



**EPIA**

## **2nd International Conference on Solar Photovoltaic Investments**

**Capital markets financing versus bank debt financing for solar photovoltaic projects**

Frankfurt/M. – 19th & 20th February 2008



## Financing needs in the photovoltaic value chain

- **Manufacturers**
  - Medium, long term financing of fixed assets
  - Working capital financing
- **Developers, distributors, contractors**
  - Working capital financing
  - Project related bridge financing
- **Photovoltaic system owners**
  - **long term (non-recourse project) financing**



# Photovoltaic systems owners

## Financing challenge



- Private households
  - Small size typically individual financial evaluation typically not warranted
  - Legal separation and operation of photovoltaic system from roof owner
- Large (typically) roof mounted for photovoltaic systems where the space is owned by corporate/governmental entities
  - Legal separation and operation of photovoltaic system from space/roof owner
  - Financial evaluation
- IPPs
  - Financial evaluation

**=> Fokus non recourse financing: IPPs and larger photovoltaic systems mounted on corporate/government owned spaces/roofs**



# Volume non recourse project financing until 2010

## Assumptions



- **Foreseeable, adequate feed in tariffs systems in key markets**
- 12.000 -16.000 MWp total installation
- EUR 4 - 6 mn investment per MWp
  - Medium, long term financing of fixed assets
  - Working capital financing
- Large roof mounted photovoltaic systems share: 10 – 20 %
- IPP share: 10 – 20 %
- Debt ratios: 80 – 90 % (engagement of strategic investors/utilities providing on balance sheet financing?)



# Volume non recourse project financing until 2010

## Conclusions



- Total market size non recourse debt financing
  - Large roof mounted systems: EUR 4 – 18 bn
  - IPP: EUR 4 – 18 bn
- Project financing debt market for photovoltaic systems so far dominated bank debt (bilateral, club, syndicated)
- Strong incentive to broaden „investor base“ for both equity and debt project financing in order to
  - achieve attractive financing terms/conditions => increase project value
  - secure financing

**=> Securisation**



# Securisation

## Basic structure



- Sale of photovoltaic systems to a Special Purpose Vehicle (SPV)
- Structuring of the financing of the SPV in different tranches with different risk profile/seniority => which tranche is repaid first?
- Creation of freely tradable „certificates“ outlining the terms for each tranche
- Sale of the certificates to investors ie institutional investors, other banks, private individuals etc. targeting specif investor expectations for risk/return profiles





## Securisation versus bank debt

- High level of standardisation projects in the SPV (ie in terms of legal project documentation and risk relevant parameters)
  - Extensive due dilligence
  - Ratings?
  - Detailed prosepctus outlining investment proposal and risks
- => (Initial) cost/effort of setting up securities structure higher for bank debt





## Securisation versus bank debt

- Once scheme established clear parameters for project standards and documentation for additional assets
- No dependance on „risk/asset appetite“ of individual banks
- Potentially lower all in financing cost as
  - investor groups with potentially lower ROI expectations than banks are targetted and
  - the asset is far more „liquid“ that regular bank debt (=> also banks investing are potentially prepared to accept lower margins)





## Conclusions

- Due to large volumes of photovoltaic systems investments to be expected strong incentive to broaden investor base through securisation with the aim both to reduce all-in financing cost and gain additional security and transparency in the financing process
- Standardisation both in terms of evaluation of project risk (i.e. standardised certification and „rating“ of technology) and legal documentation facilitates securisation





# Thank you for your attention

Christian Junior  
Center of Competence – Renewable Energies  
Ness 7-9, D-20457 Hamburg  
+ 49 40 3683 4985  
[christian.junior@commerzbank.com](mailto:christian.junior@commerzbank.com)

