



Case Study Series: *Business Risks from Deforestation*

November 2017



Business Risks from Deforestation

Companies that fail to manage their environmental performance expose themselves to business risks. As consumer and investor awareness rises, for instance, about deforestation's harmful impacts, companies sourcing commodities from deforestation hot spots are under pressure to ensure that their products are not sourced with illegal or questionable environmental practices. Companies that ignore this scrutiny subject themselves to potential regulatory action or loss of customers, which can translate into negative financial consequences.

In this case study series, risk is broadly defined as the volatility of returns that could generate unexpected losses or profits associated with direct and indirect impacts from deforestation. These risks can be market related, such as input or output price volatility and/or loss of market access; reputational, where the firm's brand equity could be impacted; operational, within the boundaries of the firm's business activities and processes; or regulatory/litigation, where government actions could impact the firm's operations or finances.

Overall, risks impact a company's balance sheet (assets, liabilities, equity, valuation), income statement (revenues, costs, profitability, net income), and cash flow. This often has direct implications for the value of the company's debt or equity, with pass-through to investors. Businesses can measure risks for their expected outcome and the probability that they will occur, and they can also mitigate or minimize them.

This case studies series examines the potential business risks for companies that source commodities from areas with deforestation. The series spotlights three companies (IOI Corporation, JBS, and United Cacao) and summarizes the business risks and negative financial consequences that the three companies faced.

- **IOI Corporation** was suspended from the Roundtable on Sustainable Palm Oil (RSPO) because of 11,750 hectares of land cleared illegally by its Indonesian subsidiaries. With the suspension, RSPO prohibited IOI from selling crude sustainable palm oil (CSPO). This prompted 27 of IOI's largest corporate buyers to suspend procurement contracts with the company, leading to a drop in its net income.
- **United Cacao's** illegal deforestation was a leading indicator of the broader corporate governance issues, culminating in its winding-up in July 2017. Its expansion plans conflicted directly with government regulations against deforestation - a risk the company itself identified in its bond issuance. On January 4, 2017, United Cacao's nominated adviser resigned its role, leading to the suspension of trading of its equity on AIM and its bond on the NEX Exchange, and the delisting of United Cacao from the AIM on February 6, 2017.
- The case of **JBS** demonstrates the cascading effect of uncovering actions that generate reputational risk. Investigations by Brazilian authorities into JBS have produced accusations of bribery, financial and accounting violations, labor standards and illegal deforestation. The accusations of deforestation provided additional reasons for investors and trading partners to be suspicious of JBS' reputation. The cascade of scandals forced JBS to delay its initial public offering (IPO) for its foreign operations through JBS Foods International.



Reputational Risk

A company's reputation represents the intangible assets held by the firm, such as its brand equity. Increasingly, investors, consumers and buyers within a supply chain are becoming conscious of environmental issues such as climate change.

For example, since 2014 over 400 companies have made deforestation-based commitments under the [New York Declaration on Forests](#). Major companies such as Unilever, Procter & Gamble, and Tesco have gone further, [committing](#) to remove commodity-driven deforestation from their supply chains by 2020, as well as making No Deforestation, No Peat and No Exploitation (NDPE) commitments in their procurement policies.

These commitments are partially in response to increased pressure from consumers, particularly in Europe and North America, for products that are not sourced from deforested lands. The potential impacts on commodity producers are significant: 29 percent of Indonesia's oil palm concessions cannot be developed without violating buyers' NDPE policies. This means that 95 Indonesian palm oil companies each have at least 1,000 ha of stranded land.

Meeting commitments to remove or reduce deforestation from supply chains means that commodity producers come under greater scrutiny. Once an activity that threatens a company's brand equity comes to light, it can expose the company to heightened scrutiny about its other activities. If corporate governance is systemically weak in mitigating these risks, regulators, investors and campaign groups may suspect that further harmful actions have occurred.

The case of **JBS** demonstrates the cascading effect of uncovering actions that generate reputational risk. Investigations by Brazilian authorities into JBS have produced accusations of bribery, financial and accounting violations, labor standards and illegal deforestation. These allegations focused on JBS and its parent organization, J&F Investimentos controlled by the Batista family.

The accusations of deforestation provided additional reasons for investors and trading partners to be suspicious of JBS' reputation. The cascade of scandals forced JBS to delay its initial public offering (IPO) for its foreign operations through JBS Foods International. In September, the corruption-laced saga continued with Wesley Battista being arrested, Joesley Batista being

jailed and JBS founder José Batista Sabrinho, taking over as CEO.

Poor governance was present throughout the company, from top-level executives engaging in bribery of officials and politicians, to alleged procurement from suppliers using illegally cleared land, in violation of the Cattle Agreement for the Amazon.

Illegal deforestation presents a reputational risk that can impact a company's intangible assets, such as its reputation with its customers, investors and within its supply chain. This reputational risk can transfer to broader company performance, if damage to a company's image deters customers or investors. In this way, reputational risk is linked to regulatory, market, and operating risks.

Regulatory Risk

Many countries have laws and regulations in place to prevent illegal deforestation in their forests. Major importers such as the United States and the European Union also have legislation and enforcement to prevent the import of illegally deforested products.

For example, the Lacey Act makes it a criminal offense to import illegally logged timber into the United States. In 2016, **Lumber Liquidators** was sentenced in federal court in Virginia and required to pay a \$13 million criminal fine, a \$1.2 million community service fine, and forfeit assets related to illegal deforestation of Russian forests. These forests are the last remaining wild habitat of the Siberian tiger and Amur leopard. The case against Lumber Liquidators was the first felony conviction related to the import or use of illegal timber and the largest criminal fine ever under the Lacey Act. Not only did the company damage its reputation, but through exposure to regulatory and litigation risk it suffered a financial penalty and criminal conviction. LL's share price plunged 25 percent after the raid by U.S. federal officials.

As noted earlier, JBS has been subject to government investigations across a suite of alleged illegal activities. The most significant financially was a \$3.16 billion fine over 25 years for J&F Investimentos as part of a leniency settlement over bribery allegations. However, federal prosecutors may also nullify \$8 billion in suspiciously high valuation of assets sales by J&F Investimentos made over the summer of 2017.

In addition to national authorities, bodies such as RSPO can impose liabilities on companies that violate its procedures. **Felda Global Ventures** is currently discussing with RSPO remediation and compensation for a 95-percent owned subsidiary knowingly proceeding with non-compliant land clearing. This could potentially incur a fine of at least \$5.1 million.

External groups can also influence bodies such as RSPO to take action. In July 2017, HSBC urged the RSPO to ask **Noble**, a client in the palm oil sector, to stop all deforestation while RSPO investigated possible violations. This pressure by Noble's creditor HSBC may have influenced Noble to devalue its palm oil assets by \$60 million in Q2 2017.

Market Risks

Evidence of deforestation creates market risks for companies, which means access to both buyer's markets and financial markets can be jeopardized.

Companies can lose access to buyers' markets for certified products (e.g. CSPO) in a number of ways. For example, buyers may suspend or cancel contracts with the producer proactively, or, the producer may be unable to fulfill existing contracts because of delayed production due to deforestation issues. While **IOI Corporation** was suspended from RSPO it lost access to sell CSPO, and therefore its clients purchased CSPO from its competitors such as Kuala Lumpur Kepong. As a result, IOI's net income was negative \$14.8 million in Q2 2016, compared to a \$30 million gain in Q2 2015.

Kuala Lumpur Kepong (KLK) has itself encountered problems with developing 30,000 ha of oil palm plantations in Collingwood Bay, Papua New Guinea. It purchased a 51 percent equity stake in December 2012 for \$8.7 million, but in May 2014 indigenous communities successfully contested KLK's plans, and the leases were declared null and void. Under pressure to increase its RSPO-compliant assets, it launched a \$441 million hostile takeover bid for MP Evans (MPE). This increased the share price of MPE but KLK failed in its takeover. MPE instead sold its RSPO-certified concessions by competitor Sipef group for \$100 million.

Sawit Sumbermas Sarana (SSMS) had 81 percent customer base turnover between 2014 and 2015 because of non-compliance with its buyers' No Deforestation, No Peat, No Exploitation (NDPE) commitments. Most recently Unilever, responsible for 8 percent of SSMS' Q1 2017 revenue, suspended sourcing, citing concerns over deforestation. SSMS then announced its first NDPE policy in July 2017 in response to its loss of buyers.

United Cacao also provides an example of how deforestation can jeopardize access to financial markets. After regulatory enforcement on deforestation resulted in halted operations, on January 4, 2017, United Cacao's nominated adviser resigned its role, leading to the suspension of trading of its equity on London Stock Exchange Alternative Investment Market (AIM) and its bond on the NEX Exchange, and the delisting of United Cacao from the AIM on February 6, 2017. A subsequent audit revealed fraud, illegal funding mechanisms, and misleading statements by company executives, including about the firm's compliance with environmental regulations. United Cacao's illegal deforestation was a leading indicator of its broader corporate governance issues, which culminated in its winding-up in July 2017.

Operating Risks

Illegal deforestation activities can hamper a company's business plans to generate revenue. Failure to obtain free, prior and informed consent (FPIC) has caused many investments, particularly in Southeast Asia or Africa, to become subject to delays, community conflicts, and complaints filed through dispute bodies.

In the case of **United Cacao**, the company's stated growth strategy to attract financing relied on rapid expansion of cocoa plantations, which conflicted directly with government regulations against deforestation. Ironically, the company had identified this risk in its bond issuance. The Environment Investigation Agency found evidence that United Cacao's plantations involved illegal land clearing and ordered its operations to cease.

Conversely, the pressure to develop concessions can also strain a business model. **Sime Darby** has a 63-year concession agreement in Liberia to develop oil palm and rubber plantations. Failure to develop the land could result in a renegotiation of its lease with the government; yet, completing these developments means it would backtrack on its social and environmental commitments, potentially exposing it to future reputational and material risks. As a result, Sime Darby has stated that it will work with the Government of Liberia and local communities to support local green growth, FPIC, maintaining High Carbon Stock forests, and in 2018, achieving RSPO certification.



JBS:

Corporate Scandals Lead to Delayed IPO and Declining Revenue

Executive Summary

JBS, the world's largest meat company and beef exporter from Brazil, is embroiled in one of the biggest corporate corruption scandals in global history, Operation Car Wash (an ongoing investigation into Brazilian political and corporate leaders' alleged corruption). Once JBS' reputation was called into question, subsequent revelations showed broader illegal actions by the company and the Batista family who controls the company. Allegations against the company include bribery, fraudulent loans and foreign exchange transactions, violating labor standards, faulty meat inspections and illegal deforestation.

- Since 2007, after an IPO to raise capital, with the support of BNDES, JBS has pursued an aggressive strategy to become a dominant player in the global meat market by acquiring rivals inside and outside of Brazil, financed mainly by debt. This expansion came without instituting standard corporate governance procedures. The company therefore grew without acting responsibly, or in some instances, illegally.
- In March 2017, Brazil's environmental protection agency, IBAMA, raided JBS meatpackers in Pará. IBAMA alleged that JBS purchased 50,000 illegal cattle since 2013 raised on protected land violating Brazilian legislation and forest laws. The revenue from this illegal sourcing was not significant to the company's overall revenue, but the impact of this scandal (in conjunction with other allegations) has led to a decline in valuation of over \$2 billion.
- The combination of these allegations has negatively impacted the company's performance and altered the firm's corporate strategy. Declining revenues, regulatory fines, and litigation costs have resulted in a Moody's downgrade from Ba3 to Ba2 as well as a \$2.3 billion decline in JBS' market capitalization. The company's initial public offering (IPO) for the company's foreign operations (representing 85% of sales) has been delayed until at least 2018.

FIGURE 1: JBS SHARE PRICE AND VOLUME (YTD)



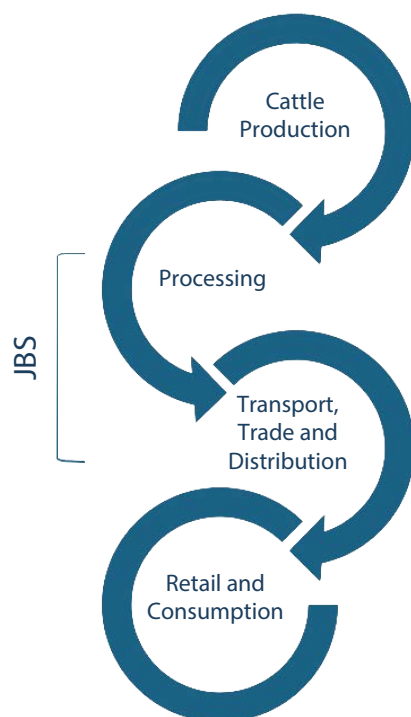
Beef

As shown in Figure 2 (below), from farm to table, the production of meat involves an integrated supply chain. The process begins with the raising of animals that will produce meat. Using beef as an example, farmers manage ranching operations and source animal feed. Cattle are sold to feedlots or slaughterhouses. The meat is then packed and processed by companies (including JBS). This section of the supply chain is highly concentrated - for example, in the United States, four companies control around three-quarters of the beef processing market (Tyson Foods, JBS USA, Cargill and National Beef).

Once prepared and packaged, the meat (or byproducts including fats and leather) are distributed to food outlets, either restaurants such as McDonalds or retailers such as Costco and Walmart.

The United States, Brazil and China are the world's [largest](#) beef producers, with a combined 43 percent market share of the 63 million metric tons produced each year. While beef production is global, consumption is generally domestic - only around 5 percent of global production is [exported](#). However, in Brazil beef exports are more economically significant, at approximately 20 percent of its production. The [USDA](#) projects beef and pork production in Brazil to grow at 3 percent in 2017, mainly due to exports.

FIGURE 2: JBS AND THE BEEF SUPPLY CHAIN



Brazil is a major player in the global meat industry. For example, it is the world's second largest producer of both beef and chicken. However, beef production has had the most environmental impact, as demand for the meat has risen. Half of Brazil's greenhouse gas emissions come from deforestation, and cattle ranching is responsible for around three-quarters of forest clearing in the Brazilian Amazon. Forest loss since 1970 amounts to [19 percent](#) of Brazil's total land area.

Left unchecked, continued deforestation in the Brazilian Amazon could increase greenhouse gas emissions at a globally significant level, and also result in loss of biodiversity and other environmental benefits.

Beef production itself can also degrade soil from overgrazing and poor agricultural practices. In addition, the overall greenhouse gas intensity of meat production is greater than that for plant-based foods (wheat, rice, etc.). Beef is by far the most [greenhouse gas intensive](#) meat to produce in comparison with pork, chicken, fish or animal-based foods such as eggs and dairy.

The impact of meat production on deforestation in Brazil has been under constant public scrutiny since the 1980s. For example, in 2015, [Greenpeace launched a campaign](#) targeting the seven largest supermarket chains in the country, showing that none of them came close to achieving high standards towards reducing deforestation in their supply chains.

In response, the Brazilian government has made efforts to try and arrest the loss of forests. The results have been intermittent. Between 2006-12, the rate of deforestation fell by almost [80 percent](#) - conserving an area of land nearly the size of France. The primary legislation regulating forest use is the 2012 Forest Code, though forest conservation also plays a critical role in Brazil's national climate change strategy. However, more recently the government has signaled a more pro-development rather than pro-conservation stance. For example, a short term measure by President Temer, MP759, is [expected](#) to "substantially intensify deforestation in the Amazon."

Voluntary commitments, such as the Tropical Rainforest Alliance (TFA) 2020, the "Soft Commodities" Compact, and the New York Declaration on Forests seek to reduce the level of deforestation to produce commodities including meat. Corporate buyers of beef, pork and poultry have made commitments to sourcing zero deforestation products under these initiatives.

BOX 1: ALLEGATIONS AGAINST JBS

Deforestation: Illegal Cattle from Suppliers

In March 2017, Brazil's environmental protection agency, [IBAMA](#), raided JBS meatpackers in Pará. IBAMA alleged that JBS purchased 50,000 illegal cattle since 2013 raised on land violating Brazilian legislation and forest laws. Half of the cattle came directly from embargoed pastures. According to the IBAMA investigations, the remainder were allegedly bought via three-way laundering transactions that disguised the true origin of the animals. The deforested land allegedly linked to JBS is 200 square miles - roughly the size of Manhattan, New York.

Bribery: Brazilian Politicians and Meat Inspectors

In March 2017, Brazilian federal police released results from their two-year [investigation](#) of pork, poultry and beef meatpackers. They served hundreds of [court orders](#) and detention warrants against leading meatpacking companies. J&F owners Joesley and Wesley Batista admitted in testimony that they spent about \$185 million over several years to bribe nearly 1,900 politicians.

Financial: Inflating Loans to Fund Acquisitions

On May 12, 2017, the Brazilian Federal Audit Court (TCU) released an audit of alleged [fraud](#) into BNDES loans used by JBS to finance its 2007 Swift & Company acquisition. The audit revealed BNDES overpaid BRL 0.50 cents per JBS stock, so that BNDES suffered a BRL 69.7 million loss. TCU is probing [another](#) BNDES loan to JBS, and BNDES has opened a separate probe into its JBS loans.

Supply Chains: Violating Labor Standards

In June 2017, Brazilian NGO [Repórter Brasil](#) and [The Guardian](#) exposed that JBS allegedly paid GBP 2 million from 2013 to 2016 for cattle sourced from a farm in the state of Pará where Brazilian prosecutors in June 2016 uncovered men forced to work under inhumane and degrading conditions.

Financial: Foreign Exchange Transactions

On July 19, the Securities and Exchange Commission of Brazil (CVM) stated it had [opened](#) two probes into foreign exchange transactions by J&F Investimentos, alongside 12 other investigations into alleged corporate wrong-doing by J&F controlled companies, including allegations of insider trading. These probes may impact JBS.

environmental monitoring system. 40,000 of these suppliers are located in the Amazon Biome region that is governed by the 2012 Brazil's Forest Code.

Since 2005, the company has undertaken a defensive acquisition strategy. The trigger was a 2005 announcement by BNDES, Brazil's development bank, that it would lend to Brazilian companies to purchase their foreign competitors to prevent foreign entrants from purchasing Brazilian assets. BNDES has a 21.3 percent stake in JBS through its equity arm, BNDES Participações SA.

JBS acquired [sixteen](#) companies from 2007 to 2017 across multiple industries and countries. It accessed BNDES debt facilities to finance some acquisitions. For example, in June 2007 JBS secured a \$600 million loan from BNDES (later increased to \$750 million), used towards its purchase of Swift & Company for \$1.4 billion. However, the company had also raised funds from capital markets beginning in February 2006 when it issued a five-year \$75 million bond with a 9.375 percent coupon.

The result has been an expansion through acquisitions funded through increased debt. Net debt for JBS increased from BRL 2.2 billion in 2007 to BRL 46.9 billion in Q1 2017. While acquisitions have brought in new revenues for the company, its ratio of net debt to EBITDA had increased from 2.6 in 2013 to 4.2 in Q1 2017. This is higher than the average net debt/EBITDA of [peers](#) in developed (0.2) and developing (1.7) countries, though similar to Brazilian rivals such as Minerva (3.5).

In 2016, JBS established JBS Foods International (JBSFI), which includes all JBS activities except Brazilian beef and its global leather business. JBSFI's IPO on the New York Stock Exchange was originally scheduled for the first half of 2017. However, a series of scandals (see Box 1), including accusations of illegal deforestation, led to the IPO being delayed.

These scandals implicated company leadership. On May 26, 2017, Joesley Batista [resigned](#) as Chairman of the Board. Meanwhile, Wesley Batista maintained his family's control of JBS by staying on as CEO. Wesley's father, José Batista Sobrinho replaced Wesley as vice-chairman of the Board and Wesley maintained his seat as well. Tarek Farahat was named the new JBS Chairman of the Board. On the same day the head of BNDES, Maria Silvia Bastos, also resigned.

JBS

JBS (BN&F BOVESPA: JBSAY) is the world's largest meat company (including beef, poultry, lamb and pork) by revenues, capacity and production levels. JBS sells its meat products under a range of brands including Swift, Friboi, Seara, Pilgrim's Pride, Gold Kist Farms, Pierce, 1855, Primo and Beehive. The company has operations in Brazil and other Latin American countries, the United States, Europe and Australia, and employs approximately 200,000 people.

JBS in Brazil sources from around 70,000 cattle [suppliers](#). These suppliers are screened through a social and

On May 31, 2017, Batista family-controlled J&F Investimentos SA, parent organization of FB Participações agreed to pay \$3.6 billion over 25 years as part of a [leniency settlement](#) over bribery allegations at JBS.¹

To ensure financial stability and to pay for their legal settlements, JBS and J&F Investimentos have moved from a strategy of acquisitions to selling operations. As reported by Bloomberg, J&F sold \$8 billion in assets over the last three months, with direct involvement from its controllers, the Batista brothers. With the average multiple for Brazil M&A this year at 5.5 times earnings before interest taxes, depreciation and amortization (EBITDA), according to data compiled by Bloomberg, several of J&F Investimentos' and JBS' deals have been sold at higher than average prices. The Eldorado sale closed at 9.3 times EBITDA and, according to JP Morgan, Vigor closed at 17 times EBITDA while Santander places Alparagatas' valuation at 10.7 times EBITDA.

Risks

Alleged illegal deforestation not only damaged the reputation of JBS, but threatened the reputation of business partners, and jeopardized the company's access to financial markets. The culmination ultimately delayed JBSFI's IPO and forced an abrupt shift in the company's expansion strategy.

Reputation. Corruption, illegal deforestation and fraudulent market activities cause irreparable damage to brand reputation. The reputational damage from alleged illegal deforestation is compounded when the firm has previously represented itself as being committed to sustainable production. In 2009, JBS-Friboi, Bertin, Minerva and Marfrig, representing a 65 percent market share of Brazilian beef exports, [committed](#) to a Cattle Agreement for the Amazon. This included strict monitoring and certification to exclude either beef or leather from newly deforested, indigenous or protected lands from their supply chains.

Market. Within the agricultural supply chain, market risk refers to the potential that access to buyers' markets and financial markets will be adversely affected. In the case of JBS, access to both markets were jeopardized.

- **Buyer's Markets.** Unethical business practices led to several clients of JBS suspending contracts. Allegations of labor violations caused Waitrose to [suspend](#) sourcing from JBS while it investigated the matter. Then on June 6, 2017, Domino's Pizza Brazil followed by also announcing that it would suspend purchases from JBS. In addition to labor violations (see Box 1), the potential spillover to reputation risk remains high for clients, given the firm's ongoing business with questionable cattle ranches. Allegedly, JBS purchased cattle from a ranch that had previously been fined \$36 million for illegally deforesting 33,000 hectares of land.
- **Financial markets.** Access to debt and equity markets was jeopardized due to degradation in valuation and debt downgrades. Since reports surfaced of JBS executives admitting to bribery claims in May 2017, JBS stock fell from \$6.96 to a low of \$3.68 on May 22 (see Figure 1). In that period, JBS' equity valuation [declined](#) by \$2.3 billion. Similarly, Moody's [downgraded](#) JBS and JBS USA Lux debt, citing concerns about future litigation, governance and liquidity because of JBS' high financial leverage. They are under review for further downgrades.

In addition to the financial consequences of a damaged reputation and jeopardized access to markets, governments also reacted to the scandals. The company's former practices of bribery in meat inspections led to a host of countries imposing [restrictions](#) on Brazilian beef imports.

The financial damage due to multiple scandals is evident in the 14% revenue decline year-over-year for the first quarter of 2017. The realization of these risks has been so severe that the company had to shift strategy to meet its ongoing debt and litigation obligations, from defensive acquisition of international rivals to hastily arranged sales and retrenchment.

¹ This leniency agreement was meant to protect minority shareholders, ensure continuation of business and preservation of jobs. J&F stated that it sees the collaboration with Brazilian authorities as a change for the better and reiterated its commitment to work with the Federal Public Prosecutor's Office in the fight against corruption.



IOI Corporation Berhad:

RSPO Suspension Leads to Buyer Loss and Depressed Market Value

Executive Summary

IOI Corporation Berhad, a palm oil producer with market capitalization \$6.6 billion (MYR 28 billion), was suspended from the Roundtable on Sustainable Palm Oil (RSPO) for six months in 2016 for illegally clearing 11,750 hectares (45 square miles) of forest and peatland in Indonesia, and for failure to mitigate fire risk.

- IOI's suspension meant that it was prohibited from selling crude sustainable palm oil, prompting 27 of its largest corporate buyers, including Unilever, Kellogg, Mars, Nestle, and Cargill, to suspend procurement contracts with IOI. As a result, IOI reported a net income available to common shareholders of negative MYR 59 million in Q2 2016 compared to MYR 113 million gain in Q2 2015.
- Depressed equity valuation, and the risk of a debt ratings revision by Moody's, made IOI's equity and debt less attractive to investors. As shown in Figure 1 (below), IOI's market capitalization dropped 17 percent, or MYR 3.2 billion. Two months into the suspension, on May 10, 2016, Moody's stated it "expects IOI's earnings and profitability will deteriorate...if the suspension is not resolved swiftly." Moody's reaffirmed its Negative Outlook on IOI August 11, 2016.
- By August 2016, IOI returned to RSPO with plans to improve its sustainability record, and the suspension was lifted. IOI's shares rallied 5 percent to MYR 4.45 August 5, 2016 on the news. IOI's suspension continues to impact it one year after its reinstatement, with some suppliers yet to resume purchases because of concerns about the company's ability to enforce sustainability practices in its operations. In September 2017, IOI announced it had sold its Loders Croklaan - and Loder's high-value palm oil products - to Bunge for \$946 million.

FIGURE 1: IOI SHARE PRICE AND VOLUME (2016)



Palm Oil

Palm oil is a staple of many consumer goods, biofuels, and plastic substitutes found in over half of all packaged products purchased by Americans. Because it achieves higher yields than other oilseeds, it is attractive for cultivation and highly profitable. It is the most actively traded vegetable oil globally.

Plantations, cooperatives, and smallholders grow oil palm trees (Figure 2). The fruit from oil palm trees yield about 4 to 5 metric tons of crude palm oil (CPO) and 0.5 metric tons of crude palm kernel oil (PKO) ha per year.

Demand for palm oil has tripled over the past fifteen years. In 2016, global palm oil production was 58.3 million metric tons. Malaysia and Indonesia produce 85 percent of global supply.

The rapid rise of palm oil production is a key driver of both global tropical deforestation and the draining and burning of peatlands in Malaysia and Indonesia. This has many serious environmental and social consequences:

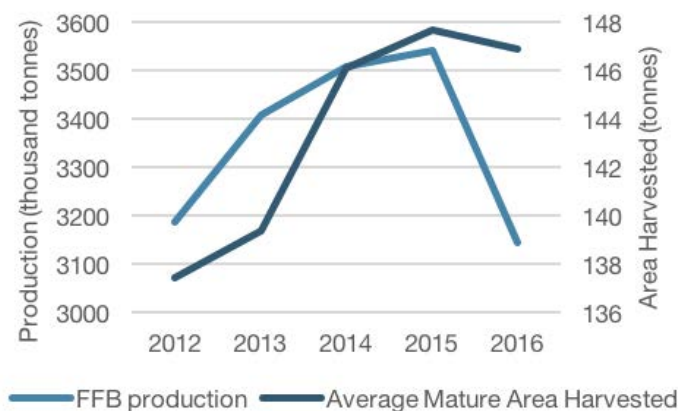
- Deforestation endangers wildlife. Only [15 percent](#) of flora and fauna survive when a primary forest transitions to an oil palm plantation. Tigers, orangutans, and other species are now critically endangered due to deforestation and peatland destruction.
- [Peatland](#) deforestation accounts for 5 percent of global GHG - a similar level as the entire country of [Japan](#).
- Burning peatlands creates a toxic haze of gasses and particles with serious health effects. In 2015, [100,000 deaths](#) in SE Asia can be attributed to haze from landscape fires. Many of these fires occurred on peatlands.

The RSPO was established in 2004 to address these concerns. The RSPO promotes the growth and use of sustainable oil palm products through credible global standards and engagement of stakeholders. RSPO certification [systems](#) involve third-party audit. These systems are: Identity Preserved, Segregated, Mass Balance, and Book & Claim.

FIGURE 2: IOI IN THE PALM OIL SUPPLY CHAIN



FIGURE 3: IOI GROUP PRODUCTION STATS



CSPO is produced under [these systems](#).

In 2017, CSPO accounted for [about](#) 21 percent of global palm oil production. CSPO may attract higher prices than CPO because it reduces deforestation and supply chain risks for palm oil consumers with transparency and sustainability commitments.

Many growers, traders, and buyers have made zero-deforestation commitments. For example, palm oil buyers such as Unilever have made public commitments to exclusively purchase No Deforestation, No Peat, No Exploitation (NDPE) palm oil. Midstream traders such as Wilmar and Cargill have also made NDPE commitments. As of July 2017, IOI has a NDPE commitment in place.

IOI Corporation

IOI Corporation Berhad (IOI:MK) is vertically integrated in two areas: plantations and resource-based manufacturing. In FY 2016, 91 percent of IOI's MYR 1.9 billion revenues from its plantations segment accrued from sales to its resource-based manufacturing business units.

IOI became a founding member of the RSPO to develop and access the CSPO market. In 2015, IOI produced 5 percent of global CPO and 6 percent of global CSPO. Its products are exported to 85 countries. IOI engages in multiple activities across the palm oil supply chain. First, it leases over 300,000 ha over 90 estates. The resulting production is [3.7 million metric tons](#) of crude palm oil annually - 750,000 of which is CSPO. Second, it operates 15 mills to process the palm oil with a combined annual capacity of 4.75 million metric tons fresh fruit bunches (FFB). Additional to its own production, IOI buys CPO and PKO from pre-qualified suppliers. Third, IOI operates four large refineries that make palm oil into the goods we use each day.

Once the fresh fruit bunch is milled into CPO and PKO, the products are shipped globally to be manufactured into three commercial sub-segments: refined goods, oleochemical products, and specialty oils and fats. IOI refines palm oil, with an operating capacity of 3.3 million tons per year. Since 2012, IOI has grown production and improved yields (Figure 3). Both dipped in 2016.

IOI Suspension from RSPO

On March 25, 2016, RSPO announced its suspension of IOI taking effect April 1, 2016. The suspension was in response to allegations by Aidenvironment that IOI's subsidiaries in West Kalimantan, Indonesia did not follow RSPO rules. IOI subsidiaries PT Berkat Nabati Sawit and PT Sukses Karya Sawit had allegedly illegally deforested 11,750 ha because they lacked the required environmental permits. This included 1,300 ha inside the Manis Mata Production Forest.

On August 5, 2016, RSPO announced it was lifting IOI's suspension based on progress of its action plan to remedy complaints. IOI submitted various [documents](#) to RSPO on its action plans, including quarterly progress reports and endorsements by the IOI Board of Directors, as well as a joint statement between IOI

and Aidenvironment related to the original complaint. However, RSPO has threatened re-suspension if deficiencies are not corrected.

Risks

The suspension from RSPO had both reputational and market impacts on IOI.

Reputational risk. As described in *Engage the Chain Drivers of Financial Risk*, reputational risk is the risk that adverse publicity regarding business practices and associations, whether accurate or not, will cause a loss of confidence in the integrity of the institution. As an early adopter of RSPO, the actions of its subsidiaries illustrated poor oversight and inconsistency in implementation of sustainable practices. Second, the reputational damage was compounded by the company's legal action against RSPO for its decision to suspend IOI. IOI withdrew its lawsuit against RSPO two months after filing it in Zurich, Switzerland. Since then, IOI has improved its sustainability profile. It now reports that 51 percent of its palm oil can be traced from plantation to mill. IOI's management needs to restore the peatlands and forests it destroyed, in violation of RSPO criteria, to further address the reputational risks it suffered as a result of its suspension from the certifying body.

Market risk. Within the agricultural supply chain, market risk refers to the potential that access to buyers' markets and financial markets will be adversely affected. In the case of IOI, access to both markets were jeopardized.

Buyers' markets. In terms of buyers' markets, suspension from RSPO led 27 of IOI's corporate buyers of CSPO to suspend their procurement contracts. The company was not only unable to retain future contracts, but for a period of time it was also unable to sell its existing CSPO inventory. Many of its customers had implemented sustainable sourcing policies prior to IOI's RSPO suspension and would have suffered reputational damage if they did not suspend their contracts with the conglomerate.

IOI's suspension continues to impact it one year after its RSPO reinstatement. Some suppliers have yet to resume purchases from IOI because of concerns about the company's ability to enforce sustainability practices in its operations.

For example, Unilever did not announce that it resumed sourcing from IOI until [August 2017](#). At the same time, IOI announced it intended to sell Loders Croklaan for \$946 million to Bunge in September 2017.

IOI's competitors capitalized on this uncertainty in the CSPO market. IOI's suspension denied it market access, temporarily reducing global CSPO supply by 6 percent. Kuala Lumpur Kepong [reportedly](#) raised its CSPO prices from MYR 85-MYR 107 to MYR 150-MYR 171.

Restoring access to buyers' markets was stifled by IOI's reputational risk and ongoing NGO scrutiny. For example, Greenpeace pressured IOI through April 2017 until a commitment to sustainability practices was negotiated.

The suspension hit the company's bottom line. Net income available to common shareholders was negative MYR 59 million in Q2 2016, a decline from MYR 113 million income in Q2 2015.

Financial markets. IOI's suspension also hurt the company's access to financial markets. From a closing price of MYR 5.00 on March 14, 2016, IOI stock slid 17 percent to MYR 4.12 on May 16, 2016. During this period, IOI lost close to MYR 3.2 billion in market capitalization. Over the same period, IOI underperformed its competitor Kuala Lumpur Kepong by 6.5 percent. Although IOI's stock price increased 5 percent after the August 5, 2016 news that its RSPO suspension would be lifted, the share price was still below pre-suspension levels. In calendar year 2016, IOI underperformed the FTSE Bursa Malaysia Asian Palm Oil Plantation Index MYR by 11.7 percent.

Debt holders were also affected by its suspension. In May 2016, [Moody's](#) reviewed for downgrade IOI's unsecured debt, citing its RSPO suspension and its loss of CSPO procurement contracts. As of August 2017, Moody's rated IOI's outlook as negative and its issuer rating at Baa2.

In the case of IOI, the failure to enforce sustainable practices and the subsequent suspension from RSPO tarnished its reputation, damaged its customer relationships, and depressed its market value. For palm oil producers such as IOI, managing material business risks from deforestation will be key to maintaining future profitability, due to the heightened scrutiny across an array of stakeholders, including customers, investors, and NGOs.

IOI customers who suspended contracts due to RSPO suspension:

Ahold	Marks & Spencer Mars
ADM	McDonald's Mondelēz
Beiersdorf	Neste Oil
Bunge	Nestlé
Colgate-Palmolive	Olam International
Delhaize Group	Proctor & Gamble
Dr. Oetker	Reckitt Benckiser Group
Dunkin' Donuts Ferrero	The Hershey Company
Fonterra	Unilever
Golden Agri-Resources	Wilmar International
Johnson & Johnson	
Kellogg Company	
Louis Dreyfus	

Source: Chain Reaction Research (*IOI Corporation: Customers and investors want sustainability*, July 2016)



United Cacao:

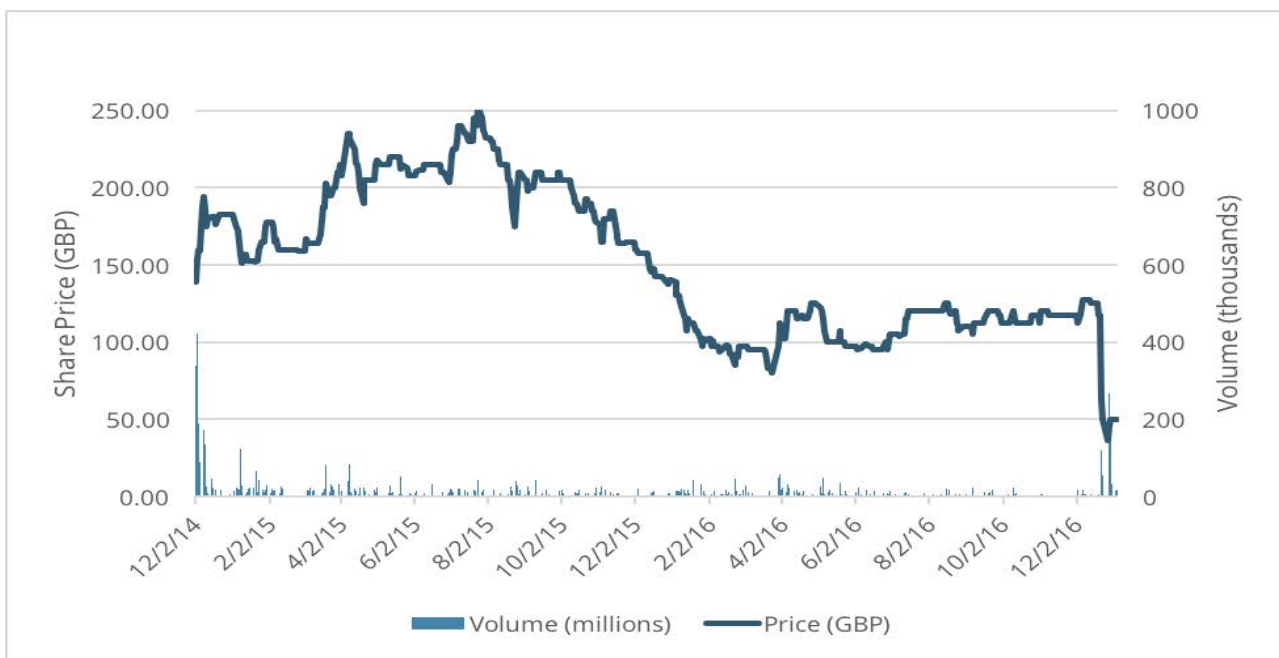
Aggressive Expansion Leads to Regulatory Violations and Insolvency

Executive Summary

United Cacao (Ticker: CHOC) is a cocoa producer that owned and operated large plantations and a smallholder program in Peru, until its insolvency in July 2017. The company's downfall was a result of its aggressive growth strategy, which led it to violate Peruvian environmental regulations regarding deforestation, and to underestimate its operational, regulatory and market risks.

- On December 2, 2014, United Cacao embarked on an ambitious expansion plan. It held an initial public offering on the London Stock Exchange Alternative Investment Market (AIM), securing an equity market valuation of \$36 million. It also issued a secured convertible bond for \$6.08 million. CHOC used this capital to fund its plantation land bank expansion. The plan relied upon a smooth process of planting cocoa to begin generating revenue.
- The company's expansion plans conflicted directly with government regulations against deforestation - a risk the company itself identified in the prospectus of its bond issuance. CHOC stated to investors that it held all relevant permits. The Government of Peru disagreed, telling CHOC to cease operations in December 2014.
- Failure to address these regulatory risks proved costly. In May 2016, investors and advocacy groups complained to the London Stock Exchange about CHOC's illegal activities. On January 4, 2017, CHOC's nominated adviser resigned its role. This led to its suspension from its equity trading on the AIM and its debt trading on the NEX Exchange. On February 6, 2017, CHOC was permanently delisted from the AIM.
- Its July 2017 winding-up petition resulted from CHOC's regulatory and legal challenges arising from illegal deforestation in Peru's Loreto Region. But this deforestation was a key driver of CHOC's expansion strategy. Equity and debt investors lost \$42 million because CHOC mismanaged its operational, regulatory and market risks.

FIGURE 1: UNITED CACAO SHARE PRICE FROM IPO TO DELISTING



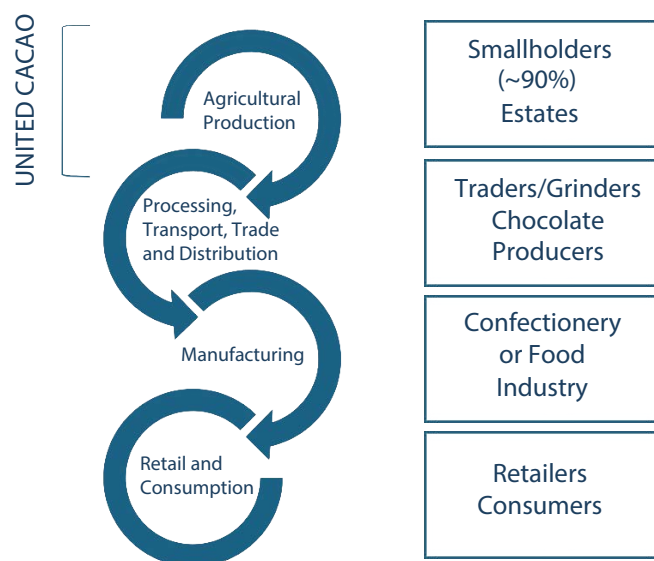
Cocoa

Cocoa is a tropical fruit tree cultivated and harvested for its beans, the raw material for cocoa liquor and butter. It is the main ingredient for chocolate.

Cocoa is the essential ingredient for the chocolate industry, worth over \$100 billion per year. Cocoa production is a driver of deforestation in West Africa, South America and Asia, responsible for an estimated 2 to 3 million ha of forest loss between 1988 and 2008. Almost 90 percent of cocoa production takes place through smallholders. CHOC used a different business model by operating the largest cocoa plantation in Latin America and planning aggressive expansion of up to 12,000 hectares (ha) in Loreto.

The [supply chain](#) for cocoa is global, encompassing multiple steps. Cocoa beans are purchased from smallholder farmers or large plantations by traders or grinders, who conduct initial processing of cocoa beans for export into cocoa liquor.

FIGURE 2: UNITED CACAO AND COCOA SUPPLY CHAIN



Cocoa production is regionally concentrated in West Africa, Latin America and Indonesia. Table 1 shows forecasted production by major producing countries for 2015/16.

TABLE 1: COCOA PRODUCTION 2015/16 FORECAST

Country	Production (Metric Tons)
Côte d'Ivoire	1,570,000
Ghana	820,000
Indonesia	330,000

Cameroon	250,000
Ecuador	230,000
Nigeria	190,000
Brazil	135,000
Other Countries	464,000
Total	3,989,000

Chocolate producers source cocoa from these firms and either process cocoa liquor into cocoa powder and butter, or create mixes and fillings from already processed cocoa.

Finally, manufacturers turn the product into goods that are retailed to consumers. Europe is the major cocoa producer through hubs such as Rotterdam, Netherlands. Sixty percent of cocoa [consumption](#) occurs in Europe and North America.

The production of cocoa beans remains a dispersed industry, with 90 percent of production coming from smallholder farms at an average size of two to three ha. Conversely, the rest of the supply chain is highly concentrated. Eight traders and grinders enjoy a market share of 60 to 80 percent. Six manufacturers have 40 percent of the global market.

Cocoa demand has grown [consistently at](#) 3 percent per year since 1999. Last year, cocoa production in Peru grew at a faster pace - [13.7 percent](#) from 2015 to 2016. Deforestation driven by cocoa production is concentrated in biodiversity hot spots such as the Upper Guinea Tropical Rainforest and the Amazon Basin in Peru.

Cocoa is vulnerable to the impacts from climate change. The effect of rising temperatures on cocoa production is site specific. However, decreased rainfall threatens cocoa in regions such as West Africa. In addition, cocoa will likely need to be planted at higher altitudes. Periods of drought, increased instances of disease such as cocoa pod borer, and increased flooding can also devastate cocoa crops.

Environmental concerns from cocoa production have produced numerous sustainability certification standards. The largest standard is UTZ, with 15 percent of global production area. CHOC was a member of the World Cocoa Foundation, which promotes a sustainable cocoa industry.

United Cacao

United Cacao (LSE:CHOC) was a cocoa producer with plantations in the Loreto Region in the Peruvian Amazon. It had over 500 employees. Its business model involved operating both large plantations and a smallholder program called Programa Alianza Producción Estratégica Cacao (PAPEC). As of June 30, 2016, CHOC's 3,985 ha land bank included [1,837 ha planted with cocoa](#). This made it the largest pure-play cocoa estate in Latin America. 1,643 ha was planted on its corporate estate. Another 194 ha was planted via PAPEC.

CHOC was based in the Cayman Islands. It operated through Peruvian based subsidiaries Cacao del Peru Norte SAC (CDPN) and Cooperativa de Cacao Peruano SAC.

Over a period of three years, CHOC raised capital through the equity and debt markets to finance an aggressive growth strategy, which was later revealed to be in violation of environmental regulation.

IMAGE 1: CACAO DEL PERU NORTE COCOA PLANTATION IN TAMSHIYACU



Source: EIA

On December 2, 2014, CHOC held its initial public offering (IPO) on the London Stock Exchange's Alternative Investment Market (AIM). It was the only publicly-listed permanent crop estate company in Latin America, with a market capitalization of \$36 million.

The company also issued a 7 percent coupon [secured convertible bond, payable semi-annually convertible at \\$3.40 a share](#) on October 27, 2015, due June 30, 2019 traded on the NEX Exchange. The bond was issued for a committed \$6.08 million with a call option for a further \$2 million on the same terms. The bond was issued to unspecified third parties - \$4,805,000 - and company directors - \$1,275,000.

Its bond issuance in 2015 outlined the future vision for the company. The investment opportunity in CHOC was based on aggressive expansion of its operations near Iquitos, in the Loreto Region of Peru. While Peru's deforestation rate of 0.2 percent per year is relatively low, Loreto - the largest Amazon region in Peru - has been a deforestation hotspot. In the Peruvian Amazon, small-scale agriculture accounts for around 80 percent of forest loss, though larger-scale losses are a growing threat from increases in agro-industry (such as United Cacao).

CHOC's strategy was based on several assumptions, including:

- Improved operating practices, particularly not using child labor, compared to rival producers.
- Achieving high yields (2.5 to 3.0 metric tons/ha), compared to West Africa (0.6 metric tons/ha).
- A projected shortfall in supply relative to cocoa demand until at least 2020, and the unavailability of substitutes for cocoa beans.

CHOC used the proceeds of both the IPO and the bond issuance to fund this expansion in its operations. For example, in its [bond issuance](#) CHOC expected the majority of capital to go towards planting an additional 2,000 ha. The [company cited](#) planting as the main use of its proceeds from its placing and subscription to the LSE. By November 2016, the company had applied for an additional 12,000 ha of land under a privatization program by the Peruvian government as an option to scale up planting in the future.

In May 2016, however, LSE had received [complaints](#) from Environment Investigation Agency and investors that CHOC subsidiaries and related companies, allegedly funded by its IPO, were [illegally deforesting](#) the Peruvian Amazon. Given LSEs commitment to the [UN Sustainable Stock Exchanges Initiative, CHOCs actions presented a reputation risk to the exchange](#).

This led to a series of events that culminated in CHOC's CEO and founder Dennis Melka resigning on January 4, 2017. Two other members of the board, Anthony Kozuch and Graeme Iain Brown, resigned January 5, 2017.

A forensic audit and independent internal review of CHOC subsidiaries initiated on January 25, 2017 revealed widespread issues, including misleading information by company directors on environmental and regulatory compliance.

In H1 2017, CHOC's board provided regulators at the Financial Conduct Authority (FCA) and AIM a thorough and detailed private update on CHOC's regulatory and legal risks.

On July 17, 2017 CHOC issued a [winding-up petition](#) in the Cayman Islands stating its insolvency and inability to pay back its debts. At that point, business operations ceased.

Risks

In its filings for debt issuance, CHOC [outlined](#) a number of risks that could impact the business and operations. For example, the company highlighted that a delay in land development would affect projected returns. It also discussed reputational risks posed by environmental groups. In addition, the company prominently highlighted regulatory and litigation risks in regards to land use. While these known risks were disclosed to investors, they were not realized until deforestation practices came to light. Further, management overestimated the company's ability to overcome these business risks.

Operational. A firm's exposure to operational risk can be attributed to unexpected external factors, such as management's failure to plan for more predictable factors, like resource scarcity. In the case of CHOC, its aggressive growth strategy necessitated rapid development of land for cocoa production. While management conveyed uncertainty over the ability to cultivate existing land, it also understood that failure to cultivate would decrease output. The company failed to effectively weigh the trade-off between early land development and strict compliance procedures. This error in judgment resulted in cumulative [net losses](#) of \$9.7 million between 2014 and H1 2016. In addition, the decision to continue operations amid permitting uncertainty evolved into realized regulatory risks.

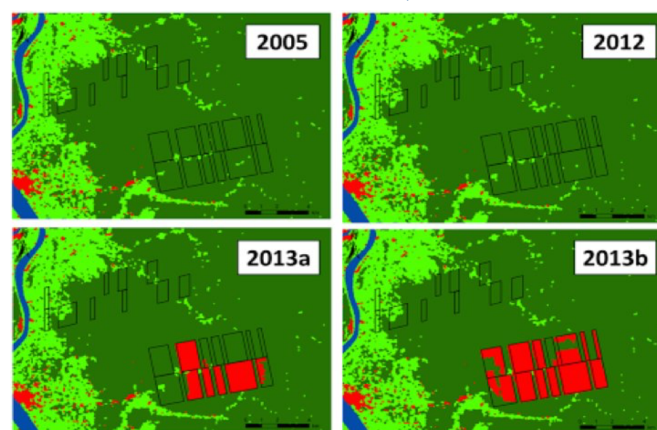
Regulatory. Peru's 2010 Forests and Wildlife law stated the requirement for private-owned plantations must have authorization certificates and management plans. Lack of legal clarity and poor enforcement means that illegal deforestation remains prevalent in the Loreto, Madre de Dios, and Ucayali [Regions](#). The Government of Peru has responded, in some cases, by increasing enforcement and installing tougher sanctions for illegal deforestation.

CHOC stated it had secured all necessary approvals from Peruvian authorities, although this was being disputed in court at that time. Environmental groups also used satellite images (see Figure 1) to dispute

CHOC's claim that the Tamshiyacu plantation was used for agriculture by previous owners, rather than cleared from primary forest.

In December 2014, the Peruvian government ordered CHOC's subsidiary CDPN to [cease operations](#) over illegal deforestation concerns. The dispute centered around whether CHOC required official authorization when it purchased the land from owners between 2012 to 2013, and whether the plantation cleared primary forest (see Image 1). CHOC also faced a criminal case against former employees related to land authorization.

IMAGE 2: LANDSAT SATELLITE IMAGES OF UNITED CACAO'S TAMSHIYACU COCOA PLANTATION, 2005-2013



Note: Red represents deforested area. Plantation is outlined.

Market. A company's level of market risk is determined by the potential that its access to buyers or access to financial markets will be adversely affected. In the case of CHOC, the loss of access to financial markets was an underestimated risk that became a reality when news over deforestation practices emerged.

On January 4, 2017, CHOC's shares were suspended from trading on the AIM, which was formally triggered by the resignation of Strand Hanson Limited as the nominated adviser (a condition for listing a stock). CHOC's shares were delisted February 6, 2017 when a successor adviser was not found. Overall, CHOC's shares decreased by 72 percent from its IPO to its last day trading on the AIM. Trading of its bond on the NEX Exchange was also suspended.

Conclusion:

CHOC's underestimation of operational, regulatory and market risks ultimately undermined its corporate strategy. At the time of publication, the outcome for equity and debtholders from the writing up order announced in July 2017 is unclear. The future of the company's plantations, both their operation and ownership, will also need to be settled through legal proceedings.

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