The Rise of Alternative Finance

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Speaker

Professor David Lee

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Founder, Ferrell Asset Management
The LASIC Principle: Rise of Alternative and Internet Finance

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Sim Kee Boon Institute for Financial Economics, Singapore Management University

Abstract

There is an estimated 38% of the world population that has no formal bank accounts and another 40% that is underserved by banks. In this paper, we examine sustainable and profitable enterprises which use financial technology to lower business costs. New technology has resulted in low cost financial services made accessible by mobile technology and giving rise to financial inclusion. We introduce the LASIC (low margin, asset light, scalable, innovative, and compliance ease) business model; describing attributes of such successful businesses. We examine three case studies; Alibaba, M-PESA and Fullerton Financial Holding. Two of these three businesses are examples abiding by the LASIC principle with the third moving towards employing the same principle. Investment into these Fintech areas of financial inclusion has real impact beyond positive portfolio returns. We conclude by looking at new de-centralised financial technology, such as the blockchain and consensus ledgers, that may present further opportunities to lower business costs while conforming to the LASIC principal of sustainable social business for financial inclusion and impact investment.

Keywords: LASIC, Internet Finance, Financial Inclusion, Financial Technology, Consensus Ledger, Unbanked and Underbanked

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In the last 10 years, Productivity has come down 48% in the US – one of the most innovative nations.
The End of the Middleman World: Innovate, Share or Perish!

There is no real need of labour below the app!

Business Services and Finance, is Next To Be Disrupted!

Source: BlackRock Investment Institute
Beyond 3D Printing:

**Uber**, the world’s largest taxi company owns no vehicles.  
**Facebook**, the world’s largest social network creates no content.  
**Alibaba**, the world’s most valuable e-commerce stores no inventory.  
**Airbnb**, the world’s largest provider of accommodation possesses no real estate.

The threat is to the “Middle Men”, some have commented that they are the world’s richest and produce almost nothing.
Productivity ≠ Jobs Growth

Tipping Point!
Negative Correlation Thereafter!

Sources: BlackRock Investment Institute and Bureau of Labor Statistics, August 2014. Note: Correlations are rolling 10-year windows using quarterly data.

So, What Is the Big Trend?
Banks

• Branches are closing
• Financial Institutions especially banks are laying off employees
• ROE of some major banks now below 10%
• Strategists (Strat’s) and senior bankers are leaving to join start-ups
• New licenses for alternative finance issued

"The (non-bank entities) don't have to follow leverage ratios, they don't have to meet capital and liquidity guidelines. So they've lots of advantages," said SCB Ms Anju Patwardhan."
But as an incumbent, the banks are also doing things to reduce costs, and that's where technology is an enabler. It's through innovation and digitisation that the banks are trying to reduce expenses and I think over the next few years, there will probably be a lot of M&A activity within the banking sector.
DBS CEO Piyush Gupta.

"We in the DBS context are spending billions of dollars in digitising the bank. Less than 10 per cent of it is in the frontend apps.

DBS spends about S$600 million on technology each year. Last year, it announced that it would be spending an additional S$200 million over the next three years.

Digital Natives Versus Baby Boomers

Alipay
Android Pay (Open Platform)
Apple Pay
Paypal
TransferWise
Venmo
Paylah!
Dash
...
And More

VERSUS

Pictures by TM Lee

Facebook Bought WhatsApp for USD19Bil in 2014: Why

- WhatsApp has **no profit** with only USD20mil revenue employing **55 employees**
- In the beginning when the number of subscribers was small, there was zero revenue and productivity:

Many smart people think that Facebook itself is a “Fad” or “worthless”!

It is about stickiness/retention of consumers!

LASIC

- **Low margin**: USD1 subscription, but it has offensive and defensive value and margin will increase over time
- **Asset Light**: It doesn’t need any heavy machinery or high tech but brains, knowledge and servers that have become cheaper to acquire over time
- **Scalable**: 450 mil users increasing at 1 mil a day
- **Innovative**: It has good user experience and it is sticky
- **Compliance Easy**: It is being left alone to flourish

Source: David Lee, “The Future of Finance”
Let Us Learn from the Disruption in Finance!

E-Commerce
Telecom
Alternative Finance
Decentralised Finance

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The World of Internet

The largest IPO:
While Alibaba’s revenue is just USD8.46B, it has USD17B Cash on Hand
Investors did not just buy into a US listed company operating in China!

It is also an Eco System with Retail, Wholesale, Discount Store, Big Data, and more!

Source: IPO Prospectus

The Gross Merchandise Volume (GMV) is USD296B. E-Commerce is an inroad into the consumer market and Finance.

Source: IPO Prospectus

In 2004, we established Alipay to address the issue of trust between buyers and sellers online. We have continued to offer payment and escrow services on our marketplaces through Alipay following divestment of our interest in and control over Alipay in 2011. – From the IPO Prospectus!

This is going to be the largest cash cow for the Group!

Ant Financial

Alipay

Alipay Wallet

Ant Credit

MyBank

Yu’E Bao

Zhao Cai Bao

Figure 2: Alipay vs. PayPal, 2008–2013

3rd Party Online Payment Market Share

- Alipay, 49.2%
- UnionPay, 11.6%
- TenPay, 19.4%
- 99Bill, 6.9%
- ChinaPnR, 5.3%
- YeePay, 3.2%
- iPS Payments, 2.7%
- Other, 1.70%

Source: iResearch, Kapronasia analysis

Note: Registered Alipay users does not mean active users.
Note: “Active” PayPal users means a customer has conducted 1 transaction in the past 12 months.
Sources: PayPal, Mercator Advisory Group estimates based on collection of sources
Alipay: USD1T Transactions Per year

<table>
<thead>
<tr>
<th>Year</th>
<th>Internet transactions (¥ Bn Yuan)</th>
<th>Mobile transactions (¥ Bn Yuan)</th>
<th>Total (¥ Bn Yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>1078.76</td>
<td>47.61</td>
<td>1078.76</td>
</tr>
<tr>
<td>2012</td>
<td>1705.05</td>
<td>906.27</td>
<td>2616.64</td>
</tr>
<tr>
<td>2013</td>
<td>2616.64</td>
<td>2352.99</td>
<td>3718.45</td>
</tr>
<tr>
<td>2014</td>
<td>3718.45</td>
<td></td>
<td>6071.44</td>
</tr>
</tbody>
</table>

Market Share

<table>
<thead>
<tr>
<th>Year</th>
<th>Internet</th>
<th>Mobile</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>48.95%</td>
<td>31.50%</td>
</tr>
<tr>
<td>2012</td>
<td>46.60%</td>
<td>74%</td>
</tr>
<tr>
<td>2013</td>
<td>48.7%</td>
<td>80%</td>
</tr>
<tr>
<td>2014</td>
<td>50%</td>
<td></td>
</tr>
</tbody>
</table>

Industry Trends

E-commerce and other Internet companies are branching into the finance industry.

1. Payment and settlement services
2. Lending (microcredit, supply chain financing, P2P lending)
3. Sales of investment products

Traditional financial services are migrating to Internet finance.

Zhong An Insurance

- Zhong An Property Insurance Company is an Internet assurance company established in 2012. All business activities are conducted online.
Alibaba (19.9%), Tencent (15%) and Chinese insurance company Ping An (15%) officially launched Zhong An (众安在线财产保险股份有限公司), an online insurance company jointly established by the three on Nov 6 2013 with RMB1bil paid-up capital.

The company has obtained the very first license in China for operating online insurance business. The products are related to travel, temperature (37°C高温险), weather (“下雨贴十元”保障服务), supplier loan guarantee (众乐宝,参聚险), mobile property (手机意外保障服务) via Internet and mobile payments.

More than RMB100M insurance premium on Singles Day! Average RMB0.5 per transaction!

(数据显示，首次参与双11保驾护航的众安保险当天保单量突破1.5亿，保费突破1亿,平均每份保单大约五毛钱左右；创造了名符其实的互联网保险双11盛宴。)

The Three Horses:

Ma ZheMing (Ping An Insurance)
Ma Pony (Tencent)
Ma Jack (Alibaba)
<table>
<thead>
<tr>
<th>Type</th>
<th>Clients</th>
<th>Limit</th>
<th>Interest Rate</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ali Credit Loan</td>
<td>Alibaba Members who registered over two years in selected provinces</td>
<td>¥50,000-3,000,000</td>
<td>1.5%/month</td>
<td>12 months</td>
</tr>
<tr>
<td>Taobao Credit Loan</td>
<td>Taobao stores that have opened over 6 months, good reputation, no area restriction</td>
<td>No greater than ¥1,000,000</td>
<td>0.05%/day</td>
<td>12 months</td>
</tr>
<tr>
<td>Taobao Booking Loan</td>
<td>Taobao stores that have opened over 2 months, good reputation, no area restriction</td>
<td>No greater than ¥1,000,000</td>
<td>0.05%/day</td>
<td>30 days</td>
</tr>
<tr>
<td>Virtual Credit Card</td>
<td>Alipay users anywhere</td>
<td>¥200-5,000</td>
<td>No annual fee, 1% percent service fee</td>
<td>38 days of interest-waived period</td>
</tr>
</tbody>
</table>
Zhima Credit

Jan 5 2015, China’s central bank issued a notification that allows 8 organisations to provide personal credit services: Sesame Credit was one of the them under the Ant Financial Services Group.

FICO Credit scores are designed to measure the risk of default by taking into account various factors in a person's financial history in the US.

Payment History(35%), Debt Burden(30%), Length in File(15%), Type of Credits(10%), and Recent Searches(10%)
Risk Management
Big Data + Internet Technology

Prior Loan Approval: Credit assessment through historical data and information, including psychological test

Loan Tenure: Smart data analysis of usage pattern of loans

Loan Expiry: Various ways of dealing with defaults and recovery of bad loans

Competitive Advantage

• Smart data collected from Alibaba’s e-commerce platform improves efficiency
• Small loan, short process, low borrowing rates
• Higher interest return attracts more P2P lenders
• Huge client base of Alipay
• Default Rate: <1% (0.89%)!
Alipay Movie Crowdfunding

- Alipay: Alipay Minimum Subscription is RMB 100
- Always oversubscribed
- May fix an upper bound for subscribers over a time period of SGD1,000/SGD10k?
- Targeting “Ants”

Another Day, Another Deal
(In last week of May and early June Alone)

• New deals, JVs and Partnerships every other day
• Reorient: listed on HKEX
• Micromax: India Smartphone
• Cinda Asset Management: Bad-Loan Auction Platform
• Cainiaio: Chinese Logistic
• Allcargo: India Logistic
• Snapshot: USD200m investment
• DiChan Bao: Real Estate Crowd Funding

Time Compression

• 7 years: For Apple to become world’s largest music retailer

• 1.5 years: For Google to reduced the market cap of top GPS companies after the introduction of its mobile app.

• **JUST 9 months**: For Alipay, via, Tian Hong Asset Management, to become the world’s fourth largest money-market fund

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Mobile Finance will be the future

Number of mobile users in developing countries has already over taken developed countries!

Less regulated developing countries will be the growth area for finance!

More to grow in Developing Countries!

ACTIVE MOBILE-BROADBAND SUBSCRIPTIONS PER 100 INHABITANTS: DEVELOPED VS. DEVELOPING COUNTRIES + WORLD AVG.

2007-2014

Source: ITU World Telecommunication/ICT Indicators Database

Penetration is still low in Developing Countries!

M-PESA

• Kenya Mobile Phone Payment System by Safaricom (12.2M active customers compared to 5.4M with bank accounts, 122k agents, 67% has access Oct 2014 compared to 41% in 2009)
• Money held in trust account by Vodafone
• Interest spent by M-PESA Foundation
• M-Shwari, savings and loans product via M-PESA since Nov 2012 (897k loan accounts, 5.6mil deposit accounts, 26% of the country’s total)
90% Penetration!

M-PESA Users

Safaricom Users

Source: M-PESA Annual Reports

Percentage of Revenue Climbing to 18%!

M-PESA: Percentage of Safaricom's Revenues

1 USD : 91.181 Kenyan Shilling

Source: M-PESA Annual Reports

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
<th>Launched FY</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipa Na M-PESA</td>
<td>Cash Payments for goods and services</td>
<td>Revamped in June 2013</td>
<td>120,000 merchants to enable users and SMEs to collect and manage cashless payments.</td>
</tr>
<tr>
<td>Cashless FMCG</td>
<td>Cash Distribution</td>
<td>2014</td>
<td>It is used by 1294 tills driving Kshs 2.8 bil in volume per month.uestos.</td>
</tr>
<tr>
<td>M-Shwari</td>
<td>Interest bearing deposits and micro-loans</td>
<td>Nov 2012</td>
<td>It allows for deposit as low as Kshs 1 and borrowing at as low as Kshs 100 without having to visit a bank or complete account opening forms. The account is opened and operated from the phone. Free transfer between M-PESA and M-Shwari account.</td>
</tr>
<tr>
<td>M-PESA IMT</td>
<td>International Money Transfer</td>
<td>Revamped in 2014</td>
<td>8 partners and remittance to 100 countries at no fee.</td>
</tr>
<tr>
<td>Lipa Kodi</td>
<td>Rental payments to Landlords</td>
<td>Aug 2013</td>
<td>88 housing agents with more than 60,000 housing units.</td>
</tr>
<tr>
<td>Linda Jamii</td>
<td>Health Insurance premium payments</td>
<td>Feb 2014</td>
<td>It is an online micro-health insurance product developed by Safaricom, Britam and Changamka. Medical premium of Kshs 12,000 paid via M-PESA with Kshs 200,000 in patient benefits and Kshs 50,000 outpatient benefits as well as dental, optical, maternity care and funeral benefits.</td>
</tr>
<tr>
<td>Cloud SaaS</td>
<td>Software as a service for SMEs</td>
<td>2014</td>
<td>It encompasses accounting, payroll, domain and webhosting services to be part of the M-PESA ecosystem.</td>
</tr>
</tbody>
</table>
Amazing Growth of M-Shwari

<table>
<thead>
<tr>
<th></th>
<th>March 2013</th>
<th>March 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers</td>
<td>2.5 million</td>
<td>6.8 million</td>
</tr>
<tr>
<td>Active Customers</td>
<td>1.1 million</td>
<td>3.6 million</td>
</tr>
<tr>
<td>Net Deposits</td>
<td>0.9 billion</td>
<td>4.0 billion</td>
</tr>
<tr>
<td>Loan Balance</td>
<td>0.3 billion</td>
<td>1.2 billion</td>
</tr>
<tr>
<td>Non Performing Loans</td>
<td>4.0%</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

Source: M-PESA Annual Reports

Let Us Learn from the Disruption in Finance!

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Many Forms of Alternative and Disruptive Finance!

Source: Venture Scan
More Funds for Fintech

Corporate Investment in Fintech: Deals and Dollars (M)
2010 - Q1 2015

More Fintech Deals

# of Unique Corporates Investing In Fintech
2010 - 2014

## Most Active Corporate Investors In Fintech Companies
### 2010 – Q1 2015

<table>
<thead>
<tr>
<th>Rank</th>
<th>Investor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Google Ventures</td>
</tr>
<tr>
<td>2</td>
<td>Intel Capital</td>
</tr>
<tr>
<td>3</td>
<td>Citi Ventures</td>
</tr>
<tr>
<td>4</td>
<td>MasterCard Worldwide</td>
</tr>
<tr>
<td>4</td>
<td>FundersClub</td>
</tr>
<tr>
<td>6</td>
<td>American Express Ventures</td>
</tr>
<tr>
<td>7</td>
<td>eBay</td>
</tr>
<tr>
<td>7</td>
<td>CyberAgent Ventures</td>
</tr>
<tr>
<td>9</td>
<td>Renren</td>
</tr>
<tr>
<td>10</td>
<td>Credit Saison</td>
</tr>
<tr>
<td>10</td>
<td>Bitcoin Shop</td>
</tr>
<tr>
<td>10</td>
<td>SK Telecom Ventures</td>
</tr>
</tbody>
</table>
Wells Fargo US Online Banking
HSBC UK Online Banking
Sluggish loan growth; banks only looking at 5-6% loan growth for 2015. Taking the cue from industry statistics, it is quite clear loan growth has clearly slowed and banks are only guiding for mid-single digit loan growth for 2015 in the absence of currency effects. Regional loan growth is also expected to moderate given the weak macro environment in Malaysia, Indonesia and Thailand. And given the weak currencies vs the S$, translating into S$ may not even result in any growth.
China’s P2P Lending Compared to U.S. & U.K.

If you know the Chinese culture and language, huge opportunities in China!
Case Study: CreditEase

World’s Largest and the First P2P Company in China
Simply Banking Services

P2P Model in China

Lenders
Receiving high risk-adjusted returns while helping society

Borrowers
Individuals and micro-business access to affordable credit

Credit Evaluation
Pairing Needs
Risk Management

Individual Investors
Trust Companies
Other FIs

Salary Workers
Micro-Business Owners
Students
Farmers
The New Banking Model of China!

Business Model Evolution

Wealth Management
财富管理

Inclusive Finance
普惠金融

Internet Finance
互联网金融
Who are the Partners?

CreditEase Overview

- Loans Originated in 2014: ~USD 10 billion
- Borrowers: ~2 million
- Wealth Management Clients: > 300K
- Cooperation Partners: ~1,000
- No. of Employees: ~40,000
- Underwriting Professionals: > 500

Strategy Partners

IDG Capital Partners

Morgan Stanley

KPCB
Management Team Profile

Chief Risk Officer – Ex Wall Street Veteran!
Fullerton Financial Holdings

- Mission: To serve the underserved
- China: The largest microfinance company
- Alignment: customers’ need, regulators desire for greater financial inclusion
- Since 2003, operating income +24%, profits +29% compounded annually, ROE 14%
- 2012, shareholders equity +11% to S$21.3B, loan portfolio S$15.6B, net interest income S$1.9B
- India alone: 5,500 employees, 15,000 villages, a million customers, across 21 states

Sep 2013, Cambodia Post Bank, 45%

Source: Fullerton Financial Holdings Annual Reports

The missing middle: 75mil households in urban India and more than 90 million households in rural India.

Over 50% of the urban market and nearly the whole of the rural middle market forms Fullerton India’s targeted “missing middle” segment of customers.

- Micro Loans for rural women’s livelihood groups
- Loans for two-wheelers and commercial vehicles
- Mortgage Loans for the self-employed

“We developed a successful business model to participate in the large underserved market segments, particularly in the smaller markets across the vast Indian geography.”

Shantanu Mitra
Managing Director & CEO Fullerton India

Source: Fullerton Financial Holdings Annual Reports
Of the 18 community banks opened by BOC Fullerton in 2011, 16 are already profitable. Since then, an additional 36 community banks have opened in 2013. BOC Fullerton has been welcomed warmly by regulators, politicians, customers and the media as a beacon of innovation in rural financial services and has won numerous national awards in service, innovation and management.

Source: Fullerton Financial Holdings Annual Reports

**Key Operational Indicators**

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Operating Income</td>
<td>3,879.7</td>
<td>2,818.2</td>
<td>3,417.7</td>
<td>5,560.0</td>
<td>5,076.6</td>
</tr>
<tr>
<td>Profit for the financial year</td>
<td>1,375.5</td>
<td>615.1</td>
<td>1,006.1</td>
<td>3,238.6</td>
<td>2,809.4</td>
</tr>
<tr>
<td>Loans</td>
<td>10,914.1</td>
<td>11,551.5</td>
<td>13,378.3</td>
<td>15,993.5</td>
<td>16,564.6</td>
</tr>
<tr>
<td>Total Assets</td>
<td>36,506.4</td>
<td>46,990.0</td>
<td>48,250.8</td>
<td>41,195.4</td>
<td>40,881.4</td>
</tr>
<tr>
<td>Deposits</td>
<td>11,354.2</td>
<td>11,494.7</td>
<td>12,815.2</td>
<td>13,514.0</td>
<td>12,487.1</td>
</tr>
<tr>
<td>Net Assets</td>
<td>11,937.0</td>
<td>23,705.9</td>
<td>23,995.2</td>
<td>19,276.6</td>
<td>21,315.5</td>
</tr>
<tr>
<td>Return on Average Equity (%)</td>
<td>7.2</td>
<td>3.5</td>
<td>4.2</td>
<td>15.0</td>
<td>13.8</td>
</tr>
<tr>
<td>Return on Average Assets (%)</td>
<td>2.9</td>
<td>1.5</td>
<td>2.1</td>
<td>7.2</td>
<td>6.8</td>
</tr>
<tr>
<td>Cost-to-Income (%)</td>
<td>60.6</td>
<td>72.4</td>
<td>65.6</td>
<td>37.6</td>
<td>40.5</td>
</tr>
<tr>
<td>Net Operating Income per Employee</td>
<td>58.8</td>
<td>42.9</td>
<td>48.2</td>
<td>69.7</td>
<td>61.2</td>
</tr>
<tr>
<td>Number of Employees</td>
<td>65,871</td>
<td>65,737</td>
<td>71,454</td>
<td>79,811</td>
<td>82,910</td>
</tr>
<tr>
<td>Number of Branches</td>
<td>2,658</td>
<td>2,605</td>
<td>2,243</td>
<td>2,424</td>
<td>2,561</td>
</tr>
<tr>
<td>Entity</td>
<td>Country</td>
<td>Greenfield/ Acquisition</td>
<td>Total Assets (US$)</td>
<td>ROE</td>
<td>Shareholdings</td>
</tr>
<tr>
<td>-------------------------------</td>
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<td>---------------</td>
</tr>
<tr>
<td>Danamon</td>
<td>Indonesia</td>
<td>Acquisition (Jun 2003)</td>
<td>14.7b S$19.1b</td>
<td>14.3%</td>
<td>68%</td>
</tr>
<tr>
<td>Alliance bank</td>
<td>Malaysia</td>
<td>Acquisition (Mar 2005)</td>
<td>14.3b S$18.5b</td>
<td>13.7%</td>
<td>14%</td>
</tr>
<tr>
<td>NIB Bank</td>
<td>Pakistan</td>
<td>Acquisition (Feb 2005)</td>
<td>1.6b S$2.12b</td>
<td>8.5%</td>
<td>88.6%</td>
</tr>
<tr>
<td>Mekong Development Bank</td>
<td>Vietnam</td>
<td>Acquisition (Dec 2010)</td>
<td>297m S$386m</td>
<td>1.6%</td>
<td>20%</td>
</tr>
<tr>
<td>Fullerton India</td>
<td>India</td>
<td>Greenfield (Dec 2005)</td>
<td>1.2b S$1.28b</td>
<td>15.8%</td>
<td>100%</td>
</tr>
<tr>
<td>BOC Fullerton Community Bank</td>
<td>China</td>
<td>Greenfield (Feb 2011)</td>
<td>1.4b S$1.8b</td>
<td>-2.9%</td>
<td>10%</td>
</tr>
<tr>
<td>Fullerton Credit</td>
<td>China</td>
<td>Greenfield (Oct 2008)</td>
<td>378m S$491m</td>
<td>5.6%</td>
<td>100%</td>
</tr>
<tr>
<td>Dunia Finance</td>
<td>UAE</td>
<td>Greenfield (Jun 2008)</td>
<td>286m S$373m</td>
<td>29.3%</td>
<td>40%</td>
</tr>
<tr>
<td>Cambodia Post Bank Plc</td>
<td>Cambodia</td>
<td>Greenfield (Sep 2013)</td>
<td>129.7m S$99.2m</td>
<td>3.9%</td>
<td>45%</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Myanmar</td>
<td>Greenfield (May 2014)</td>
<td>NA</td>
<td>NA</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note: Data as of 31 Dec 2013.
Note: #2014 figures are stated for both Alliance and Cambodia Post Bank. 2013 ROE numbers are stated below 2014 figures.

Source: Fullerton Financial Holdings Annual Reports
The economy and the distribution of income

- Pope Francis, Evangelii Gaudium (EG) released Nov 26, 2013
- Thomas Piketty, Capital in the Twenty-First Century released May 2014
  - \( r > g \) theory of capital and inequality
  - \( r = \) rate of return of wealth
  - \( g = \) economic growth rate
  - Faster (slower) growth will increase (decrease) inequality

Inclusion is key to Growth!

Development

- World Bank: Financial Inclusion & Infrastructure, Global Remittances Working Group
- IMF
- UN Special Advocate for Development
- Alliance for Financial Inclusion: Maya Declaration, Global Policy Forum, Gates Foundation
- Asia Infrastructure Investment Bank (AIIB)
- ASEAN: with UNDP
- China
ASEAN Financial Inclusion Mandate

• That ASEAN countries develop comprehensive Financial Inclusion policies that may include the following:
  
  – a. Facilitating the provision of financial services by a diversity of regulated financial services providers, whilst encouraging reasonable innovation and monitoring risk.
  
  – b. Ensuring the delivery of a portfolio of financial services consisting of payments, savings, credit and insurance services that meet their needs, to households and small enterprises.
  
  – c. Promoting the development of financial sector infrastructure and distribution networks that can enhance reasonable physical access to financial services to the large majority of their population. This can include the promotion of electronic payments and branchless or agent banking options.
  
  – d. Taking special measures to assist women to access and use financial services.
  
  – e. Ensuring that financial services deliver value to households and small enterprises and are provided in a responsible and transparent manner, with appropriate consumer protection measures.

This egg-shaped aircraft can provide Wi-Fi to an entire city?

Virtually connecting everyone on the planet from space may sound like something from a sci-fi story, but looks like it may soon become a reality.

*It is able to provide Wi-Fi for an area as big as 8,000 square kms*, basically the size of Shenzhen and Hong Kong adding up, according to Kuang-Chi Science, the company that invented the aircraft.

Operated like a helicopter, the 42-meter-high “Cloud” will rise into the sky using the helium inside. There it will use the latest tech to connect optical fibers to the ground, making it possible for huge loads of data to travel up and down.
The future is in Asia and ASEAN

Tapping into informal savings for national growth

Source: Findex (2011)
*Source for Myanmar: FinScope (2013)
**Source for GDP per Capita: World Bank (2014)
The future is about financial inclusion

Convergence of growth and financial inclusion policy approaches

Source: Alliance for Financial Inclusion

The future is about lower (remittance and other) charges

Source: World Bank

The future is about “More Regulation for 30% and Less for the 70%”

Opportunities

- Growing alignment of interests among governments, private sector and global community
- Greater understanding on the issues related to financial inclusion as well as more data
- Recognition of country specific conditions and developing and emerging countries led approaches
- More open communications with International Standard Setting Bodies
- Technological innovation and enabling regulatory framework

LASIC + Financial Inclusion = Growth
Let Us Learn from the Disruption in Finance!

E-Commerce
Telecom
Alternative Finance
Decentralised Finance

The Future

• Digital Currency
  – a type of money, which is stored in a digital or electronic register, that may or may not be exchanged for fiat currency

• Cryptocurrency
  – a type of programmable Digital Currency that relies on cryptography for chaining together digital signatures (maintaining a electronic ledger) of token transfers
  – Cryptography is used to ensure the token spent is recorded on the register and is never spent twice

Centralised, Decentralised or Distributed?

- **Centralized (A)**
- **Decentralized (B)**
- **Distributed (C)**

Sourced from Internet
Singapore banks need to quicken response to disruptive innovations

They must harness digital technology and practise financial inclusion to grow their business. **BY DAVID LEE**

Bitcoin and blockchain are now recognised as a powerful technological innovation that could save costs and improve productivity, as well as reducing the risks associated with a single point of attack by hackers. Within a year, the discussion has switched from bitcoin being an invention by libertarians and cypherpunks, to it being an innovative idea that could irrevocably change the finance industry. The discussion on Bitcoin now centres on productivity improvement that reduces business costs and making money from the hitherto unprofitable business of serving those who were traditionally underserved or underserved by financial institutions.

Backed by its huge cash holding and enviable fund-raising ability, Alibaba has the potential to spread its wings far and wide. PHOTO: REUTERS
In May, thought leaders and industry practitioners from the 2014 Cryptocurrency Conference once again converged at SMU to discuss how the blockchain and consensus ledger (which originated from cryptocurrency) could become a productivity enhancer and game changer. One conclusion derived from the conference was that cryptocurrency is an invention waiting to be harnessed, with incredible implications for cyber security and the Smart Nation. Dr Balakrishnan's address pointed to the immediate changes that are needed, in regulation as well as the way financial institutions function, in view of the challenges brought about by the new digital economy. New challenges are also coming from e-commerce and telecom companies.
# Block Chain and Consensus Ledger

<table>
<thead>
<tr>
<th></th>
<th>Centralised</th>
<th>De-centralised</th>
<th>De-centralised</th>
<th>Distributed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Who do I trust to maintain a truthful record?</strong></td>
<td>A central authority</td>
<td>A group of known actors</td>
<td>A group of actors, some known</td>
<td>Nobody</td>
</tr>
<tr>
<td>Ownership of on-platform assets</td>
<td>Central Bank, Commercial Bank</td>
<td>Ripple (XRP)</td>
<td>Colored Coins, Counterparty</td>
<td>Bitcoin</td>
</tr>
<tr>
<td>Ownership of off-platform assets</td>
<td>Custodian Bank</td>
<td>Hyperledger</td>
<td>Ripple (Gateways)</td>
<td>Colored Coins, Counterparty</td>
</tr>
<tr>
<td>Obligations and rights arising from an agreement</td>
<td>Clearing House</td>
<td>Eris</td>
<td>Ripple (Codius)</td>
<td>Ethereum</td>
</tr>
</tbody>
</table>

Source: Richard Brown

https://www.youtube.com/watch?v=RdGH40oUVDY

Big Ideas: Sharing Economy

- Decentralised Financial Software: XRP, Ethereum, Stellar
- Decentralised Social Network: Gems
- Decentralised iTunes: Bitshares Music Foundation
- Decentralised CrowdFunding: Swarm, Counterparty, Colored Coins, Ripple
- Decentralised Exchange: Counterparty
- Decentralised Storage: Maidsafe, Storj
- Decentralised Ledger: Hyperledger, Open-Transaction, Tillit
- Blockchain 2.0 crowdfunding for a sharing economy using the concept of Decentralised Autonomous Company with CryptoEquity
- As shareholders, you grow with the company as the network expands
- Popular for Digital assets: Music, Video, Social Network

Must Read

- BITCOIN AS A SMART CONTRACT PLATFORM
- THE VALUE OF REPLICATED, SHARED LEDGERS FROM FIRST PRINCIPLES
- [http://gendal.me/2015/03/30/bitcoin-as-a-smart-contract-platform/](http://gendal.me/2015/03/30/bitcoin-as-a-smart-contract-platform/)
Electronic Contract Signing without Using Trusted Third Party

Zhiguo Wan¹, Robert H. Deng² and David Lee¹

Sim Kim Boon Institute for Financial Economics¹,
School of Information Science²,
Singapore Management University

Abstract. Electronic contract signing allows two potentially dis-trustful parties to digitally sign an electronic document “simultaneously” across a network. Existing solutions for electronic contract signing either require the involvement of a trusted third party (TTP), or are complex and expensive in communication and computation. In this paper we propose an electronic contract signing protocol between two parties with the following advantages over existing solutions: 1) it is practical and scalable due to its simplicity and high efficiency; 2) it does not require any trusted third party as the mediator; and 3) it guarantees fairness between the two signing parties. We achieve these properties by seamlessly incorporating a resilient PKI (Public Key Infrastructure) and a trustworthy timestamping service in our protocol, where the timestamping service can be either centralized or decentralized. We also provide a detailed analysis on security and performance of the proposal.
Future of Finance: LASIC

- **L**: Sticky Business with Customers that Need Simple, Excellent User Experience, Almost No Cost and Connected to Social Media
- **A**: Backed by E-commerce, Telecom or Companies with High Trading or Usage Volume
- **S**: High Growth in Large Population, Transition and Emerging Economies
- **I**: High Mobile Finance Penetration Brought by Creative Technology and Disruptive Business Models
- **C**: High Growth Aided by Political Agenda and Social Environment of Anti-Income/Wealth Inequality

Future of Finance

• Growth in Decentralised, Internet Finance, Digital Currency, and Sharing Economy
• Sustainability driven by the Financial Inclusion and Economic Growth agenda
• Alignment with global government mission to serve the 70% of 7B people globally and 3.1B people in Asia (4.9B globally and 2.2B in Asia)
• Infrastructure that has no single point of hacking or disruption!

The Near Future:
**Low Margin, Asset Light, Scalable, Innovative, Compliance Easy**

Meantime, LASIC predicts that disruption rules and global productivity remains low!

Acknowledgement and Disclaimers

• Information, Diagrams and Pictures are taken from different sources for research purposes
• This presentation should be read in conjunction with Sim Kee Boon Institute for Financial Economics research reports that provide detailed references and acknowledgement
• David Lee and Ernie Teo (2015): “The LASIC Principle for Serving the 70% Underserved”
• David Lee and Ernie Teo (2015): “The Rise of Alternative and Internet Finance”
• This presentation is not a solicitation for investment
• David Lee and associates act as advisors to FinTech companies with shareholding interest