Intellectual Property Finance and Valuation

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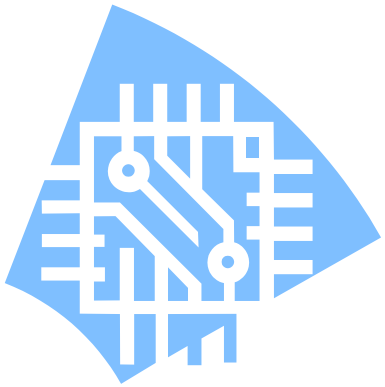


1.Intellectual Property Worth

➢ Value

- Value changes greatly with needs of the company
- Value is relative (not absolute)
- Value is determined by the vision of company
- Vision serves as standard for measuring value
- Time is also important element

Due Diligence of Intellectual Property

- **Separability**
- Legal right
- Creation capability of cash flow
- Existence of excess benefit
- Risk assessment
- Economic life
- Invention by employee clearance

Value Acquired from Intellectual Property

- **Cash flow**
- **Reputation** and image
- **Access to technology** which other company holds
- **Evasion of lawsuit**
- Cost reduction
- Competition prevention
- The barrier to entry to potential competition partner
- Access to other market
- Leadership in the field

Value of Intellectual Property

Decision-making objectives

1. cash flow
2. contribution to corporate value
3. strategic value

Important to clarify for what purpose valuation is carried out

Difficulty of Intellectual Property Valuation

- Worth of intellectual property changes with the usage or users
- Value decreases rapidly by external factors, such as technological innovation
- Worthless by invalid trial decision
- Operation period is unstable
- Cash flow is unstable

2.Qualitative & Quantitative Valuation

① **Qualitative Valuation**

Relative valuation (novelty, progressiveness)

For research & development expenses and decision making

② **Quantitative Valuation**

Financial valuation (Money)

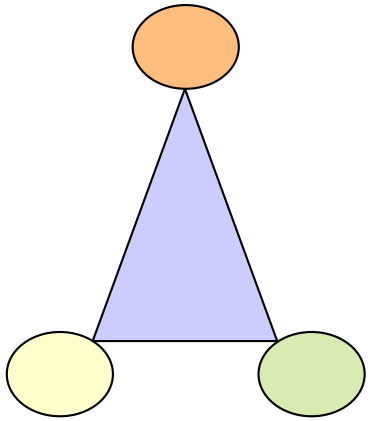
For license, transfer, compensation for damages, financing

①Qualitative Valuation

(1) Technological Viewpoint

(2) Legal Viewpoint

(3) Marketing Viewpoint



(1) Technological Viewpoint

- Stage of development

  research, basic, applied, developed period

  Development risks (development stopped in the middle)

  Completion risk (speed)

  Fit to market needs

(1) Technological Viewpoint

- Predominance to prior technology

  superiority of problem solving,

  magnitude of innovation (sustainability)

- Status comparison

  Fundamental vs. Improvement

  performance, cost, quality,

  expansion to other technology

(1) Technological Viewpoint

(1) Core

long-term core (essential patents)

(2) Complementary technology

(3) Surrounding technologies:

complementary or surrounding technologies sometimes can form new cores

(4) Defense patent

(1) Technological Viewpoint

- Standardization
- Imitation difficulty
- Obsolescence risk (remaining duration)
- Additional development investment cost

(2) Legal Viewpoint

- Strong and large range
- Strong implement ability
- Low infringement possibility
- Effectiveness

(3) Marketing Viewpoint

- Existence & Scale expansion
- Market potential
- Value for customer(PLC)
- Sustainability
- Competitiveness
- Complement and compatibility
- Network, spread
- Entry barrier

3. Quantitative Valuation Methods

(1)Cost Approach

Reconstruction expense method, replacement cost method, the historic cost method

(2)Market Approach

Similar dealings comparison method,

per-share earning ratio method

(3)Income Approach

DCF method, excess profit method

(4)Patent Grading Indication Approach

Patent score method

(1) Cost Approach

- Calculates with historical cost

- Typical cost : material cost, labor costs, factory, consultant, advertising expenses

(1) Cost Approach

- Historical cost method
  - Which portion of expenses contributed to acquisition of patent right
  - Determination of when certain project started and when completed
  - The assignment rate of allocation to indirect costs, such as head office cost

  are difficult

(1) Cost Approach

The important matter

- Risk is not reflected
- Even if it spends cost of same class, the same effect is not necessarily acquired
- The result of succeed or lost is not reflected
- Should correspondence to obsolescing and worthless

(1) Cost Approach

◆ When cost approach is suitable

- When it is difficult to predict the income based on intellectual property
- When not move for third party
- When developed for inside use or it cannot resell

(2) Market Approach

- The most objective, since it is based on actual market price
- Similar dealings are used when market price cannot be used directly

"Similar type-of-industry " or

"similar company ratio " is used

Example:

Earnings-per-share × similar company PER

= anticipation stock price

(PER= stock price / earnings per share)

(2) Market Approach

- Actual market price accepted to have dealt with between third parties at rational price in the market
- Required to be **open market** to which dealings are conducted actively, and to conduct dealings of **similar property** which can be compared

(2) Market Approach

- The information about dealings of the price of intellectual property are very rare

  $\Rightarrow$ restrictions of this approach

- The requirements for open market and dealings track record

(2) Market Approach

- Difficult to evaluate the exact price
- Effective method to guess the market price of intellectual property
- Practically it is used for calculation in case venture capital responds to investment and price calculation of M&A

(3) Income Approach

- Method of calculating current value based on the expected economical earnings of intellectual property
- For examination of income produced by the intellectual property, feasibility, the period (sustainability) of service, the discount rate is needed

(3) Income Approach

Basic requirements

Anticipation of future income

Risk of the implement ability of prediction income

Discount rate

Term of validity

The rate of expected growth of income

(3) Income Approach
Valuation of Business Potential

- Future prediction

  Sales growth rate, profit ratio
- Market potential

  Market environment analysis, other-company-in-the-same-trade comparison, market size
- Business possibility

  Competitive advantage analysis

  The life cycle of a product, Scenario analysis
- Economic variable, political risk
- Estimated Usable Period

The example of valuation reference by a DCF method

	Term1	Term2	Term3	Term4	Term5
Incomes	655	920	1,125	1,345	1,550
▲ cost of manufactured goods	197	276	338	404	465
▲ sales and general administrative expenses	80	82	82	88	91
▲ ordinary operation interest rates	17	20	25	30	35
Earnings before tax	362	542	681	824	959
▲ tax	163	244	306	371	432
After-tax income	199	298	374	453	527
Depriciation	45	45	45	45	45
Increase working capital ▲	17	53	41	44	41
Free cash flow	227	290	378	454	531
The exchange rate to current value	1.20	1.44	1.73	2.07	2.49
Discounted cash flow	189	201	219	219	213

Corporate value	1,042
▲ Debt	200
Capital stock value	842
The number of stocks	20,000
Stock price	42,093

Caluculated discountrate20%,

(3) Income Approach

The important matter

- The **contribution** of the intellectual property in the future profit on business plan should be understandable‥‥‥25% rule
- Various numerical values are computed based on track record or rational premise
- Continuity, rationality, and compatibility are accepted between the past and forward planning
- The life cycle of technology and goods are taken into consideration

Reasons of Difficulty

①Identification of intellectual property unit itself separate from corporate is very difficult

②The value of intellectual property vary widely depending strategy and competitiveness

③External disclosure information is limited

④Limited visible trade case

4.Loans Protected by Intellectual Property

(1) Difference of loan and investment

(2)Loans Which Utilize Intellectual Property

(3)Loan Protected by Intellectual Property

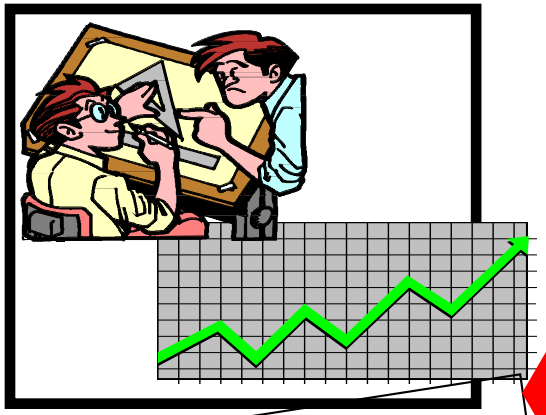
(1)Judge Standard of Invest and Loan

ＩＰＯ／M&A

Growth

Basic aspect of invest

・IPO／M&A？
▪High stock price？
▪**Manage the company？**



Risk of high growth

ＣＦ **important**

Basic aspect of Bank

▪**Pay interest？**
▪**Pay principal？**
Safety Cash flow？
▪**collateral and guarantee？**

(1)Difference of Invest and Loan

Loan：10companies 9 success, 1fail
interest 5% loan 100million
Success interest 5mil×9 ＝ 45million
Fail principal△100
Total △ 55million

Invest：10companies 1success 9fail
success 1 :10times +900million
fail △900
total 0

Loan has very little risk endurance, can not get upside return
Invest depend on how many times when a company success

(2)Loans which Utilize Intellectual Property

- Intellectual property collateral loans

  Assess intellectual property as collateral Loan about 50-70% of its value

  It is useful when intellectual property distribution would be expected

- Loan evaluating intellectual property

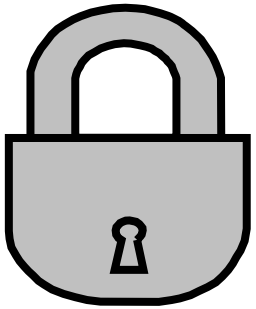
  Think IP information as one important information for loan decision

Loan guarantee: guaranteed rate 0.5-3%

(3) Loan Protected by Intellectual Property

Suitable intellectual properties for collateral

- ✓Core competence
- ✓Provide current business cash-flow
- ✓Marketability
- ✓Value stability
- ✓Strong rights , registration



Valuation methodologies

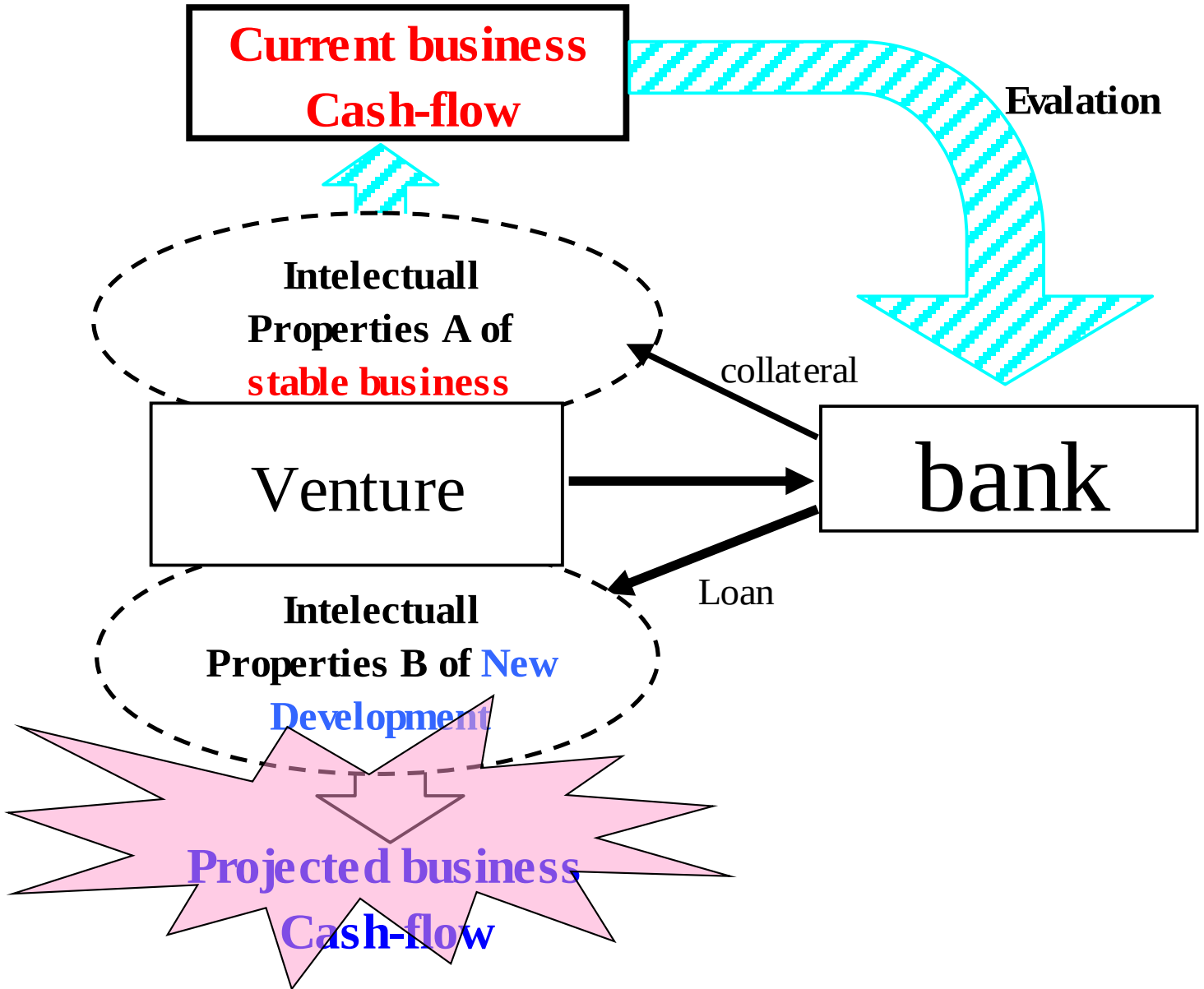
- ✓Based upon projected business cash-flow
- ✓ Present value discount cash-flow method

(3)Loan Protected by Intellectual Property (Valuation)

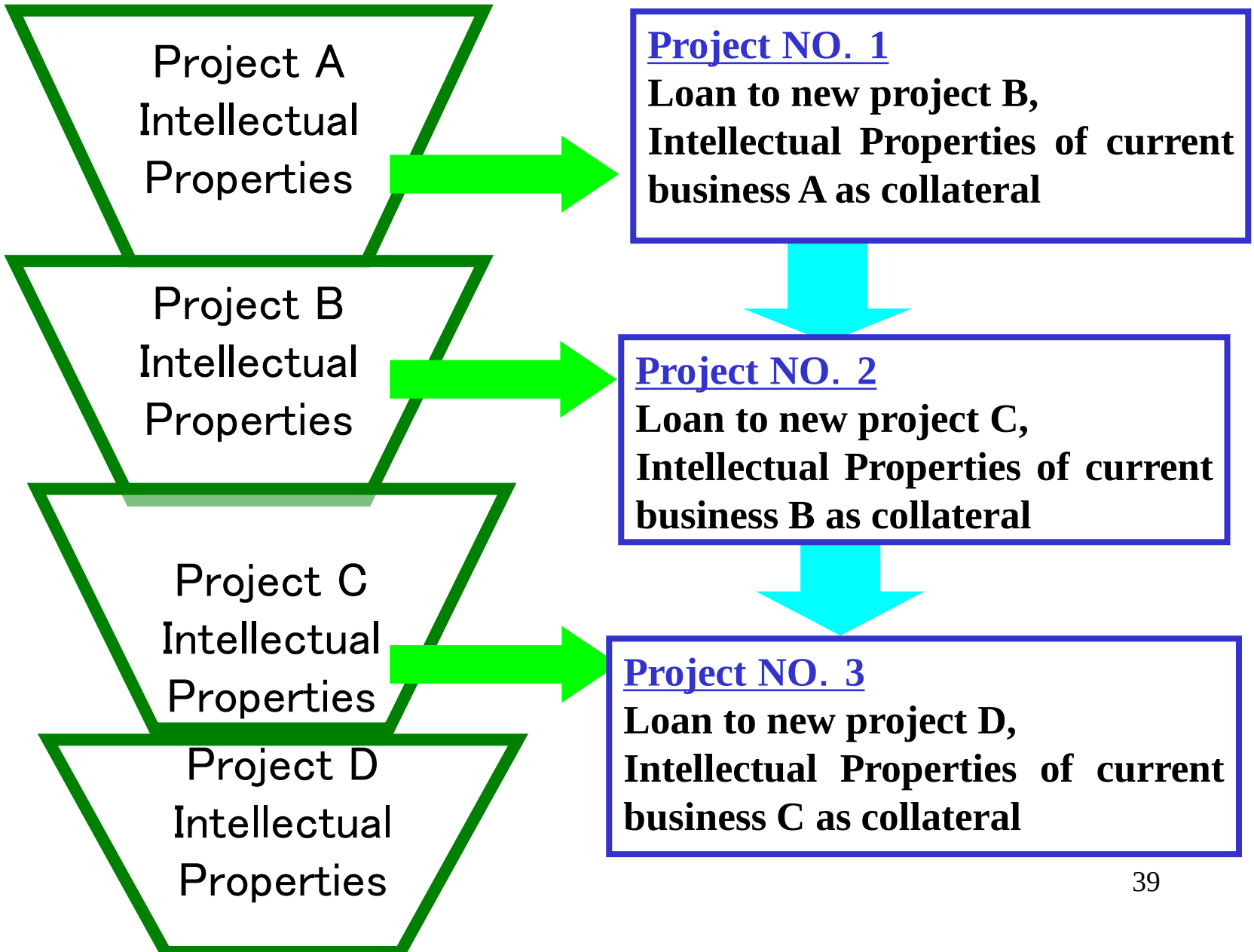
(Unit : Mio.)

	1	2	3	4	5	Total
Revenues	100	90	80	110	100	
- Cost of revenues	▲40	▲36	▲32	▲44	▲40	
- Operating expense	▲20	▲19	▲18	▲21	▲20	
- Interest for loan	▲0	▲0	▲0	▲0	▲0	
- Cost of maintenance	▲5	▲5	▲5	▲5	▲5	
- Version-up expense	0	0	0	▲40	0	
Net income before Tax	35	30	25	▲0	35	
- Tax	▲16	▲13	▲11	0	▲16	
Net income	19	16	14	▲0	19	
+ Depriciation	10	10	10	10	10	
- Investments	▲10	1	1	▲3	▲2	
Cash flow	19	27	25	7	27	
discount rate	1.20	1.44	1.73	2.07	2.49	
Net present value	16	19	14	3	11	**63**
- Transfer Cost						**▲20**
Valuation of Intellectual Property						**43**

Scheme of Loan protected by Intellectual Property



R&D cycle based on Loan protected by IP



Intellectual property rights which can be collateralized

[Program copyright of software]

- The software which is used continuously?
- Correspondence to upgrade
- Circulation possibility
- Copyright possession
- Update and transfer possibility
- Manual reservation required for taking over

Intellectual property rights which can be collateralized

[Patent right]

- All Rights are required in order to take over
  : patent, design right, trademark right
  which constitute final products
- Outsourcing is possible?
- Possibility of technological obsolesce
- Correspondence to new technology

Intellect Property collateral maintenance check points

- ◆Management
- ✓Relations of financing period and validity
- ✓Patent royalty payment check
- ✓Follow of the version up
- ✓Risk of the invalid judgment
- ✓Law suit risk

Intellect Property collateral maintenance check points

- View points from credit maintenance

- ✓ When many rights exist, product is not made from only one basic patent
- ✓ Securing of right before and after bankruptcy
- ✓ Without manuals and core persons, actual value is small
- ✓ List of customers, special machine should not disperse

Check Points

Technology	Check points
Computer program	Confirm the range of copyright of developer When software name is recognized in the market, trademark has high value
Internet site	The recognition of the site is important Whether it is a site producing profit
Contents of the music picture	Obsolescence speed is very fast Hit series or famous producer?
License charges	Check of license charges Stability of licensee

Security disposal

- Actual situation is considerably severe
- The intellectual property rights of bankrupt company are basically very low reputation
- Sale negotiations range are narrow

  : customer, competitor, former employee
- Buyers want to see secret drawing and engineer in the early stage
- Owner hesitate to open these secret
- After bankruptcy these value decrease dramatically $\Rightarrow$ Timing is very important

Example of Loans Protected by IP

company	Projyect	Collateral
A	polarizing lens development for sunglasses	patent
B	Industrial use X-ray check device	patent
C	Jazz record first edition right	copyright

1. Know-how of the intellectual property security financing is accumulated in the organization by managing many cases
2. Because the scale of financing is small, and the bankruptcy probability is high, it is not so sweet for bank profit

(3) Loan Protected by Intellectual Property (Problems)

- ✓Secondary market of IP is un-fixed
- ✓Valuation technology is not yet established
  - Quick obsolescence and sudden change
  - Income anticipation instability
  - Valuation of taking over cost
- ✓Independency and separability
  - Move for third party is not easy

⇒ Major doubts about the collateral quality