S Vaidyanath Aiyer Memorial Lecture
SIRC 2014

Financial Markets Structure & Underpinnings: How Efficiency & Inclusion drive growth

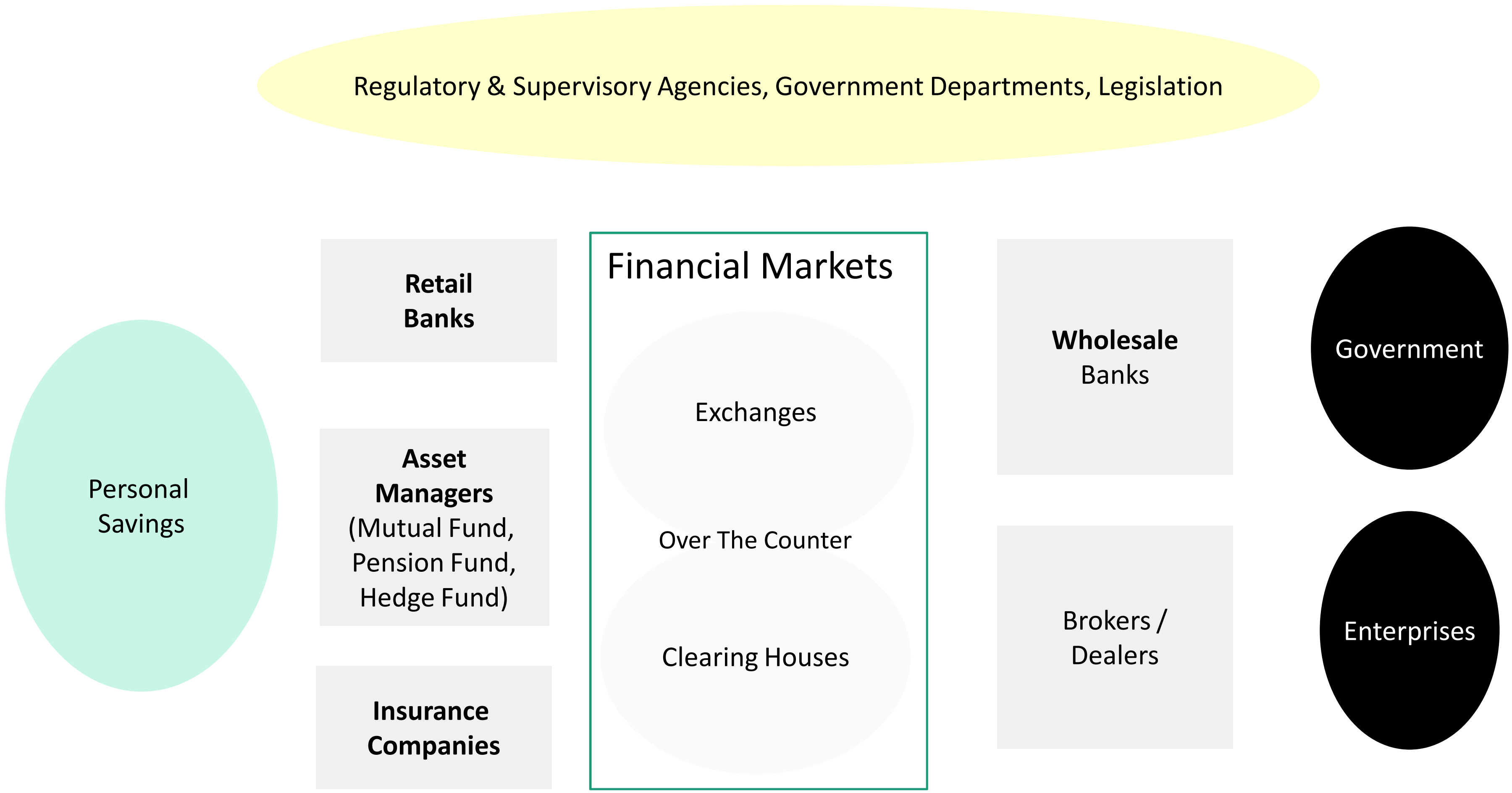
Dr. P. T. Rajan
30th October 2014

Overview

- Why do we need Financial Markets
- Structure of the Financial Services Sector
- Underpinnings of Equity & Debt Markets
- Market Development & Impact on Growth
- Inclusion and Impact on Growth
- Status Report on India’s progress
- Role of CA’s
- Financial Innovation: Global Extent & Impact

Life Cycle of Consumption & Income

A Macroeconomic Model of Financial Services



How markets promote growth – Macro level

- In any country where GDP growth is positive, the collective scale of Government + All Enterprises must be expanding (& capital needs are growing)
- In any country where per-Capita GDP is growing, the aggregate of investable savings must be rising
- The efficiency of the Financial Services sector overall, and Financial Markets in particular will determine the extent of productive allocation of these rising savings to growing needs

Cash Securities: Equity vs. Debt

Equity (shares)	Debt (Bonds)
Ownership	Lender / Creditor
Last to get paid back if unwound	First to get paid back if unwound
Limitless upside with success	Upside capped at Interest Due
Usually traded on Exchanges	Usually traded Over-The-Counter
Widely held, many small investors	Usually Institutional Investors
Usually good buy/sell liquidity	Dealer dependent buy/sell liquidity
Bought a Call Option on Enterprise	Sold a Put Option on Enterprise
Premium: Share Price	Premium: Coupon (Interest)
Strike: All Non-equity Liabilities	Strike: All Non-equity Liabilities
Investor: Optimist	Investor: Pessimist

Underpinnings of Equity Markets

- Regular publication of timely and reliable Financial Statements (ideally once every quarter)
- Price transparency, ease of transactions at low cost
- Evidence of "Absence-of-Arbitrage"
- Stringent regulatory oversight with timely and proportional consequences for violations
- Investor Rights / Effective Governance
- Level playing field, and widely-held perception of level playing field (especially access, information)

Underpinnings of Debt Markets

- Regular publication of timely and reliable Financial Statements (ideally once every quarter)
- Clear baseline rate curve established through a liquid market in government debt securities
- Precedents to resolve/work-out business failures
- Timely and predictable legal system
- Enforceability of Contracts & Court Orders
- Clarity on property rights and transfers

Why Market Debt is vital

Fundamentally different relationships between lender & borrower

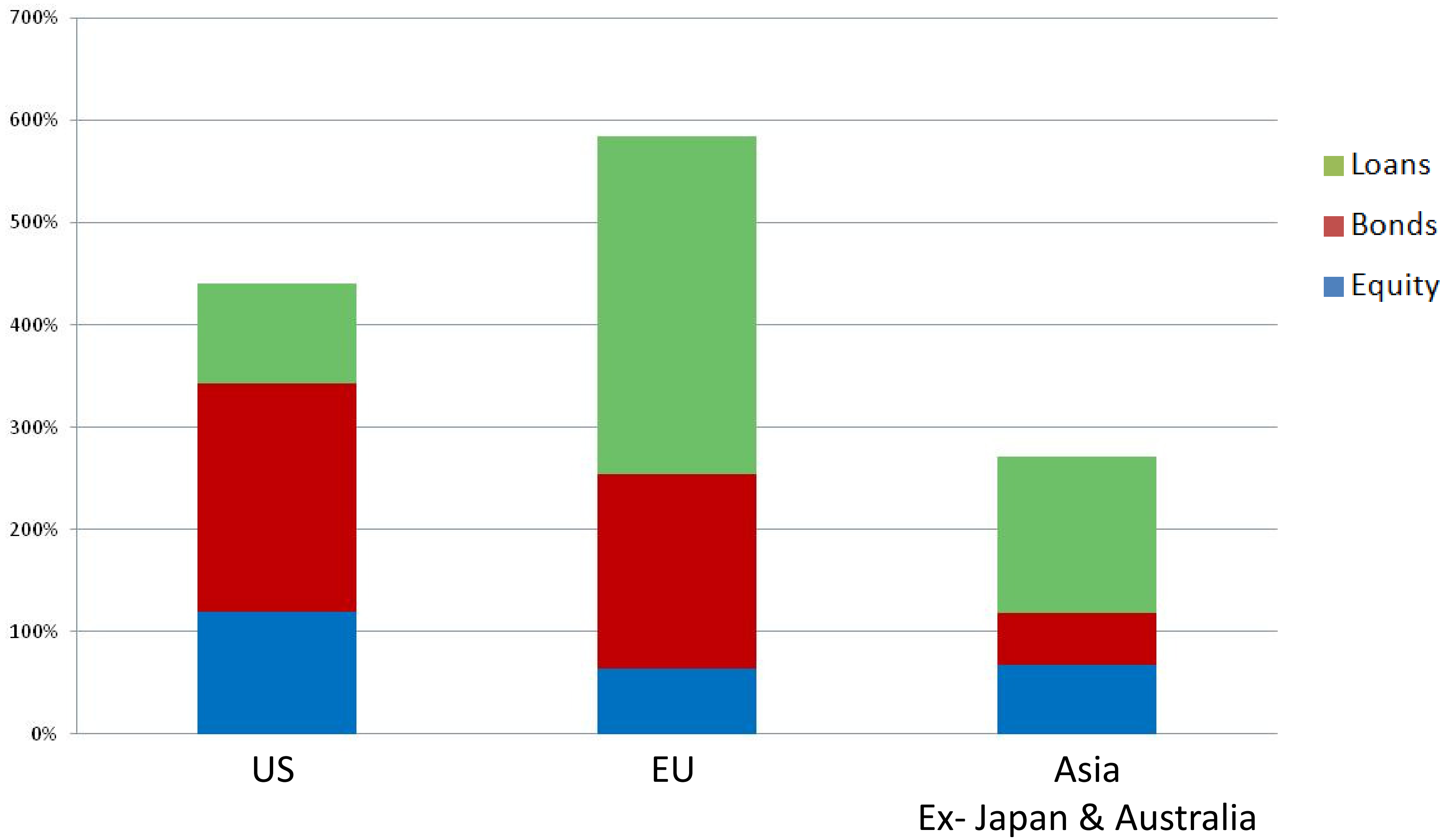
- Bank financing (Loans)
  - Access to Private information, Greater monitoring and control of borrower
  - Long standing relationship
  - Commitment to maturity (buy & hold)
  - Maximum size constraints, Maximum maturity (Life of loan) constraints
- Market Financing (Bonds, Commercial Paper, etc.)
  - Access only to Public information, No monitoring ability (except adherence to covenants)
  - No prior relationship, arms-length now at best
  - **Larger pool of participants – therefore greater maximum size per issue**
  - **Able to consider much longer maturities due to nature of liabilities (Insurers, Pension Funds), and Secondary Market exit possibilities**
  - Usually not held to maturity
    - Underlying needs for secondary trading (dealers, repo market)

Financial Development Indicators - Sample

Measure	Financial Institutions	Financial Markets
Depth	Deposits to GDP Private Sector Credit to GDP	Stock Market Capitalization to GDP Private/Public Debt Securities to GDP
Access	Accounts per 1000 Adults % of firms with line of credit	% of Market Capitalization ex-top 10 Govt. Bond Yield (3 month, 10 year)
Efficiency	Net Interest Margin Lending-Deposit Spread	Turnover Ratio Liquidity/transaction costs
Stability	Capital Adequacy Ratios Liquidity Ratios	Volatility Price/Earning Ratio

Source: World Bank

Market Depth as a % of GDP - 2012



Source: World Bank and Bank for International Settlements (BIS)

How markets promote growth – Practical level

- Larger pool of Capital at Lower Cost
- Debt markets are deep even at duration extremes
  - Long-term debt - 30 yr., 50 yr., perpetual bonds
  - Utilization of short duration liabilities for matched assets
- Availability of financing at every risk/return profile
  - From Venture Capital through Leveraged Buyouts
- What is that worth in a Capital-constrained economy
  - Conservatively, 1% increase in GDP per year ?
  - How many additional jobs ?

Where does India stand today – Debt

- Current Development/Efficiency Grade: D
- Corporate Debt market is practically non-existent
- Limitations are structural, very difficult to fix
  - Property rights, legal system, workout procedures
- Crutch: directed lending at nationalized bank
- Sahara case a rare bright spot promising change
- Ratio of Public:Private financing of corporate debt
  - US - 80:20; EU – 50:50 (post integration & Euro); Japan – 30:70; India – 10:90

Where does India stand today – Equity

- Current Development/Efficiency Grade: B
- Quantitative measures quite poor, but qualitative and event-related evidence of improvement
- BSE / NSE discrepancy in prices – clear indicator
- Even in a hot market, QIP takes in more than IPO
- Starting to see bans for insider trading (Factorial)
- Recent DLF IPO-related activities signal teeth
  - Overall market reacted positively despite DLF drop
  - Size of target & scope of indictment, despite long delay

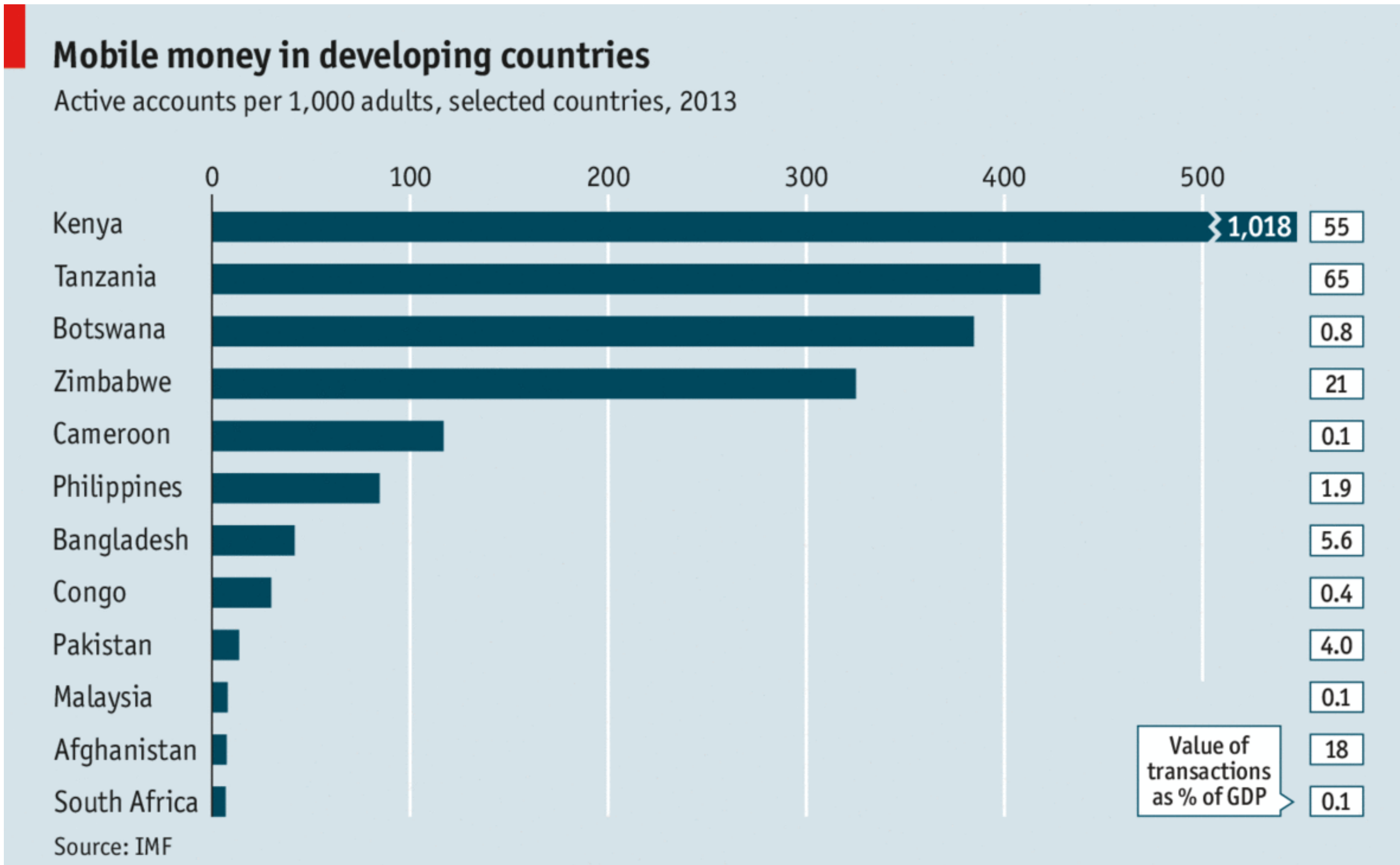
How Inclusion promotes Growth

- Greater pools of liquidity
  - more of which will eventually reach the markets
- Reduces deadweight loss for many, on many fronts
  - Lowers theft, transaction costs, usury, etc.
- Increases diversity of positions and risk
  - e.g. farmers are only natural sellers of agri product futures
- Strengthens Democracy
  - Fairer distribution of opportunities & benefits of growth
  - Especially if Piketty (2014) is right and $r > g$

Where does India stand today - Inclusion

- Current Grade (relative to Asia & Developing): C
- Small proportion of population that owns market equity or debt (excl. nationalized channels like LIC)
- Capture through government run pension schemes such as EPF also low, though slowly changing
- Government schemes laying stepping stones
  - UID (Aadhaar), Jan Dhan Yojana
- New channels & technologies open exciting leapfrogging possibilities
  - e.g. Mobile Money & Payments

The impact of mobile money



Source: Economist Magazine

CA's actions impact markets massively – positively and negatively

- First underpinning for both Debt & Equity markets: Timely and Reliable Financial Statements
- Complexity rising exponentially
  - Emerging business models, Financial Engineering
- Offset by improvements in technology and evolution in accounting frameworks (IFRS, etc.)
- Spotty history w/ meaningful lessons
  - Enron, Tyco, Worldcom, Qwest
  - Satyam

Potential impact of Efficiency & Inclusion

- Compare Per Capita GDP (USD PPP) 1991 & 2013
    - India: 1,180 (‘91) – 5,350 (‘13); Effective CAGR: 7.11%
    - China: 1,070 (‘91) – 11,850 (‘13); Effective CAGR: 11.55%
- If Efficiency & inclusion (Debt: D→C, Equity: B →A-, Inclusion: C →B) added 1% to GDP CAGR
- Then India CAGR @ 8.11%; India 2013 GDP = 6,560
- Or the average person in India would be ~ 23% better off than they are today (in purchasing power)
- India would be at ~ 55% of China, instead of ~ 45%

GDP Data: World Bank

Major Innovations in Financial Markets (1980's – Present)

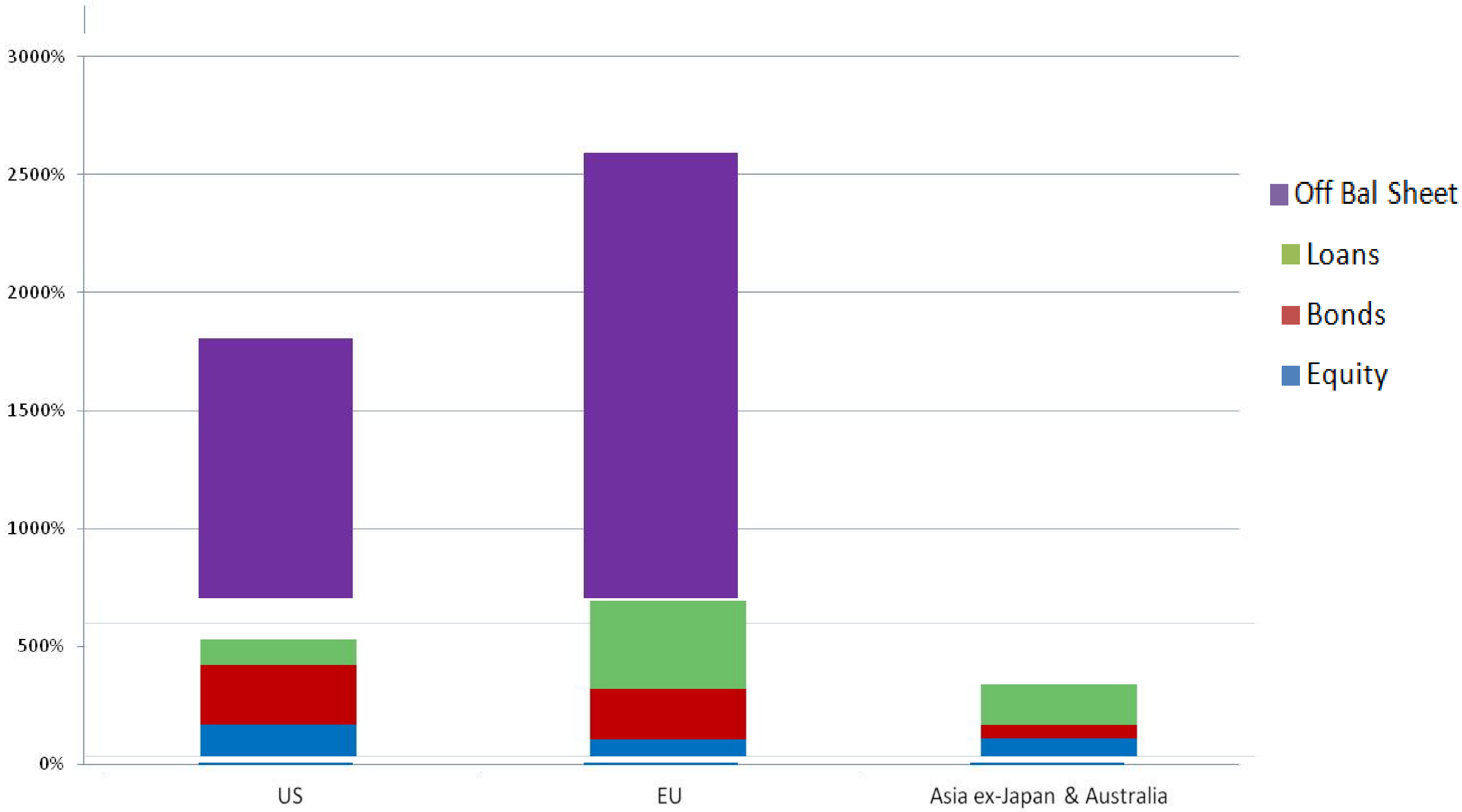
- Securitization
  - Leads to capital efficiency, lowers cost of capital, eases credit across system
- Derivatives Technology & Applications
  - Enables leverage, brings in new players, 2-sided markets
- Globalization
  - Allows portfolio risk diversification for every institution that is systemically important

The benefits of Financial Innovation

Potentially beneficial to everyone at different levels – but with enhanced systemic risk

- A further shift from bank financing to market financing – some through banks (originators)
- Corporations
  - Access to larger pool of capital w/o greater cost– in some cases lower cost (w/ added risk)
- Consumers
  - Significantly lower cost of capital – mortgages, auto loans, etc.
- Asset Managers
  - Asset Diversification – especially across regions
- Commercial & Retail Banks (Employees, Shareholders)
  - Increased Balance Sheet Turnover, greater return on equity / regulatory capital
  - Enhanced risk management
  - Competitive edge for those that can (take market share) compared to those that cannot
- Broker/Dealers (Employees, Shareholders)
  - Securitization Fees
  - Secondary Trading revenues, Principal Risk opportunities
- The Economy !!
  - More efficient allocation of capital leading to greater growth rates

Market Depth as a % of GDP - 2012



Source: World Bank and Bank for International Settlements (BIS)

Potential impact of Innovation, with Crisis

- Compare Per Capita GDP (PPP) 1991 & 2008
  - India: 1,180 (‘91) – 3,800 (‘08); Effective CAGR: 7.12%
  - China: 1,070 (‘91) – 7,480 (‘08); Effective CAGR: 12.12%
- If Markets efficiency & inclusion (Debt: D→B, Equity: B →A-) + Innovation added 2% to GDP CAGR
- Then India CAGR @ 9.12%; India 2008 GDP = 5,203
- If Price for Efficiency: Crisis as bad as US in 2008
  - Massive recessions leads to 4.25% GDP decline
- New India 2008 GDP = 4,982 after massive crisis
- Average person would still be > 30% better off
  - Would now be at 67% of China instead of 50%