collections: End-to-end solutions



Investing in the time of Populism

ESG - Credit Scoring
based on

- Environment
- Social
- Governance

Cryptocurrencies

The Amazon-ification of
Asset Management



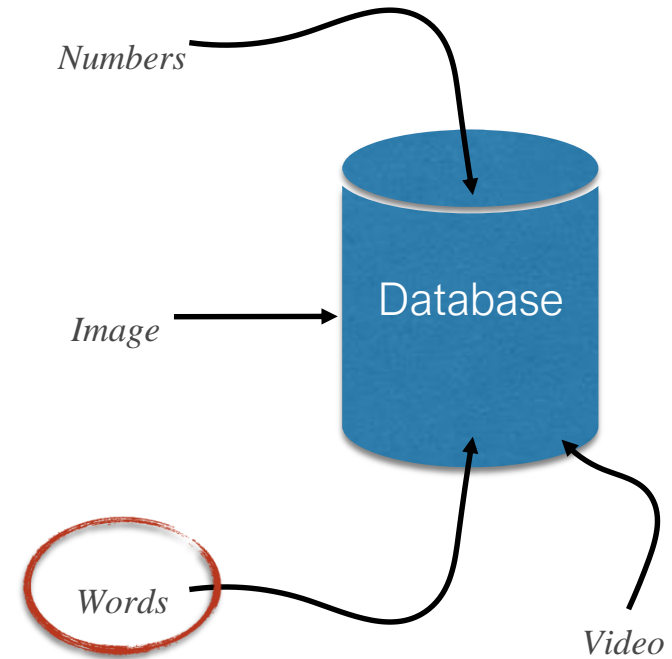
Portfolios that sell



Data

Traditional data sources are being replaced by unstructured data sources

- Facebook, twitter, news outlets...
- Sensors
- Cloud-resident data



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Algorithms will have to adapt

Application: AI-ESG

- Construct ESG scores using web-resident, text data sources
 - Company document centres
 - Sentiment analysis sourced in real time
 - News sources

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**Building Machine Learning Systems to Automate ESG Index
Construction**

May 19, 2020

Alik Sokolov, Jonathan Mostovoy, Jack Ding, Luis Seco

Regulation

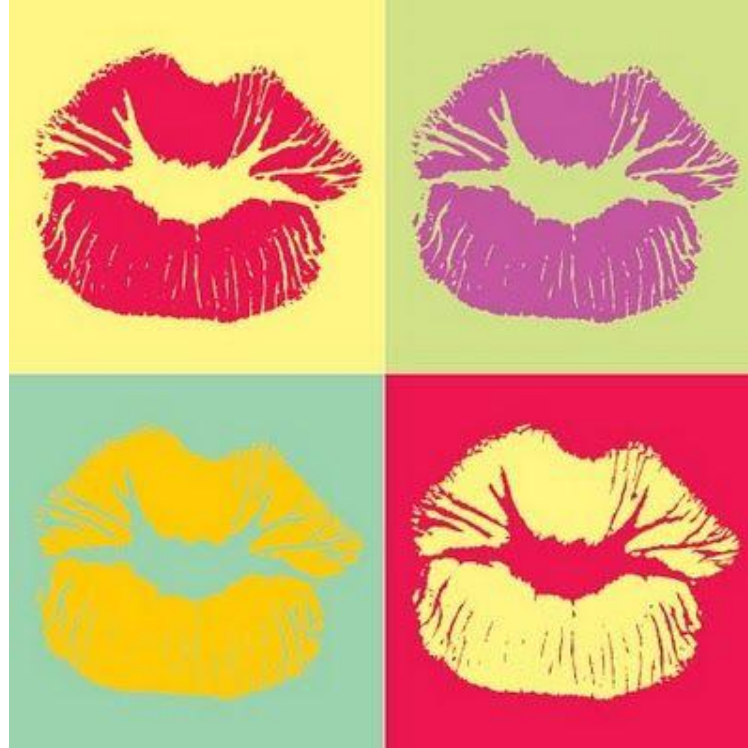
1929 Crash	Securities ACT (1933)
Enron	SOX (2002)
2008	Dodd-Frank (2010)
?	35 Data Regulation?
COVID-19	?

The new financial players

1970's	Private banking/Hedge Funds
1990	Derivatives/Prop desks
2000	³⁶ Pensions/Asset owners
2020	Family Offices

The end

谢谢



Thanks