HARVARD | BUSINESS | SCHOOL

9-719-424
REV: SEPTEMBER 20, 2021

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The a2 Milk Company

New Zealand

"We would like to think we are demonstrating a unique business model and strategy."

— Geoffrey Babidge, CEO of The a2 Milk Company (2017) [1]

On February 23, 2018, two days after The a2 Milk Company (a2MC) announced a new "strategic relationship" with Fonterra Co-Cooperative Group, it became the most valuable company on the New Zealand Stock Exchange. Over the past year, its market value had rocketed from NZ$2 to NZ$10 billion.[a] (See **Exhibit 1**.) a2MC was a dairy processing firm with sales of NZ$728 million in calendar year 2017. It sold both drinking milk and infant formula primarily in China and Australia. What distinguished a2MC from other dairy processing firms was that it sold products containing the A2 beta-casein protein only, not the A1 protein that most cows produced (i.e., its products were "A1 free," see **Exhibit 2**). Eliminating the A1 protein from dairy products was significant because many people found it difficult to digest the A1 protein and research suggested it could be related to health problems such as diabetes and heart disease.

The new partner, New Zealand-based Fonterra, was the world's sixth largest dairy processor with sales of NZ$19 billion in 2017.[2] It was a farmer-owned cooperative that produced and sold dairy products globally, but did not produce any A1-free products. According to Fonterra, the partnership would "fast-track market growth" by combining Fonterra's sales and distribution expertise with a2MC's brand strength.[3] An industry blogger described the move as a "seismic shift for both the New Zealand and global dairy industries" that was driven by the realization that continuing to "fight against the A2 cause was a losing stance."[4] Investors responded enthusiastically to the news driving a2MC's stock price up 27% that day. Several senior executives took this opportunity to sell shares. Babidge, in particular, sold 1.5 million a2MC shares for NZ$19.7 million leaving him with 2.5 million shares.[5]

But one month later, Nestle, the world's largest dairy firm, confirmed it had launched its own A1-free infant formula in China. Although Babidge claimed Nestle's entry was "a very strong endorsement" of the A2 proposition and that competition would help "build the category,"[6] the company's stock price fell 10% within two days to close at NZ$12.40. In the short run, Babidge had to decide how to respond to Nestle's entry into the market; in the longer term, he had to decide how to

[a] As of February 23, 2018, NZ$1.00 = US$0.73 = AUD$0.94 = €0.60 according to OandA.com.

Professor Benjamin C. Esty and Research Associate Daniel Fisher prepared this case with the assistance of Research Associate Greg Saldute. This case was developed from published sources. Funding for the development of this case was provided by Harvard Business School and not by the company. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

position the firm for long-term growth and success. These decision were complicated by the fact he was scheduled to retire in July and would be replaced by Jayne Hrdlicka, an American who had run Jetstar (a low-cost Australian airline owned by Qantas), served as a non-executive director of Woolworths (Australia's largest supermarket chain), worked at Bain & Company, and graduated from the Tuck Business School. Hrdlicka said she was delighted to join "a strong and principled firm with significant opportunity ahead and impressive momentum in each of its core markets."[7] She did, however, try to allay some potential concerns:

> Going from aviation to dairy is not an obvious transition, but it is actually a pretty logical one when you step back from it. I've spent six years in a very disruptive segment of aviation, taking a business that had grown like crazy and taking it to another level of its infrastructure and capability and doing that through a very clear lens on Asia…[8]

Dairy Products and the A1/A2 Discovery

At a high level, the global beverage industry had two major segments: alcoholic (e.g., beer, wine, and spirits) and non-alcoholic beverages. The latter could be further divided into beverages that were typically consumed hot such as coffee and tea and those that were typically consumed cold such as water, carbonated soft drinks, fruit juices, sports drinks, and milk. Relative to other beverages, milk constituted about 5% of daily fluid intake for adults.[9] People typically drank milk because they were thirsty, wanted the nutritional benefits (e.g., calcium, vitamin D, and protein), or liked the taste.

The primary ingredient in drinking milk was raw cow's milk which could also be used to make a variety of dairy products (e.g, butter and cheese). Because raw milk was highly perishable, dairy processors removed the water to make milk powders that had a much longer shelf life and only 10% of the weight. In powder form, it was easier and cheaper to ship long distances—approximately one third of Australian dairy products were subsequently exported.[10] One of the major uses for milk powders was infant formula. After fortifying the powder with additional fat, vitamins, and protein, the powder could be re-hydrated and used as a substitute for or an alternative to human breast milk.

Annual per capital consumption of drinking milk ranged from a low of 20 liters in China to a high of 135 liters in Ireland. Australia and New Zealand were near the upper end of per capital consumption with of just over 100 liters each. (**Exhibit 3a** shows per capital consumption; **Exhibit 3b** shows the size of the global dairy industry and the major segments.) While consumption patterns differed across countries, per capita milk consumption was declining in many countries. In the U.S., for example, it had declined about 1% per year for the past 70 years.[11] One reason for the decline was that many people had trouble digesting milk—it caused bloating, gas, and diarrhea. The cause for some people was lactose intolerance: they did not produce enough of the chemical needed to digest lactose, the natural sugar found in all mammalian milk. This condition was more prevalent in older people—and less common among children—and in certain ethnic groups: approximately 20% of Caucasian, 70% of African, and 90% of Asian adults had trouble digesting milk.[12] But many people who had trouble digesting milk were not technically lactose intolerant by medical standards. According to one survey, 25% of American adults (85 million people) felt discomfort after consuming dairy products when in fact only 5% were actually lactose intolerant.[13] Among those who felt discomfort, a majority of them did not drink milk.[14] As a result, there was a large segment of the world's population that either did not drink milk or did so with discomfort.

Besides lactose intolerance, an alternative hypothesis for why people had trouble digesting milk had to do with its chemical composition. In the 1960's, biochemists discovered that cows, even from the same breed, *naturally* produced different kinds of beta casein proteins.[15] Ten thousand years ago, all cows produced the A2 protein only, but genetic mutations had caused some cows to produce a variant called A1 (see **Exhibit 4**). All cows had two alleles (i.e., two types of genes) and milk production was determined by which alleles the cow possessed. If a cow had the A1 allele, its milk contained the A1 protein. Today, 70% of cows produced some version of the A1 protein (either pure A1/A1 or a combination of A1/A2 proteins). The difference between the A1 and A2 proteins involved a single amino acid in a chain of more than 209 amino acids (see **Exhibit 5**). In 1993, two New Zealand scientists Bob Elliott and Corran McLachlan discovered that humans digested the A1 and A2 proteins differently. A protein fragment called BCM-7, a type of opioid, broke off during the digestion of milk containing the A1 protein causing inflammation in the digestive system. Scientists suspected the inflammation caused the discomfort many people experienced after consuming dairy products and could be related to more serious illnesses ranging from diabetes and autism to heart disease and allergies.

Since that time, scientists had been trying to prove whether the A1 protein did, indeed, cause discomfort and other health problems.[16] Some of the early studies were rejected because they were done on animals not humans. Another early study was disputed because it was done by a consultant to Fonterra, a conventional dairy firm. Fonterra scientists regularly rejected the health claims made about the A1 protein saying they were "irresponsible" and lacked "compelling evidence."[17] In 2014, a2MC sponsored a test on humans that showed people reported less pain after consuming A1-free milk. Although it was published in a reputable nutrition journal, people questioned the results because of a2MC's involvement. As of 2016, Fonterra's CEO Theo Spierings was still describing A1-free milk as just a "marketing concept."[18] The following year, a2MC sponsored another study involving 600 Chinese adults. It, too, showed that subjects found it easier to digest A1-free milk. Nevertheless, the scientific community remained divided prompting the New Zealand government to conclude:

> The A1/A2 hypothesis is both intriguing and potentially very important for population health if it is proved correct. It should be taken seriously and further research is needed…As a matter of choice, people may wish to reduce or remove A1 β-casein from their diet…[but] they should do so knowing that there is substantial uncertainty about the benefits of such an approach.[19]

Despite the uncertainty, many people drank a2 Milk® and swore by it. a2MC ran testimonials on its web site with claims like this one from a woman named Lisa. "I suffer from an upset stomach after drinking regular milk. Now I have none of these symptoms, thanks to a2 Milk®."[20]

The large demand for dairy products in general combined with the large fraction of the population that had trouble digesting milk had created demand for two new kinds of milk. The first kind was "specialty milks" which included A2 cow milk, goat milk (which contained the A2 protein only), and lactose-free milk. This segment accounted for 5% of the milk market and was the fastest growing segment.[21] Because all milk contained lactose, A1-free milk did not help people with lactose intolerance, but it did help many people with digestion problems and it tasted like conventional milk. In contrast, both lactose-free and goat milk tasted considerably different from regular cow's milk. The second kind of milk was plant-based "milk" made from almonds, soy, oats, or rice, which currently represented 10% of the milk market.[22] But these plant-based alternatives also tasted considerably different from regular cow's milk.

Health concerns also created demand for organic milk (~5% of the market). Whereas organic milk required a different kind of farming process; producing A1-free milk required exactly the same process as conventional milk once you created a herd of pure A2/A2 cows. The conversion process, however, took time and incremental cost. Given breeding cycles, herd conversion could take up to 10 years, but the timeline could be reduced to five or so years by using pure A2/A2 bull semen for artificial insemination, by testing and removing calves with the A1 gene, and by breeding cows at younger ages.[23] While many firms around the world provided A2 bull semen, the leading suppliers in New Zealand and Australia tested all of their bulls for the A2 gene—the genetic test cost NZ$23 per animal—and offered A2 semen at no additional cost. The cost of pure A2 semen was NZ$25 per "straw" (one straw was required to fertilize a cow) and a healthy bull could produce enough semen to create tens of thousands of straws per year.[24]

The Australian Dairy Industry

The production and sale of dairy products consisted of three stages: dairy farming, milk processing, and retail distribution. With a few minor exceptions, the Australian and New Zealand dairy industries were quite similar. Because the Australian operations grew increasingly important to a2MC over time and it was a bigger market, this section focuses primarily on the Australian dairy industry.

The production process began on one of Australia's 5,800 farms where 1.5 million cows produced 9 billion liters of milk worth A$3.7 billion.[25] Farming was a difficult business that generated both low and volatile margins: the average pretax return on capital for Australian dairy farms was 2.2% since 2000 (not counting land appreciation). Larger farms generated higher returns in part because they received higher milk prices from dairy processors—as much as 15% higher—because it was easier and cheaper for processors to source milk from a single, large farm than from many smaller farms.[26]

After cows were milked, the raw milk was then transported to facilities where it was processed into drinking milk, butter, cheese, and powders (both adult powders and infant formula). Most farmers sold their milk under contract to a local processor. In the typical market, three processors handled 85% of the volume.[27] Following deregulation of the industry in 2000, the number of processing firms had shrunk through acquisitions to the point where the "Big 6" firms currently controlled 95% of Australian production; a handful of small processors did the rest.[28] The largest processor, Murray Goulburn had 40% of the market and had just been acquired by Saputo, a Canadian dairy firm. Large foreign firms owned two of the other Big 6 producers (Parmalat and Lion Dairy & Drinks), as well. Fonterra was by far the largest processor in New Zealand and its Australian subsidiary was one of the Big 6.

While some processors produced a full range of dairy products, others specialized in one or two products. For example, Bega focused on cheese and Synlait focused on milk powders. Similarly, some processors created their own branded milk products—Fonterra had the Anchor brand while Murray Goulburn had the Devondale brand—while others made private label brands for supermarkets or processed milk for other companies (e.g., Synlait made infant formula for a2MC). Besides milk, processors used machinery, labor, and packaging (cartons and containers) to produce finished goods—all of which were available in competitive markets. The cost of a new processing facility, the most expensive input, ranged from A$20 to A$80 million depending on the facility's size, throughput, and product range.[29] Because dairy processing was a competitive business with high raw material costs, it generated relatively low gross margins and low returns on capital. **Exhibit 6** shows profit and balance sheet information for the publicly owned dairy processing firms in Australia and New Zealand.

Although branded dairy products might signal greater safety or higher quality, consumers were unable to distinguish different types of milk based on taste. For example, Choice, an Australian consumer advocacy group, ran a blind taste test that showed there was no taste difference between generic milk and branded milk costing twice as much.[30] Despite the difference in retail prices, farmers received approximately the same price for raw milk regardless of what final product it produced.[31] Processors typical announced "farmgate" prices—the average expected price for the coming year—in June and then made minor adjustments over the year. They set milk prices as low as possible to acquire the milk volume they needed in each region. Farmers rarely knew the contractual terms or the actual prices paid by processors to buy milk from other farmers.[32]

After production and packaging, dairy products were sent to retailers for sale to consumers. Supermarkets, the largest distribution channel for dairy products in general and for milk in particular, bought milk from regional processors under medium- to long-term contracts. Supermarkets were also the major sellers of infant formula though other retailers such as chemists (pharmacies) sold infant formula, as well. The two largest supermarket chains—Coles and Woolworths—controlled 70% of the food market in Australia; two smaller chains Aldi and IGA controlled another 23%.[33] The second largest distribution channel for dairy products was convenience stores, a channel dominated by chains such as Coles Express, Woolworths Plus Petrol, and 7-Eleven.

Because consumers remembered the prices of only a few food items, and milk was one of them, supermarkets priced milk aggressively—even at a loss—to generate store traffic. Price competition also resulted from the fact that private label milk make up over 50% of the Australian milk market.[34] One of the grocery industry's most memorable events occurred on Australia Day (national day) in 2011 when Coles cut the price of its private label milk by 33% to A$1 per liter. The other major supermarkets immediately matched the price, and that price had remained in effect through 2018. Although Coles promised it would absorb the price cut itself,[35] a dairy farming trade organization claimed, "Lower prices have pushed right through the system. Processors have no alternative but to pay lower prices to farmers."[36] In fact, Murray Goulburn, the leading supplier of milk to Coles, cut its farmgate prices by 15%. For many farmers, this new price was below their total cost but not their marginal cost of production.[37]

Despite intense competition at the retail level, supermarkets generated operating margins of 4% and pretax returns on capital of 10%. Within the dairy category, they generated gross margins of 12% on private label milk, 28% on branded milk, 30% on milk powders, and up to 35% on infant formula.[38]

The a2 Milk Company

Dr. Corran McLachlan, one of the scientists who had conducted the early research on the A2 protein, and Howard Paterson, a wealthy New Zealand entrepreneur and farmer, founded the company in 2000. Over the next 18 years, the company progressed through four distinct phases (see **Table A**).

Table A The a2 Milk Company's Four Phases of Development

Phase	Years	Revenue ~~(NZ$ mil)~~	Description (Type of Company)	Key Actions
1	2000-07	$7 in FY07	Technology & IP	Developed key IP & licensed technology to others
2	2007-12	$64 in FY12	Branded Milk	Became an operating company Produced milk; expanded into Australia
3	2012-15	$155 in FY15	Branded Dairy	Entered infant formula & new markets (US, UK, & China)
4	2015-18	$550 in FY17	Branded Dairy Nutrition	Expanded product line, geography, and customers

Source: Compiled by casewriter from The a2 Milk Company, USA & Asia Investor Presentation, slides 11 and 30, 3-Apr-17.

In the first phase (2000-07), it focused on developing intellectual property (IP) and licensing that IP to certified laboratories around the world. They trademarked the names A2 and a2 Milk® which were particularly valuable because they represented the product's critical point of differentiation (A1 vs. A2) and could be used on other dairy products. They also obtained patents covering the detection of A1 proteins in cows and milk, the process of A2 herd formation, and the beneficial uses of A1-free products. Initially, they had six families of patents, a number that eventually grew to 15 families in countries around the world.[39] Although some of the first patents expired in 2015 (i.e., one for testing milk for the A1 protein), others would remain in effect through 2036. According to Susan Massasso, the firm's chief marketing officer (CMO):

> The strength of The a2 Milk Company's intellectual property comes from the interrelationship between a number of its patents, rather than any individual patent, and the interrelationship between the company's patents and other forms of IP, especially protected brand marks. . .This IP position means that no one else can have complete freedom to operate in the manufacturing, selling and advertising of an A1 beta-casein free proposition in its entirety like we can.[40]

Despite her assertion about the strength of the firm's IP, an industry blogger cautioned, "[I]t is best to use patents as shields and bang loudly on them, but also best not to test them in battle."[41]

In the second phase (2007-12) a2MC became an operating company with its own milk products. During this phase, they expanded into the larger consumer market in Australia (population 22.2 million vs. 4.4 million in New Zealand in 2010)[42] through a joint venture (JV) with Freedom Foods, a local dairy processor. As part of its Australian strategy, a2MC built a small processing plant near Sydney and positioned its A2 Milk® as "a premium-priced value added dairy product."[43] Instead of showing happy cows or mentioning competing brands, a2MC's advertisements showed happy customers and emphasized digestive comfort with slogans like "Feel the difference", "Love milk again", "Better than milk," and "Thank you A2". Like Coca-Cola (e.g, "Have a Coke and a Smile"), the slogans made an emotional rather than a rational connection to the product.[44] Massasso described the approach:

> Because the brand has such a profound effect on its target, really understanding that consumer, being able to get under the skin of that person, becomes really important. . . We're telling people this is real milk for those who can't drink milk. I mean, that's a pretty disruptive statement. We're different. Not all milk is the same. [45]

In addition to targeting consumers with advertisements, a2MC continued to invest in IP and formally developed "The a2 System®" comprised of the firm's proprietary commercial processes and know-how from milk supply through consumer sales. This phase was characterized by a clear focus on a single product (drinking milk) with a few minor variations (whole vs. low fat) and a narrow geographic scope. Perhaps the most important move during this period was hiring Geoffrey Babidge as CEO in 2010. Although he had begun his career as a chartered accountant, he had migrated into fast moving consumer goods (FMCG) and brought deep industry knowledge of food and nutritional products. He had been interested in the company for years. In fact, when he first heard about a2MC in 2006, he said, "The more I looked at this company, the more I realised [sic] it could be huge."[46] Finally, the company reached an important milestone in 2011: it earned its first profit after being in business for more than 10 years.

Having established the brand, the next phase (2012-15) was about expansion and growth as a2MC became a branded *dairy* company. a2MC expanded the product line into infant formula and the distribution network into the U.S., U.K., and China. Like its approach in Australia, a2MC created a sales and marketing JV with the country's largest processor as a way to enter the UK market.[47] The company also hired its first CMO (Massasso) in 2013 to drive awareness, product trial, and sales.

The fourth and current phase (2015-present) was about "profitably making a difference in people's lives" across a wider range of products (e.g., yogurt, ice cream, and cheese), a wider geographic footprint, and a wider demographic (infants to seniors).[48] CMO Massasso described this phase: "Our biggest challenge is the sheer number of opportunities for us. Just choosing what to do and what not to do within our financial boundaries [is extremely difficult]."[49] But it was a nice problem to have.

At the end of fiscal year 2017 (FY17), a2Mc had revenues of NZ$550m and net income of NZ$91 million, up 56% and 198%, respectively, over the prior year (see **Exhibit 7**). Through the first half of FY18, revenue was up 33% and profitability was improving: its gross and net margins were 50% and 21%, respectively, and it was generating a return on equity of almost 40%. The company had a market capitalization of NZ$6B and was listed on both the Australian and New Zealand stock exchanges.

The a2 Milk Company in Early 2018

As of early 2018, a2MC looked more like a technology and marketing company than a conventional dairy processor because of its emphasis on R&D and marketing rather than production. Instead of owning physical assets, it contracted with firms along the supply chain to provide the necessary services. For example, it contracted with farmers to convert their herds using a2MC's genetic tests, and paid them a 10% premium to cover the cost of testing all cows, segregating them, and creating a dedicated, A1-free supply line.[50] It then contracted with dairy processors in New Zealand to produce drinking milk (e.g., Fresha Valley in 2009) and infant formula (e.g., Synlait in 2012). Once again, this required dedicated facilities and segregated supply lines. To ensure quality, a2MC tested the milk when it arrived at and when it departed from the processing facilities.[51] An independent trucking company then transported finished goods to retailers—primarily the large Australian supermarkets—where it was sold to consumers. Babidge described the approach this way:

> Where we add value is in developing the science, the IP and sales, marketing, and distribution. We have a capital light-smart business model. We put medium to long-term relationships in place with outsourced parties that have complementary businesses where we are satisfied as to the quality of the product that is produced.[52]

Although 80% of its products were sold in Australia and New Zealand (**Exhibit 8** shows sales by product and geographic segments), a large fraction ended up in China, particularly the infant formula. The market for infant formula in China was especially attractive for three reasons: the market was very large (see **Exhibit 3b**), it was growing rapidly (growth of 10% per year vs. 3% to 5% in other regions), and it was largely import-based because of a tragic poisoning incident in 2008.[b] a2MC met this demand in two ways. First, it had an exclusive distribution agreement with China State Farm Holding Shanghai, a state-owned agriculture firm with an extensive distribution network, experience with high-end consumer products, and knowledge of China's regulatory system—to sell A2 products through official channels (e.g., online, in grocery stores, and through "mother and baby" stores). These products had Chinese labels and trademarks. While the official channel accounted for about 12% of imports, a2MC also used the "*daigou*" (Chinese for "buying on behalf of") channel, a kind of "gray" market.[53] This channel involved Australians, often Chinese immigrants, buying infant formula in Australia and shipping products with English labels to friends or retail outlets in China, a profitable arbitrage opportunity that circumvented the official channel's import tariffs and postal taxes. Because the *daigou*

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[b] In 2008, 300,000 Chinese infants got sick and six eventually died after drinking infant formula containing melamine, a toxic industrial chemical inappropriately used to increase the formula's protein level. This incident damaged the reputation of Chinese food manufacturers and created demand for imported infant formula from places like Australia and New Zealand. See A. Ramzy and L. Yang, "Tainted-Baby-Milk Scandal in China," *Time Magazine*, 16-Sep-08

channel was large and growing rapidly, the Chinese government was watching it closely and considering new regulatory proposals related to food safety, import taxes, and labelling that could restrict, possibly significantly, the *daigou* channel.[54]

Although Babidge was still running the company in early 2018, the board had announced he would retire in July 2018, and be replaced by Hrdlicka. Until then, Babidge was in charge of daily operations and responsible for executing the firm's three-pronged growth strategy: 1) to create a broad dairy nutritional product portfolio; 2) to target attractive regions; and 3) to develop proprietary know-how and expertise with the A2 protein.[55] In short, it was a continuation of the technology and expansion strategies the firm had been following in recent years. The company remained asset-light and it still sold branded dairy products at a significant price premium. **Exhibit 9** shows the pricing and cost structure for a2 Milk® powder (adult not infant) versus conventional milk powder. The economics for drinking milk and infant formula were similar. For example, a2 Milk® cost A$2.40 per liter compared to A$1.50 to A$2.10 for branded milk and A$1.00 for private label milk.[56] And a2 Milk® generated operating margins that were five to ten times larger than the margins on branded conventional milk. Despite the large price premium and an unwillingness to discount the product, a2MC had been able to grow sales rapidly and profitably. As the company noted, its "flexible and scalable supply chain" had allowed it to grow and generate attractive returns for investors by capitalizing on market opportunities.[57] The key to its success, according to Massasso, was the company's "extraordinary amount of single-mindedness, agility, and ambition."[58]

Fonterra Enters as an A2 Partner

On February 21, 2018, Babidge announced better-than-expected financial results for the first half of FY18 (see **Exhibit 7**) and a new "strategic relationship" with Fonterra. According to a2MC, the deal encompassed "a range of supply, distribution, sales and marketing arrangements" that would "expand a2MC's ability to build its business in new priority markets and beyond."[59] In particular, Fonterra agreed to establish new A1-free milk pools in New Zealand, Australia, and possibly China; to assist a2MC's market entry strategies using Fonterra's sales and distribution capabilities; to explore the potential for a2MC branded butter and cheese; to supply infant formula in Southeast Asia and the Middle East; and to consider building a jointly owned packaging facility. Describing the deal, Babidge said, "The company has been focused on broadening its manufacturing and supply chain options and. . . [this new agreement] will provide multi-site and geographic diversification and new product development opportunities."[60] Fonterra's CEO Spierings elaborated:

> The partnership is intended to fast-track market growth. . . [It will] unlock new opportunities in a wide range of international markets. It is a win-win for both companies. . . The a2MC products promoted by this partnership sit well within our overall portfolio of products. . . This partnership is all about finding ways to continue to delight our consumers and generate more value for our farmers.[61]

Both the financial results and the new partnership pleased investors who clamored for shares—the stock closed up 27% for the day at NZ$11.75. One investor exclaimed: "The Fonterra deal is incredibly significant on a number of levels. What it implies is the IP around what A2 has is very robust, and [shows] the importance of having an A2-only milk product and dairy products."[62] Keith Woodford, a prominent industry analyst and consultant, called Fonterra's move a dramatic "U-turn":

> Fonterra has become the first of the international dairy majors to embrace the A2 concept. The other majors—such as Nestle, Danone,. . . and Mengniu—will all have been giving thought as to how they should meet the emergent challenge of A2. But to see their

> 'fellow major' Fonterra make the first leap will have come as a big shock. The dairy world is indeed going to change….The big winner from the joint venture is going to be [a2MC]. . . [But Fonterra has to] be very careful in its messaging to ensure that consumers are not scared off 'A1 milk' as they have plenty of this to sell for the next ten years.[63]

Three weeks later, Spierings announced his resignation after Fonterra reported poor financial results for the first half of FY18. In an interview, he acknowledged that Fonterra "had been slow to recognize the value in the alternative milk company a2 Milk."[64]

Nestle Enters as an A2 Competitor

One month later, Nestle publicly confirmed that it had begun selling its own brand of A1-free infant formula in China under the name Illuma Atwo,[65] and the press speculated it would enter Australia and New Zealand later in the year with similar products. Nestle, a diversified food and beverage company, had more than 2,000 brands and sales of CHF90 billion (NZ$129 billion) in 2017 (see **Exhibit 10**). A Nestle spokesperson said the milk used to make the formula was sourced globally. It had tried to get supplies of A2 milk from New Zealand, but "what was needed was not available" according to the spokesperson.[66] Industry sources suggested the milk came from the United States.[67] It was not known, however, how large Nestle's A1-free milk pool actually was or how fast it could be scaled up. At the time, Nestlé accounted for 18% of the infant formula market in China, and sold most of its products under the Wyeth brand name.[68] According to one analyst, Wyeth planned to spend NZ$300 million (~20% of sales) on marketing and advertising in 2018, far outstripping the NZ$42 million a2MC had spent in China the previous year. The same analyst reported that Wyeth had ten times more sales assistants than a2MC had (7,500 vs. 700). [69]

Over the next two days, a2MC's stock price fell 10% to close at NZ$12.40 representing a loss in market value of more than NZ$1 billion. One analyst explained the decline this way:

> They [a2MC] have been lucky enough to enjoy a lucrative market in infant formula in China for a while now and they have benefited significantly. . . Now you have got a large player [Nestle] with very deep pockets that has chosen to enter the market. They [a2MC] have had first mover advantage and we are about to find out just how strong their brand is.[70]

a2MC's Babidge, however, saw things quite differently:

> We've got a very significant global company in the form of Nestle putting their toe in the water. That represents a very strong endorsement of the A1 protein free proposition, which in our view, will create more interest and, in fact, build the category; and we're positive about that. . . [W]e've got the first mover advantage; the strong brand position; the understanding of the science; the unique intellectual property: those things are unique attributes for our company.[71]

A2MC's press release explained why Babidge believed a2MC was in such a strong position:

> The a2 Milk Company is the only company engaged in the sourcing, processing and marketing of solely A1 protein free dairy and nutritional products in global markets. This core principle contrasts significantly with likely new entrants who will need to consider how to communicate internally and externally the benefits of a new A1 protein free variant whilst their traditional range of products continues to include A1.[72]

Recognizing the differing perspectives on Nestle's entry, a prominent investor said:

> It is possible that Nestlé's entry serves to grow the A2 dairy market, however, it is equally possible that without patent protection, A1-free becomes commoditized to the point that its unique proposition is eroded. Either way the future for ATM [a2MC's trading symbol in New Zealand] looks tougher now with the increased competition and increased marketing spend required.[73]

As it turned out, Nestle was just one of several companies trying to enter the A1-free market. Entry was facilitated by the expiration of a2MC's patent on testing milk in 2015 and the creation of alternative genetic tests for cows[74], but was still hindered by a2MC's trademarks and patents; the limited size of A2 milk pools; and the potential conflicts for firms trying to sell both A1 and A1-free products. In January 2018, one month before Nestle entered the A1-free market, China's Mengniu, the tenth largest dairy processor in the world, began selling A1-free drinking milk in China.[75] Closer to home, Happy Valley Milk, an Australian dairy processor, announced it was building a NZ$230 million factory to make infant formula using A1-free and organic milk.[76] Despite the competition, most analysts were still predicting a2MC would grow rapidly and generate attractive margins for years to come (see the forecast in **Exhibit 11**).

Conclusion

With Nestle now in the A1-free market, Babidge and his successor Hrdlicka had to decide how, if at all, to respond. On the one hand, they could respond directly, possibly aggressively, in China by increasing the firm's advertising expenditure, cutting prices, or expanding its distribution network. Given the inherent risk of distributing products through the *daigou* channel, one option would be to expand the firm's relationship with China State Farm Holding Shanghai. They could also capitalize on the new partnership with Fonterra to grow sales in other parts of Asia.

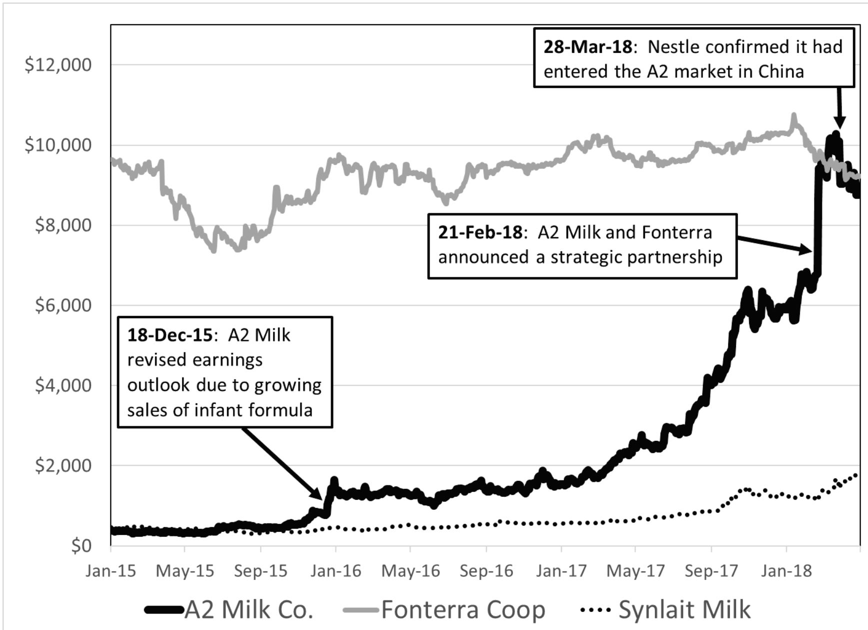
Rather than focusing on the front end (marketing and distribution), a second option would be to focus on the back end (procurement) by locking up the supply of A2 milk. They could accomplish this objective by helping farmers convert their herds to A2 cows and by signing long-term supply contracts with farmers in major markets such as the U.S. and U.K. By controlling a greater share of A2 milk production, they could continue to grow while slowing the speed at which rivals could grow.

A third option would be to ignore Nestle and to focus instead on implementing the firm's growth strategy. Specifically, it could focus on growing sales in the U.S. and U.K.; expanding into new product categories such yogurt, cheese, and ice cream; and developing the a2MC brand.

A fourth option, although there were undoubtedly many others, would be to monetize the firm's IP and processing know-how by accelerating the adoption of A2 milk products. A2MC could help other dairy processors develop A2 products using some form of ingredient branding (i.e., charging others to use an "A2 inside" logo just as Intel had done with its "intel inside" logo on personal computers and Nutrasweet had done with its "swirl"). Under this option, a2MC would capitalize on the growing demand for A1-free dairy products around the world.

Regardless of which option or options it pursued, one thing was clear: disruptive innovation had come to the global dairy industry. What was much less clear, however, was how the industry would evolve and who the ultimate winner or winners would be. Clearly one of the major challenges for Hrdlicka when she took over in July 2018, would be to develop and implement a strategy for long-term success in the face of an evolving market.

Exhibit 1 Market Capitalization of New Zealand Dairy Firms, 2015-2018 (NZ$ in Millions)



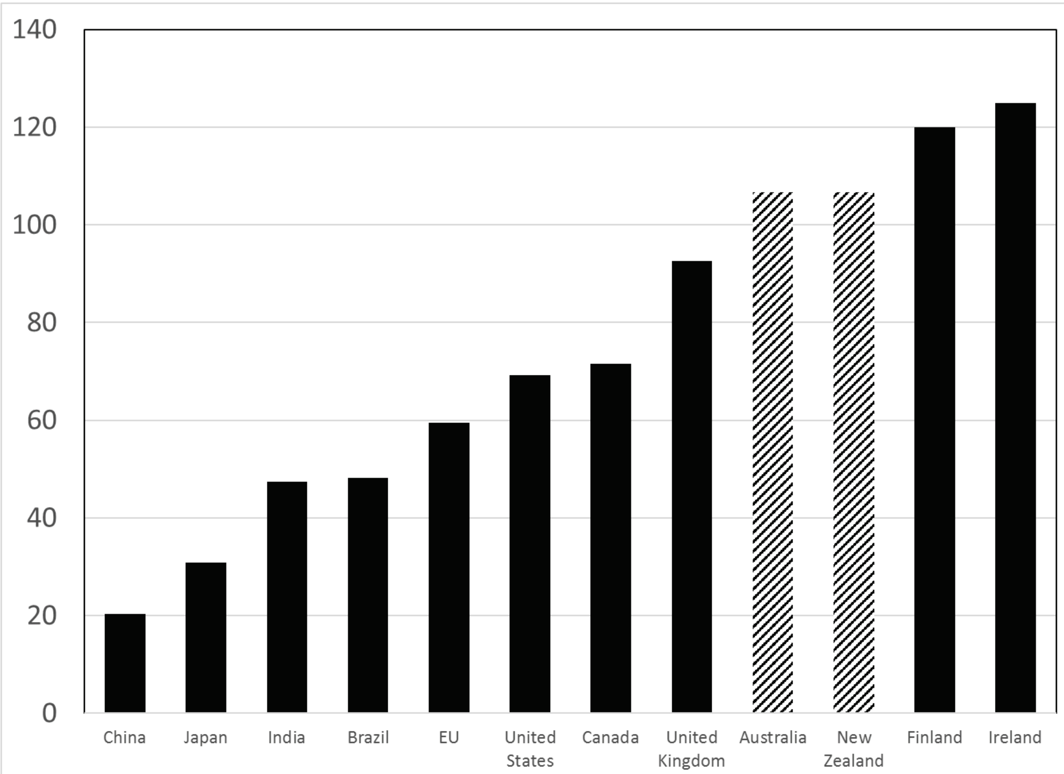
Source: Casewriter analysis using data from Thompson Reuters Datastream, accessed 18-Oct-18.

Note: With a market capitalization of NZ$10.0 (US$7.3) billion in February 2018, a2MC would have been in the third decile of firms listed on either the ASX 200 (#54 out of 200) or the New York Stock Exchange (NYSE, #473 out of 2,095).

Exhibit 2 a2 Milk Products Available in Australia, China, and the United States

Source: Used with permission from The a2 Milk Company.

Exhibit 3a Global Milk Consumption in 2016 (Liters per Capita)



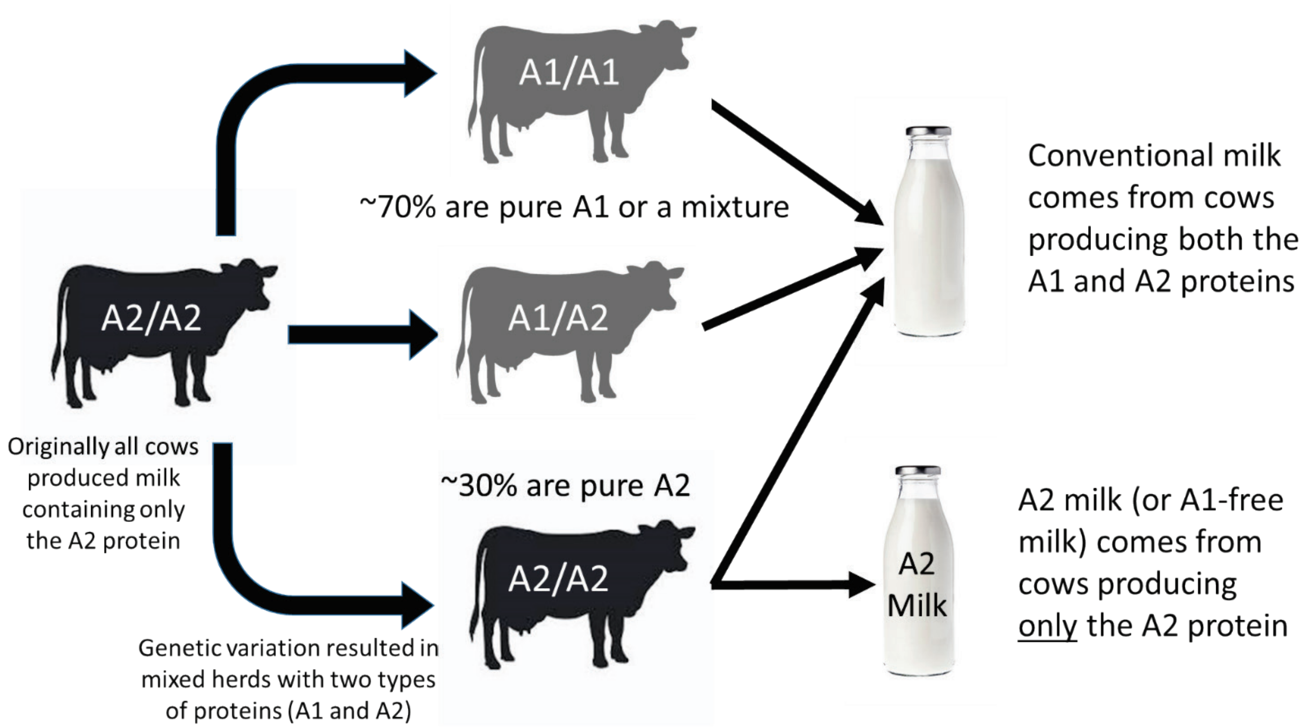
Source: Canadian Dairy Information Center (CDIC), Global Milk Consumption, available at: http://www.dairyinfo.gc.ca/index_e.php?s1=dff-fcil&s2=cons&s3=consglo&s4=tm-lt, accessed 12-Oct-18.

Exhibit 3b Global Dairy Market in 2017 and a2MC's Target Markets (Shaded Boxes), in US$ Billions

Dairy Product	New Zealand	Australia	UK	China	USA	World
Milk and Powders	$1.0	$2.6	$5.3	$19.9	$16.6	$140.9
Cheese	n/a	$2.1	$3.8	$0.4	$21.8	$133.2
Yogurt (incl. drinkable)	n/a	$1.3	$2.6	$14.3	$5.8	$60.0
Butter & Spreadable Fats	n/a	$0.9	$1.9	n/a	$4.3	$31.2
Soy products	n/a	$0.2	$1.9	$3.0	$3.5	n/a
Cream	n/a	$0.7	n/a	n/a	$3.0	$20.0
Other Products	n/a	$0.2	$0.9	$0.4	$2.3	$33.0
Total (of reported)	**$1.0**	**$8.0**	**$16.5**	**$38.1**	**$57.3**	**$418.2**
Infant Formula	$0.3	$0.9	$0.7	$20.0	$4.0	$50.0

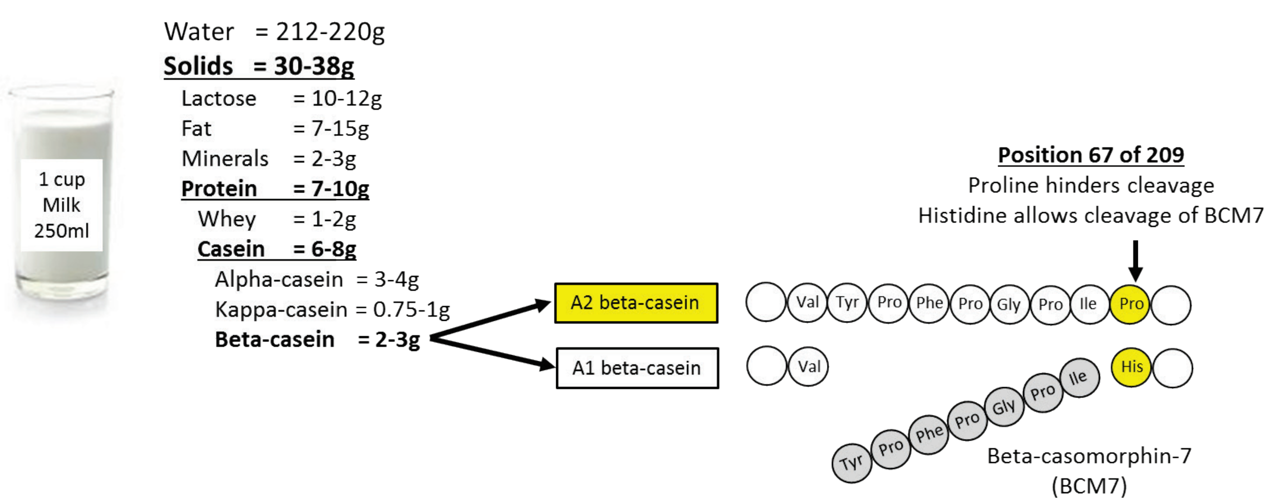
Source: Casewriter estimates based on data from the MarketLine Global Dairy Report (June 2018), accessed on the EMIS database on 31-Oct-18. The data for infant formula (considered a consumer packaged good rather than a dairy product) comes from C. Leadbetter, The a2 Milk Company, Forsyth Barr analyst report, 6-Aug-18, p. 6; and J. Snape, The a2 Milk Company, Bell Potter analyst report, 1-May-18, p. 5. All available on ThompsonOne, accessed 26-Oct-18; amounts converted as of 31-Dec-17.

Exhibit 4 The Difference Between Conventional and A2 Milk



Source: Casewriter adaptation of the figure appearing on page 6 of The a2 Milk Company, 2018 Annual Report.

Exhibit 5 Milk Composition and the Critical BCM7 Peptide (i.e., Chain of Amino Acids) in A1 Milk



Source: Casewriter adaptation of exhibits on pages 7 and 8 in J. Rogers, et al., UBS Global Research, The a2 Milk Company Limited, Analyst Report, 26 June 2014, available on Thomson One, accessed 10-Oct-18.

Exhibit 6 Financial Statements for Dairy Processing Firms in Australia and New Zealand, 2017 (NZ$ in millions)

		Australian Dairy Processing Companies						New Zealand Dairy Processing Companies					
	The a2 Milk Company	**Australian Dairy Farms**	**Bega Cheese (b,c)**	**Bellamy's Australia**	**Murray Goulburn Co-op. (c)**	**Norco Co-op. Ltd**	**Warrnambool Cheese & Butter (b)**	**Fonterra Co-op. Group (c)**	**Open Country Dairy**	**Synlait Milk**	**Tatua Co-op. Dairy Co.**	**Westland Milk Products**	**Median Excluding a2 Milk Co.**
Description													
Market Segment	Specialty	Conventional	Conventional	Organic	Conventional	Conventional	Conventional	Conventional	Conventional	Conv. & Special.	Conventional	Conventional	
Main Products	Infant Formula & Liquid Milk	Liquid Milk Butter	Cheese & Infant Formula	Infant Formula & Baby Food	Liquid Milk & Infant Formula	Milk, Cheese & Butter	Milk, Cheese & Butter	Liquid Milk & Other Food	Milk Powder & Cheese	Infant formula Milk Powder	Dairy Products & Ingredients	Milk Powder & Butter	
Milk Brands	A2 Milk	Camperdown	n/a	n/a	Devnondale Liddells	Norco	Sungold Great Ocean Rd.	Anchor, Austral. Dairies	n/a	n/a	n/a	Westgold	
Ticker Symbol	ATM	ADFL	BGA	BAL	Acquired 10/17	private	Acquired 2/17	FCG	private	SML	private	private	
Fiscal Year Ending	30-Jun-17	30-Sep-17	30-Jun-17	30-Jun-17	30-Jun-17	30-Jun-17	30-Sep-16	31-Jul-17	30-Sep-17	31-Jul-17	31-Jul-17	31-Jul-17	
Income Statement													
Revenue	$550	$25	$1,286	$252	$2,611	$582	$706	$19,232	$1,100	$759	$328	$630	
EBITDA	$142	($2)	$72	$45	($373)	$9	$34	$1,516	$54	$87	$17	$27	
Profit Margins													
Gross	48.0%	22.3%	13.2%	31.7%	12.9%	23.5%	25.9%	17.0%	4.3%	14.8%	10.9%	21.8%	17.0%
Operating	25.7%	(12.9%)	3.6%	17.6%	(16.2%)	0.6%	2.3%	5.6%	2.6%	8.9%	1.8%	(0.6%)	2.3%
Net	16.5%	(5.6%)	11.3%	(0.3%)	(14.9%)	0.1%	3.9%	3.8%	2.1%	5.2%	1.7%	0.2%	1.7%
Return on Capital (pre-tax)	58.4%	(7.9%)	5.6%	36.2%	(33.7%)	3.0%	3.1%	8.0%	5.8%	12.7%	2.8%	(0.8%)	3.1%
Return on Equity (year end)	37.5%	(4.6%)	24.2%	(0.9%)	(50.4%)	0.6%	6.8%	10.1%	5.7%	10.5%	4.4%	0.6%	4.4%
Balance Sheet													
Total Assets	$343.9	$45.1	$1,107.1	$164.2	$1,756.2	$195.6	$509.2	$17,842.0	$702.5	$731.2	$250.0	$568.3	
Net PP&E	$8.4	$27.2	$206.3	$1.1	$795.6	$62.1	$110.2	$6,391.0	$320.7	$448.1	$124.7	$314.4	
As % of Assets	2%	60%	19%	1%	45%	32%	22%	36%	46%	61%	50%	55%	45%
Debt-to-Total Capital	0%	26%	27%	22%	39%	28%	4%	46%	17%	29%	38%	48%	28%
Other Financial Information													
Market & Selling Expense	$63.3	n/a	$70.2	$11.4	$263.2	n/a	$35.2	$1,191.0	n/a	$14.2	$21.1	$24.2	
As % of Revenue	11.5%	n/a	5.5%	4.5%	10.1%	n/a	5.0%	6.2%	n/a	1.9%	6.4%	3.8%	5.2%
Net WC as % of Rev. (a)	5.5%	3.0%	11.0%	41.7%	18.2%	0.7%	45.0%	7.8%	7.6%	3.6%	14.4%	21.2%	11.0%

Source: Adapted from data in Standard & Poor's Capital IQ Database, accessed 26-Oct-18 and 1-Nov-18.

Note a: Net WC = Net Working Capital = Accounts Receivable + Inventories – Accounts Payable – Accrued Expenses.

Note b: Both Bega Cheese and Warrnambool Cheese & Butter had large, one-time gains on sales of assets or investments during the year which increased their net margins.

Note c: Over the past 10 years (2008-2017), the three largest dairy processors (Bega Cheese, Murray Goulburn, and Fonterra) had median operating margins of 2.9%, 2.1%, and 5.0%; and median pre-tax returns on capital of 7.6%, 3.6%, and 6.8%, respectively.

Exhibit 7 The a2 Milk Company Financial Statements, 2013-2017 (NZ$ in millions)

	For the Year Ending June 30 (NZ$ mil)					12 Months Ending
	2013	2014	2015	2016	2017	31-Dec-17
Revenue	$94.5	$110.8	$155.1	$352.8	$549.5	$728.2
Gross Profit	$33.9	$40.0	$54.7	$151.3	$263.8	$361.3
Operating Profit	$9.4	$2.3	$2.1	$52.8	$141.4	$218.4
Net Income	$4.2	$0.0	($2.1)	$30.4	$90.7	$149.8
Financial Ratios						
Revenue Growth	51%	17%	40%	127%	56%	33%
Profit Margins						
Gross Margin	35.8%	36.1%	35.3%	42.9%	48.0%	49.6%
Operating Margin	10.0%	2.1%	1.4%	15.0%	25.7%	30.0%
Net Margin	4.4%	0.0%	(1.4%)	8.6%	16.5%	20.6%
Return on Equity (year-end)	7.0%	0.0%	(3.6%)	22.8%	37.6%	38.4%
Stock Price & Share Information						
Avg. # of Diluted Shares	627.1	654.2	633.3	706.1	737.5	742.4
Closing Price (end of period)	$0.64	$0.69	$0.71	$1.83	$4.00	$8.07
Market Capitalization	$401	$451	$450	$1,292	$2,950	$5,991
Price-Earnings Ratio	n/m	n/m	n/m	42.6	32.5	40.0
Balance Sheet Information						
Cash & ST Investments	$20.2	$16.0	$6.1	$69.4	$121.0	$240.2
Net PP&E	$10.3	$9.2	$9.3	$8.0	$8.4	$9.6
Total Assets	**$72.4**	**$76.6**	**$88.9**	**$210.2**	**$343.9**	**$547.7**
Total Debt	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total Equity	$59.9	$58.6	$58.6	$133.1	$241.5	$389.6
Financial Ratios and Other Information						
Net Working Capital (a)	$13.9	$16.4	$17.9	$31.8	$30.0	$5.5
Capital Expenditures	$1.2	$0.9	$1.0	$0.9	$1.7	$2.6
Deprec. & Amortization	$1.0	$1.1	$1.2	$1.3	$1.2	$0.7
Sales & Marketing Exp./Sales	4.8%	8.9%	9.3%	14.7%	11.5%	10.5%
Number of Employees	n/a	65	89	105	148	161

Source: Adapted from data in the S&P Capital IQ Database and casewriter calculations, Accessed 15-Sep-18.

Note a: Net Working Capital (NWC) was equal to Accounts Receivable + Inventories – Accounts Payable – Accrued Expenses.

Exhibit 8 The a2 Milk Company Segment Financial Performance, 2014-2017 (NZ$ mil)

	By Geography					By Product Type		
Year Ending June 30	Australia & NZ	China & Asia	UK & USA	Corp. & Other	Total	Infant Formula	Liquid Milk	Other
Sales								
2017	$440	$89	$21	$0	$550	$394	$126	$30
2016	$296	$38	$18	$0	$353	$214	$120	$18
2015	$149	$4	$2	$0	$155	$109	$42	$5
2014	$107	$3	$1	$0	$111	$98	$11	$2
EBITDA Margins								
2017	35%	37%	(107%)	n/a	26%	n/a	n/a	n/a
2016	29%	24%	(112%)	n/a	15%	n/a	n/a	n/a
2015	20%	(78%)	(637%)	n/a	2%	n/a	n/a	n/a
2014	7%	(67%)	(200%)	n/a	3%	n/a	n/a	n/a
Sales Mix								
2017	80%	16%	4%	0%	100%	72%	23%	5%
2014	96%	2%	1%	0%	100%	88%	10%	2%
Sales 3-Year CAGR								
2014-2017	60%	221%	167%	n/a	71%	59%	125%	137%

Source: The a2 Milk Company Annual Reports (multiple years); 2016-2017 Annual Report p. 61. Rounding may affect the total.

Exhibit 9 Economics and Profitability of Adult Milk Powder (Not Infant Formula), 2017

	Per Kilogram (kg)				
	a2 Milk Company	Branded Competitor	Private Label	Assumptions and Notes	
Type of Milk	A2 (A1 free)	Conventional	Conventional		
Supermarket Retail Price	**AUD 13.50**	**AUD 8.81**	**AUD 5.87**		
Convert to NZD	NZD 14.72	NZD 9.60	NZD 6.40	AUD1.00 = NZD1.09	
Price premium vs. Private Label	130%	50%			
Retailer Gross Margin	35%	30%	27%	Casewriter assumptions	
Retailer Gross Profit	NZD 5.15	NZD 2.88	NZD 1.73		
Processor Economics					
Wholesale Price (Revenue)	**NZD 9.57**	**NZD 6.72**	**NZD 4.67**	Processor revenue per kg	
Raw Material Costs (COGS)	NZD 4.55	NZD 4.55	NZD 4.55	Same basic production cost	
A2 Incremental Sourcing Cost	NZD 0.46			10%	Premium for A2 farmers
Discount for Private Label			(NZD 0.46)	(10%)	Lower raw material costs
Total COGS	NZD 5.01	NZD 4.55	NZD 4.10		
Gross Profit	**NZD 4.56**	**NZD 2.17**	**NZD 0.58**		
Gross Margin	48%	32%	12%		
Distribution/Freight Expense	NZD 0.35	NZD 0.35	NZD 0.35		
Marketing Expense	NZD 0.96	NZD 0.67	NZD 0.00	10%	of Revenue for Branded and A2
Selling & Administration Expense	NZD 0.38	NZD 0.27	NZD 0.10	4%	of Revenue for Branded and A2
Total Operating Costs	NZD 1.69	NZD 1.29	NZD 0.45		
Operating Profit	**NZD 2.87**	**NZD 0.88**	**NZD 0.13**		
Operating Margin	30%	13%	3%		

Source: Casewriter analysis using data from N. Mar and S. Weick, The a2 Milk Company, Macquarie Research Report, 25-Jul-17, pages 50-51, available on Thomson One, accessed 15-Oct-18.

Exhibit 10 Nestle Financial Statements (Swiss Francs/CHF in millions)

	Total	% Sales
Income Statement		
Revenue	CHF 89,791	
Trading Operating Profit	CHF 13,233	14.7%
Net Profit	CHF 7,538	8.4%
Balance Sheet		
Cash & ST Investments	CHF 8,593	
Net PP&E	CHF 27,775	
Total Assets	CHF 130,380	
Total Debt	CHF 26,468	
Total Equity	CHF 62,777	
Financial Ratios and Other Information		
Number of Employees	323,000	
Capital Expenditures	CHF 3,934	4.4%
Research & Development	CHF 1,724	1.9%
Marketing & Admin. Expense	CHF 20,540	22.9%
Advertising Expense (Est.)	CHF 9,000	10.0%
Return on Equity (year end)	12.0%	
Debt-to-Total Capital	30%	
Net PP&E/Assets	21%	
Cash/Assets	7%	

Segment Information

		Percent	Trading Operating		Invested Capital	
Division	**Sales**	**of Sales**	**Profit**	**Margin**	**Amount**	**Return on**
Milk Products & Ice Cream						
Milk Products	**CHF 10,767**	12%				
Ice Cream	CHF 2,680	3%				
Total	**CHF 13,447**		**CHF 2,326**	**17.3%**	**CHF 6,564**	**35.4%**
Powdered & Liquid Beverages	CHF 20,408	23%	CHF 4,302	21.1%	CHF 6,375	67.5%
Water	CHF 7,455	8%	CHF 905	12.1%	CHF 4,092	22.1%
Nutrition & Health Science	CHF 15,257	17%	CHF 2,425	15.9%	CHF 34,264	7.1%
Prepared Dishes & Cooking Aids	CHF 11,957	13%	CHF 1,933	16.2%	CHF 8,695	22.2%
Confectionary	CHF 8,805	10%	CHF 1,237	14.0%	CHF 4,775	25.9%
Pet Care	CHF 12,462	14%	CHF 2,626	21.1%	CHF 14,035	18.7%
Unallocated			(CHF 2,521)		CHF 3,484	n/a
Total	**CHF 89,791**	**100%**	**CHF 13,233**	**14.7%**	**CHF 82,284**	**16.1%**

Source: Nestle 2017 Annual Review and Financial Statements. Invested capital includes all assets associated with the division including goodwill and intangible assets less associated liabilities. The margins and returns are overstated because of the unallocated losses totaling 19% of the total operating profit.

Note: At year-end 2017, CHF1.000 = NZ$1.442 = US$1.024.

Exhibit 11 Financial Projections for The a2 Milk Company in May 2018 (NZ$ in millions)

	Actual	Forecast FY Ending June 30					
	FY17	2018	2019	2020	2012	2022	2023
Revenue	$550	$924	$1,236	$1,541	$1,808	$2,093	$2,344
Growth Rate	n/a	68%	34%	25%	17%	16%	12%
Operating Income (EBIT)	$139	$265	$367	$477	$590	$686	$774
EBIT Margin	25%	29%	30%	31%	33%	33%	33%

Source: Casewriter estimates based on the forecasts by J. Rogers and B. Gilbert, The a2 Milk Company analyst report, USB Global Research, 16-May-18, available on Thomson One. At the time (May 2018, after Nestle had announced its entry into the market for A2 infant formula in China), UBS had a Neutral recommendation on a2MC and a 12-month price target of NZ$11.20.

Note: At the time, most analysts used a WACC of ~ 9% to value a2MC free cash flows and the Australian corporate tax rate was 30%.

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