

# **IPR Valuation and IPR-related Strategies of Startups**

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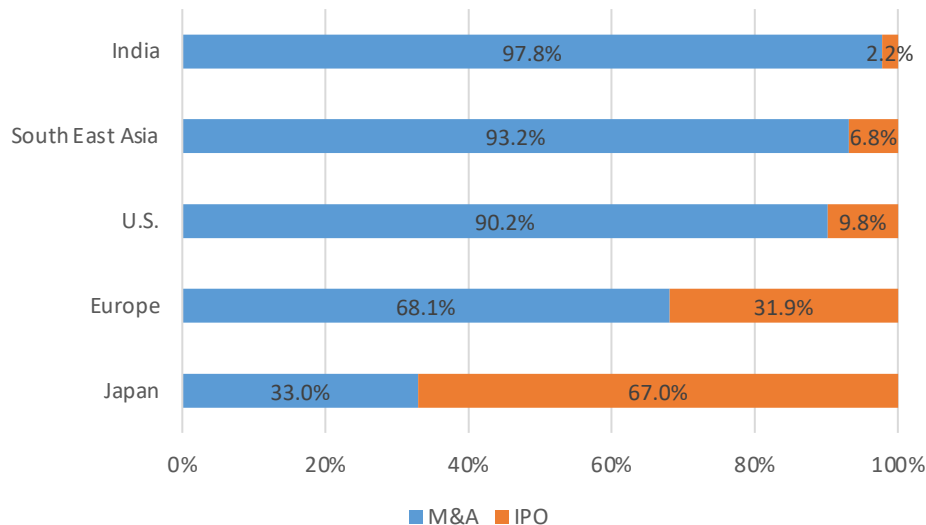
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# Investing Strategies for Startups

# M&A v. IPO as Exit Strategy for Startups JETRO

Ratio of M&A is higher in emerging markets, and ratio of IPO is higher in Japan and Europe.



Edited from data extracted from VEC, “Venture White Paper 2019” (Nov. 2019), cento ventures, “Southeast Asia Tech Investment in 2019” (Nov. 2019), CB Insights, “CB Insights” (Nov. 2019)

- ✓ In emerging markets, ratio of IPO is fewer since stock exchange markets for emerging companies are not matured.
- ✓ In Japan and Europe, startups can avoid being dependent on few number of VCs.
- ✓ If startups are dependent on few number of VCs, startups may choose M&A due to the VCs’ intention

# Startups & Business Sell-offs

Business sell-offs are recognized as one of the most common exit strategies for startups

## Amazon's AWS buys Cloud9 to add more development tools to its web services stack

Ingrid Lunden @ingridlunden / 9:59 pm JST • July 14, 2016

 Comment

Amazon Web Services has made an acquisition to continue building out the services that it offers around and on its cloud storage platform. It has bought [Cloud9](#), a San Francisco-based startup that has built an integrated development environment (IDE) for web and mobile developers to collaborate together.

The news was [made public by Cloud9 itself](#) in a statement on its site, which also says that the company will continue to offer its existing service while it also works on building new tools for AWS.



- ✓ Cloud9 was a San Francisco-based startup founded in 2010.
- ✓ Cloud9 had developed an Integrated Development Environment (IDE) for web and mobile developers.
- ✓ AWS is one of the most popular cloud platforms for application development.

Credits: Join Extra Crunch, Jul. 14, 2016

Business sell-offs are one of main exit strategies for startups

Strategies for assignor	Strategies for assignee
<ul style="list-style-type: none"><li>✓ Selling developed technologies with higher additional value</li><li>✓ Initial capital recovery and profit-taking (“Exit Strategy”)</li><li>✓ Streamlining their business development by being incorporated into a large company (“Scale Merit”)</li><li>✓ Utilizing “brand” of large company</li></ul>	<ul style="list-style-type: none"><li>✓ Avoiding costs and risk incurred in starting up business</li><li>✓ Acquiring the startups’ customers and expanding market shares</li><li>✓ Applying acquired technologies to the assignee’s business to generate synergetic effects</li><li>✓ Buying business in bad financial condition and improving the value of assigned business (“Negative Goodwill” effect)</li></ul>

# IPR-based Lending Cases in Japan

Financing for startups is generally difficult, but some startups succeed by utilizing IPRs

- ✓ Some banks in Japan lend to startup companies while collateralizing assets including IPRs
- ✓ Facilities for executing projects are also collateralized together with IPRs
- ✓ IPR-based lending may be difficult when startup companies do not bear tangibles
- ✓ IPRs are one of the “weapons” for financing

Credits: JPO et al., “Valuation of Intellectual Property” (2017)

## Fig.1.5 Examples of IP Collateralized Bank Loan①

- **UFJ, Mitsui & Sumitomo, Aozora, Sumitomo Trust** jointly Lent 35.5 bill. Yen to **Arysta LifeScience Corp.**, Seller of Pesticide, Collateralizing Relating Patents  
(Nihon Keizai Shimbun, Sep., 30, 2003)
- **Higo Bank** Lent 20 mill. Yen to **Aim-Tech Corp.**, Venture Producing Electric Devices, Collateralizing Relating Patents  
(Asahi News paper, Apr., 8, 2005)
- **Saitama Risona** Lent Money to Small Company with 100 thous. Yen Capital Collateralizing Copyright  
(Nikkei Financial Shimbun, Sep., 14, 2005)
- **Fukuoka Bank** Lent 150 mill. Yen to Venture Business, Developing Semiconductor, Collateralizing Intellectual Property  
(Seibu Yomiuri Shimbun, Feb., 28, 2007)

## Fig1.6 Examples of IP Collateralized Bank Loan ②

- **Tokyo Star Bank** Lent Money to **E-Frontier**, Software Developer, Collateralizing Trademark of Famous “Fudeou”  
(Nikkei Financial Shimbun, Mar., 2, 2007)
- **Mitsubishi Tokyo UFJ** Lent 5.8 bill. Yen to **Just System** Collateralizing Copyrights of 4 Software  
(Nikkei Financial Shimbun, Dec., 12, 2007)
- **Ogaki Kyoritsu & Shoko Chukin** Jointly Lent Money to **Nakanihon Capsule Co. Ltd.**, Capsule Developer, Collateralizing Relating Patents  
(Nihon Keizai Shimbun, Dec., 4, 2007)
- **Small Business Finance Corp.** Lent 100 mill. Yen to **Taniazawa Seisakusho Ltd.**, and 50 mill. to **Sakura Chyouon Kogyo Corp.** Collateralizing Relating Patents  
(Nikkan Kogyo Shimbun, Jan., 1, 2008)

# Asset Finance & Project Finance JETRO

IPR-based finance is categorized into asset finance and project finance

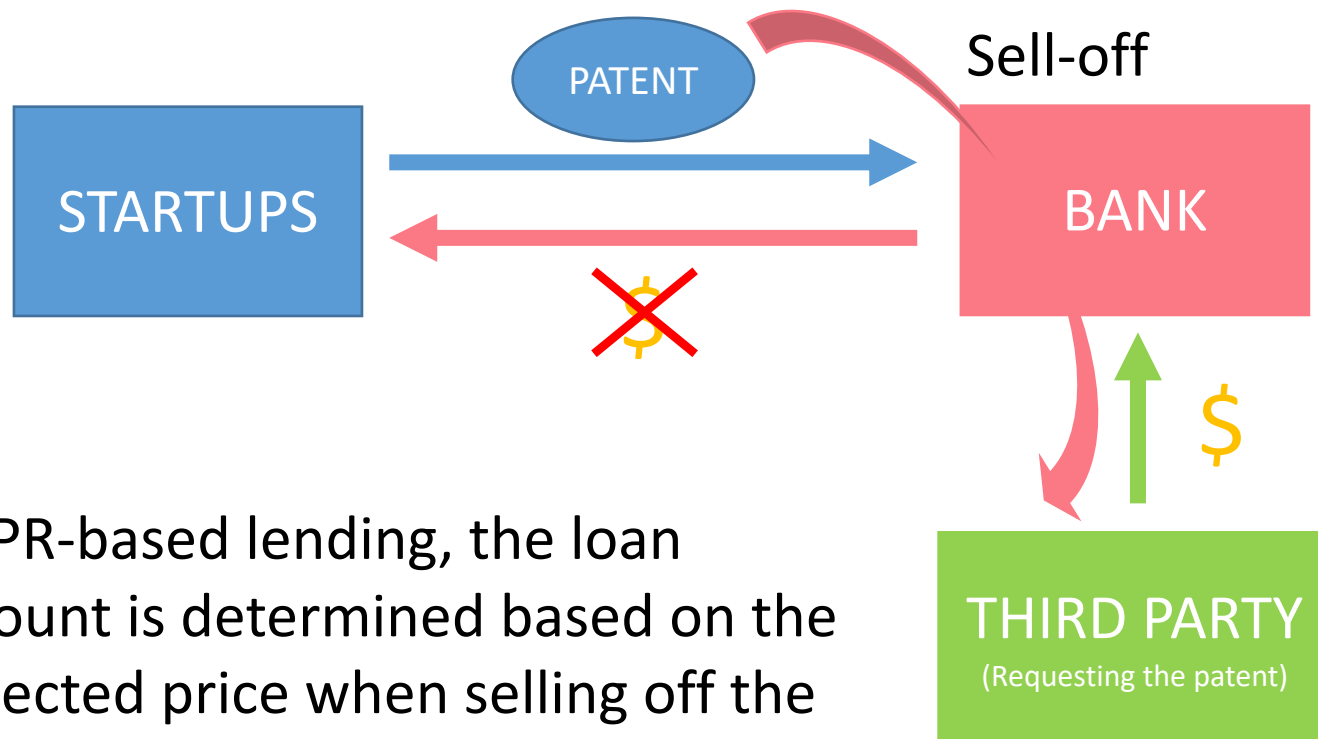
	Method	Asset evaluation criteria
Asset finance	Securitizing royalties brought by IPRs	Amount of royalty income
Project finance	Investing in a project utilizing IPRs	Cash flow brought by the project

- ✓ IPR-based asset finance was common in the US before the financial crisis
- ✓ IPR-based lending in Japan is categorized into IPR-based project finance



# Role of IPRs in IPR-based lending

Banking institutes sell off IPRs when debtors cannot make repayment



- ✓ In IPR-based lending, the loan amount is determined based on the expected price when selling off the IPR

# Collateral allowable to IPRs



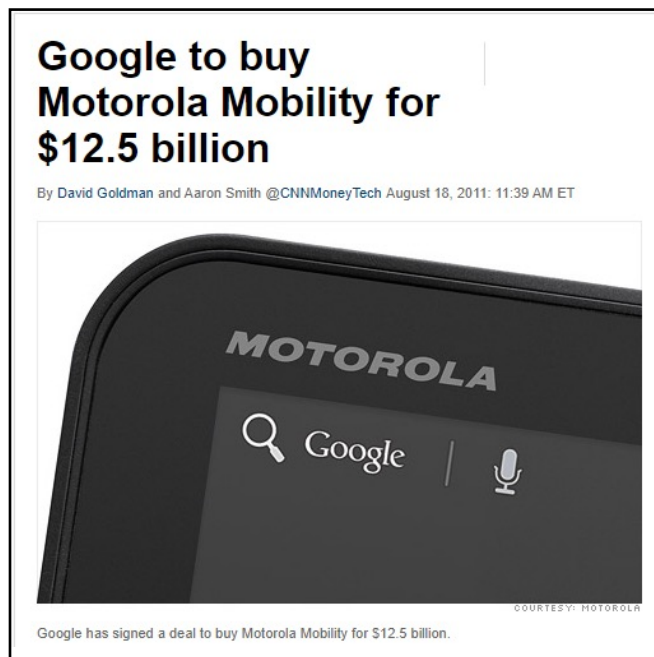
IPRs can be subjected to rights of pledge or assignments by way of security in Japan

Collateral allowable to Patent Rights	Pros and Cons
Right of Pledge	<ul style="list-style-type: none"><li>● Patentee basically cannot exploit the patented invention after setting a right of pledge</li><li>● Patent rights cannot be subjected to forced sales at the time of default</li></ul>
Assignment by Way of Security	<ul style="list-style-type: none"><li>● Patentee can exploit the patented invention</li><li>● Patent rights cannot be subjected to forced sales at the time of default</li></ul>

- ✓ Patent rights cannot be easily converted to cash at the time of default.
- ✓ If associating tangibles are subjected to forced sales, assignee would buy the patent right.

# Numbers of IPRs are important

Large companies have numbers of IPRs for strengthening competitiveness



- Google supported Samsung in the Apple v. Samsung case
- Google is said to have acquired 17,000 IPRs by acquiring Motorola Mobility
- Google sold off Motorola Mobility while keeping the acquired IPRs

Credits: CNN, Aug. 11, 2011

The purpose of acquiring Motorola Mobility is said to be acquiring IPRs in order to respond to litigation cases against Apple.

# Commonly Known Problems for Startups

Startups have insufficient financial and human resources!!

- ✓ Startups just after foundation usually bear negative earnings.
- ✓ They develop their business at a small scale with few human resources.



Acquisition of numbers of IPRs incurs large amounts of cost and requires sufficient human resources.

It is difficult for startups to draft an IPR strategy demanding the acquisition of large numbers of IPRs.

# IPR Valuation

# Various Situations of Asset Valuation

Asset valuation is conducted under several situations and purposes even for an identical asset

Situation demanding asset valuation	Purpose of asset valuation
Assigning assets	Determining assigned value
Taxing and accounting	Determining tax amount/possessing asset value
Litigation	Calculating amounts of compensation

Evaluating procedures differ depending on the situation and purpose of asset valuation

# Three Methods in Asset Valuation JETRO

Cost approach, market approach and income approach are known as methods of asset valuation

Methods	Criteria	Pros and cons in terms of IPR valuation
Cost approach	Evaluating assets with acquiring costs	<ul style="list-style-type: none"><li>● Clear calculation criteria</li><li>● Unable to promise income comparable to acquiring costs</li></ul>
Market approach	Evaluating assets with general prices in the market	<ul style="list-style-type: none"><li>● High credibility</li><li>● Few preceding transaction cases</li></ul>
Income approach	Evaluating assets with future cash flow	<ul style="list-style-type: none"><li>● Highly reasonable as a valuation method</li><li>● Future expectation basis</li></ul>

The income approach is widely accepted as a method for IPR valuation.

“Cash flow” refers to the sum of the inflow and outflow of cash in a specified accounting period

- ✓ On a long-term basis, the sum of the cash flow converges into the sum of the operating income.
- ✓ The cash flow is calculated by deducting accounting entries where inflow/outflow of cash does not concur with the change of assets from operating income.

$$\begin{aligned}\text{Cash flow} &= \text{operating income} - \text{tax} \\ &\quad + \text{depreciation} \\ &\quad + / - \text{change in working capital}\end{aligned}$$



# EBITDA as Valuation Basis

EBITDA is useful as a parameter applicable to companies conducting upfront investment

- ✓ EBITDA means Earning Before Interest, Tax, Depreciation and Amortization.
- ✓ Operating cash flow often becomes negative for companies aggressively conducting upfront investment since the larger amount of tangible/ intangible investment costs are deducted from sales when calculating the operating cash flow.
- ✓ Although some U.S. IT startups often have high growth in their sales, operating income/ operating cash flow become negative due to larger amount of upfront investment.
- ✓ EBITDA can be used as a general parameter for evaluating IPRs.

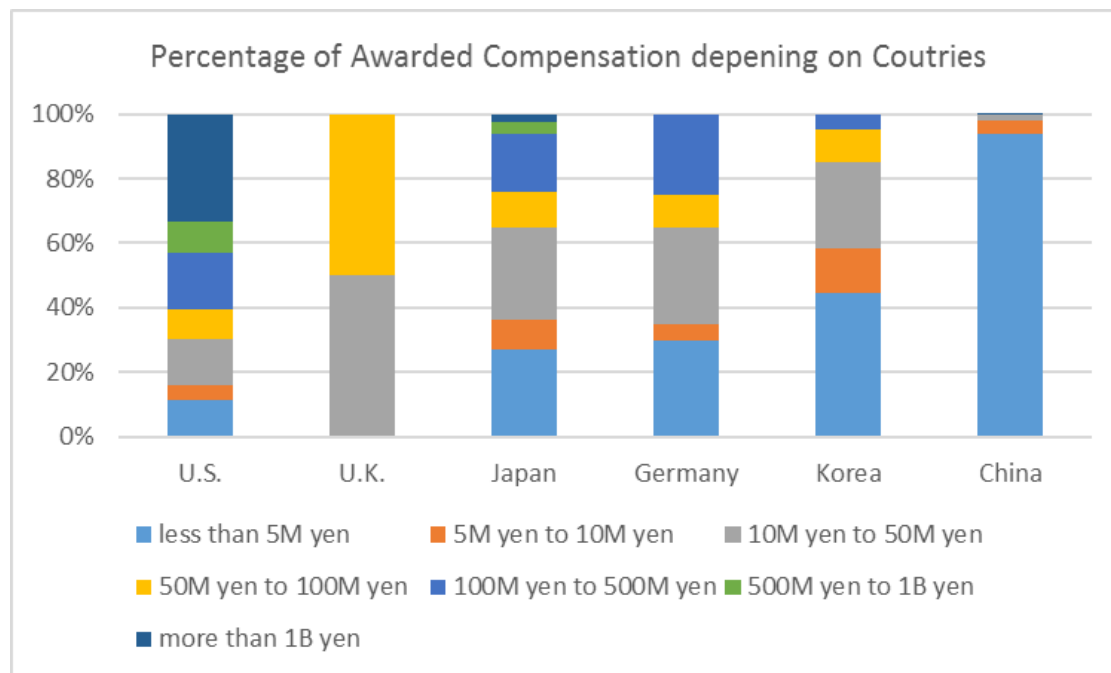
# Summary

- ✓ In IPR valuation, IPRs are evaluated by the income approach.
- ✓ In the income approach, IPRs are evaluated based on the future cash flow (operating income).
- ✓ IPRs contributing to the increase of the cash flow would be evaluated as having higher economic value.

# IPR Infringement & Compensation

# Compensation Awarded in IPR Infringement Suits

Compensation awarded in IPR infringement law suits is larger in advanced countries



- ✓ Punitive compensation also makes the amounts of compensation larger in the U.S.
- ✓ Higher price levels often make the compensation larger in advanced countries.

Credits: Edited from data disclosed in the JPO's search report, "For proper valuation of compensation in patent infringement suit", 2018

# Calculation Basis of Compensation in Japan

Compensation is calculated based on Plaintiff's Profit, Defendant's Profit or Reasonable Royalty

	Regulation	Calculation basis
Plaintiff's Profit	Patent Act. Art. 102, 1 <sup>st</sup> paragraph	Plaintiff's Profit x Defendant's Sales Numbers
Defendant's Profit	Patent Act. Art. 102, 2 <sup>nd</sup> paragraph	Defendant's Profit
Reasonable Royalty	Patent Act. Art. 102, 3 <sup>rd</sup> paragraph	Sales x Royalty Rate

\* The IPR contribution rate may be further multiplied depending on the case.

# Meaning of Profit When Considering Compensation



Plaintiff's/Defendant's Profit when considering compensation means "Marginal Profit"

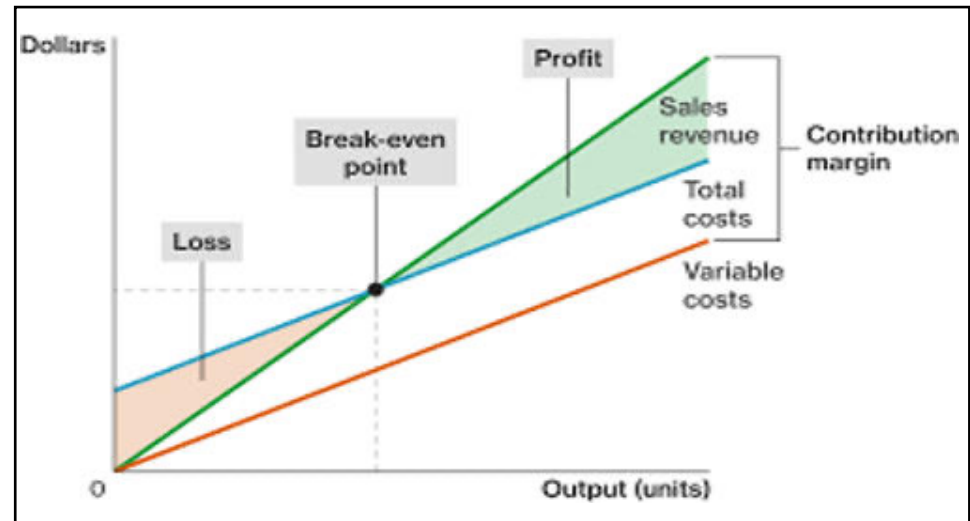
Academic theory	Calculation basis
Net Income theory	Sales – Manufacturing Costs + Non-Operating Income (Loss) – Taxes
Gross Revenue theory	Sales – Manufacturing Costs
Marginal Profit theory (Commonly accepted; case law)	Sales – Variable Cost

- ✓ Manufacturing costs are categorized into either variable costs or fixed costs.
- ✓ Non-operating income (loss) means income (loss) generated from activities other than operating activities (e.g., investment activity).

# What's "Marginal Profit"??

Marginal profit means the sum of increased income when there is an increase in units of sales

- ✓ Marginal profit (also known as "contribution margin") is one accounting concept
- ✓ Calculated by deducting variable costs from sales
- ✓ Larger profit in plaintiff's/defendant's products often means larger compensation in IPR infringement suits
- ✓ "Marginal profit ratio" means ratio of increase of income when there is an increase in units of sales



Credits: Assignment Point, "Concept of Contribution Margin"

# Summary

- ✓ Larger amount of compensation tends to be awarded in IPR infringement suits in advanced countries due to higher price level.
- ✓ In some countries, compensation in IPR infringement is calculated based on (past) plaintiff's/defendant's profit.
- ✓ At least in Japan, plaintiff's profit/defendant's profit is calculated based on marginal profit (sales – variable costs; also known as contribution margin).
- ✓ Marginal profit tends to be higher when operating income/operating cash flow becomes higher.

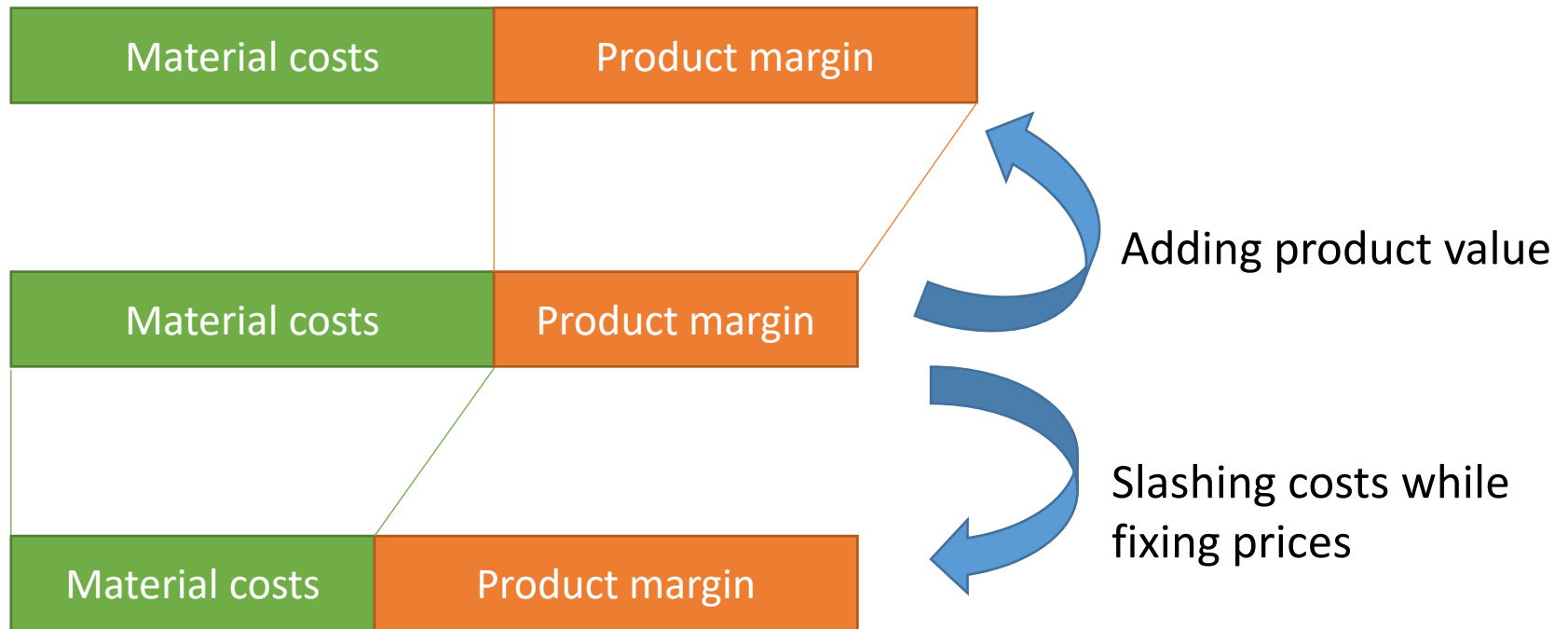
Which kinds of IPRs would contribute to the increase of the cash flow or marginal profit??



# **IPRs Contributing to Business Value**

# [Strategy 1] Improving Product Margin JETRO

Cash flow is increased when the product margin is increased by adding value or slashing costs



# Demanding ¥15.4 billion as a licensing fee of Opdivo's patent

Some pharmaceutical patents contribute to value-added products, increasing the cash flow of business

## COMPANIES

### Nobel laureate demands higher cancer drug royalties from Ono Pharma

2018 winner in medicine plans to renegotiate contract for blockbuster Opdivo



Kyoto University professor Tasuku Honjo, left, speaking about his royalty payments for the revolutionary cancer drug Opdivo.

Credits: Nikkei Asian View, Apr. 11, 2019

- ✓ At the moment, Opdivo costs ¥730,000 per 100 mg.
- ✓ Drug prices are set higher when the drugs are covered by a patent.
- ✓ Prof. Honjo is the patent owner for Opdivo.
- ✓ He is demanding a licensing fee of ¥15.4 billion assuming a royalty rate of 10%.

# Apple v. Samsung

\$1 billion compensation awarded in district court due to infringing upon Apple's U.S. design patent

U.S. Patent

May 26, 2009

Sheet 1 of 12

US D593,087 S

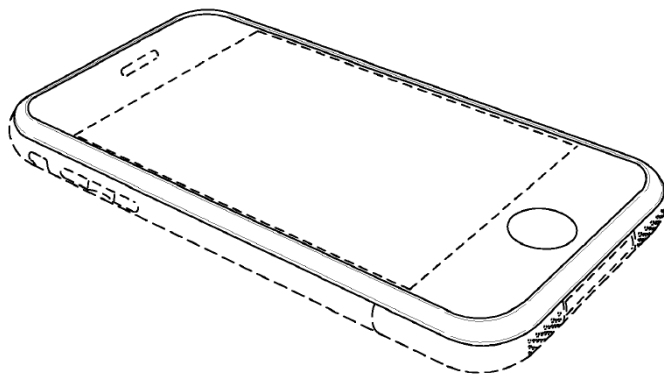
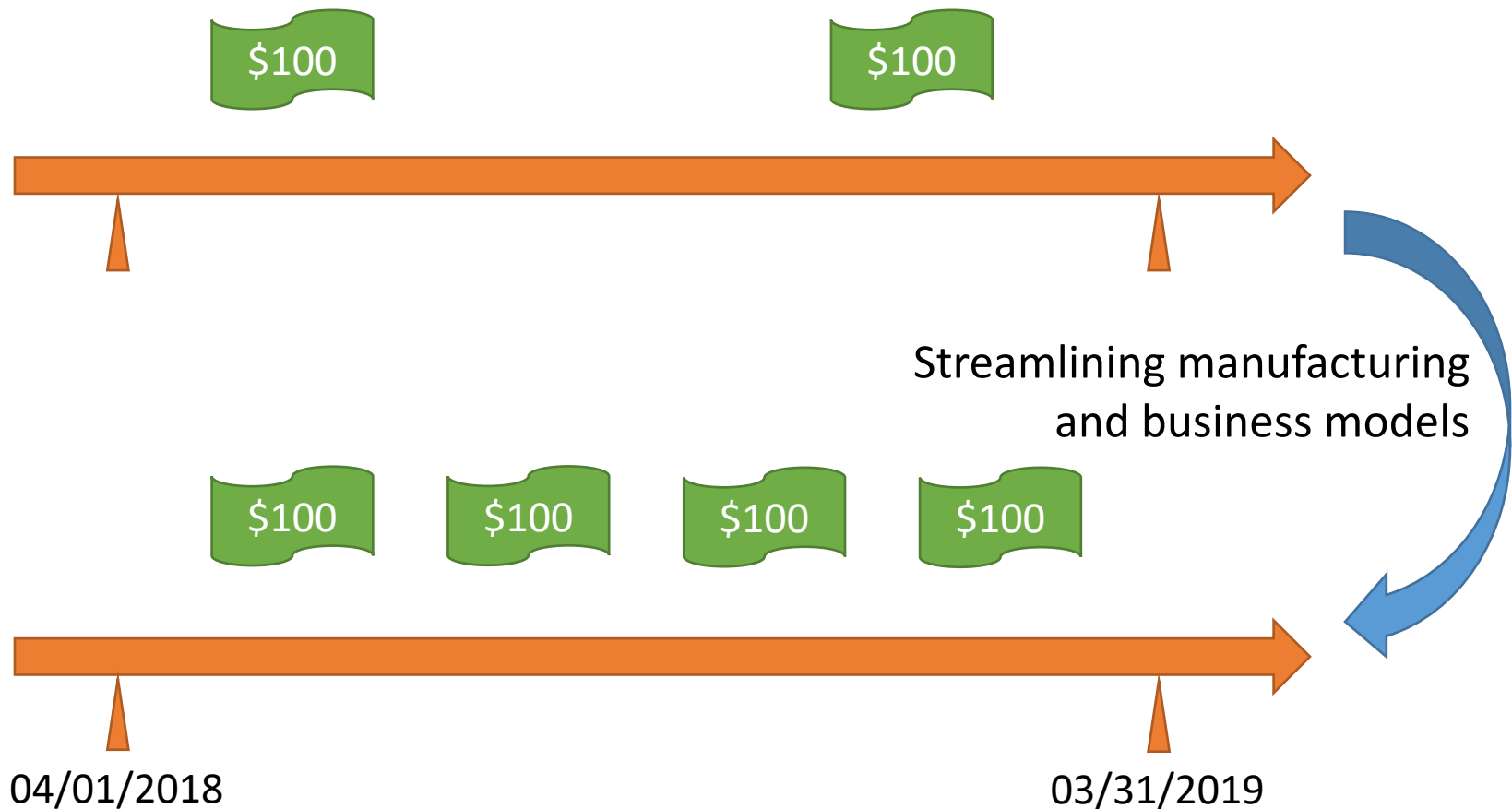


FIG. 1

- ✓ Some design patents contribute to the sophisticated look of a product and increased price.
- ✓ Manufacturing costs are slashed more when applying a design patent to products than a utility patent.
- ✓ High sales of smartphones also contribute to higher compensation.
- ✓ The case was settled by accommodation.

# [Strategy 2] Improving Turnover Rate JETRO

Cash flow increases as the manufacturing/selling process is shortened



# Amazon.com & 1-Click Buying Patent JETRO

The 1-click buying patent improved the turnover rate by shortening the ordering process

RETAIL REVOLUTION

**End of an era: Amazon's 1-click buying patent finally expires**

Credits: DIGIDAY, Sept. 13, 2017

- ✓ The 1-click buying patent enables the ordering process to be shortened by registering shipping and payment information.
- ✓ It is licensed out to several companies including Apple.
- ✓ It is said to contribute to bringing significant income to Amazon.com.
- ✓ Expiration of the patent term made e-commerce business more competitive.

# Considering ROA in Your Business Model

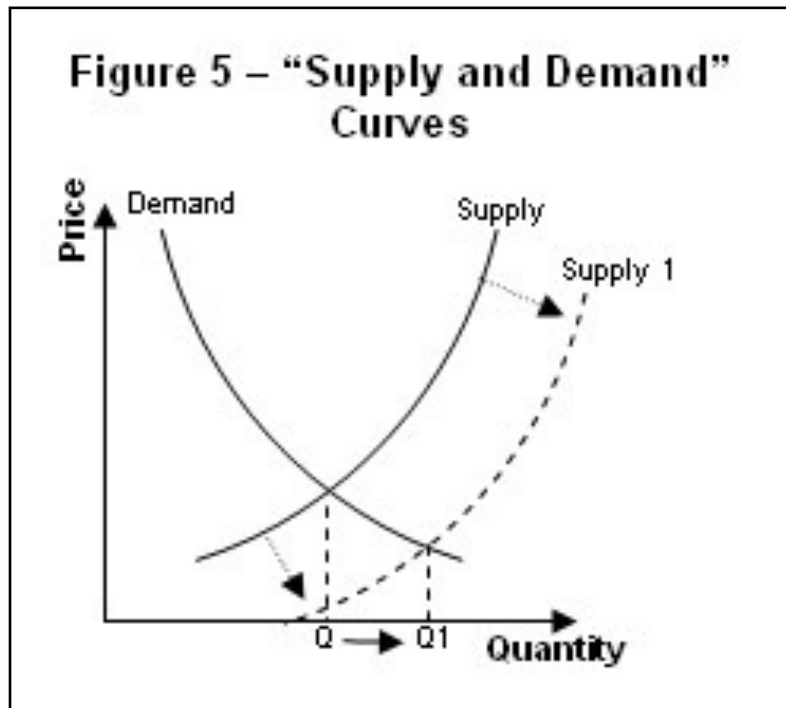


ROA is a product of the “operating margin ratio” and “turnover rate”, and shows earning yield

$$\begin{aligned} \text{ROA (Return On Asset)} &= \frac{\text{Operating Income}}{\text{Gross Asset}} \\ &= \boxed{\frac{\text{Operating Income}}{\text{Sales}}} \times \boxed{\frac{\text{Sales}}{\text{Gross Asset}}} \\ &\quad \text{Operating Margin Ratio} \quad \quad \text{Turnover Rate} \\ &\quad \text{(Ratio of Product Margin)} \end{aligned}$$

# Demand & Supply Analysis in Microeconomics

Operating margin ratio & turnover rate are under a trade-off relationship

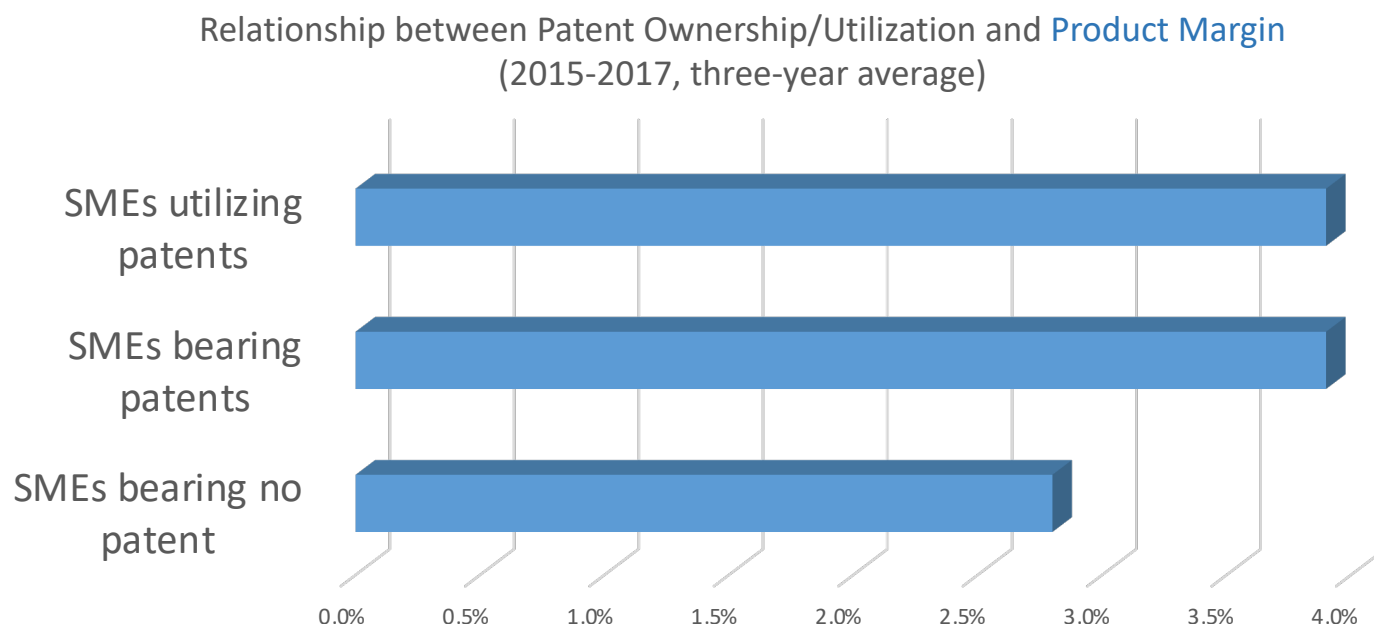


Credits: Wikipedia, “Supply and Demand”

- ✓ The demand curve is specified depending on the market’s nature.
- ✓ The supply curve is shifted to the right when the manufacturing process is streamlined, while the supply curve is shifted to the left when manufacturing costs increase.
- ✓ While the demand curve is constant, the sales number increases when the price decreases.
- ✓ Price often increases when the operating margin ratio increases, and the sales number increases when the turnover rate increases.

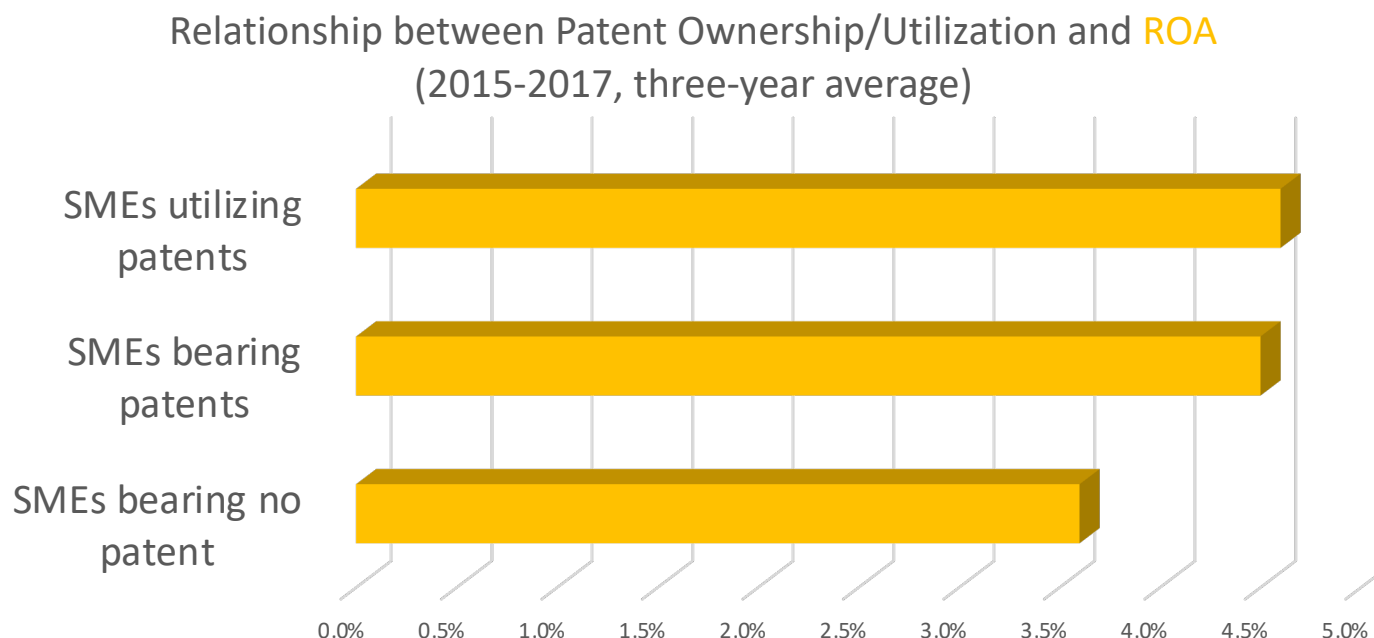


The operating margin ratio tends to be higher in SMEs bearing or utilizing patents



\* Extracted from data shown in Search Report of JPO and Mitusbishi UFJ Research & Consulting Co., Ltd., 2019

ROA tends to be higher in SMEs bearing or utilizing patents

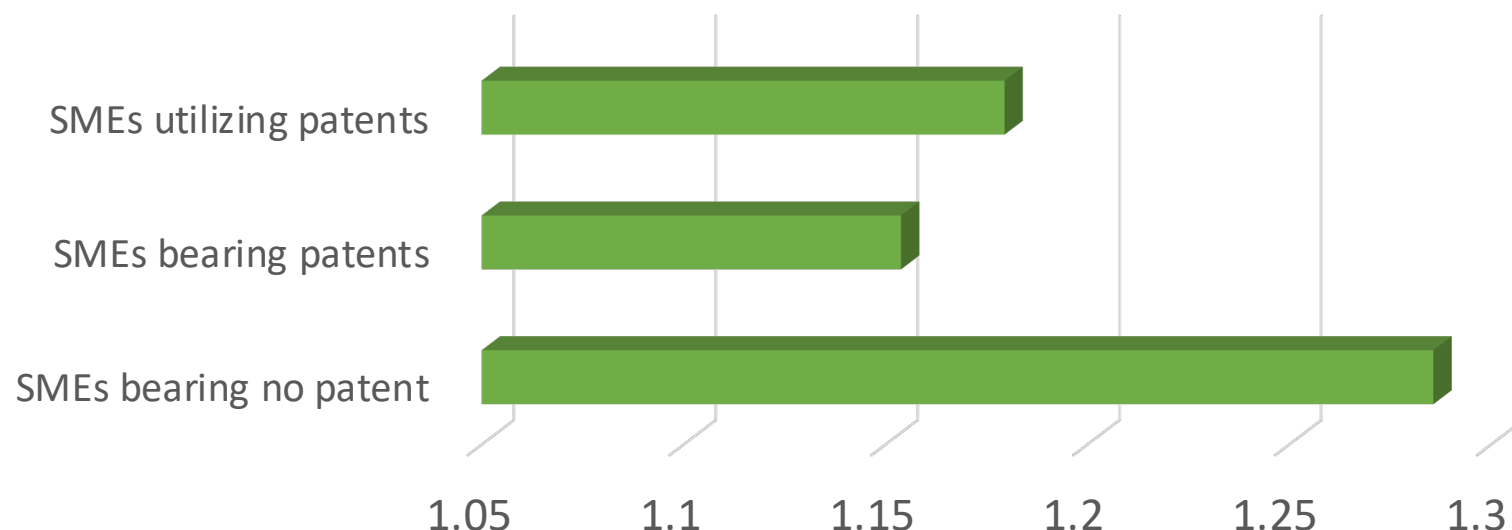


\* Extracted from Data shown in Search Report of JPO and Mitsubishi UFJ Research & Consulting Co., Ltd., 2019

# Turnover Rate and Patents in SMEs

The turnover rate tends to be lower in SMEs bearing or utilizing patents

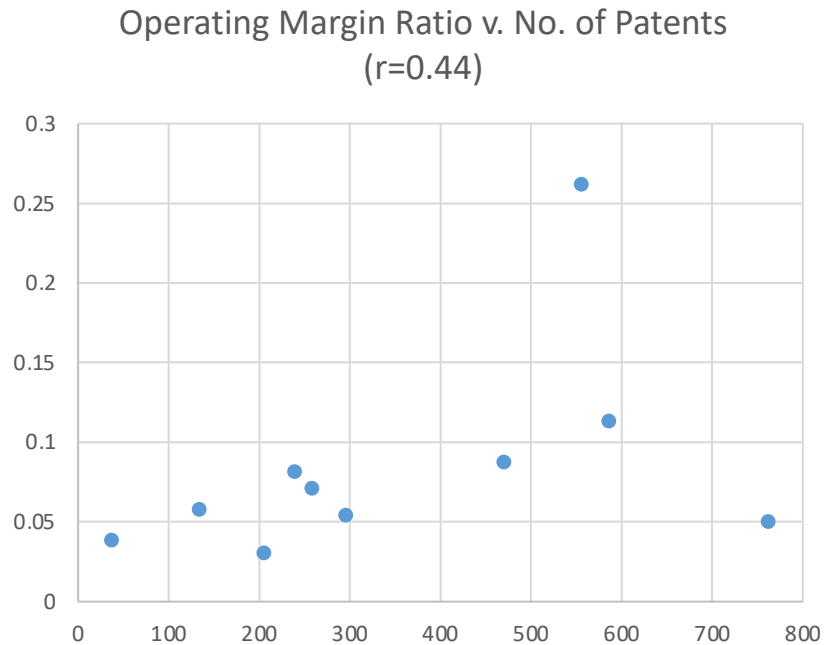
Relationship between Patent Ownership or Utilization and Turnover Rate  
(2015-2017, three-year average)



\* Calculated from Data shown in Search Report of JPO and Mitsubishi UFJ Research & Consulting Co., Ltd., 2019

# Product Margin in Large Companies' Business JETRO

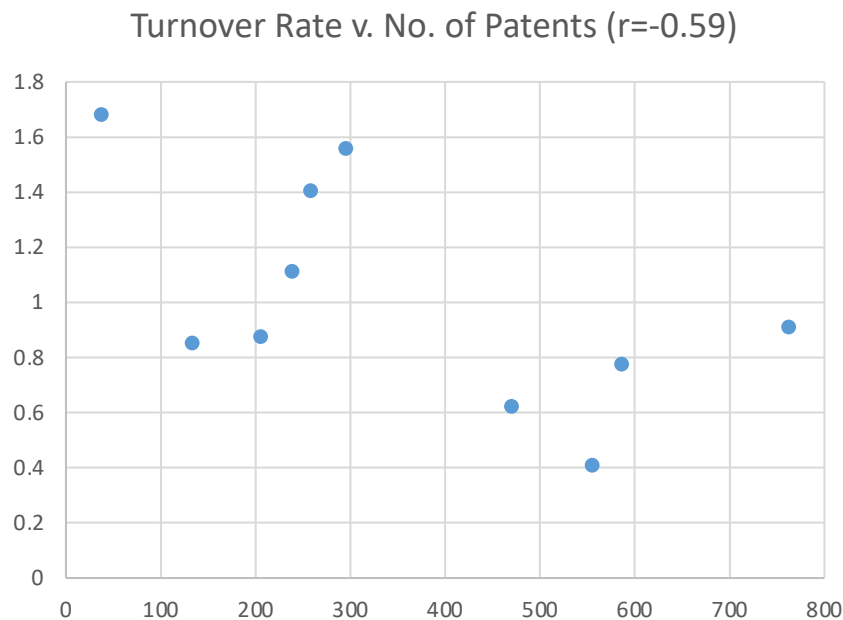
Product margin is higher for large food manufacturers bearing larger number of patents



- ✓ No. of patent rights effective during FY2018 are listed for food & beverage manufacturer constituting Nikkei 225
- ✓ Operating margin ratio and the no. of patent rights have moderate positive correlation ( $r=0.44$ )
- ✓ Some food and beverage manufacturer file patent applications for foods with healthy promoting benefits, which are sold with the higher price.

# Turnover Rate in Large Companies' Business JETRO

Turnover rate is lower for large food manufacturers bearing larger number of patents



- ✓ Turnover rate and no. of patent rights have relatively strong negative correlation for large food & beverage manufacturer constituting Nikkei 225
- ✓ Turnover rate maybe improved by acquiring patents covering streamlining technology, while saving cost and cutting price
- ✓ ROA does not seem to have any correlation with no. of patent rights

# **IPR-related Strategy of Amazon.com**

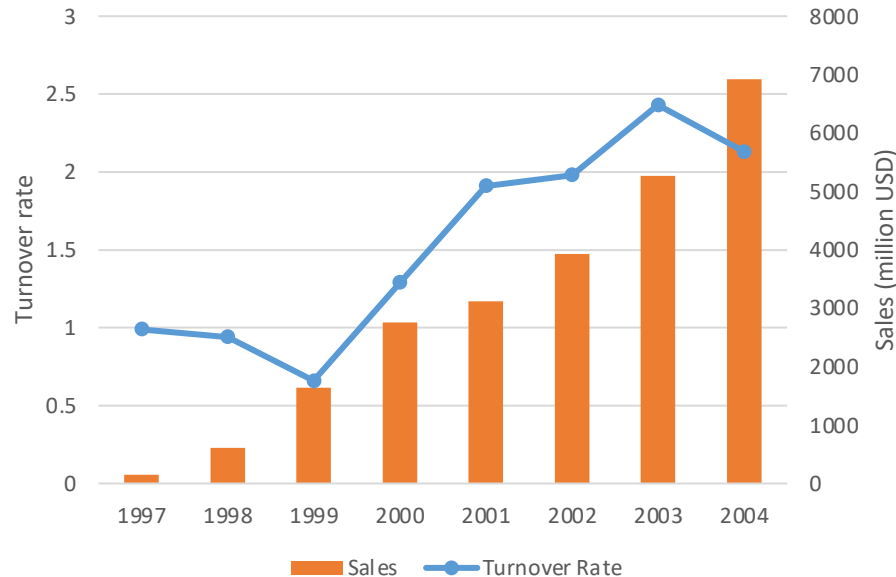
Amazon.com emphasizes cash flow in their executing strategy (Cash Conversion Cycle)



- ✓ Since Amazon Prime's fee is a fixed subscription fee paid monthly, monthly subscription revenue is fixed.
- ✓ Since Amazon Prime's fee is paid as a pre-paid fee, Amazon can receive money before receiving products and paying for the products.
- ✓ The 1-click buying patent was filed considering the cash flow of Amazon's business.

# 1-click Buying Patent

After filing for the 1-click buying patent in 1997, Amazon's turnover rate improved drastically

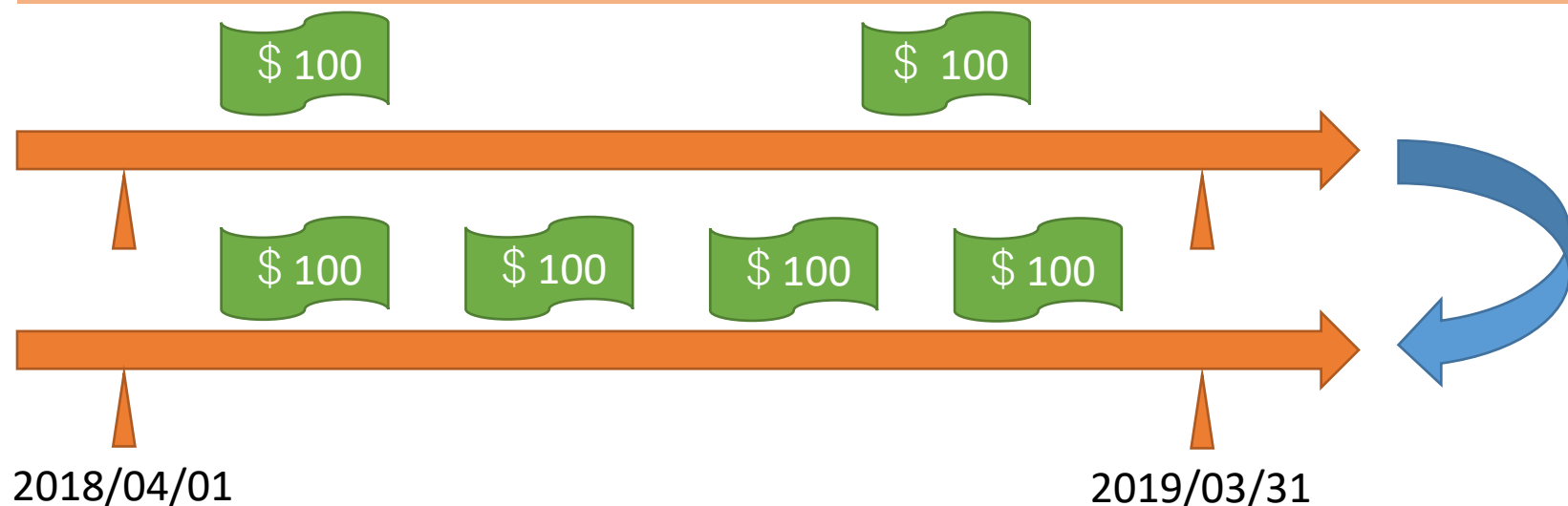


- ✓ The 1-click buying patent was filed in Sept. 1997, and was granted in Sept. 1999.
- ✓ Amazon's sales and turnover rate improved drastically after the 1-click buying patent was filed.
- ✓ In Dec. 1997, Amazon.com procured debt financing totaling 75 million USD.



# Amazon's Delivery Technology & Cash Flow

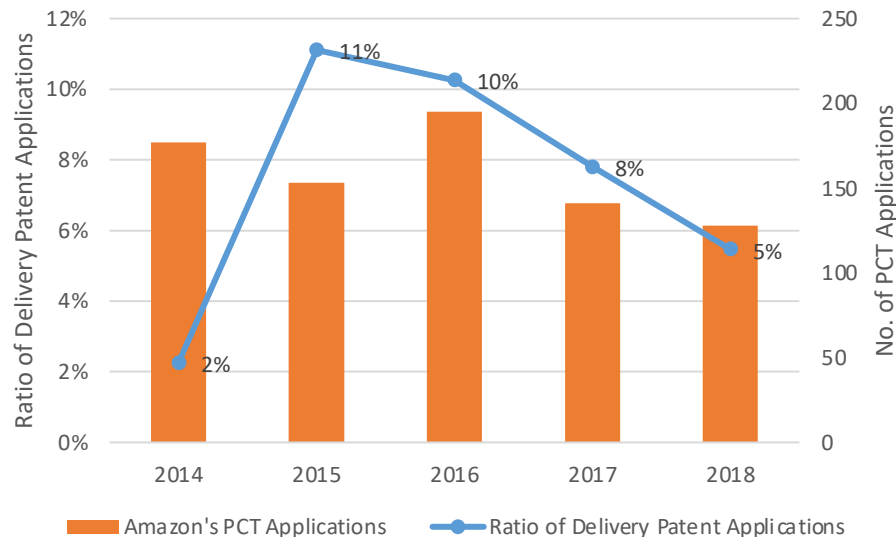
Payment process is shortened by shortening shipment in Amazon's platform



- ✓ Payments are made at the time of shipment on Amazon's platform.
- ✓ The turnover rate is improved to increase cash flow by shortening the payment process.
- ✓ Improved convenience attracts an increasing number of consumers.
- ✓ Amazon.com recently realized one-day/next-day delivery.

# Trends in Amazon's Delivery Patents

Amazon is recently filing an increasing number of delivery patents



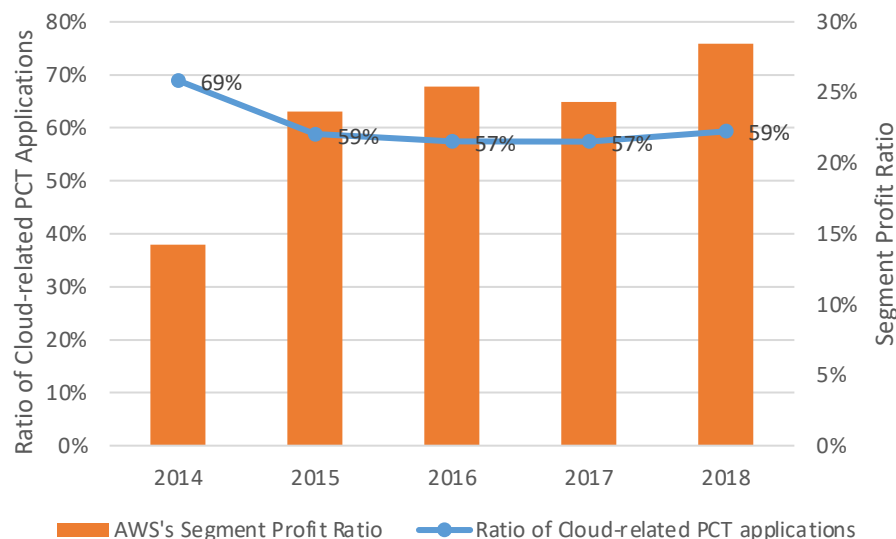
- ✓ Number of PCT applications from 2014 to 2018 was at most 200
- ✓ Number of one-day/next-day deliveries in 2019 Q4 quadrupled (three months, YoY)
- ✓ Number of delivery-related PCT applications increased from 2016

DB: Patentscope

Query: PA:(amazon) AND ICF:(G08G or B65 or B64 or G01S) AND PD:([01.01.201X TO 31.12.201X])

# Trends in AWS-related Patents

C.a. 60% of Amazon's PCT applications are related to cloud technology



- ✓ AWS segment records the highest income in Amazon.com
- ✓ C.a. 60% of Amazon's PCT applications in the past six years relate to cloud-related technology
- ✓ AWS segment profit is increasing year over year

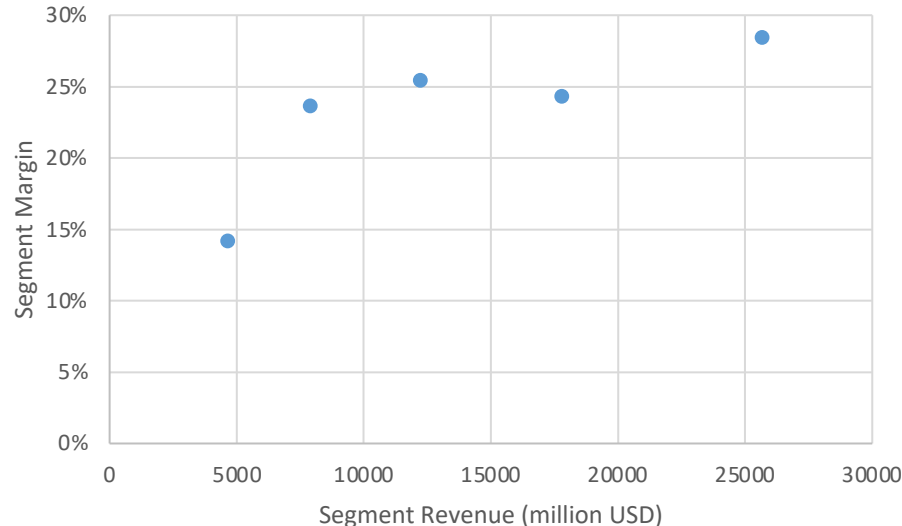
DB: Patentscope

Query: PA:(amazon) AND ICF:(G06F or G06N or G06Q or G11B or H04B or H04L or H04M or H04W)  
AND PD:([01.01.201X TO 31.12.201X])

# AWS Segment Margin & Increasing Return



Segment margin increases drastically in cloud-related business



- ✓ Higher segment revenue gives higher segment margin (**increasing return**)
- ✓ AWS segment revenue has been increasing over the past five years
- ✓ AWS segment margin has also been increasing over the past five years resulting in an increase in **cash flow**

# Conclusion

- ✓ Business sell-offs and financing become easier by bearing highly valuated IPRs
- ✓ IPRs are valuated in terms of future cash-flow
- ✓ IPRs enlarging product margins would be highly evaluated
- ✓ IPRs improving manufacturing/selling turnover rate would be highly evaluated

# Questions?

**Thank you!!**



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with IP Litigation Certification**