Smart Contracts and Corporate Governance

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Example:
Two ways to purchase a coke

or

The vending machine was introduced in London in 1883.

What can go wrong with the soda jerk?

- Adds cost
- Agency problems
  - May work too slowly
  - May put in too much ice
  - May make incorrect change
  - May steal from the cash register
  - Will want to be tipped
- Sabotage
  - May discriminate against certain customers
  - May pretend you did not pay
- Etc.

Smart contracts: Szabo (1997)

http://ojphi.org/ojs/index.php/fm/article/view/548/469

- “The basic idea behind smart contracts is that many kinds of contractual clauses (such as collateral, bonding, delineation of property rights, etc.) can be embedded in the hardware and software we deal with, in such a way as to make breach of contract expensive. . .”

Nick Szabo

What problems
can smart contracts solve?

- Guaranteeing specific performance
  - Is this always a good idea?

- Economizing on contracting costs

- Economizing on enforcement costs

- Deterring strategic behavior

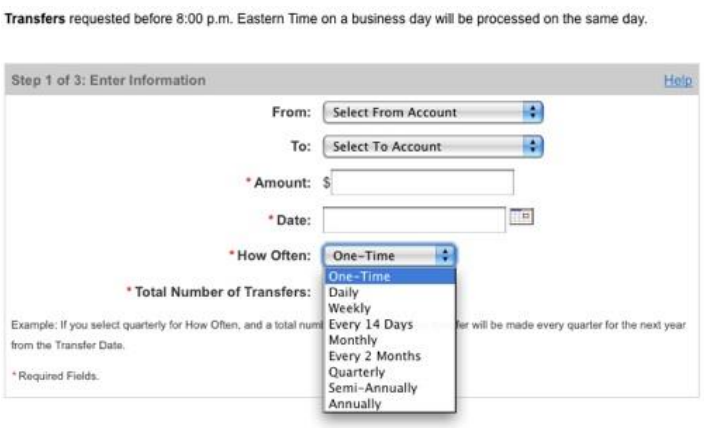
- *Removing the need for trust*

Some important points

- Smart contracts have existed for many years
  - Often involving automated payments
- They do not require blockchains
- However, blockchains open up much more complex possibilities

Example:
Recurring monthly mortgage payment

or



Problems solved by recurring payment

- Quicker / cheaper / more reliable

- Opting in by the customer indicates stable income, enabling bank to cut interest rate

Example: Secured corporate debt

What happens?

- Collateral conveyed automatically upon default

Big implications:

- Financial distress resolved *ex ante* by contract

- Cost of debt should drop
  - Certainty of performance
    - Less moral hazard of “strategic default”
    - Less adverse selection by untrustworthy borrowers
  - Zero enforcement costs
  - Restrictive covenants (contracting cost) no longer necessary

Other corporate governance applications

- Self-executing derivatives that have moral hazard problems or high verification costs
  - Convertible debt that converts automatically
  - Executive stock options that exercise themselves
  - Credit default swaps with clear verification criteria

Other corporate governance applications

- Short selling and stock lending
  - Proper allocation of votes and dividends based on possession of shares
  - Distributed ledger of share ownership to identify allocation of control rights for all investors

How did Dole lose track of over 12 million shares owned by its stockholders?

What can go wrong?

A "decentralized autonomous organization"

- Launched April 30, 2016, as a venture capital fund on the Ethereum platform

- Management <u>*purely by smart contracts*</u>
  - No employees or management
  - Not located in any identifiable jurisdiction

- Raised $150 in ether tokens in three weeks

- About one-third siphoned off in a hack, June 17, 2016