• The world market for coins
• Market Demographics
• Euro Coins and other trends
• Cost of Coins - various case studies
  – production issues
  – Recirculation and recycling
• Counterfeits and authentication
• The future of Coin – challenges and opportunities
COIN CIRCULATION VOLUMES(M), 2012/13

USA 146,000*
UK 28,849
Euro 102,032
Sweden 1,900
Switzerland 4,849
Russia 54,101
Turkey 3,187
China 229,000*
Japan 88,487
S. Korea 20,390
Hong Kong 5,627
Singapore 4,363
Australia 10,401

Total Major Currencies, mln
~803,000

Other countries (est.), mln
~43,000

GLOBAL TOTAL
~846,000

* SMI estimate

Copyright 2013: Secura Monde International Ltd
ANNUAL COIN DEMAND, 2012
(MS OF PIECES)

Total Major Currencies, mln
~32,000

Other countries (est.), mln
~10,000

GLOBAL TOTAL
~42,000 based on 25 year lifespan

Copyright 2013: Secura Monde International Ltd
## WORLD (CIRCULATING) CURRENCY PRODUCTION

<table>
<thead>
<tr>
<th></th>
<th>COINS</th>
<th>BANKNOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual Volumes</strong></td>
<td>50 billion</td>
<td>150 billion</td>
</tr>
<tr>
<td><strong>Annual Growth Rate</strong></td>
<td>unknown</td>
<td>4 to 5%</td>
</tr>
<tr>
<td><strong>Commercial prod. Coin Blanks/Substrates</strong></td>
<td>8</td>
<td>10 (50%)</td>
</tr>
<tr>
<td><strong>Government Mk prod. Coin Blanks/Substrates</strong></td>
<td>4</td>
<td>16 (50%)</td>
</tr>
<tr>
<td><strong>Commercial producers Currency</strong></td>
<td>1 (&lt; 1%)</td>
<td>8 (17.5%)</td>
</tr>
<tr>
<td><strong>Government Producers Currency</strong></td>
<td>56 (99%)</td>
<td>55 (82.5%)</td>
</tr>
</tbody>
</table>
## The Euro from Launch to Present Day

<table>
<thead>
<tr>
<th></th>
<th>Banknotes</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Volume (billion)</td>
<td>Value (billion)</td>
<td>Average value</td>
<td>Volume (billion)</td>
<td>Value (billion)</td>
<td>Average value</td>
</tr>
<tr>
<td>2002</td>
<td>7.47</td>
<td>€246.5</td>
<td>€33</td>
<td>35.2</td>
<td>€11.4</td>
<td>€0.32</td>
</tr>
<tr>
<td>2014</td>
<td>15.85</td>
<td>€940</td>
<td>€59.3</td>
<td>106.0</td>
<td>€24.1</td>
<td>€0.23</td>
</tr>
<tr>
<td></td>
<td>+112%</td>
<td>+79.7%</td>
<td>+201%</td>
<td></td>
<td></td>
<td>-28%</td>
</tr>
</tbody>
</table>

2007 to 2011, 7 countries joined the original 12 but they only account for 10m of the 333 m population and 4.6% of GDP.

Some other small countries have adopted the Euro, Monaco, San Marino, Vatican City, Andorra, Kosovo and Montenegro.

25% of banknotes circulate outside of Europe.
EURO BANKNOTES – GROWTH FROM 2008 AND LAUNCH (SOURCE ECB)
EURO COINS – GROWTH SINCE 2008 AND LAUNCH (SOURCE ECB)
US MINT COIN PRODUCTION FOR CIRCULATING COINS

ANNUAL PRODUCTION TOTALS (MILLIONS)

source: CoinNews.net

Copyright 2014 - Currency Research
## COST OF COINS - WHO HAS DONE WHAT?

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>COSTS Prod/circ</th>
<th>DESIGN Size/weight</th>
<th>DENOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Hungary (also HTO scheme)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Sweden</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Philippines (logistical)</td>
<td>Y</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Canada</td>
<td>Y</td>
<td>-</td>
<td>Y</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>USA (another review of notes/coin)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>El Salvador</td>
<td>Y</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
US CONTROVERSY REGARDING THE $1
EVOLUTION OF THE $1 FEDERAL RESERVE NOTE LIFE

source: Federal Reserve Board
BREAKEVEN EFFICIENCY ANALYSIS OF THE $1 NOTE AND THE $1 COIN

source: Federal Reserve Board
EL SALVADOR - $1 COIN REPLACES $1 BILL
SUMMARY OF CHANGES IN VOLUMES AND COSTS – EL SALVADOR

IMPORTED VOLUME (Millions)

EXPORTED VOLUME (Millions)

AHORROS GENERADOS
(Dif. Costo actual con respecto a costo Billete $1)

<table>
<thead>
<tr>
<th>Año</th>
<th>Ahorro</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>47.3%</td>
</tr>
<tr>
<td>2012</td>
<td>57.4%</td>
</tr>
<tr>
<td>2013*</td>
<td>74.5%</td>
</tr>
</tbody>
</table>

* Estimado
COST OF PRODUCTION – KEY MATERIAL PRICES
COST OF PRODUCTION – COPPER PRICES

Copper 3m ($) last 10 years

www.fastmarkets.com

Copper 3m ($) last month

www.fastmarkets.com
COST OF PRODUCTION – NICKEL PRICES

Nickel 3m ($) last 10 years

www.fastmarkets.com

Nickel 3m ($) last month

www.fastmarkets.com
COST OF PRODUCTION – PRICE DRIVERS

RISING COST OF COIN

- Cost of metals rising/volatility
- Low denominations in alloy cost more than face value (Cu/Ni, Zn/Cu-brass, Cu/Sn-bronze)
- Move towards plated steel coins – Ni and Cu plated
- Move to smaller and lighter coins

ISSUERS/COIN CYCLE

Central Banks + coin cycle stakeholders want lower costs
COST OF PRODUCTION - IMPLICATIONS OF THE CHANGE

- Lower material cost from plating
- Coin change → infrastructure cost like upgrading vending/sorting m/cs etc
- Lack of homogeneity/Product Differentiation (IP/tendering implications)
- Sensor verification of plated coins less reliable
- Other cost issues – banknotes are recycled/renewed regularly, coins re-circulated infrequently/sometimes never!
CIRCULATION ISSUES

Coins high cost - sorting/weight/distribution

PHILIPPINES

- Coins stored and not circulated
- Shortage of small denoms results in sweets given instead of coin
- Public awareness campaign launched
- More coins are available now...
INCREASE CIRCULATION

SINGAPORE

Providing convenience to deposit coins

Source: The Singapore Mint
INCREASE CIRCULATION

COINS STATISTICS
(WITH COIN DEPOSIT MACHINE)

Coin Return per year (100% increase):

- **average 244 million pieces**
- 1,070 Metric Tonnes
- **Metal Cost** – USD 11,500,000
- **Blank Conversion** – USD 2,400,000
- **Coin Minting** – USD 2,600,000

- **TOTAL** - USD 16,500,000 (per year)

Investment cost for CDM - USD 3,000,000 (per year)
To stimulate circulation:
• Attract customers to circulate
• Make it easy for the banks and retailers
• Make the cost attractive for all parties
• Coin deposit machines & coin roll dispensers – a CIT provided service?
OUTSOURCING COIN OPERATION

• Coin seen as ‘undesirable work’

WHY

• Small value
• Heavy to handle
• Increasing number
• Higher transport costs to move
• Banks not investing in coin handling machines
What is coin/note boundary?

What to consider?

- Taking account of inflationary rises
- Will it have an effect on inflation
- Public preference - banks, CMCs, retailers, ticketing & vending machines, consumers
- Life time cost of coin versus note
- Authentication technology
Consider rounding to the higher denomination?

• Inflation has reduced their worth

• Users no longer wanting very small denomination coins

• High production cost – negative seigniorage

• Elimination results in fewer coins in circulation and savings to all stakeholders

• Increases public perception of coins – less nuisance more value. Examples.

• BUT – lower volumes for mints unless note/coin boundary moves (eg in USA 1 cent = 6.0b of 9.3b)
COUNTERFEIT COINS

• Large denomination coins are targeted
• What can the industry do/ is doing?
• Overt or Covert features – public or machine – country infrastructure dependant
• Do people relate to/look at coins – No not normally until it becomes a public issue as in the UK then some do look!
• Overt – new technologies - Minted Security Printing, Multi-View, Micro-text, Laser Marking- latent images
• Covert – EMS, CoinDNA, CoinTune, iSIS
BUT HOW SERIOUS IS COIN COUNTERFEITING IN TERMS OF COST?

- Overall value of counterfeit coins taken out of circulation in the Eurozone in 2012
  - Euro 288,000 or
  - 184,000 pieces out of 102 billion coins in circulation
  - Compare with counterfeit banknote value (cost)
**HOW SERIOUS IS COIN COUNTERFEITING?**

<table>
<thead>
<tr>
<th>Denomination</th>
<th>Volume in Circulation</th>
<th>Volume of Counterfeits</th>
<th>Number of Counterfeits per million</th>
</tr>
</thead>
<tbody>
<tr>
<td>€1 Coin</td>
<td>6,477m</td>
<td>27,510</td>
<td>4.25</td>
</tr>
<tr>
<td>€2 Coin</td>
<td>5,045m</td>
<td>119,000</td>
<td>23.59</td>
</tr>
<tr>
<td>€5</td>
<td>1,607m</td>
<td>2,680</td>
<td>1.67</td>
</tr>
<tr>
<td>$50</td>
<td>6,694m</td>
<td>234,500</td>
<td>35.03</td>
</tr>
<tr>
<td>All coins</td>
<td>105,963m</td>
<td>175,900</td>
<td>1.67</td>
</tr>
<tr>
<td>All banknotes</td>
<td>15,773m</td>
<td>670,000</td>
<td>42.48</td>
</tr>
</tbody>
</table>

Copyright 2014 - Currency Research
FUTURE OF COIN

Same as Future of Banknotes....

Alternative Payment Options Loom!
THE CHALLENGE

Coin has to be...

- Secure
- Relevant/User friendly
- Cost-effective
- In-circulation

And improve its public image/standing/perception

Cash payments in general – Challenging times ahead!
Thank You