# Foreign mining corporations on trial

By the 2010s, the view that state mismanagement and inefficiencies underlay the Democratic Republic of the Congo's (DRC) economic malaise had become so commonplace as to permeate nearly all thinking about development in the country. In an opening speech to an international conference on natural resource management in 2012, then finance minister Matata Ponyo asserted that the DRC's failure to benefit from its natural resource wealth 'was largely due to bad governance' (Marysse and Tshimanga 2013: 23). The Congolese economist Gaston Lukusa's (2016: 56) book on economic development in the DRC from 2007 to 2016 was guided by the thesis that 'for many years now, bad governance has been at the origin of the crises experienced by the DRC'. For the prominent US scholar of the DRC Pierre Englebert (2014: 16), two decades of structural adjustment and neoliberal reform had not been enough: 'what is also generally needed is a disengagement of the state from the economy and society [...] There can be little hope for more accountable economic governance and genuine development without a general deflation of its role.'

The aim of this chapter is to challenge this line of thinking and question the wisdom underpinning the African Mining Consensus of moving from capital-intensive domestic-owned mining (DOM) to foreign-owned mining (FOM) based on a belief in the superior efficiency of the latter. By charting the rise and fall in South Kivu of Belgian-owned Société minière et industrielle du Kivu (SOMINKI)—the Kivu Mining and Industrial Company (1976–1997)—and Canadian-owned Banro (1995–2019), its main line of argument is that foreign-owned and managed mining corporations are no less vulnerable to mismanagement, firm inefficiencies, and volatile prices than their state-owned counterparts. Indeed, the model of capital-intensive FOM promoted by Consensus proponents might be more damaging to prospects of transformative mining-based development in the African periphery than domestic-owned alternatives. This is due to its tendency, as seen in the case of South Kivu, to prioritize overseas surplus

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extraction, redirecting value to directors and shareholders located in global centres of financial wealth at the expense of productive capacity and to the detriment of the Congolese state and Congolese firms and labour.

### 3.1 SOMINKI (1976-1997)

The DRC gained its independence from Belgian colonial rule on 30 June 1960. Up until this point, formal mining in South Kivu had been wholly owned and operated by Belgian firms. Following the creation of the *Société manière des Grands Lacs* (MGL) in 1923 as a mining subsidiary, owned by the Belgian industrialist Baron Empain's *Groupe Empain* (Empain Group) through until the 1970s, all mining operations in the Kivu region were run by the subsidiaries of private Belgian corporations, most of which were connected to the Empain family (Empain Group n.d.). It wasn't until 1974 that, as part of President Mobutu's nationalization efforts, the DRC government began to negotiate increased state participation in South Kivu's formal mining sector.

Negotiations were protracted, ending two years later in 1976 with the merger of MGL, Cobelmin, and Symetain (along with six associated subsidiaries) into SOMINKI. It has often been wrongly assumed that SOMINKI was state-owned. Carisch (2014: 2010) has called the Belgian firm 'Congo's second largest state-owned gold mining company', and the Congolese civil society organization *Observatoire gouvernance et paix* (Governance and Peace Observatory) (OGP 2010: 30) referred to it as 'a public enterprise'. Kamundala et al. (2015: 169) listed SOMINKI as one of 'the large foreign mining companies in the four mining provinces [that] became state-owned societies' following nationalization in 1973.

Yet, like its predecessor MGL, SOMINKI was never state owned. From the 1970s until its final demise in the 1990s, SOMINKI was a majority Belgian-owned and managed subsidiary in which the state only ever held a 28 per cent stake. The remaining 72 per cent was held by COGEMIN, a Belgium-based subsidiary of the Empain Group. SOMINKI avoided, then, the nationalization of mining that took place in other mineral-rich Congolese provinces such as Katanga and Kasaï. In so doing, it became the largest foreign-owned mining company in the DRC at the time and the only one (foreign or state-owned) operating in the Kivu region.<sup>1</sup>

SOMINKI's primary export was tin, alongside gold and, in smaller quantities, wolframite and monazite. Shortly after the merger, in the early 1980s,

¹ Personal memoires of Serge Lammens, former SOMINKI director; interview with former SOMINKI supervisor, Bukavu, 6 September 2016; Ministry of Mines SOMINKI meeting minutes, Kinshasa, 1991.

SOMINKI's shareholders, encouraged by a rising tin price since 1975, made investments to modernize tin production, as easily exploitable tin and gold deposits had become increasingly scarce. Share capital in SOMINKI increased from 6 million Zaires in 1978 to 125 million Zaires by 1985.<sup>2</sup> A fresh investment plan was developed for the period 1984–1987, totalling 560 million Belgian francs (equivalent to around \$24 million at today's prices), of which 303 million had been invested by the end of the first quarter of 1985.<sup>3</sup> The total investments made in the first half of the 1980s stabilized and then increased previously declining tin output, which grew from 2,593 tonnes in 1980 to 3,806 tonnes in 1985.<sup>4</sup>

From 1980 to 1984, SOMINKI consistently recorded annual profits. Notably, this included some degree of articulation with the Congolese economy. SOMINKI paid its shareholders a total of 46.8 million Zaires during this same period, yet it also paid 267 million Zaires in taxes to the Congolese state, most of which derived from a 50 per cent profit tax. While SOMINKI's gold was refined in Europe, moving from a Belgian to a Swiss refinery in 1981, a large percentage of the final product was sold to the Central Bank of Congo at a fixed price.

Both the profit tax and the sale of gold to the Central Bank represented a continuation of late colonial practice. From 1947 to 1960, MGL paid a total of 106.9 million francs to the state of the Belgian Congo, amounting to 52 per cent of declared profits. Following a legislative ordonnance in April 1946, the state of the Belgian Congo reserved the right to purchase a minimum of 40 per cent of all gold production in the colony, depending upon the needs of the Central Bank (Chirishungu Chiza 2008: 335).

This level of domestic articulation supported expansionary periods of state investment and social service provisioning at the national level, first in the 1950s—when state expenditure rose from 15 per cent to 30 per cent of gross domestic product (GDP), an increasing portion of which was used to finance an expansion of productive activity and invest in public works, health, and education (World Bank 1957, Hesselbein 2009)—and then again during the

<sup>&</sup>lt;sup>2</sup> Personal memoires of Serge Lammens, former SOMINKI director; SOMINKI Annual Reports, 1981 and 1984; Extraordinary General Assembly meeting notes, 30 March 1985.

<sup>&</sup>lt;sup>3</sup> SOMINKI Annual Report, 1984.

<sup>&</sup>lt;sup>4</sup> SOMINKI Technical Audit, 1995; personal archives of Serge Lammens, former SOMINKI manager; letter from Marrio Fiocchi, SOMINKI director, to the Congolese Minister of Labour, 21 February 1997.

<sup>&</sup>lt;sup>5</sup> SOMINKI Annual Reports, 1980–1984.

<sup>&</sup>lt;sup>6</sup> SOMINKI Annual Reports, 1980 and 1982.

<sup>&</sup>lt;sup>7</sup> Following a legislative ordonnance in April 1946, the state of the Belgian Congo reserved the right to purchase a minimum of 40 per cent of all gold production in the colony, depending upon the needs of the Central Bank (Chirishungu Chiza 2008: 335).

<sup>8</sup> MGL Annual Reports, 1924–1960.

<sup>&</sup>lt;sup>9</sup> These policy changes were part of 'a different ideological tendency [...] in the Administration' (Bezy et al. 1981: 36), as laid out in the Ten-Year Plan for the Economic and Social Development of the Belgian Congo, drawn up in the late 1940s to maintain a minimum of social order in the face of growing protest at the injustices and inequalities of colonial rule.

first decade of Mobutu's presidency (as detailed in section 2.1). The sale of gold to the Central Bank provided the state with reserves to help withstand external economic shocks.

It was an external price shock that brought SOMINKI's brief expansionary period to an end. In late 1985, the International Tin Council, formed in 1931, fell apart and the international tin price more than halved, from \$5.40 per pound to \$2.50 per pound (Mthembu-Salter 2009). Before the price crash, in 1984, tin contributed 74 per cent of SOMINKI's turnover. By 1987, this figure had fallen to 43 per cent. With gold production failing to cover the lost revenue, investment was halted, several mines were shut down, European staff were reduced from around 100 to 40, and 2,400 Congolese workers were laid off.<sup>10</sup>

The measures taken proved insufficient. SOMINKI ran at a loss from 1986 onwards (Kibwe-Kasongo 1994: 33). From 1986 to 1996, SOMINKI's annual tin production decreased from 3,805 tonnes to less than 1,000 tonnes, annual gold production dropped from 530 kilograms to less than 300 kilograms, and the number of SOMINKI staff fell from 10,128 to 5,489. In 1993, SOMINKI's mother company in Brussels, COFIMINES, was liquidated, and the 72 per cent private ownership of the subsidiary passed to Darnay Limited and Cluff Mining. While, at the time, there were 63,000 kilograms of known gold reserves at Twangiza in Luhwindja, it was estimated that more than \$100 million of investment was required to bring the deposit to production. Neither the new shareholders nor potential suitors were prepared to make this investment.

The onset of the First Congo War in August 1996 accelerated SOMINKI's final collapse. By this time, gold production represented 80 per cent of the firm's revenue, but the heightened insecurity brought on by the war led to the pillage of gold mines and destruction of machinery by the departing national army and the local population. On 29 March 1997, SOMINKI went into liquidation, ending nearly 100 years of Belgian-owned mineral exploration and exploitation in South Kivu.

<sup>&</sup>lt;sup>10</sup> Personal memoires of Serge Lammens, former SOMINKI director; SOMINKI 1987 Planning Report, 1986; Ministry of Mines SOMINKI meeting minutes, Kinshasa, 1991.

ii SOMINKI Annual Reports, 1980–1984.

<sup>&</sup>lt;sup>12</sup> SOMINKI Annual Report, 1987; Ministry of Mines SOMINKI Evaluation Report, 1993; SOMINKI Technical Audit, 1995; 51st Board of Directors meeting notes, Kinshasa, 29 March 1997; personal archives of Serge Lammens, former SOMINKI director.

<sup>&</sup>lt;sup>13</sup> SOMINKI Annual Report, 1983; annex to SOMINKI correspondence, 16 September 1993.

<sup>&</sup>lt;sup>14</sup> Interview with former SOMINKI director, Brussels, 10 August 2016; fax from GENMIN to COGEMIN, 26 October 1992; letter from A&M Minerals and Metals president to COFIMINES, 6 May 1993.

Personal memoires of Serge Lammens, former SOMINKI director; 51st Board of Directors meeting notes, Kinshasa, 29 March 1997.

<sup>&</sup>lt;sup>16</sup> 51st Board of Directors meeting notes, Kinshasa, 29 March 1997.

Not only was SOMINKI foreign owned in the decades leading up to its liquidation, but it was also foreign managed, despite the process of Africanization that had been underway at the corporation's predecessor MGL since at least as early as 1959.<sup>17</sup> The intention of Africanization was to change the management structure of the firm, promoting Congolese workers into senior and managerial positions that had previously been the exclusive reserve of Europeans. In 1961, MGL's European administrative director, Mr Feruzi, was replaced by his Congolese assistant, Martin Musombwa, by order of ministerial decree.<sup>18</sup> That same year, two Congolese were placed in charge of office accounting in Bukavu. In Kamituga, two European accountants, one European store manager, and one European procurement officer were all replaced by Congolese.<sup>19</sup>

Yet, from the outset, European senior management had resolved to manage the process of Africanization within an overall strategy that allowed 'for Europeans to carry out their work in the shadows, while leaving a representative function to Congolese.'20 This logic was continued as MGL merged into SOMINKI. In 1978, Alexis Thambwe-who went on to hold important ministerial positions under Presidents Mobutu and Joseph Kabilawas promoted to the head of SOMINKI's Kinshasa office, replacing the Belgian Jacques Abel. At a private reception held shortly after his promotion, European colleagues raised concerns about this appointment. Joseph Meuret, soon to become President of SOMINKI, responded by reassuring them that they had nothing to fear, 'Thambwe will be our paid negro.'21 According to a former member of SOMINKI's Congolese managerial class, 'while SOMINKI succeeded politically in creating the impression of Africanization, the company never Africanized. They had Mr Thambwe who symbolized and was the face of Africanization, but in reality SOMINKI was highly colonial in that all the decisions remained in the hands of Europeans.'22

The data supports this view, indicating that while the number of SOMINKI's Congolese managers doubled from 38 to 76 between 1976 and 1984, during the same period the number of European managers remained relatively constant, at 94 in 1976 and 90 in 1984, peaking at 110 in 1978.<sup>23</sup> As observed by Bezy et al. (1981: 89–90) at the state-owned Gécamines

<sup>&</sup>lt;sup>17</sup> MGL General Assembly meeting notes, 4 October 1961.

<sup>&</sup>lt;sup>18</sup> Decree Number 40221/123 of 11 December 1961; MGL letter to the president of the Kivu-Maniema Provincial Government, 15 December 1961.

<sup>&</sup>lt;sup>19</sup> Internal MGL correspondence, Bukavu, 5 September 1961.

<sup>&</sup>lt;sup>20</sup> Internal MGL correspondence (marked confidential), Goma, 26 January 1961.

<sup>&</sup>lt;sup>21</sup> Personal memoires of Serge Lammens, former SOMINKI director.

<sup>&</sup>lt;sup>22</sup> Interview with former SOMINKI director, Kinshasa, 20 August 2016.

<sup>&</sup>lt;sup>23</sup> Personal archives of Serge Lammens, former SOMINKI director.

in the 1970s, this suggests that Congolese were being promoted into new managerial positions that duplicated, rather than replaced, those of European managers. The size of the European managerial class only began to decline from the late 1980s onwards, as SOMINKI shed staff to stave off bankruptcy. Even under this duress, in its final years, its most senior directors were Europeans. SOMINKI remained, then, firmly under the control of not only Belgian ownership but also European management throughout its two-decade expansion and decline from 1976 to 1997.

In 2002, five years after SOMINKI's liquidation, its major gold deposits were acquired by the Canadian corporation Banro. Fifteen years later, in 2017, Banro would find itself in a very similar situation to that of SOMINKI in 1997, on the verge of financial collapse, having failed to control costs in a context of price volatility.

#### 3.2 Banro (1995-2019)

The liquidation of SOMINKI in 1997 was part of negotiations begun in 1995, during which a group of British-Canadian investors, led by the British mining magnate Algy Cluff, negotiated several agreements with the Congolese government to acquire control of SOMINKI's assets. A protracted acquisition process ensued, as the DRC moved through two wars and three different presidents within the space of four years.<sup>24</sup> A final agreement was reached in April 2002, the same month that the Second Congo War was officially ended by the signing in Pretoria of the Global and All-Inclusive Agreement. The new agreement ceded 100 per cent ownership of SOMINKI's major gold deposits to the Canadian corporation Banro, covering Twangiza, Kamituga, and Lugushwa in South Kivu Province and Namoya in neighbouring Maniema Province. Following this agreement, Banro established the four Congolese subsidiaries of Twangiza Mining, Kamituga Mining, Lugushwa Mining, and Namoya Mining, one to manage each respective concession.

Three years later, in 2005, the Canadian government announced the launch of the Canada Investment Fund for Africa (CIFA), jointly managed by the emerging market private equity investors Actis and Cordiant, to invest in Canadian corporations operating in Africa. In November 2005, CIFA announced a 13 million Canadian dollar investment to support Banro's exploration activities in the DRC, with the head of Actis's mining investments

<sup>&</sup>lt;sup>24</sup> For detailed accounts of this process, see de Failly (2001: 4-8); Mthembu-Salter (2009: 3-5); Geenen (2014: 129-134).

explaining, 'not only do we believe that Banro has extremely attractive commercial prospects, but through this investment we can make a significant contribution to the long term development of the mining industry in the DRC' (CIFA 2005). On closing in 2006, most of CIFA's \$212 million corpus had been invested in mining firms (CIFA 2006).

Most of Banro's money in its early years was raised, though, by the issuance and sale of common shares, with the corporation raising 19.5 million Canadian dollars on the Toronto Stock Exchange (TSE) in 1996 to finance the initial acquisition of SOMINKI's gold assets.<sup>25</sup> Raising capital to finance its exploration activities through the sale of shares was the corporation's main strategy over the next decade (a detailed overview of Banro's financing history from 1996 to 2018 can be found in Appendix 1). Between 1996 and 2016, Banro issued shares worth around 300 million Canadian dollars and 100 million US dollars.<sup>26</sup>

By 2012, with the required investment secured, Banro entered commercial production at its flagship Twangiza project. In 2007, Banro had forecast initial production costs at Twangiza of \$257 per ounce, yet in 2012 and 2013, the actual production cost was recorded at \$879 and \$801, respectively. Fortunately for Banro, the annual average gold price had increased across this period from \$872 per ounce in 2008 to \$1,669 per ounce in 2012 (Figure 3.1). The early profitability of production at Twangiza was, then, entirely the result of a near doubling of the gold price over a short time frame.

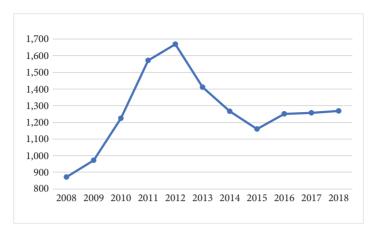
Towards the end of 2011, Banro began to construct Namoya, its second mine, in Maniema province. The firm's directors had been encouraged by the rising gold price, which had seen a sixfold increase between 1999 and 2012. According to Twangiza Mining's then general director, this was a major mistake, as 'we went to build Namoya before we started stabilizing at Twangiza,' with the decision driven by senior directors who were 'more concerned with the company's share price than the mining fundamentals'. The then general director stated that Namoya was initially budgeted to be built for \$100 million using profits generated by Twangiza but on the assumption that gold would, at the least, stay at its current price. Yet, as Figure 3.1 shows, the gold price collapsed by one-third between 2012 and 2015 and had yet to

<sup>28</sup> Interview with Twangiza Mining general director, Twangiza, 6 June 2017.

<sup>&</sup>lt;sup>25</sup> From the 1990s, the TSE in Canada became the major home of the global mining industry, in particular of junior companies focusing on exploration. In 2003, 53 per cent of mineral exploration companies in Africa were Canadian (Deneault et al. 2008). In 2007, 60 per cent of the world's mining companies were listed in Toronto, twice as many as the five major competing stock exchanges combined (ibid.). According to Kennes (2005: 159), they were attracted by a favourable investment climate, minimal government regulation and reporting obligations, and a well-developed industry of financial services.

Banro press releases, 2013–2017.

<sup>&</sup>lt;sup>27</sup> Banro press release, 30 July 2007; Banro consolidated financial statements, 2012 and 2013.



**Figure 3.1** Annual average gold price per ounce, 2008–2018 (USD) *Source*: World Gold Council, http://www.gold.org/goldhub/data/gold-prices (accessed 17 August 2021).

meaningfully recover by 2018, leading to significant shortfalls in Twangiza's forecasted revenue. In addition, underestimating the industrial machinery required to process gold at Namoya meant 'the [budgeted] \$100 million went up in smoke in a month', with construction costs eventually totalling \$250 million.<sup>29</sup>

Needing to raise an additional \$150 million to finance the Namoya construction overspend, and with a market capitalization on the TSE of \$80 million, Banro was pushed 'to take a number of short-term loans that came at a premium.'<sup>30</sup> In 2012, Banro turned to the US debt market to raise \$175 million in notes, with a 10 per cent interest rate and maturing (as would later prove critical) in 2017, just five years later. In 2013, Banro secured \$30 million in bank loans from the Congolese bank Rawbank and the Nigerian bank Ecobank at high interest rates of 9 per cent and 8.5 per cent, respectively and an additional \$53 million from several other unspecified lenders.<sup>31</sup> It was at this juncture that Banro's financial health began to deteriorate. The corporation's long-term debt increased from zero in 2011 to \$159 million in 2013, and from 2013 onwards, Banro entered a year-on-year negative working capital

 $<sup>^{29}</sup>$  Banro consolidated financial statements 2012–2016; interview with Twangiza Mining general director, Twangiza, 6 June 2017.

<sup>&</sup>lt;sup>30</sup> Interview with Twangiza Mining general director, Twangiza, 6 June 2017.

<sup>&</sup>lt;sup>31</sup> Banro Annual Information Form 2013; Banro press releases 2013.

position (Table 3.1).<sup>32</sup> This meant it had no available capital to reinvest in the maintenance of infrastructure or other costs related to productive activity.

Requiring further financing to meet its new debt obligations, from 2014 onwards, Banro entered several forward sale and streaming transactions (Table 3.2). Forward sale transactions provide the investor an agreed amount of gold delivered over an agreed time frame, while streaming transactions secure the investor an agreed percentage of the life-of-mine production at an agreed cost. In both cases, the transactions typically result in the mining firm securing investment in exchange for a share of its future production at below market prices, as was the case for Banro.

In 2014 and 2015, Banro completed four forward sale transactions, one with Gold Holding in the United Arab Emirates (UAE), one with the US private equity fund Gramercy, and two with undisclosed investors. Over a four-year period, these agreements committed Banro to deliver 102,985 ounces of Twangiza's gold production—worth around \$125 million at the time—in return for \$98 million of investment. In 2015 and 2016, Banro completed streaming transactions with Gramercy for the Namoya mine and

Year	Revenue	Net income	Long-term debt	Working capital
2006	0	-3	0	50
2007	0	-4	0	26
2008	0	-8	0	-2
2009	0	-5	0	69
2010	0	-3	0	68
2011	0	-9	0	-27
2012	43	-5	155	4
2013	112	2	159	-73
2014	125	0	201	-68
2015	157	-74	168	-80
2016	228	-51	206	-

Table 3.1 Banro financial overview, 2006–2016 (millions of USD)

*Sources*: Banro consolidated financial statements, 2007–2016; Morning Star investor website, http://www.morningstar.com (accessed 28 March 2017).

<sup>&</sup>lt;sup>32</sup> Long-term debt consists of any loans or other financial obligations that require repayment over the course of more than one year. Working capital is calculated by subtracting a firm's current liabilities (debts and other obligations) from its current assets. It is used as an indication of a firm's short and medium-term financial health, with a high level of working capital correlated with strong financial health.

Table 3.2	Banro's forward sale and streaming transactions, 2014–2017
(millions	of USD)

Year	Transaction	Investor	Value	Return
2014	Forward sale	Gold Holding (UAE)	41	40,500 ounces from Twangiza (four years)
2015	Streaming	Gramercy (US)	50	8.3 per cent from Namoya at \$150/ounce (life of mine)
	Forward sale	Gramercy (US)	40	44,496 ounces from Twangiza (three years)
	Forward sale	Undisclosed	10	9,508 ounces from Twangiza (two years)
	Forward sale	Undisclosed	7	8,481 ounces from Twangiza (thirty-three months)
2016	Streaming	Baiyin (China)	67.5	11 per cent from Twangiza at \$150/ounce (life of mine)
2017	Forward sale	Undisclosed	45	51,880 ounces from Namoya (three years)

Sources: Banro annual information forms, 2014–2016; Banro press releases, 2014–2017; Banro Material Change Report, March 2016.

with the Chinese Baiyin Nonferrous Group (hereafter, Baiyin) for the Twangiza mine.<sup>33</sup> Due to these multiple arrangements, in 2016 and 2017, Banro received no revenue for around one-third of Twangiza's production.

Banro's own assessment of its financial structure by the end of this period highlights the extent of the constraints placed on corporate performance by the loans and borrowing agreements it had entered in response to overspend and price fluctuations:

The Company has a significant amount of indebtedness and other liabilities and obligations (collectively, 'Obligations'), including the notes (the '2012 Notes') issued by the Company in March 2012 under a US\$175 million debt financing, gold delivery obligations under forward sale and stream transactions, trade payables, DRC bank debt, and preference shares and preferred shares issued by the Company and certain of its subsidiaries, respectively. This could have important adverse consequences [...] Certain financing agreements the Company is a party to, including

<sup>&</sup>lt;sup>33</sup> At a time when the gold price was around \$1,250 per ounce, this second transaction committed Banro to deliver Baiyin 11 per cent of Twangiza's life-of-mine production at \$150 per ounce in return for \$67.5 million of investment, with the percentage delivered to halve when total production at Twangiza reached 1.14 million ounces, which was approximately eight years away at the time the agreement was made. Until the 1.1-million-ounce target was reached, this transaction secured Baiyin 88,000 ounces of gold—worth around \$110 million at the time—at a cost of \$80.7 million (the \$67.5 million investment plus the \$13.2 million paid for the gold at \$150 per ounce). After this point, Baiyin would continue to secure 5.5 per cent of production, approximately \$10 million per year, for the remainder of the Twangiza's productive lifespan.

the Note Indenture, contain a number of restrictive covenants that impose significant operating and financial restrictions on the Company and may limit the Company's ability to engage in acts that may be in its long-term best interest.

(Banro 2016a: 20-21)

This warning was to prove prescient. In March 2017, the repayments on the \$175 million of debt financing taken in 2012 became due. Unable to make the repayments and on the verge of bankruptcy, Banro filed for Canadian government court protection from its creditors. In December 2017, it was granted this protection under the Canadian Companies' Creditors Arrangement Act. Banro emerged from creditor protection in March 2018, having undertaken a major financial restructuring plan that included the deferment of forward sale and streaming transactions. A few months later, in May 2018, Banro delisted from the TSE (Banro 2018a, 2018b). In March 2019, the corporation split its assets and the Chinese investment fund Baiyin International Investment (one of Banro's two principal shareholders at the time) acquired full control of the Twangiza mine. Six months later, in September 2019, Banro's remaining Congolese subsidiaries suspended all activities, and its chief executive officer (CEO) wrote to the Congolese Ministry of Labour requesting the suspension of all worker contracts for reasons of force majeure.34

Internal mismanagement and inefficiencies provide additional contributing factors to Banro's decline, offering a further explanation for the overspend on the Namoya mine construction. A 2012 third-party audit of Twangiza Mining highlighted several key issues negatively affecting corporate performance: 'limited effort and results in ensuring process effectiveness; significant inventory and procurement systems inadequacies; [. . .] systems management, ownership and required structures do not exist or inadequate; [. . . and] project structure and ownership appears ineffective.' Interviews with former employees at Twangiza Mining lend support to these findings. A former auditor and a former procurement officer both observed a preference among non-national procurement managers to use foreign (and often home-country) suppliers for goods and capital inputs when presented with domestic suppliers who could procure the same goods at a lower cost. A former Twangiza Mining procurement manager confirmed this tendency to

<sup>&</sup>lt;sup>34</sup> Letter from Banro CEO Brett Richards to the DRC Government Ministry of Labour, 24 September 2019.

<sup>35</sup> Twangiza Mining External Audit Report, Nubian Africa, 2012.

<sup>&</sup>lt;sup>36</sup> Interviews with former Twangiza Mining auditor, Bukavu, 15 December 2016 and former Twangiza Mining procurement officer, Kinshasa, 13 January 2017.

disregard cost efficiency, noting that when he arrived at the mine in 2012, exclusive suppliers were up to 150 per cent more expensive than alternative options.<sup>37</sup>

The financial impact of local-level armed attacks on the corporation's Namoya mine, leading to the temporary suspension of production on three occasions, is a final factor for consideration when assessing Banro's decline to Canadian government protection (the attacks themselves are discussed at greater length in section 7.2).<sup>38</sup> Indeed, popular and corporate accounts of Banro's financial descent have highlighted these incidents as the primary cause behind the corporation's financial difficulties. Quoting one of Banro's shareholders, the Canadian national newspaper *The Globe and Mail* reported, 'The violence has caused significant disruption to Banro's operations in the DRC, which ultimately rendered the company insolvent by late 2017' (McGee 2018).

However, the three temporary production suspensions resulting from the attacks lasted for a total of just 11.5 days,<sup>39</sup> amounting to around \$3.6 million in lost revenue.<sup>40</sup> Relative to the scale of Banro's debt repayments, these attacks functioned, at the most, as a short-term trigger for Banro's filing for Canadian government protection in December 2017 (and likely served as a somewhat welcome scapegoat and smokescreen for the corporation when reporting events to its shareholders and the media).

In reality, Banro had been driven to the verge of bankruptcy in 2017 by three longer-term factors: first, poor corporate systems and processes; second, \$150 million overspend on the construction of the Namoya mine; third, a gold price collapse starting in 2012, just after Banro had begun construction at Namoya based on the assumption of a stable price. The first two factors can be equated to a general level of corporate mismanagement and inefficiency and the third to exposure to price volatility. Together, these factors pushed Banro into increasing indebtedness, with its long-term debt rising from zero in 2011 to \$206 million by 2016. Unable to meet its obligations to lenders and investors as the gold price continued to stagnate, Banro had no choice but to seek Canadian government protection in 2017. The speed of Banro's descent,

<sup>&</sup>lt;sup>37</sup> Interview with former Twangiza Mining procurement manager, Skype call, 23 January 2017.

<sup>&</sup>lt;sup>38</sup> Banro press statements, 2017.

<sup>&</sup>lt;sup>39</sup> Banro press statements, 2017; Banro, 'Management's Discussion and Analysis for the Second Quarter of 2017, 2017.

<sup>&</sup>lt;sup>40</sup> During the first quarter of 2017, just prior to the attacks taking place, Namoya produced 23,100 ounces across a ninety-day period, equivalent to around \$28.2 million of value based on the average gold price for that quarter, or \$313,333 of revenue per day. Banro, 'Management's Discussion and Analysis for the First Quarter of 2017', 2017; World Gold Council price data from http://www.gold.org/goldhub/data/gold-prices (accessed 17 August 2021).

however, was accelerated by underlying mechanisms of surplus extraction to primarily Northern centres of financial wealth and power.

## 3.3 Enrich the centre, impoverish the periphery

Despite Banro's poor performance as a viable productive entity, a group of seventeen company directors amassed considerable wealth from the corporation, primarily through share-based compensation. The potential for directors of gold corporations to accumulate wealth through the short-term performance of their firm's shares is a relatively recent phenomenon. From the end of the direct convertibility of US dollars into gold in 1971 through to the 2000s, trade in gold increased to the point where, by 2010, gold had become 'as easy to trade as it is to trade any stock or share' (Shafiee and Topal 2010: 180).

Domiciled between Canada and the United Kingdom, with one in South Africa, Banro's senior directors accrued at least \$54.6 million in salaries, share-based compensation, fees, incentives, and bonuses over the twenty-year period from 1997 to 2016 (Table 3.3).<sup>41</sup> This included \$36.6 million before the corporation had produced a single ounce of gold, of which around \$19 million derived from share-based compensation. Of the \$54.6 million, \$30.2 million (more than half) accrued to just two directors. The actual earnings are likely a multiple of the \$54.6 million identified, given that Banro's stock rose from \$0.5 per share in 2001 to around \$14 per share in 2007 and

Five-year period	Number of directors	Wages	Identified share-based compensation	Fees, incentive, and bonuses	TOTAL
1997-2001	4	967,945	0	497,092	1,465,037
2002-2006	7	2,570,320	10,577,781	894,786	14,042,887
2007-2011	8	6,533,812	8,411,646	6,121,362	21,066,820
Pre-production	_	10,072,077	18,989,427	7,513,240	36,574,744

Table 3.3 Banro senior director compensation, 1997–2016 (USD)

Sources: Banro management information circulars, 2004–2016; Enrico Carisch's personal data set.

18,989,427

7,820,794

15,334,034

18,055,045

54,629,789

10,234,251

20,306,328

subtotal 2012–2016

TOTAL.

9

<sup>&</sup>lt;sup>41</sup> I am grateful to Enrico Carisch for sharing his own data set on these figures.

that not all share-based compensation is accounted for as the beneficiaries are under no reporting obligation when they exercise them.

The financial difficulties Banro entered from 2012 onwards had little impact on the level of compensation accruing to senior directors. While no share-based compensation was identified during this period (which, to repeat, does not mean that this compensation was not taken), senior director wages actually increased from \$6.5 million between 2007 and 2011 to \$10.2 million between 2012 and 2016, with this latter period representing the five years leading up to Banro entering Canadian government protection. Fees, incentives, and bonuses also increased from \$6.1 million to \$7.8 million across the same two periods.

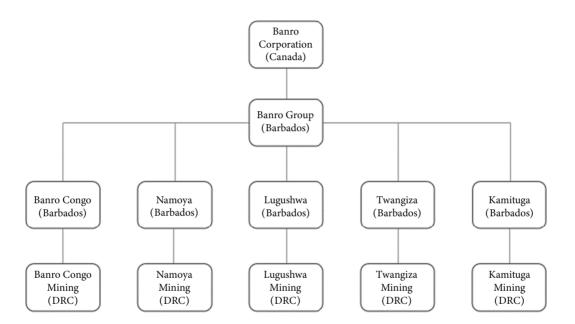
Alongside high and sustained levels of director compensation up until 2017, payments to shareholders provided an additional avenue through which corporate value was rerouted overseas while Banro's indebtedness continued to grow. From the outset, Banro's corporate structure had its DRC-based subsidiaries run through holding subsidiaries in Barbados (Figure 3.2). Under Canada's double taxation treaty with Barbados, signed in 1987, Canadian companies can repatriate profits from Barbados without paying Canadian tax. In December 2013, Banro began making shareholder dividend payments out of Banro Group in Barbados and continued to do so on a regular basis up until the end of 2017, when it entered creditor protection.<sup>42</sup>

To summarize, a few senior directors made tens of millions upfront before production began, and both senior directors and shareholders continued to extract value from 2012 onwards, despite the increasing financial difficulties Banro began to face during this period. To sustain this surplus extraction as long as possible, it was necessary to squeeze the value accruing domestically to the Congolese state and to Congolese firms and labour.

Banro's 2002 mining convention included a ten-year tax moratorium from the start of commercial production and an exemption from royalties. Five years later, in 2007, the Congolese government undertook a review of sixty-three mining contracts signed during the Congo Wars, recommending that twenty-two be cancelled and thirty-nine renegotiated (Lukusa 2016: 45–47). Banro's was among those to be renegotiated, eventually resulting in a 2010 contract amendment which committed Banro to paying a 1 per cent royalty tax and a 4 per cent profit tax.<sup>43</sup>

<sup>&</sup>lt;sup>42</sup> Banro press releases, 2013-2017.

<sup>&</sup>lt;sup>43</sup> Second Amendment to the Mining Convention of 13 February 1997 between the DRC and Banro, Kinshasa, 13 July 2010.



**Figure 3.2** Banro's corporate structure *Source*: Banro Corporation, Annual Information Form, March 2016.

The negotiated amendment yielded modest results. Data on Banro's postproduction tax declarations is only available for the years 2012, 2013, 2016, and 2017.44 Across these four years, Banro declared a total of \$29 million in tax contributions, of which \$650,000 went to the Barbadian state and the remaining \$28.35 million to the Congolese state (Table 3.4). Due to Canada's double taxation treaty with Barbados discussed earlier in this section, no taxes were paid in Canada. Across 2012, 2013, and 2016, the \$20.4 million paid in taxes was equivalent to just 5.3 per cent of Banro's recorded revenue of \$665 million for that period (only marginally more than the minimum of \$18.1 million accruing to Banro's senior directors in the five-year period from 2012 to 2016). <sup>45</sup> This finding aligns with the work of Bokondu et al. (2015: 10), who calculated that between 2011 and 2014, total Congolese state revenue collected from the mining sector amounted to 6 per cent of total sector revenue during the same period.

Across this same period, Banro appears to have avoided payment of the 4 per cent profit tax in the DRC, agreed to in its 2010 contract amendment. In 2016 and 2017, the tax declarations reported to the Extractive Sector Transparency Measures Act (ESTMA) note that the taxes in the DRC were paid to the Direction générale des recettes administratives, domaniales, judiciaires

Year	Country	Taxes	Royalties	Fees	TOTAL	
2012	DRC	_	_	-	4,588,473	
2013	DRC	_	_	_	4,972,597	

**Table 3.4** Banro's tax payment declarations, selected years (USD)

Year	Country	Taxes	Royalties	Fees	TOTAL
2012	DRC	_	_	_	4,588,473
2013	DRC	_	_	_	4,972,597
2016	DRC	530,000	2,450,000	7,530,000	10,510,000
	Barbados	310,000	0	0	310,000
Subtotal		840,000	2,450,000	7,530,000	20,381,070
2017	DRC	150,000	2,780,000	5,380,000	8,310,000
	Barbados	340,000	0	0	340,000
TOTAL		1,330,000	5,230,000	12,910,000	29,031,070

Sources: EITI DRC Final Reports, 2012 and 2013; Banro Corporation ESTMA reports, 2017 and 2018.

<sup>&</sup>lt;sup>44</sup> This is due to the DRC's temporary suspension from the EITI in 2014 and Banro's delisting from the TSE in 2018. In the case of the former, this meant mining firms operating in the DRC no longer made fiscal contributions and other data publicly available for a number of years. In the case of the latter, it meant Banro no longer publicly declared its tax contributions to the Canadian government's Extractive Sector Transparency Measures Act, an initiative begun in 2015.

<sup>&</sup>lt;sup>45</sup> Banro financial statements and press releases, 2013–2017; EITI DRC Final Reports, 2012 and 2013; Banro Corporation ESTMA reports, 2017 and 2018.

et de participation (General Directorate of Administrative, State and Jurisdiction Revenue and of Participation, DGRAD), the agency responsible for collecting mining royalties and the annual surface rights tax. The agency at the Ministry of Finance responsible for the collection of profit tax, the Direction générale des impôts (General Directorate of Taxation, DGI), was not listed in the declarations. It might be countered that this absence of Congolese profit tax is because it had yet to recuperate its investment. Both corporate and Congolese state data, however, suggest that this was not the case for Twangiza, where, in 2014, total revenue from the mine of \$280 million outstripped total investment for the first time and continued to do so through to 2016.<sup>46</sup>

One way in which Banro might have been avoiding this profit tax is by using an intricate network of intra-company and shareholder loans and transfers. In 2010 and 2011, before commercial production at Twangiza began, Banro's Congolese subsidiary Twangiza Mining was credited with a net total of \$105.4 million in transfers from its mother company, Banro Corporation in Canada. In 2012 and 2013, the first two years of production, Twangiza generated \$154 million of revenue and sent back to Banro Corporation a net total of \$62.7 million in transfer and loan repayments (Table 3.5).

**Table 3.5** Transfers and loans from Banro to Twangiza Mining, 2010–2013 (millions of USD)

Year	Country	Entity	Movement	Twangiza Mining		Net difference
				Credit (a)	Debit (b)	(a -b)
2010	Canada	Banro Corporation	Transfer	108.0	12.2	95.8
2011	Canada	Banro Corporation	Transfer	9.6	0.0	9.6
PRE-PRODUCTION TOTAL				117.6	12.2	105.4
2012	Canada	Banro Corporation	Transfer	33.9	78.5	-44.6
2013	Canada	Banro Corporation	Transfer	3.6	0.0	3.6
2013 POST-	Canada -PRODUCT	Shareholders TION TOTAL	Loan	65.0 102.5	86.7 165.2	-21.7 -62.7

Sources: Twangiza Mining annual financial reports, 2010-2013.

<sup>&</sup>lt;sup>46</sup> Banro financial statements and press releases, 2013–2016; *Agence nationale pour la promotion des investissements* (National Agency for the Promotion of Investments) data, 2004–2016.

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During these same two years, Twangiza Mining declared retained annual earnings of minus \$42 in 2012 and \$0 in 2013. Then these zero or negative declared earnings were raised in discussion with a former senior financial manager for Banro in the DRC, the former employee explained that Twangiza Mining's retained earnings were counterbalanced against the repayment of loans and transfers. Across the two years of 2012 and 2013, while Banro's Congolese subsidiary retained effectively zero earnings, despite generating \$154 million of revenue, Banro's senior directors accrued at least \$10 million in compensation and the corporation began paying shareholder dividends.

The purpose of these intra-company financial flows is unclear and might be linked to an effort to maintain the retained earnings of DRC-based subsidiaries at zero so as to avoid profit tax payment to the Congolese state. Similar practices have been documented elsewhere in the DRC during this period. A 2014 study of Swiss-headquartered mining TNC Glencore found that its Congolese subsidiary Kamoto Copper Company had run at losses of hundreds of millions of dollars per year from 2009 to 2013, while its Canadian-registered subsidiary Katanga Mining Limited ran at a net profit of \$401 million over the same period (Peyer et al. 2014). Marysse and Tshimanga (2014: 149) found US-headquartered mining TNC Freeport McMoran to artificially reduce its profits made in the DRC through transactions between itself and its subsidiaries. Five TNC subsidiary case studies conducted by Congolese civil society organizations between 2015 and 2017 revealed that 'profit tax payments to the Congolese state are minimized by mining companies, and thus [...] this very important flow often remains hypothetical, or even almost zero' (The Carter Center 2017: 4).

In addition, and contrary to MGL and SOMINKI's sale of gold to the Central Bank of the Congo, all Twangiza's gold bars were shipped either to the South African smelter Rand Refinery, just outside of Johannesburg, or the Chinese smelter managed by Baiyin Nonferrous Group, headquartered in Gansu Province. Banro's right to sell all its production on the global market was enshrined by the 2002 Congolese Mining Code and was upheld in the most recently introduced 2018 code. Description of the Code and Was upheld in the most recently introduced 2018 code.

<sup>&</sup>lt;sup>47</sup> Twangiza Mining financial accounts, 2010–2013.

<sup>&</sup>lt;sup>48</sup> Conversation with former Banro senior financial manager, Kinshasa, 19 July 2018.

<sup>&</sup>lt;sup>49</sup> From 2012 to 2016, the North American metals trader Auramet had been the exclusive final buyer of Twangiza's gold until the entry of Baiyin following its 2016 streaming transaction with Banro.

<sup>&</sup>lt;sup>50</sup> DRC 2002 Mining Code, Article 266; DRC 2018 Mining Code, Article 108.

Banro also did what it could to squeeze the amount of the surplus accruing to Congolese firms and suppliers, as part of its general strategy to stave off bankruptcy while retaining shareholder pay-outs and expected levels of senior director compensation. In June 2017, six months before Banro entered creditor protection, Twangiza Mining's then finance manager revealed that the subsidiary had around \$18 million of unpaid debts to firms and individuals subcontracted to procure or provide goods, services, and equipment to the mine. He added that Congolese firms and suppliers had been disproportionately negatively affected as, unlike their foreign counterparts, they didn't have the personal connections to be in daily contact with Banro's CEO, board members, or senior management demanding payment.<sup>51</sup> In a separate interview earlier that year, a former Twangiza Mining procurement officer expressed the same sentiment.<sup>52</sup>

Conversations and interviews with Twangiza Mining's suppliers and subcontractors indicated that initially, in the first few years of the mine's operation, payments were made on time and in full. Delays began in 2013, shortly after the beginning of the gold price collapse and the Namoya construction overspend. In many cases, Twangiza Mining would miss two to three payments, and then begin gradually paying off the first missed repayment, one small percentage at a time. When trying to insist upon the payment of the money owed to them, Congolese suppliers and subcontractors would be told by Banro staff in the DRC that 'we're waiting on Toronto.' A representative from a foreign firm subcontractor was able to meet with one of Banro's senior directors in 2015 and was told that once Banro had undergone debt restructuring it would have more working capital and would be able to pay off its subcontractor and supplier debts. 54

In 2017, the situation remained unresolved, with the four major Congolese suppliers reporting unpaid debts owed by Twangiza Mining of \$500,000, \$110,000, \$15,000, and \$2,000, respectively. Congolese subcontractors reported the same issue, which, in one instance, led to the withdrawal of a domestic firm from this position. Initially, the Congolese firm GINKI Petroleum International (hereafter, GINKI) was Twangiza's main fuel supplier. By 2014, Banro had accumulated a debt of \$2.4 million towards GINKI, at which point, GINKI withdrew from the contract as the directors decided

<sup>&</sup>lt;sup>51</sup> Interview with Twangiza Mining financial manager, Twangiza, 8 June 2017.

<sup>&</sup>lt;sup>52</sup> Interview with former Twangiza Mining procurement officer, Kinshasa, 13 January 2017.

<sup>&</sup>lt;sup>53</sup> Interview with Twangiza Mining supplier, Bukavu, 31 January 2017.

<sup>&</sup>lt;sup>54</sup> Interview with Simba Logistics DRC director, Bukavu, 22 February 2017.

<sup>&</sup>lt;sup>55</sup> Interviews with Congolese suppliers, Bukavu, January to April 2017.

they couldn't absorb the risk of accumulating more debt. The Malaysian TNC Engen, with far greater liquidity to absorb such debts, won the subcontract in 2015. In 2017, Banro still owed GINKI around \$670,000 of unpaid fuel bills. <sup>56</sup> According to one of GINKI's directors, 'Banro has a colossal Congolese debt [...] we were doing better when they weren't here. <sup>57</sup> At the end of 2017, as Banro entered creditor protection, many of the debts to Congolese subcontracted firms and individual suppliers were still outstanding.

Foreign firms were also affected, with the country manager of the South African catering subcontractor Allterrain Services (ATS) reporting, in 2017, that the firm was owed three to four months of costs amounting to around \$900,000–1.2 million.<sup>58</sup> To manage the risk of these debts, the catering firm had postponed payments to its local suppliers at Luhwindja, where the Twangiza mine was located, with the *Cooperative des Eleveurs de Luhwindja* (Livestock Cooperative of Luhwindja)reporting \$54,000 of unpaid meat deliveries.<sup>59</sup> Another former local supplier in Luhwindja, supplying foodstuffs such as eggs, bananas, and peanuts sourced from across the region, withdrew from his position in Banro's chain in early 2016 as he could no longer afford to keep pre-financing his orders in the face of late repayments.<sup>60</sup>

Minimizing its fiscal burden in the DRC and overseas, and accumulating debts with subcontracted firms and suppliers, Banro's final strategy to stave off bankruptcy while continuing to secure shareholder and senior director value was to squeeze wages. Between 2012 and 2016, wage levels remained unchanged across all groups, from unskilled workers to senior managers. <sup>61</sup> In addition, between the mine's construction in 2010 and Banro entering creditor protection in 2017, there had been no annual wage increases. <sup>62</sup> From at least 2012 to 2017, then, while Banro paid shareholder dividends and maintained high levels of senior director compensation, the nominal value of Twangiza Mining worker wages stagnated.

To summarize, corporate mismanagement and inefficiencies, combined with the gold price collapse between 2012 and 2014, drove Banro into increasing indebtedness and financial difficulties. By late 2017, and on the verge of bankruptcy, Banro was forced to seek Canadian government

<sup>&</sup>lt;sup>56</sup> GINKI financial archives; interviews with GINKI director, Bukavu, April and May 2017.

<sup>&</sup>lt;sup>57</sup> Interview with GINKI director, Bukavu, 14 February 2017.

<sup>&</sup>lt;sup>58</sup> Survey interview with ATS manager, Bukavu, 17 June 2017.

<sup>&</sup>lt;sup>59</sup> Interview with local farmers' cooperative president, Luhwindja, 7 February 2017.

<sup>&</sup>lt;sup>60</sup> Conversation with former ATS supplier, Luhwindja, 30 November 2016.

<sup>&</sup>lt;sup>61</sup> Twangiza Mining worker payroll data, 2012; Twangiza Mining worker payslips, 2012; Twangiza Mining wage classification document, 2016.

<sup>62</sup> Conversations with Twangiza Mining union delegates, June and July 2017; Twangiza Mining worker contract template, 2017.

protection from its creditors. Banro's financial decline was hastened by underlying mechanisms of surplus extraction from the DRC to Northern (and, to a lesser extent, Chinese) financial centres. Banro's trajectory recalls the phenomenon of financialization discussed in section 1.3, whereby processes of surplus extraction from the periphery to financial centres can exert downwards pressure on TNC profits, which is, in turn, alleviated by squeezing the value accruing to actors in the periphery, such as domestic firms and labour (Fine 2008).

The continued redirecting of value to overseas directors and shareholders as the noose of bankruptcy began to tighten (and thus, at the expense of the corporation's long-term productive capacity and viability) is little different to the forms of rent-seeking for which supposedly inefficient and mismanaged African states and state-owned enterprises (SOEs) were so heavily criticized following the failure of state-led developmentalism in the 1960s and 1970s. In this instance, flowing instead to the managers of, and investors in, a foreign corporation which twice required Canadian state intervention and support to sustain its activities (first when starting out in 2005, and again when facing bankruptcy in 2017).

There are clear parallels between the declines of Banro and SOMINKI as the Belgian firm likewise succumbed to a failure to control costs in the face of severe price volatility, having also overinvested as prices rose shortly before a crash. Rather than a story of Congolese mismanagement (as often implied in much of the existing literature on the firm), SOMINKI's demise was one of a Belgian-owned and managed subsidiary subject to the same difficulties and suffering the same fate as its Congolese state-owned mining counterparts of the time, going bankrupt in the 1990s because of a failure to control costs when confronted with the tin price crash of 1985.

Yet, SOMINKI demonstrated a greater degree of articulation with the Congolese economy through the payment of a 50 per cent profit tax and the sale of gold to the Central Bank. By contrast, Banro's Congolese subsidiary, Twangiza Mining, consistently recorded zero profits and all Twangiza's gold bars were shipped overseas. With little fiscal revenue accruing to the Congolese state and none of the gold produced going to the Central Bank of the Congo, at the outset of the twenty-first century, capital-intensive FOM in South Kivu was less financially embedded in the national Congolese economy than had been the case during the twentieth century.

Taken together, the evidence presented in this chapter challenges one of the central assumptions underpinning the African Mining Consensus that capital-intensive FOM will be more efficient and effective at leading mining-based industrialization than the forms of capital-intensive DOM that preceded it. Contrary to these expectations, the evidence indicates that the supposed superiority of capital-intensive FOM has unravelled in South Kivu not once but twice. This suggests that the success or otherwise of mining-led industrialization might not lie in its ownership or management structures but rather in the model itself and its associated constraints, exemplified here in the difficulty of retaining productivity in the face of severe price volatility. In the case of Banro, the deleterious effects of this constraint were compounded by processes of overseas surplus extraction at the expense of domestic capture and reinvestment.

Chapter 4 develops this line of argument by highlighting a second structural impediment to mining-based development in the African periphery in the form of enclavity. As will be shown, in a continuation of trends in South Kivu's capital-intensive FOM sector from around the 1980s, the capital infrastructure driving production at Twangiza in the 2010s was highly specialized, deeply dependent upon diffusion from technological centres (primarily of the global North), and poorly articulated with the Congolese economy.