



Exploration of a foreign acquisition by Sudhanford Corporation

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We extend a special thank you and acknowledgement to Kellogg Professors Daniel Diermeier, Mark Finn, and Daniel Spulber for their considerate opinions and contributions to this paper.

OVERVIEW

Why does a company engage in an acquisition strategy? Sometimes to expedite growth, sometimes to increase market share, but undoubtedly to help increase its own shareholders' value. Acquisitions may help a corporation diversify, reducing exposure to economic and industry risks. Vertical integration could help a company reduce leverage held by its suppliers. However, when a firm looks to make acquisitions outside of its own geographic boundaries, many more incentives and factors come into play.

Sudhanford Corporation, a diversified U.S. manufacturing company, has expanded its acquisition strategy outside of North America, but more recently noticed a heightened acquisition activity by its competitors in Asia. As a result of globalization, Sudhanford faces competition not only from other U.S. fluid-power companies, but also from European fluid-power companies, which have recently made strategic acquisitions within the Pacific Rim market. In addition to competitive strategy incentives, Sudhanford has a desire to maintain close ties with U.S. partners and clients that have recently established operations in Asia.

With a desire to better understand the industry landscape and recent merger activity in the Pacific Rim, Sudhanford Corporation's Fluid-Power division requested our team of Kellogg analytical finance students to study recent fluid-power acquisitions within the Japanese market, with particular interest in the structure and nature of the recent deals. Further, we have provided Sudhanford with a target corporation for a possible strategic acquisition.

PROJECT DESCRIPTION

Along with Jack Nixon and Robert Strayhorn, Derrick Grant headed an investigative team to research further entry into the Japanese fluid-power industry. The Sudhanford team is primarily concerned with understanding the nature of recent merger activity, in particular

- How much did the acquirer pay relative to market value?
- How did the acquirer value the acquiree?
- How was the deal financed?
- Were these deals successful?

Sudhanford supplied the Kellogg team with two recent deals. The first was Parker-Hannifin's acquisition of Kuroda and the second was Rexroth's acquisition of Uchida.

After analyzing these deals, we assembled success criteria and points of consideration for future deals, as well as examination of a potential target. At a minimum, this target will serve as an illustration of how to value a company within this particular region and industry. Sudhanford may use this information to acquire the suggested company or simply as a framework for a different acquisition.

COMPANY DESCRIPTION

Co-founded as a gear and axle company in 1911 by J.O. Sudhanford, Sudhanford Corporation is now a global \$6 billion diversified industrial manufacturer. Headquartered in Pittsburgh, Pennsylvania, Sudhanford divides its 40,000 employees into four major groups:

- Fluid Power
- Cutler-Hammer
- Truck Components
- Automotive

The Trucking Business generates yearly revenues of approximately \$1.0 billion, concentrating on the heavy-duty market. Products include clutches and transmissions, along with service components and mileage tracking.

The Automotive Business generates about \$1.5 billion in revenues, manufacturing under-the-hood components and electrical switches.

Rip-Stamler has \$1.0 billion in sales from electrical control and distribution systems.

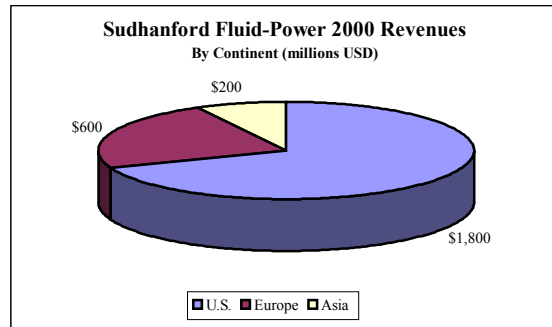
The Fluid-Power division represents Sudhanford's largest and fastest growing business group, with total revenues in excess \$2.6 billion. It has about 16,500 employees, 72 manufacturing sites

and in 17 countries. This group is divided into four main divisions: (2000 revenues)

- Off-highway (\$755 million)
- Aerospace (\$700 million)
- Industrial/electrical (\$500 million)
- On-highway (\$390 million)
- Other (\$260 million in revenues).

The main division is the Off-Highway group, which manufactures skids, mini excavators, and tractors.

Sudhanford is committed to the Asia-Pacific market and wants to become the regional leader for fluid power components.



While the regional industry leader in sales is Robert Bosch, A.G., Sudhanford believes its Fluid-Power division has the best infrastructure (manufacturing, distribution, etc.) in the region. In addition to seeking growth and increasing shareholder wealth, Sudhanford looks to strategically and geographically align itself with its customers. As clients like John Deere & Co establish production facilities abroad, Sudhanford would like to service these customers from within the local region.

To help its goal of Asia-Pacific revenue leader in the fluid-power industry, Sudhanford purchased Sumitomo Heavy Industries Ltd.'s 50% stake in the fluid power joint venture, SEYHCO. This is a wholly owned Japanese business for Sudhanford.¹

Given this established position, Sudhanford appears to have cleared some of the regulatory hurdles and has a direct link into the fluid power value chain in Japan, and possibly throughout the Asia-Pacific region.

¹ Obtained from Sudhanford Corporation web site (www.Sudhanford.com/press/index.html)

COMPETITIVE LANDSCAPE

The Keiretsu System

Developed as Japan sought to rebuild after WWII, the keiretsu system functioned as a networked conglomerate of diversified industries. At the center of each keiretsu stood a large commercial bank, acting as the financial hub of the group. Typically, one large company from each industrial sector (automotive, steel, construction etc.) would be a part of the keiretsu. The relations between the companies were cemented by substantial cross-share holdings, so-called Moichai.² These holdings were meant to stimulate loyalty and financial support.

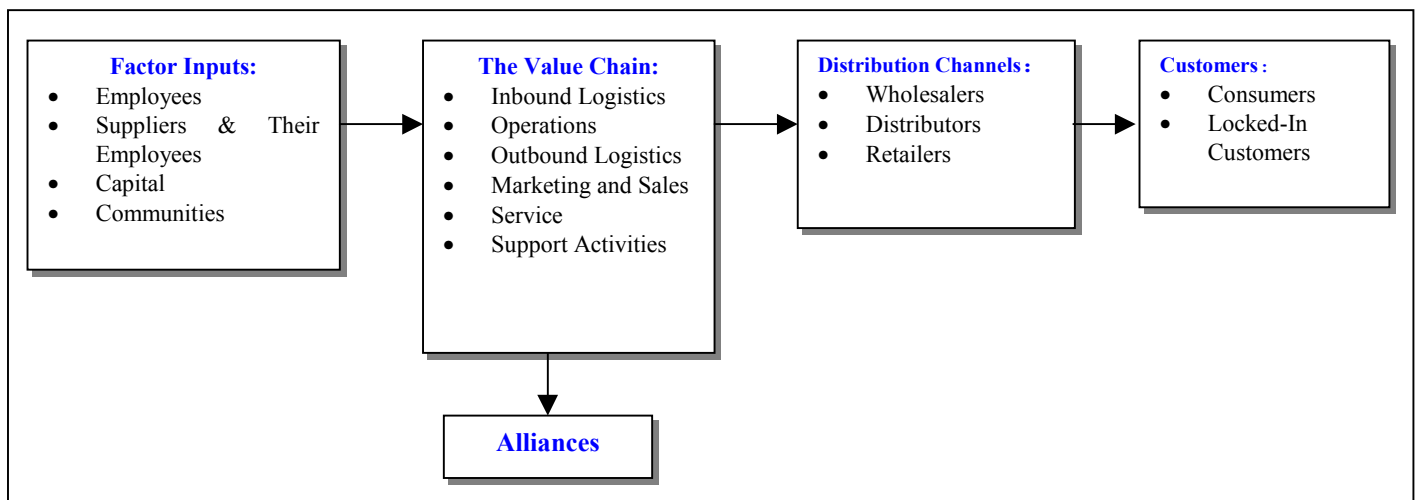
This “horizontal” keiretsu system had several advantages. From the participating companies’ point of view, it meant financial and operating stability, an opportunity to focus on long-term growth with no real threat of being taken over. From the government’s point of view, it facilitated the development of the country. With the industrial power concentrated with a few groups, the finance ministry could easily oversee investment in prioritized areas and offer preferential allocation of business licenses in exchange of giving its advice.

Other types of keiretsus also contributed to Japan’s rising star during the 60s and 70s. “Vertical” keiretsus linked producers, distributors and suppliers to each other. By sharing production control, these keiretsus could develop successful business concepts. Toyota’s famous manufacturing systems is an example.³ Again, the relations were cemented by cross-share holdings, with the implication that companies would look after each other’s long-term health rather than seeking short-term gains.

In addition to economic benefits such as below-market-rate financing from the hub banks, keiretsu members benefit from value created by non-market factors. David Baron refers to this value chain in non-market strategies as the “rent chain.”⁴ According to Baron, “it identifies the incentives and basis for influence in the non-market environment.” A version of Baron’s Rent Chain is illustrated below.

The aforementioned industry structure and relationships can increase barriers to entry. For instance, domestic incumbents can engage in aggressive business practices to drive out foreign nationals. Examples of these tactics include areas of pricing, locking in suppliers and clients, and controlling the distribution channel, among others. One of the more famous cases was that between Fuji and Kodak. Fuji had enough power throughout the rent chain, such that it was very difficult for Kodak to penetrate that market.

Non – Market Rent Chain:



² “Restructuring gives Japan’s workers culture shock”; *Financial Times*; November 2, 1999

³ “The Circle is Broken”; *Financial Times*; November, 1999

⁴ Baron, D., “The Nonmarket Strategy System,” *Sloan Management Review*, Fall 1995, pp. 79-80.

The M&A Environment In Japan

An Increase in Activity

Until recently, acquisitions of Japanese firms by foreign enterprises were considered impractical and joint ventures were the only way to gain a foothold in Japan. M&A in Japan has been rare, but times have changed and acquisitions are on the rise. Todd Guild, a Principal at McKinsey & Co., points out three major hurdles for M&A activity in Japan:

- a lack of M&A infrastructure,
- a scarcity of financial skills and opposition from corporate boards,
- vested interests outside them and executives.⁵

Revisions to the Commercial Code in 1997 simplified merger procedures by easing reporting requirements and abolishing the need for two general shareholder meetings. This was followed in 1998 by revisions to the antimonopoly law narrowing the range of companies subject to reporting requirements. A stock-swap system was permitted by changes to the commercial code and the ban on holding companies was lifted by the revisions to the anti-monopoly law.

Further revisions are expected to the commercial code that would permit the introduction of a corporate spin-off/demerger system. Other important changes came with last year's industrial revitalization law and with a new bankruptcy law in April this year modeled after the US law. The former marks a departure from Japan's longstanding policy of maintaining full employment and acknowledges that corporate restructuring may involve painful retrenchment.

There have also been accounting measures intended to make it difficult for companies to hide problems within group accounts. New rules about to come into effect will also force companies to disclose the extent of their underfunded pension obligations and use mark-to-market accounting for their financial assets.⁶

All these reforms have jump-started M&A activity in Japan. By transaction value, M&A rose sharply to \$152 billion from a mere \$17.9 billion in 1998. This still lags behind activity in Europe and the United States, (M&A volume of \$1.2 & \$1.7 trillion, respectively). In Japan the number of transactions increased from 400 in 1998 to more than 1,250 in 1999. Instances of foreign companies buying

Japanese firms increased from fewer than 100 deals in 1998 to more than 200 deals in 1999.⁷

This activity will certainly continue in years to come due to the combination of continued structural reform and the continued strengthening of Japanese companies through distressed asset sales, debt restructuring and slow economic recovery. New acquisition opportunities for foreign companies will include:

- emerging companies with proven technology
- non-core divisions of large companies (including keiretsus)
- companies that have excessive non-performing assets but still have a strong core business
- companies in the formal reorganization process
- family-owned companies facing successor problems.

Difficulties for Foreign Acquirers

Foreign acquirers in Japan are faced with many problems, the most serious of which involves unwinding the Keiretsu system. While the keiretsu system helped Japanese industrial growth after the second World War, its characteristic cross-ownership structure has made it increasingly difficult for Western firms to acquire Japanese companies. This web of cross-ownership makes it difficult for an acquirer to gain 100% of stock of a target company without elaborate negotiations with all major shareholders. Moreover, this has made hostile takeovers virtually impossible.

Common Difficulties for Foreign Acquirers of Japanese Firms

- Unwinding Keiretsu cross-ownerships
- Achieving efficiencies by unsettling inefficient parts
- Impaired assets
- Uncertainty of quality receivables
- Insulated management (agency costs)
- Stigma of Western-style management

A common way for a target to be acquired is through a third party allotment, in which the target issues a block of shares to the acquirer in a private placement transaction. In this manner, an acquirer can take over control of a company without purchasing 100% of the equity. Gaining control over 33.4% of shares outstanding is an important hurdle an

⁵ "Foreign Competition"; by David Ibisson; Financial Times; April 12, 2001

⁶ "Some Signs of An Urge to Merge"; by Kevin Rafferty; Euromoney; October 2000, p. 82.

⁷ "Some Signs of An Urge to Merge"; by Kevin Rafferty; Euromoney; October 2000, p. 82.

acquirer needs to clear since this ownership percentage gives the acquirer a “blocking interest”, the right to veto all major board decisions.

By negotiating the acquisition of a company and attempting to unwind the keiretsu, the acquirer is forced to deal with and must appease a larger number of significant shareholders, compared to the case in a common transaction in the United States. Most of the firms entwined in keiretsus have therefore a small public float (equity shares held by the public). This complicates achieving synergies and cost cutting objectives necessary for restructuring operations, especially if suppliers and labor have a significant amount of clout. The difficulty to acquire a company has made management rather insulated and unmotivated to “rock the boat”. This type of agency cost can lead management to pursue projects not aggressively enough and will cause these managers to avoid restructuring operations that may need some help.

The Japanese economic crisis has also weakened the balance sheet of many firms. In particular, impaired assets may exist more than in years past. This is especially true of property and land, whose value has decreased immensely over the last ten years and are recorded at cost on financial statements. More serious is the erosion of credit quality of customers and other partners. Receivables may not be guaranteed; therefore cash may not be received as quickly as anticipated, if ever.

Lastly, Western-style business practices are not always welcome in Japan. Cutting labor is much more difficult in Japan and is often opposed both by labor unions and politicians. With its traditional “life time employment” culture, there existed strong political disincentives to allow companies to go under and thereby increase unemployment and social distress.

As recent as in the late 1980s, Sony’s founder Akito Morita accused U.S. executives for “human rights abuses” as U.S. firms shed large parts of its workforce. Currently Renault is experiencing some difficulties restructuring Nissan, as CEO Carlos Ghosn attempts to close inefficient plants and reduce its workforce.

Regulation Factors

Another area in which this structure can impact entry is tied to M&A regulation in Japan. An important issue to consider when entering any foreign market is to find out who actually grants the permission or licenses to conduct business in a particular industry. In Japan, it is likely the MITI (Ministry of International Trade and Industry) that

issues such licenses. The next issue to consider is how politically motivated that organization is. In the case of Japan, the MITI is highly driven by political considerations and thus, will likely be inclined to appease those who appoint MITI members. Then, a firm has to examine the value chain of the industry in which it is trying to enter and see if members of that value chain can form an effective coalition to lobby the regulatory body to deny entry to the foreign national.

This firm should also analyze to see if it could negotiate with various parties along the value chain to secure the regulator’s permission. Generally, anti-trust regulations favor domestic firms, especially when the authorities regard the industry or firms as “strategic” for the country.

Tax and Legal Issues in the Japanese M&A market

Following are some relevant facts regarding the tax and legal issues that must be taken into account when planning an acquisition or a merger in the Japanese market⁸.

Corporate Taxes

In terms of corporate taxes, the current Corporate Tax Rate is 30% in Japan. Additionally, Japanese firms are subject to local income taxes, resulting in a total effective tax rate of 41% (42% if Tokyo is the headquarters). However, the government does provide an Investment Tax Credit (ITC) for certain machinery and equipment, generally 7% of cost or 20% of corporate tax, whichever is less.

As for capital gains, these earnings are not taxed separately but treated as ordinary income. Dividends received from another domestic corporation are generally excluded from gross income. If a foreign corporation owns less than 25% of the Japanese corporation distributing the dividends, then 20% of the net dividend income is included in the gross income calculation. Finally, a Japanese company may claim a foreign tax credit against both Japanese corporate taxes and local taxes. The following table provides a summary of the current tax rates in Japan:

⁸ From “Doing Business in Japan” (Tax and Law), Ernst & Young

Japanese Corporate Tax Table	
Corporate Tax Rate (a)	30%
Capital Gains Tax Rate (a)	30%
Branch Tax Rate (a)	30%
Withholding Tax:	
Dividends	20%
Interest	15 – 20%
Royalties from Patents	20%
Branch Remittance Tax	0%
Net Operating Losses (Years)	
Carry-back (b)	1
Carry-forward	5
(a)	Does not include local income taxes. Effective rate would be 41% (42% in Tokyo)
(b)	Currently suspended

Acquisition of Japanese Companies

Foreign companies are permitted to acquire both private and public Japanese companies. Typically, a foreign corporation acquires stock through open-market purchases or from direct tender offers to current shareholders. As in the U.S., takeover bids may be friendly or hostile.

In making a hostile bid the acquiring firm must comply with the Security and Exchange Law (SEL), including filing with the Ministry of Finance (MOF) and placing a public notice in two daily papers. As for friendly takeovers, the target firm usually issues shares to the acquirer, called a third-party allotment.

Another way to acquire shares in a Japanese target is for a foreign corporation to use its subsidiary in Japan, forcing the subsidiary to merge with the target. Further, foreign companies are not longer required to use a securities company or a Japanese bank to act as an agent in a takeover bid.

Taxation & Accounting Issues

Tax-free mergers in Japan are possible. For transfers of assets, the difference between fair-market-value (FMV) and basis of assets may be taxed as a capital gain, at the ordinary tax rate. In a stock-for-stock merger, shareholders of the subsidiary may defer recognition of capital gains if the book value of shares received by the parent does not exceed the total of shareholders' book value. A company that becomes a subsidiary through a transfer of shares is exempt from capital gains taxes if the shares are acquired by the new parent at the book value of the subsidiary immediately before the transfer.

As for accounting, publicly owned companies must prepare consolidated financial statements in

addition to the individual financial statements of the parent. The standards are very similar to the standards under U.S. GAAP. The equity-method of preparation is required for all unconsolidated subsidiaries and investments and all subsidiaries must be consolidated. A subsidiary is defined as being effectively controlled by a parent.

Regarding accounting for foreign-currency transactions, these deals are measured in yen at the exchange rate prevalent on the transaction date. Short-term payables and receivables must reflect exchange the exchange rate on the balance sheet at fiscal year-end. All assets and liabilities denominated in foreign currencies must be translated at the balance sheet date exchange rate and components of shareholders' equity must be translated at historical rates. Translation adjustments are recorded in shareholders' equity.

Forms of Enterprise

As for types of corporations a foreign company can establish in Japan, there are generally four types, as outlined in the table below:

Forms of Enterprise	
Joint Stock	Used by foreign investors for a wholly-owned subsidiary or joint venture
Limited Liability	Rarely used by foreign investors because this form lacks proper corporate image
Partnership/ Limited Partnership	Corporations may not be partners in partnership companies nor in limited partnership companies.
Branch	A Foreign investor may set up a branch in a foreign company to engage in commercial activities in Japan by filing with the government under the Foreign Exchange and Foreign Trade laws. A branch is considered most suitable for purchases, sales and service operations. A branch does not normally engage in manufacturing

Converting a branch to a subsidiary is possible, but costly and time-consuming. Setting up a subsidiary initially is usually more desirable. Another option is to set up a representative office, which may be created without filing with the government, but may not engage in commercial transactions in Japan.

The most commonly used set-up is the joint venture. An investor must also decide between a subsidiary and a joint venture. A joint venture is

optimal for firms in need of assistance of Japanese partners in administrative functions or seeking distribution channels. A subsidiary is preferable for firms with proprietary technology or a firm just wanting to implement its own independent policies.

Restrictions on Foreign Investment

The Foreign Exchange and Foreign Trade Control Law was absorbed into the Foreign Exchange and Foreign Trade Law, which took effect on May 23, 1997. This legislation freely allows foreign investment into Japan. Most of the previous exceptional restrictions are not contained in the new law. The result is a dramatically increased amount of direct investment in Japan since 1998.

The Report Concerning Acquisition of Stock is required to be filed within 15 days after the investment with the Ministry of Finance. Foreign investors are not required to obtain prior approvals from authorities. However, this does not apply to the following:

- Investments through the establishment of a branch in Japan
- Acquisition of shares in a Japanese company if the branch or company engages in specified industries such as agriculture and forestry
- Investments from specified countries in any industry through the establishment of a branch in Japan or the acquisition of shares in a Japanese company.

Finally, foreign companies are free to acquire land and buildings, but must file a report to be submitted to the Ministry of Finance within 20 days after the purchase.

RECENT ACQUISITIONS BY FOREIGN COMPANIES

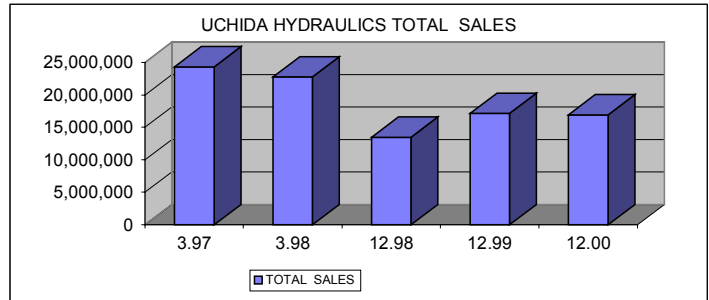
Over the last few years, there have been a number of very public acquisitions of Japanese firms by foreign investors. Some examples are GE Capital’s acquisition of Toho Insurance and Lake Financial, Citigroup’s stake in Nikko Securities and Ripplewood’s purchase of Long Term Credit Bank of Japan.

Clearly, the financial sector has led the way to allow foreign investors to acquire Japanese firms. Other examples exist in the automotive industry where Nissan, Mazda and Mitsubishi are controlled by Western firms. In almost all of these cases, the main impetus for these acquisitions has been the restructuring of the Japanese target. Especially in the financial sector where many assets have been distressed, foreign companies have been asked to “bail” out their Japanese counterparts.

The Fluid-Power industry is no exception to this recent trend of foreign companies acquiring Japanese firms. With sales prices often occurring less than market value, the incentives parallel the automotive and financial industries; purchasing distressed assets with the aim of restructure and market entry. As illustrated in the graph below, the three selected fluid-power companies have been outperformed by a stagnant Nikkei index. The following examines Uchida Hydraulics and Kuroda, and their recent acquisitions by foreign companies.

Uchida Hydraulics Company, Ltd.

Uchida was established in 1934 and became an affiliate of Mannesmann Rexroth GmbH in 1978. The Company manufactures oil hydraulic gear pumps, piston pumps, valves and related parts. Piston pumps accounted for 51% of 1999 unconsolidated revenues, while valves, gear pumps and other parts accounted for 21%, 4% and 24%, respectively. Over the last five years, though, sales have been inconsistent due to a weakening of the hydraulics industry in Japan. As sales have dropped, so have Uchida’s earnings and cash flow.



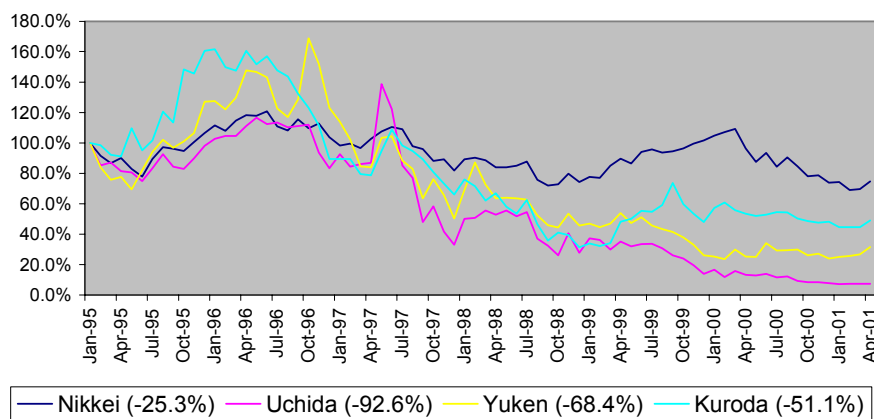
Currently Rexroth holds 68.48% of issued stock. Of the 32 million shares outstanding, 26 million are held closely; thus, the public float of this company is about 6 million shares which are not very liquid. In recent years, Uchida stock has performed rather poorly. Over the last five years, Uchida’s stock is down 92.6%.

The Acquisition of Uchida by Rexroth (1997 Transaction)

On May 21, 1997, German hydraulics manufacturer Rexroth AG (formerly part of Mannesmann AG but now part of Robert Bosch AG) increased its stake in Japanese hydraulics manufacturer Uchida. The transaction took the form of a third party allotment, in which Uchida issued to Rexroth, 10.9 million shares in a private placement, increasing its ownership share from 25% to 50.5%.

Rexroth paid 434 yen in cash for the additional Uchida shares, which were trading at 590 yen. Despite selling shares at a 26% discount to market, Uchida shares rose to their all-time high of 749 yen by May 31, 1997. This rise in the stock price was short-lived, as Uchida shares quickly began to fall in value again. The transaction valued 100% of Uchida at an equity value of 13.9 billion yen and at an enterprise value of 21.7 billion yen. Thus, Uchida was valued at 0.89x 1997 sales, 27.4x 1997 earnings

Five Year Price Performance



before interest and taxes, and 40.9x after-tax earnings.

The Acquisition of Uchida by Rexroth (1999 Transaction)

On January 30, 1999, Rexroth initiated a cash tender offer for the remaining shares of Uchida. 5.7 million shares were tendered at a price per share of 206 yen, raising Rexroth's ownership stake to 68.5% and giving firm control over the company to the Germans.

This acquisition price was offered at a 14.4% premium to the market price of 180 yen, implying an equity value of 6.6 billion and an enterprise value of 10.9 billion. Given Uchida's falling stock price, this valuation was barely one half of the 1997 valuation. Moreover, this valuation represented 0.64x 1999 sales.

Valuation of Uchida

Methodology

The difficulty in ascertaining the "true" value of Uchida stems from the unavailability of full financial projections. Given the small size of both transactions and lack of coverage of Uchida by sell-side analysts, information about these transactions is limited.

Another problem was that Uchida generated negative free cash flows in 1996 and 1998. Assuming that these years were outliers, a true representation of average free cash flows over this time period was difficult to ascertain without company projections.

We therefore looked at free cash flows from 1994 to 2000, "normalized" free cash flows (where free cash flows were adjusted in the terminal year to equate capital expenditures and depreciation) over the same period, and average free cash flows. Using these three measures of free cash flow, we attempted to triangulate an enterprise value for Uchida.

In our analysis, we valued Uchida at the time of Rexroth's first and second transaction to determine whether the price paid for the target made financial sense and if one could view this acquisition as a success. To derive an enterprise value we calculated a terminal multiple (calculated using a terminal growth rate range between 0% and 2% and a weighted average cost of capital range between 2.5% and 5.0%), which we applied to the appropriate cash flows. We compared the enterprise value paid by Rexroth to the enterprise value we had determined using a discounted cash flow method. Cash flows were discounted using to determine Uchida's enterprise value at that time.

Financial Analysis (Exhibit C-D-E)

At the time of the 1997 transaction we found that Uchida's value ranged from 10.9 to 19.3 billion yen using 1997 normalized cash flows as the terminal cash flow. Using the average cash flow over the period 1994 to 1997 the valuation range was between 4.5 and 8.0 billion yen. This valuation was too low in our opinion, mainly due to 1996's negative free cash flows. Thus we would expect this year to have been an outlier and that future cash flows would improve as they did in 1997. We therefore believe that the price paid for Uchida in 1997 was "fair" since, to justify the price paid, 1997 normalized free cash flows would have to grow infinitely by around 2% a year, which is certainly possible.

At the time of the 1999 transaction we found that Uchida's value ranged from 94.0 to 166.2 billion using "normalized" free cash flow. Using average free cash flows over the time period 1994 and 2000 we found a valuation range of 22.7 to 40.1 billion yen. Rexroth's acquisition of Uchida in that year implied an enterprise value for the entire company of 11.0 billion. According to this valuation, Rexroth's acquisition in 1999 was a good transaction for the company since it paid a low price for an asset with significant value.

Free cash flows in 1999 and 2000 were extremely positive and much larger than in prior years. Assuming that Uchida can continue to generate cash at these levels its valuation would certainly reach the values found in the DCF and greatly exceed the price paid. We see no reason that future operations will deteriorate to the extent that these years' cash flows could be viewed as outliers. In fact, Uchida would have to have a negative perpetual growth of its free cash flows to justify the purchase price paid in 1999. Thus, the net present value of this transaction must exceed zero.

Why was the 1997 transaction completed at a discount?

Both transactions were attempts by Rexroth to increase their control within Uchida but the transactions were with different valuations. In 1997 Rexroth bought shares at a steep discount in Uchida while later buying more shares at a premium.

Under closer inspection structuring the transactions in this manner may actually have been an extremely clever way by Rexroth to reduce their risk exposure while still offering a fair price to Uchida shareholders. First, the 1997 transaction was done as a private placement; thus, Rexroth negotiated in private with Uchida management and its board of

directors and was not forced to go to the open market. Given the small public float of Uchida, this could have proven to be very expensive for Rexroth since there was no great supply of shares in the market.

In 1997 management could have been trying to lure a potential investor to Uchida by offering to issue shares directly at a discount, thereby, reducing the overall risk taken on by the acquirer. By negotiating with management directly, Rexroth could have proposed a quid pro quo transaction, where Rexroth does the first transaction at a discount to reduce its own risk in the transaction but comes back with a premium in the second transaction to pay back some of the original sellers. Thus, Rexroth would have had the option to wait until more information was available about Uchida and its future cash flows before investing more capital.

A simpler explanation could be that the outlook for Uchida was much bleaker in 1997 than in 1999 and Rexroth was aware that cash flows would be decreasing. Lastly, since Uchida's shares remain illiquid, current information about Uchida may take longer to be incorporated in the stock price. Thus, comparing the purchase price to current market prices is not valid since the market price does not represent the true value of the company.

Hypothesis for the Transaction at a Discount in 1997

- Private placement vs. Tender Offer
- Incentive to take controlling position despite risk for Rexroth
- Quid pro quo; follow-up transaction at premium to pay back original sellers
- Inside information (less positive outlook in 1997)
- Small float; shares are not liquid and don't reflect true price

Parker-Hannifin Acquisition of Kuroda

On May 25, 1999, Parker-Hannifin announced its intention to purchase 18.7 million shares of Kuroda Precision Industries, another Japanese Hydraulics company. The shares were purchased in a private placement, giving Parker-Hannifin 33.5% ownership, enough for a blocking interest (the right to veto all major board decisions). Also of note, Kuroda was sold to the UK subsidiary of U.S. based Parker-Hannifin.

Similar to the Uchida deal, shares were purchased at a 25.9% discount to market value, with a dramatic increase in Kuroda's stock market price after the deal announcement. At a price of 200 Yen per share, Kuroda had an implied equity value of 3.7

billion Yen (\$31 million) and an implied enterprise value of 16.9 billion (\$114.1 million).

EXPANSION INTO THE ASIAN MARKET: POTENTIAL ACQUISITION TARGETS

Given the growth potential of Asia in terms of Sudhanford's clients' products (i.e. agricultural equipment and transportation equipment), a few of them have established operations in this market. A recent example of this is John Deere's manufacturing facility in India. Sudhanford's strategy is one of following its customers. This is a reflection of the belief that the fluid hydraulic business is "local" in nature⁹.

It makes sense that the expansion into the Asian market will take place via mergers and acquisitions of local competitors. Three factors contribute to this:

- Ownership regulations in certain countries such as Japan require locally owned capital.
- Opportunity to leverage on the combination of the local manufacturing expertise and the American pricing/marketing expertise.
- Leverage on the already existing relationships that local manufacturers have with customers.

Given the recent deregulations in terms of ownership structure, Japan has become an interesting market to target as a starting point in establishing a foothold in Asia. However, in Japan as in the rest of Asia, the fluid hydraulics market is highly fragmented. This makes the search for an acquisition target with a good fit, a difficult task. This is further complicated by the fact that the fluid hydraulics market in Japan is currently depressed and going through a period of slow sales growth and declining margins. This will become evident in the analysis that follows.

Brief analysis: The Targets

Three Japanese manufacturers of fluid hydraulics products appear to be interesting to Sudhanford as potential targets to merge with or acquire. These are Nachi, Tokimec, and Yuken. A

⁹ Darryl Mayhorn, Sudanford Corporation

simple multiples and ratio analysis shows that the industry is depressed.

Exhibit C shows three important variables to understand the overall performance of these firms: EBIT margins, Asset turnover (Total Sales/Total Assets) and Financial leverage (Total Assets/Common equity)¹⁰.

EBIT margins have declined dramatically and even Yuken and Tokimec show negative profits at the operating level. Asset turnover has also declined as a result of decreasing sales except for Nachi (Nachi is a more diversified conglomerate and relies only partially on the fluid hydraulics business; the results presented here are consolidated for the entire company). Leverage has also decreased according to this measure.

Tokimec has decreased its debt and Nachi has maintained the same debt level. Yuken actually added a small amount of debt to their capital structure. Although no evidence was found, this decrease in leverage could be a result of even higher equity financing (makes sense from the perspective of the business risky environment and less attractiveness of debt financing) or reduced value of assets via divestitures, under-investment (assets reduced by depreciation and not replaced) or declining prices in accounts receivables and inventories.

Exhibit G presents a comparison across these three firms on various ratios and price multiples. Many price multiples become irrelevant when firms are experiencing negative earnings. These multiples were left out of the analysis.

The price ratio analysis shows that Yuken is trading at half of its book value. According to financial theory, this reflects the market's belief that management is destroying value. Tokimec and Nachi also present low Price/Book ratios. Slower sales growth decreases the price-to-sales ratio of Yuken and Tokimec. This slower growth is evidenced in the profitability analysis. 1999 in particular was a very tough year for all three manufacturers. Not only were did sales decrease (negative growth) but also the operating and profit margins shrunk. Neither Yuken nor Tokimec have been able to recover and regain past profitability.

Leverage in yen terms has remained relatively constant. Relative to the market value of equity, however, leverage has increased due to the significant decline in stock prices. This is particularly the case of Yuken and Tokimec. This creates a vicious cycle. Deteriorating business conditions reduce the stock price, which in turns makes debt a

¹⁰ Assets and Equity numbers are book values. Market values will later be used for the valuation of Yuken.

higher proportion of the capital structure, making the equity riskier.

The enterprise value analysis shows an interesting fact. Both Yuken and Tokimec both hold significant amounts of cash in their books relative to their debt levels. It is as if they raised debt and kept the cash (which makes not sense due to the resulting negative carry or lower savings than borrowing rates) or if they had just divested assets and have not reinvested or paid out the cash. No evidence was found with respect to this fact. Also counterintuitive is the fact that cash has been changing year to year in the opposite direction of sales. Under "normal" circumstances, cash and sales move together.

The liquidity analysis shows again the deteriorating business environment: higher accounts receivable and inventory turnover than in the past. More importantly, they show significant differences across firms. There is a wide spectrum of different products and applications in the fluid hydraulics business. Given this variety, the product portfolios of the companies differ greatly. This explains the differences presented in the liquidity analysis.

Differences in product portfolios help reduce the analysis to one firm: Yuken. Tokimec receives a significant amount of its earnings from marine applications and Nachi as it was mentioned before, is a much larger and diversified conglomerate.

Yuken Kogyo Co. Ltd

Since Yuken Kogyo is a more pure-play fluid hydraulics company, we selected it as our target company for an Sudhanford acquisition. Established in 1947, Yuken operates in the Fluid power valves & hose fittings sector, with 32% of revenues coming from Hydraulic valves. Given these dimensions, we believe Yuken is the appropriate target company to evaluate for Sudhanford.

Valuation of Yuken Kogyo

When the Uchida and Kuroda transactions were analyzed, the main question was the price of equity. In efficient markets, price is equal to value (ability to generate future cash flows). A similar question can be asked about Yuken: What is the prevalent market price of the equity? More importantly, what does this price represent in terms of future cash flows and growth prospects?

There are two main methods to value a company: discount projected future cash flows by the appropriate cost of capital which reflects the risks of those cash flows, or via comparable multiples. In the case of Yuken, both methods are complicated.

In the first one, it is very difficult to forecast future cash flows for this company because:

- 1) Historical sales and free cash flows have been volatile, going from positive to negative,
- 2) Limited knowledge of the specifics of the fluid hydraulics business that would allow for modeling changes to the underlying business that could add value and make sense at the same time.

The second method is complicated because of the lack of a good set of similar companies with which to compare Yuken. The analysis is further affected by the fact that given the size of the firms participating in the market, there is very little public information that is readily available.

There is a variation of the multiples analysis, which can be performed and yields interesting results. As stated before, the value of a company (value of the assets or enterprise value) is derived from its ability to generate future cash flows. Therefore, the price of the assets is equal to the future cash flows, including a terminal value, discounted to the present value at the cost of capital. If we assume the future free cash flows will continue in perpetuity, then the enterprise value can be obtained by applying the following multiple formula:

$$EV = \frac{FCF(1+g)}{wacc-g}$$

Where:

EV	=	Enterprise Value
FCF	=	Future Cash Flows
WACC	=	Weighted average cost of capital ¹¹
g	=	Growth rate of the future cash flows ¹²

Once the EV is calculated, the value of the debt is subtracted from the firm and the excess cash is added to obtain the value of the equity. In the case of Yuken, there is a clearly identifiable market value of equity, since its shares are traded in the market. A common assumption is to take the book value of debt as the market value of debt. Taking the cash from the balance sheet, the market EV can be calculated. For Yuken, the 2000 FCF can be used as the FCF.

Market EV

As of May 15, 2001, Yuken's enterprise value is:

Shares outstanding	45,106,017
X Price per share	JPY 133
= Market value of Equity	JPY 5.99 Bn
+ Book value of Debt	JPY 9.49 Bn
- Cash	JPY 5.80 Bn
= Enterprise Value	JPY 9.69 Bn

2000 FCF

Exhibit H provides a detailed calculation of the free cash flows of Yuken for the past 6 years¹³. The data confirms what was mentioned before regarding the volatility of the cash flows. It also

¹¹ This number is obtained by averaging the cost of debt (including taxes) and the cost of equity, weighing each by its corresponding proportion of the total capital as measured by market values.

¹² By construction, $g < wacc$.

¹³ Data from japanfinancials.

shows the impact of the 1999 slump in sales. The 2000 FCF of JPY 0.21 billion will be used in the sensitivity analysis.

Two variables remain unknown: wacc and g. These two variables are difficult to estimate. However, given that EV and FCF are known, a simple sensitivity analysis can be made which will provide some guidance as to the approximate values of wacc and g.

- 1) Starting with the 2000 FCF, the multiple formula above can be applied using different combinations of wacc and g and solving for an implied EV. The combination of wacc and g that produces an implied EV that matches the market EV will be the wacc and g perceived by the market.
- 2) Starting with EV, the formula above can be applied using different combinations of wacc and FCFs and solving for g. The g that matches the combination of the 2000 FCF and the wacc found in step 1, will be the growth rate assumed by the market.

An approximation to wacc

Before actually performing the sensitivity analyses, a rough estimation of wacc can be made using the Capital Asset Pricing Model (CAPM) to calculate the return on equity and averaging it with the return on debt. Specifically, the formulas for the CAPM is:

$$r_E^L = r_f + B_E^L(MRP)$$

- Where,
 r_E^L = Return on levered equity
 r_f = Risk-free rate
 B_E^L = Beta of levered equity
 MRP = Market Risk Premium

Using r_E^L , we can use the following weighted average formula to solve for wacc:

$$wacc = \frac{D}{D + E}(1 - T)r_D + \frac{E}{D + E}r_E^L$$

- Where,
 D = Market value of debt
 E = Market value of equity
 T = Tax rate
 r_D = Return on debt
 r_E^L = Return on levered equity

Since Yuken’s FCFs are yen denominated, a wacc that reflects yen risk and interest rates should be used. The following is an approximate calculation of Yuken’s wacc as of May 2001. The inputs are the best match that could be found in public sources¹⁴.

Return on levered equity		
Risk-free rate	1.29%	
Beta vs. TPX	0.69	
TPX risk premium	4.50% ¹⁵	
Return on Equity	4.39%	
Return on Debt		
B rated 5-year bond rates	5.29%	+400 bps over risk-free
Debt / Equity		
Debt (Book value)	9.4858	
Equity (Market Value)	5.9991	
D / E	1.5812	
WACC	3.97%	

The above calculation provides a “ball park” for the wacc, which is useful to identify the correct values of EV and g when performing the sensitivity analysis.

Exhibit I shows different values for the risk-free rate (Japanese Government Bonds), which could be used to value projects of different duration. The return on debt must also be adjusted matching its maturity with the duration of the project.

¹⁴ Data from Bloomberg and japanfinancials.
¹⁵ Koller, Copeland, Murrin, “Valuation”. McKinsey & Co. 3rd. Edition. Wiley

Solving for EV

The multiple formula introduced above is used to perform the sensitivity analysis. Holding the 2000 FCF constant, and calculating the implied EV for various combinations of wacc and g, provides the following results in Table 1:

The numbers in the table are the implied EV given the combinations of wacc and g (holding 2000 FCF constant). By locating the current market EV of JPY 9.69 Bn in the table and assuming that the market also looks at the 2000 FCF as a proxy of FCFs, then the market is considering a wacc of 3-4% and a growth rate of 0.5-1.0%.

Solving for g

Similarly, using the same multiple formula we can hold the market EV constant and perform a sensitivity analysis where different combinations of wacc and 2000 FCF yield different growth rates.

The numbers in the table are the implied growth rate given the combinations of wacc and 2000 FCF (holding EV constant). Using the actual 2000 FCF and the wacc of 3-4% found before, the table shows that the market is considering a 0.9-1.8% growth rate. This is close enough to the g found before (see results in table 2).

The result of this exercise is calculating the market's implied wacc (3-4%) and g (0.5-1.8%). These wacc and g found can then be applied to perform a more detailed discounted cash flow analysis when more precise projections of FCFs become available.

Table 1

		Perpetual Growth Rate				
		0.0%	0.5%	1.0%	1.5%	2.0%
WACC (yen)	2.0%	JPY 10.3	JPY 13.8	JPY 20.9	JPY 41.9	N/A
	3.0%	6.9	8.3	10.4	14.0	21.1
	4.0%	5.2	5.9	7.0	8.4	10.5
	5.0%	4.1	4.6	5.2	6.0	7.0
	6.0%	3.4	3.8	4.2	4.7	5.3
	7.0%	2.9	3.2	3.5	3.8	4.2

Table 2

		2000 Free Cashflow				
		-10.0%	-5.0%	0.0%	5.0%	10.0%
WACC (yen)	2.0%	JPY 0.19	JPY 0.20	JPY 0.21	JPY 0.22	JPY 0.23
	3.0%	0.1%	0.0%	0.9%	0.7%	0.6%
	4.0%	1.1%	1.9%	1.8%	1.7%	1.6%
	5.0%	2.0%	2.9%	2.8%	2.7%	2.6%
	6.0%	3.0%	3.9%	3.8%	3.7%	3.6%
	7.0%	4.0%	4.9%	4.8%	4.7%	4.5%

CONCLUSION

There are five steps that Sudhanford Fluid Power should consider as it progresses with its acquisition strategy. These procedures have been proposed and articulated by academics and practitioners Tom Copeland, Tim Koller and Jack Murrin¹⁶. We have paraphrased these steps and their descriptions below:

1. **Understand the Structure of Your Industry** – Once completed, there are essentially three roads to pursue in adding value:
 - Obtain new customers or segments and complementary or improved products and services.
 - Take advantage of economies of scale to decrease costs and enhance product quality.
 - Capitalize on skills or technologies at which target companies excel.
2. **Continually Review List of Targets** – Maintain updated records of potential targets.
3. **Due Diligence of High Contenders** – In the process of understanding the companies the acquirer is seriously considering, a strategy should be developed to determine how to earn back the purchase price, including the premium (if any), paid. This involves detailed cash flow analyses and incorporating synergies due to the acquisition.

4. **Negotiation** – This is a sensitive process and it is important to keep in mind the acquirer firm's goal, reservation price (highest price willing to pay) and best outside option (know when to walk away from the bargaining table).
5. **Assimilating the Target Firm after the Acquisition** – This is a very critical step and has poor integration has often led to the failure of mergers. The authors cite three sub procedures within this to which to adhere:
 - Develop a plan to ensure the integration of the businesses and realization of synergies.
 - Manage organizational transition – Maintain as much open communication as possible with employees regarding the merger.
 - Deal with external influences – These include shareholders, regulators and Wall Street, among others. While staying within regulatory procedures to keep these parties informed, also top executives should maintain dialogue with key customers so as to not let competitors take advantage of your major post-merger integration.

While the detailed aspects of these steps may only be applicable in situations where a major acquisition has occurred, they serve as a foundation from which to conduct an acquisition strategy. (Please see *Exhibit S A & B* for the matrices on aspects that determine a successful or unsuccessful merger.)

¹⁶ From *Valuation: Measuring and Managing the Value of Companies, Third Edition* (2000), pp. 111-128.

EXHIBIT A: Matrix That Determines a Successful Merger

Potential Actions of Acquiring Firm/Target Firm			
Key Success Factors	Rexroth/Uchida	Parker-Hannifin/ Kuroda	Sudhanford / Target
Economies of Scale	Manufacturing in Japan for Asia-Pacific customers would achieve this	Manufacturing in Japan for Asia-Pacific customers would achieve this	Objectives that Sudhanford should keep in mind
Economies of Vertical Integration	Cross Ownership and loyalty in the Japanese value chain is an asset	Cross ownership and loyalty in the Japanese value chain is an asset.	
Economies of Scope	Secretive nature of the Japanese business culture and these foreign nationals are large conglomerates – hard to ascertain	Secretive nature of the Japanese business culture and these foreign nationals are large conglomerates- hard to ascertain	
Tax Advantages	Could have been the motivation behind acquiring a larger stake in 1999.	Enacted deal through its UK subsidiary, potentially giving it substantially tax advantages	
Eliminate inefficient Management	If shareholder is an outsider, the influence is limited, unless that shareholder had influence in the target firm's value chain	If shareholder is an outsider, the influence is limited, unless that shareholder had influence in the target firm's value chain	
Free Cash/Surplus Funds	Possible target firm needed capital infusion from a larger, global player	Possible target firm needed capital infusion from a larger, global player	
Market Power	A foothold in Japan gives some degree of market power	A foothold in Japan gives some degree of market power	
Financing Cost	Entered Japanese market in 1997, potentially before slowdown		↓

EXHIBIT B: Matrix That Determines a Poor Merger

Potential Actions of Acquiring Firm/Target Firm			
Key Failure Factors	Rexroth/Uchida	Parker-Hannifin/ Kuroda	Sudanford / Targets
Poor or Slow Post-Merger Integration	Depends on nature of transaction achieved – simple ownership, with target running the day to day affairs, or acquirer taking control	Depends on nature of transaction achieved – simple ownership, with target running the day to day affairs, or acquirer taking control	Objectives that Sudanford should keep in mind
Poor Technological Fit	Given our basic knowledge that these firms are in the same industry, at the surface, one could argue that this does not appear to be an issue	Given our basic knowledge that these firms are in the same industry, at the surface, one could argue that this does not appear to be an issue.	
Acquirer with a weak core business	Hard to ascertain, as these foreign nationals are large conglomerates. This is best left to competitive intelligence obtained through the field sales force, customers and suppliers	Hard to ascertain, as these foreign nationals are large conglomerates. This is best left to competitive intelligence obtained through the field sales force, customers and suppliers	
Target is too small or too large	If too large, can be hard to absorb; if too small, may be better to spend corporate resources elsewhere	If too large, can be hard to absorb; if too small, may be better to spend corporate resources elsewhere	
Overly optimistic appraisals of synergies	Quite often, companies fall into this trap, leaving them with more problems than when they first embarked on an acquisition.	Quite often, companies fall into this trap, leaving them with more problems than when they first embarked on an acquisition	
Over estimation of market potential	Prior to the Asian financial crisis, companies could be vulnerable to this. Caution should be exercised.	Prior to the Asian financial crisis, companies could be vulnerable to this. Caution should be exercised	
Inadequate Due Diligence	This can be a big problem in Japan, where it may not be possible to obtain as much information as one could in the U.S.	This can be a big problem in Japan, where it may not be possible to obtain as much information as one could in the U.S.	
Incompatible Corporate Cultures	Western companies wishing to expand in Japan face this considerable hurdle	Western companies wishing to expand in Japan face this considerable hurdle.	▼

EXHIBIT C: Uchida Cash Flows

Uchida Income Statement

(Billions of Yen)

	Actual							CAGR
	1994	1995	1996	1997	1998	1999	2000	
Total Sales	19.24	21.16	22.18	24.30	22.73	17.15	16.90	-2.1%
Cost of Goods Sold	(15.58)	(17.03)	(17.69)	(19.67)	(19.04)	(15.73)	(15.31)	
Gross Profit	3.66	4.13	4.49	4.63	3.69	1.42	1.58	-13.0%
S, G &A	(3.42)	(3.57)	(3.73)	(3.78)	(3.78)	(3.44)	(3.23)	
EBIT	0.24	0.56	0.76	0.85	(0.09)	(2.02)	(1.64)	NM
Less: Taxes	(0.10)	(0.23)	(0.31)	(0.35)	0.04	0.83	0.67	
Plus: Depreciation and Amortization	0.78	0.66	0.65	0.71	0.83	0.85	NA	
Less: Increase in NWC	NA	(0.70)	(0.34)	(0.12)	(3.99)	7.01	4.24	
Less: CapEX	(0.47)	(0.15)	(1.06)	(0.75)	(0.96)	(0.86)	NA	
Free Cash Flow	0.45	0.14	(0.30)	0.34	(4.18)	5.81	3.27	39.1%

Selected Balance Sheet Information

(Billions of Yen)

	Actual							CAGR
	1994	1995	1996	1997	1998	1999	2000	
Current Assets	12.55	14.83	16.99	18.77	19.75	11.89	10.33	-3.2%
Current Liabilities	8.81	10.39	12.21	13.87	10.85	10.00	12.68	6.3%
Net Working Capital	3.74	4.44	4.78	4.90	8.89	1.89	(2.36)	
Increase in NWC	NA	0.70	0.34	0.12	3.99	(7.01)	(4.24)	

EXHIBIT D: Uchida Discounted Cash Flow Analysis (1997 Deal)

Discounted Cashflow Analysis of Rexroth's 1997 Acquisition of Uchida

Date: 5/21/97

Implied Enterprise Value Paid By Rexroth: **JPY 21.68**

(Billions of Yen)	1994	1995	1996	1997	CAGR
Free Cashflows	JPY 0.45	JPY 0.14	(JPY 0.30)	JPY 0.34	-9.0%
Average Free Cashflows				0.16	
"Normalized" Cashflows	0.14	(0.37)	0.11	0.38	39.1%

NB Cashflows are normalized by equating capex and depreciation

1997 FREE CASHFLOW

WACC	Perpetual Growth Rate				
	0.0%	0.5%	1.0%	1.5%	2.0%
2.5%	JPY 13.6	JPY 17.1	JPY 22.9	JPY 34.6	JPY 69.5
3.0%	11.4	13.7	17.2	23.1	34.8
3.5%	9.7	11.4	13.8	17.3	23.2
4.0%	8.5	9.8	11.5	13.8	17.4
4.5%	7.6	8.6	9.8	11.5	13.9
5.0%	6.8	7.6	8.6	9.9	11.6

AVERAGE FREE CASHFLOW

WACC	Perpetual Growth Rate				
	0.0%	0.5%	1.0%	1.5%	2.0%
2.5%	JPY 6.3	JPY 7.9	JPY 10.6	JPY 16.0	JPY 32.2
3.0%	5.3	6.3	8.0	10.7	16.1
3.5%	4.5	5.3	6.4	8.0	10.7
4.0%	3.9	4.5	5.3	6.4	8.0
4.5%	3.5	4.0	4.6	5.3	6.4
5.0%	3.2	3.5	4.0	4.6	5.4

"NORMALIZED" 1997 FCF

WACC	Perpetual Growth Rate				
	0.0%	0.5%	1.0%	1.5%	2.0%
2.5%	JPY 15.2	JPY 19.1	JPY 25.6	JPY 38.6	JPY 77.7
3.0%	12.7	15.3	19.2	25.8	38.8
3.5%	10.9	12.8	15.4	19.3	25.9
4.0%	9.5	10.9	12.8	15.5	19.4
4.5%	8.5	9.6	11.0	12.9	15.5
5.0%	7.6	8.5	9.6	11.0	12.9

EXHIBIT D (CONTINUED): Discounted Cash Flow Analysis (1997 Deal)**Discounted Cashflow Analysis of Rexroth's 1997 Acquisition of Uchida:
Perpetual Growth of FCF Implied by Purchase Price**

Date: 5/21/97

Implied Enterprise Value Paid By Rexroth: **JPY 21.68**

(Billions of Yen)	1994	1995	1996	1997	CAGR
Free Cashflows	JPY 0.45	JPY 0.14	(JPY 0.30)	JPY 0.34	-9.0%
Average Free Cashflows				0.16	
"Normalized" Cashflows	0.14	(0.37)	0.11	0.38	39.1%

NB Cashflows are normalized by equating capex and depreciation

1997 FREE CASHFLOW	1997 Free Cashflow After Synergies				
	-10.0%	-5.0%	0.0%	5.0%	10.0%
	JPY 0.31	JPY 0.32	JPY 0.34	JPY 0.36	JPY 0.37
WACC	2.5%: 1.1%	1.0%	0.9%	0.8%	0.8%
	3.0%: 1.6%	1.5%	1.4%	1.3%	1.2%
	3.5%: 2.1%	2.0%	1.9%	1.8%	1.7%
	4.0%: 2.5%	2.5%	2.4%	2.3%	2.2%
	4.5%: 3.0%	3.0%	2.9%	2.8%	2.7%
	5.0%: 3.5%	3.5%	3.4%	3.3%	3.2%

AVERAGE FREE CASHFLOW	Average Free Cashflow After Synergies				
	-10.0%	-5.0%	0.0%	5.0%	10.0%
	JPY 0.14	JPY 0.15	JPY 0.16	JPY 0.17	JPY 0.17
WACC	2.5%: 1.8%	1.8%	1.8%	1.7%	1.7%
	3.0%: 2.3%	2.3%	2.3%	2.2%	2.2%
	3.5%: 2.8%	2.8%	2.8%	2.7%	2.7%
	4.0%: 3.3%	3.3%	3.2%	3.2%	3.2%
	4.5%: 3.8%	3.8%	3.7%	3.7%	3.7%
	5.0%: 4.3%	4.3%	4.2%	4.2%	4.2%

"NORMALIZED" 1997 FCF	Average Free Cashflow After Synergies				
	-10.0%	-5.0%	0.0%	5.0%	10.0%
	JPY 0.34	JPY 0.36	JPY 0.38	JPY 0.40	JPY 0.42
WACC	2.5%: 0.9%	0.8%	0.7%	0.6%	0.6%
	3.0%: 1.4%	1.3%	1.2%	1.1%	1.0%
	3.5%: 1.9%	1.8%	1.7%	1.6%	1.5%
	4.0%: 2.4%	2.3%	2.2%	2.1%	2.0%
	4.5%: 2.9%	2.8%	2.7%	2.6%	2.5%
	5.0%: 3.4%	3.3%	3.2%	3.1%	3.0%

EXHIBIT E: Uchida Discounted Cash Flow Analysis (1999 Deal)

Discounted Cashflow Analysis of Rexroth's 1999 Acquisition of Uchida: Perpetual Growth of FCF Implied by Purchase Price

Date: 1/30/99

Implied Enterprise Value Paid By Rexroth: **JPY 10.95**

(Billions of Yen)	1994	1995	1996	1997	1998	1999	2000	CAGR
Free Cashflows	JPY 0.45	JPY 0.14	(JPY 0.30)	JPY 0.34	(JPY 4.18)	JPY 5.81	JPY 3.27	39.1%
Average Free Cashflows							0.79	
"Normalized" Cashflows	0.14	(0.37)	0.11	0.38	(4.05)	5.82	3.27	68.8%

NB Cashflows are normalized by equating capex and depreciation

2000 FREE CASHFLOW

WACC	Perpetual Growth Rate				
	0.0%	0.5%	1.0%	1.5%	2.0%
2.5%	JPY 131.0	JPY 164.5	JPY 220.5	JPY 332.3	JPY 667.9
3.0%	109.1	131.6	165.3	221.6	334.0
3.5%	93.5	109.7	132.3	166.2	222.6
4.0%	81.9	94.0	110.2	132.9	167.0
4.5%	72.8	82.3	94.5	110.8	133.6
5.0%	65.5	73.1	82.7	95.0	111.3

AVERAGE FREE CASHFLOW

WACC	Perpetual Growth Rate				
	0.0%	0.5%	1.0%	1.5%	2.0%
2.5%	JPY 31.6	JPY 39.7	JPY 53.2	JPY 80.2	JPY 161.3
3.0%	26.3	31.8	39.9	53.5	80.6
3.5%	22.6	26.5	31.9	40.1	53.8
4.0%	19.8	22.7	26.6	32.1	40.3
4.5%	17.6	19.9	22.8	26.7	32.3
5.0%	15.8	17.7	20.0	22.9	26.9

"NORMALIZED" 2000 FCF

WACC	Perpetual Growth Rate				
	0.0%	0.5%	1.0%	1.5%	2.0%
2.5%	JPY 131.0	JPY 164.5	JPY 220.5	JPY 332.3	JPY 667.9
3.0%	109.1	131.6	165.3	221.6	334.0
3.5%	93.5	109.7	132.3	166.2	222.6
4.0%	81.9	94.0	110.2	132.9	167.0
4.5%	72.8	82.3	94.5	110.8	133.6
5.0%	65.5	73.1	82.7	95.0	111.3

EXHIBIT F: Financial Graphs of Target Acquisition Firms

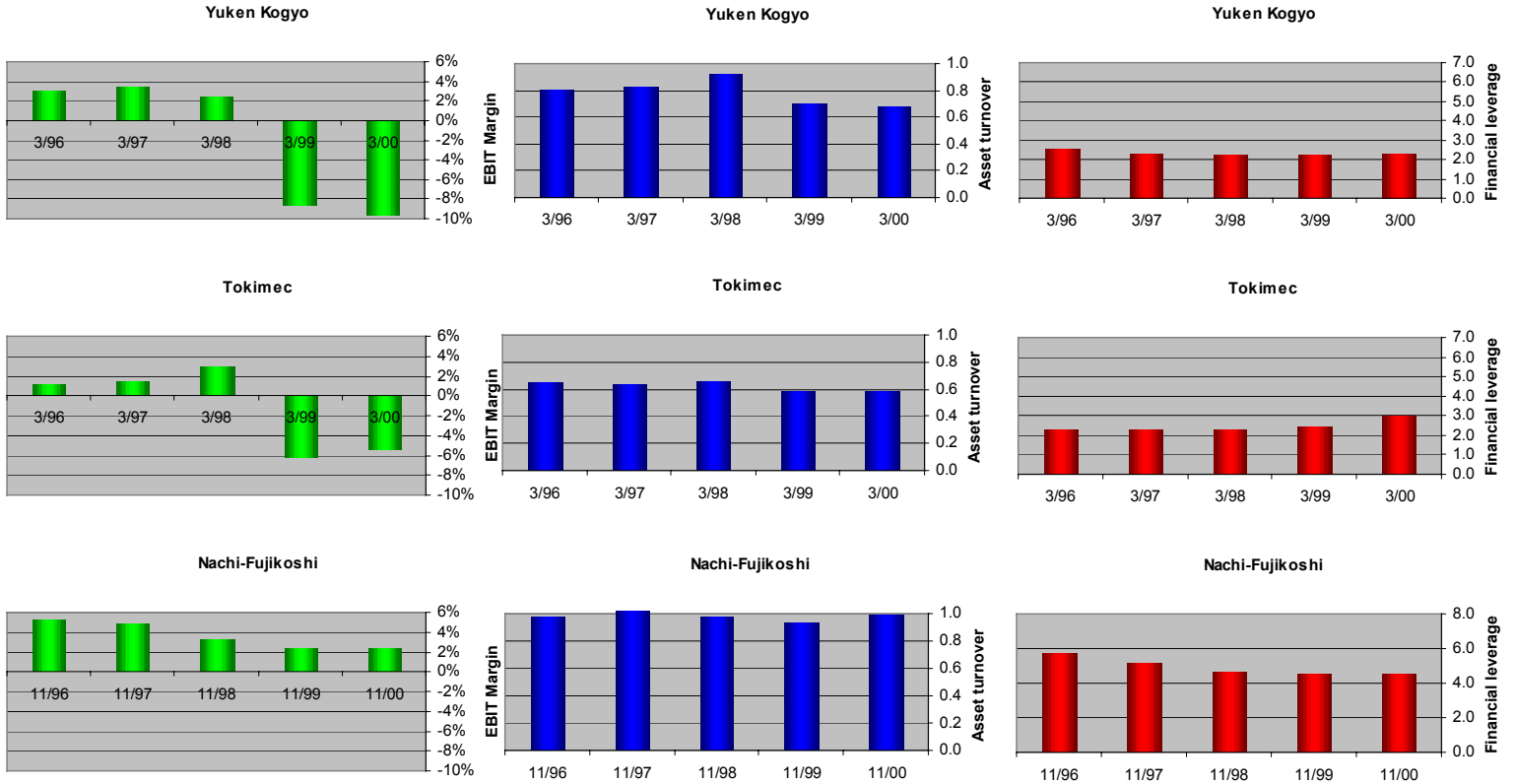


EXHIBIT G: Financial Analysis of Target Acquisition Firms

	12/00	12/99	12/98	12/97	12/96
Price Ratio Analysis*					
Price/Book					
Yuken Kogyo	0.48	0.53	0.80	0.84	2.34
Tokimec	1.56	0.43	0.50	0.54	1.12
Nachi-Fujikoshi	1.36	1.08	1.39	1.82	3.62
Price/Sales					
Yuken Kogyo	0.27	0.33	0.43	0.44	1.23
Tokimec	0.24	0.28	0.30	0.35	0.76
Nachi-Fujikoshi	0.30	0.26	0.31	0.36	0.67
Profitability Analysis**					
	3/00	3/99	3/98	3/97	3/96
Sales yr. Change					
Yuken Kogyo	7.39%	-25.35%	15.24%	5.55%	6.53%
Tokimec	-1.92%	-14.28%	5.31%	-2.88%	-1.15%
Nachi-Fujikoshi	6.08%	-8.95%	-9.54%	7.01%	7.89%
Operating margin					
Yuken Kogyo	-9.73%	-8.74%	2.53%	3.44%	3.10%
Tokimec	-5.42%	-6.28%	2.99%	1.53%	1.22%
Nachi-Fujikoshi	2.39%	2.33%	3.20%	4.90%	5.22%
Profit margin					
Yuken Kogyo	-8.57%	-6.29%	3.17%	4.45%	8.37%
Tokimec	-21.95%	-9.26%	0.12%	0.54%	0.42%
Nachi-Fujikoshi	-3.27%	0.64%	1.04%	2.78%	0.30%
Leverage Analysis					
Total debt					
Yuken Kogyo	7.26	7.22	4.95	4.04	4.78
Tokimec	31.44	33.15	30	28.67	27.53
Nachi-Fujikoshi	47.41	47.41	52.43	53.89	54.19
Total debt/Equity mkt. Value					
Yuken Kogyo	1.22	0.53	0.28	0.29	0.22
Tokimec	2.73	1.99	1.17	0.86	0.57
Nachi-Fujikoshi	1.19	1.43	1.18	0.98	0.54

EXHIBIT G (CONTINUED): Financial Analysis of Target Acquisition Firms**Enterprise Value**

Yuken Kogyo						
Market cap		6.41	5.91	9.29	14.39	16.47
Preferred equity	NA	NA	NA	NA	NA	
Min. interest	NA	NA	NA	NA	NA	
Total debt		7.26	7.22	4.95	4.04	4.78
Cash & equivalents		4.54	4.78	3.74	4.53	3.99
Enterprise value		9.13	8.35	10.5	13.9	17.26
Tokimec						
Market cap		11.19	12.12	15.11	24.42	31.85
Preferred equity	NA	NA	NA	NA	NA	
Min. interest	NA	NA	NA	NA	NA	
Total debt		31.44	33.15	30.00	28.67	27.53
Cash & equivalents		17.11	10.33	5.66	8.00	6.86
Enterprise value		25.52	34.94	39.45	45.09	52.52
Nachi-Fujikoshi						
Market cap		44.53	39.99	36.58	45.67	55.21
Preferred equity	NA	NA	NA	NA	NA	
Min. interest	NA	NA	NA	NA	NA	
Total debt		47.41	47.41	52.43	53.89	54.19
Cash & equivalents		10.23	10.23	19.03	19.63	18.23
Enterprise value		81.71	77.17	69.98	79.93	91.17

Liquidity Analysis

Current ratio (Curr. Assets / Curr. Liabilities)						
Yuken Kogyo		1.38	1.46	1.46	1.53	1.54
Tokimec		1.10	1.24	1.35	1.37	1.35
Nachi-Fujikoshi		0.97	1.02	0.90	0.87	1.05
A/R turn-days						
Yuken Kogyo		131.27	146.3	123.18	130.39	121.71
Tokimec		145.55	139.13	132.39	148.27	144.82
Nachi-Fujikoshi		67.96	70.30	76.69	75.63	71.47
Inv. turn-days						
Yuken Kogyo		92.15	99.16	76.83	80.74	83.13
Tokimec		198.75	191.06	167.75	153.15	139.14
Nachi-Fujikoshi		63.32	71.67	72.19	72.22	79.45

* Closing prices. Stock variables (ie book value) are as of end of period. Period variables (ie sales, earnings, etc.) are trailing 12 months.

** Yuken and Tokimec have end of fiscal year in March. Nachi has end of fiscal year in November.

All data from Bloomberg

EXHIBIT H: Yuken Kogyo Future Cash Flow Projections

Yuken Income Statement

(Billions of Yen)

Rate
30.0%

	1995	1996	1997	1998	1999	2000
Total Sales	25.32	29.48	30.17	28.26	21.97	19.83
Cost of Goods Sold	(20.15)	(22.58)	(22.77)	(20.79)	(17.64)	(15.89)
Gross Profit	5.17	6.90	7.40	7.47	4.33	3.94
S, G &A	(5.88)	(5.94)	(6.10)	(6.27)	(5.83)	(5.58)
EBIT	(0.71)	0.97	1.30	1.20	(1.50)	(1.64)
Less: Taxes	0.21	(0.29)	(0.39)	(0.36)	0.45	0.49
Plus: Depreciation and Amortization	0.75	0.75	0.47	0.70	0.65	0.64
Less: Increase in NWC	NA	(0.97)	(0.75)	1.32	(0.39)	0.63
Less: CapEX	NA	(0.48)	(0.19)	(1.32)	(0.26)	0.09
Free Cash Flow	0.25	(0.02)	0.44	1.54	(1.05)	0.21

Selected Balance Sheet Information

(Billions of Yen)

	1995	1996	1997	1998	1999	2000
Current Assets	13.91	15.90	15.66	15.17	12.40	11.62
Current Liabilities	9.07	10.09	9.11	9.93	6.78	6.63
Net Working Capital	4.84	5.81	6.56	5.23	5.62	4.99
Increase in NWC	NA	0.97	0.75	(1.32)	0.39	(0.63)

EXHIBIT I: U.S. & Japan Government Bond Yield Curves

US GOVERNMENT BONDS

	Coupon	Date	Price	Yield
3 Months	0	8/9/01	3.810	3.900
6 Months	0	11/8/01	3.547	3.662
1 Years	0	2/28/02	3.520	3.650
2 Years	4	4/30/03	99.875	4.066
5 Years	4.625	5/15/06	99.891	4.650
10 Years	5	2/15/11	98.703	5.170
30 Years	5.375	2/15/31	95.766	5.671

JAPAN GOVERNMENT BONDS

	Coupon	Date	Price	Yield
3 Months	0	8/6/01	99.994	0.026
6 Months	0	11/12/01	99.988	0.024
1 Years	5.6	6/20/02	106.132	0.017
2 Years	4.5	6/20/03	109.226	0.095
3 Years	3.9	6/21/04	111.418	0.196
4 Years	3.4	6/20/05	112.401	0.333
5 Years	3.3	6/20/06	114.002	0.485
6 Years	2.5	6/20/07	110.963	0.632
7 Years	1.6	6/20/08	105.284	0.812
8 Years	1.4	6/22/09	103.094	0.987
9 Years	1.8	6/21/10	105.722	1.107
10 Years	1.1	3/21/11	98.342	1.289
15 Years	3.5	3/21/16	124.181	1.507
20 Years	1.9	3/22/21	99.467	1.937
30 Years	2.9	11/20/30	111.216	2.265

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