Economic Analysis of Extended Payment Terms

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6 August 2018

ECONOMIC ANALYSIS OF IMPACTS OF EXTENDED PAYMENT TERMS

Executive Summary

In a range of industries, 30 day payment terms are standard. These payment terms follow a calendar cycle and allow for effective financial management and reporting by businesses. Also, the 30 day cycle follows conventional business banking cycles. Employees are typically paid weekly, fortnightly or monthly under employment contracts and industrial legislation. Trade finance, equipment finance and invoice finance is typically paid on 30 day cycles.

Some large mining companies specified extended terms of payment to their suppliers several years ago. This was done in the context of a pull back in commodity prices at that time, including the price of metallurgical coal. Commodity prices have recovered significantly and many mining companies are now reporting strong cash flows. However the extended payment term arrangements remain in place in many agreements with suppliers. In addition to this, many small and medium sized firms are experiencing delays in receipt of payment in addition to the extended payment term timeframe.

This report looks at the effect of extended payment terms on small and medium sized firms that work with major mining companies in the Mackay region. It considers the cash flow impact on the firms as well as provide an initial estimate of the likely regional economic impact.

A regional survey has revealed a large number of local small and medium sized enterprises in the Mackay region benefit from and are commercially exposed to coal mining operations in the region. Difficulties in raising finance to cover these extended payment terms have led a number of firms to cut back on planned employment, reduce investment in more productive new plant and equipment, and defer investment in research and development.

Over the last five years, invoice approval processes appear to have changed. Previously, invoices were approved by site and field managers with direct knowledge of the work performed. Increasingly, invoices are now approved by accounting or finance teams based outside the region with little direct knowledge of operations.

There appears to be little or no ability to negotiate payment terms.

An analysis of the cash flow impact of moving from 30 day payment terms to combined 60 and 90 day payment terms was undertaken in this study. Turnover levels, profit margins, financing costs and starting cash balances were considered. In addition, a series of

scenarios were subjected to Monte Carlo analysis to assess the impact of extended payment terms on different types of businesses.

The analysis shows that businesses are being adversely impacted. Under the extended payment terms that were modeled, after a three month period there was an 87% likelihood that additional financing would be required. The modeling also revealed that up to 15% of firms would require additional equity investment to continue operations.

Extended payment terms have been estimated to have an adverse impact upon the regional economies of the Mackay and Fitzroy regions. If payment terms were restored to thirty (30) days, an additional 250 jobs could be generated in these regions in firms directly impacted by extended payment terms. Taking into account flow-on effects, this would be associated with a total of 380 additional jobs, an improvement in wages of around $150 million over five years and a corresponding increase in gross regional product of around $250 million over five years at the same time.

> *"We've been here quite a while and want to be here for the next 15-20 years. We've said to our suppliers we may have to mirror 60 day payment terms. We haven't because the relationships are too important to us. We're all locals, we live here." RIN Member.*

I. Introduction

An important source of finance for businesses is the trade credit provided by their suppliers. Businesses can obtain goods and services from other businesses and pay the invoices 30 days later, enabling businesses to produce their own goods and services for sale in the meantime. This system generally works well, and businesses are able to readily manage the impact on their cash flows of 30-day payment terms. However, across the world in recent years, large companies have increasingly sought extended payment terms, such as 60 days, to improve their own cash flows.

Extended payment terms have been seen especially in the resources sector in Queensland and Western Australia, and appear to have first been motivated by the desire to improve cash flows during times of lower commodity prices (e.g. during the 2013-15 period). Nonetheless, extended payment terms have persisted, particularly in Queensland's Bowen basin, even though cash flows of mining companies have much improved since the recovery in commodity prices since 2016. To illustrate, on 27 June 2018, the *Financial Times* reported that globally the resources industry is expected to generate "$70bn of free cash flow this year thanks to higher commodity prices".

The Resource Industry Network, which represents members of the supply chain in the Queensland resources sector, is working with the industry to improve payment terms. It is concerned about the potential adverse impact of extended payment terms on its members, who may need to carry the cost of work-in-progress for several months before receiving revenue for the work. To finance their operations in the meantime, they may need to seek financing, such as via an overdraft, imposing additional financing costs upon the business. In severe cases, the ongoing viability of businesses may be threatened by extended payment terms, if they are unable to secure finance for their operations to cover their regular and unavoidable outlays such as wages, superannuation, and taxation payments.

II. Background

Lytton Advisory has been commissioned by the Resource Industry Network to analyse the impact of extended payment terms on its Members. Specifically, Lytton Advisory has been commissioned to:

- analyse the regional survey on payment delays to assess information and data that can be applied;

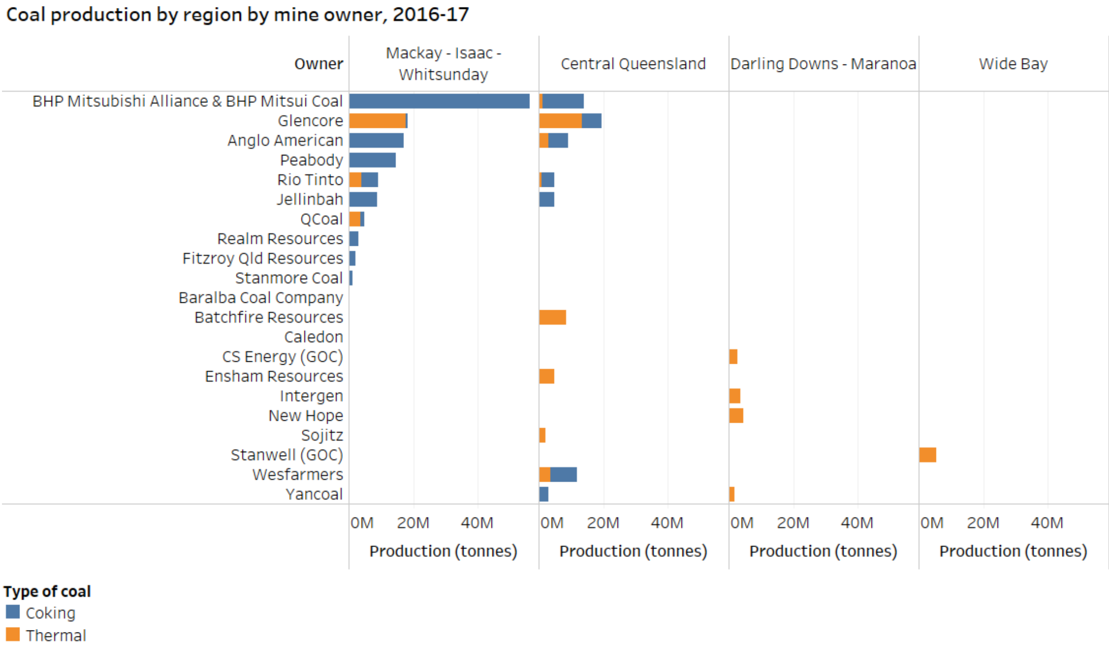
- analyse the Inquiry on Payment Times and Practices Survey Results to determine key information about effects on cash flows, responses of businesses to these cash flow challenges and the extent they impact upon individual firms;
- prepare a synthesis of findings that can be used in a simple cash flow model to assess impacts; and
- analyse the cash flow impacts on different types of Member firms under a range of scenarios.

In establishing the context for payment terms, industry concentrations in the Bowen Basin region are considered along with key results from a 2017 survey of businesses in the resources industry supply chain and experience in other relevant jurisdictions.

Industry Overview

The resources industry is dominated by a few major companies, typically multi-nationals. BHP-related companies are by far the leading producers of coal, for example, in Queensland; followed by Glencore and Anglo American (Figure 1). Note that coal is the dominant output of the Queensland resources sector. Coal mining is predominantly within the Bowen basin which falls in both the Mackay and Central Queensland regions in Queensland. The Mackay region, which includes a large amount of mining activity around Moranbah, currently leads coal production in Queensland.

Figure 1. Coal production in Queensland



Source: Queensland Department of Natural Resources and Mines (2017).

In contrast to the small number of mining companies there are a large number of suppliers, with much lower levels of turnover on average. For example, the Resources Industry Network, which represents businesses in the supply chain of resources companies in

Queensland, has nearly 140 members. A survey of supply chain businesses on extended payment terms completed in 2017 (further discussed below) revealed that 54 percent of businesses had an expected turnover in 2017-18 of less than $5 million. There is undoubtedly a substantial likelihood of an imbalance in bargaining power between the large resources companies and many of the businesses in its supply chain, typically SMEs which may be undertaking fabrication or engineering consulting work for the mining companies.

Regional Payment Delay Survey

The Resource Industry Network, Gladstone Engineering Alliance, Central Highlands Development Corporation, Toowoomba and Surat Basin Enterprise, Greater Whitsunday Alliance, Townsville Enterprise Limited and Capricorn Enterprise have together surveyed regional businesses to fully understand the impact of extended trading terms on the regional supply chain across Queensland. The survey revealed respondents were very concerned about the impact of extended payment terms on their cash flows, as illustrated by a word cloud (Figure 2) based on their written comments at the end of the survey.

Figure 2. Word cloud based on respondent survey comments

Source: Lytton Advisory analysis based on a 2017 regional survey of small businesses.

The Survey also revealed a number of other important findings relevant to the current study. Amongst respondents:

- 33 percent have over half their revenue on extended payment terms;

- only 4 percent passed on the extended trading terms (in a back-to-back fashion) to their own suppliers in all cases, while 33 percent have been able to do so in some cases;
- 43 percent have had to source alternative bridging finance to mitigate the impact of extended payment terms;
- 75 percent identified that extended trading terms affected their ability to invest in business growth through new capital purchases or hiring new employees;
- 70 percent identified extended payment terms affected their ability to pursue new technology or to engage in product development; and
- 67 percent identified that accessing finance is more difficult since the end of the mining investment boom.

These survey findings suggest extended payment terms could potentially have a substantial adverse economic impact, particularly when one considers that more difficult access to finance raises the possibility of firms facing acute cash flow problems, compromising their ongoing viability.

Experience in other jurisdictions

Historically, payment terms of 30 or 45 days were common in the resources sector across the world, but in the last ten years the situation has changed, particularly in Australia. For example, extended payment terms have been an issue in Western Australia, particularly since the period of lower commodity prices during and after the 2008 financial crisis, which prompted resources companies in that state to seek to improve their cash flows. Extended payment terms are now reportedly a global issue (see Simpson, 2016), and may be more acute in oil and gas than in coal.

That said, the situation for small businesses in Australia appears to have improved in recent years, with Simpson (2018) noting:

"...some large firms have quietly pulled back their payment terms. Rio Tinto, for example, announced in May 2017 that they would reduce payment terms for smaller Australian suppliers to 30 days."

However, if the turnover threshold is low, this can mean many businesses remain subject to extended payment terms.

III. RIN Member Interviews

A. Approach

Interviews with RIN Members were conducted in mid June 2018. A shortlist of Members representing a good cross section of the membership base, both in terms of industry and size of business, was provide by RIN. Members of the RIN Board were interviewed. Also, an experienced banker was interviewed to obtain a broader perspective about trade finance for the resources sector, including the Bowen Basin region.

The purpose of the discussions was to obtain information about the experience Members had dealing with extended payment terms. Discussions with Members canvassed the nature of the extended payment terms. This provided further qualitative detail, adding to the information provided by the earlier survey of Members.

> *"Extended payment terms has long been the number one issue in the region." Industry participant.*

Members provided frank assessments both of their own experience and actions as well as their perspectives on the payment terms in the resource supply chains in which they participated. This revealed a number of critical findings concerning:

- the nature of extended payment terms;
- impacts of extended payment terms; and
- how extended payment terms are financed.

B. Nature of extended payment terms

> *"At the moment we have the ridiculous situation of business being agile when it comes to data and communications, but as soon as it comes to the flow of money – money that is owed to others – it reverts to the Dickensian principle of payments cycles." Bernard Salt, The Weekend Australian Magazine, 25 February 2018.*

RIN Members were asked about the nature of the extended payment terms that they faced. This included not only the period of the payment term but also when invoices were accepted into large mining company systems for processing and payment. This highlighted:

- there is a lack of commercial flexibility to negotiate terms;
- there is no uniform standard in their application; the nature of these terms affects Members in different ways; and
- some of the historical factors behind the origins of these terms.

Engagement with the mining sector

Extended payment terms have had acute and adverse impacts on particular businesses. A number of Members highlighted at interview significant challenges imposed on their businesses by these payment terms. Acute impacts appeared to arise with certain types of commercial operations.

The scale of the impact of extended payment terms depends on the percentage of business conducted with large mining companies. Discussions with Members highlighted that extended payment terms were a feature of some parts of the mining sector. Members that conducted most of their business with that sector were most exposed to extended payment terms, as these terms did not seem as prevalent in other sectors.

In 2012 a local buy program was established in Central Highlands, Isaac and Mackay local government areas by BHP in partnership with C-Res. Under this program, payment terms are 21 days from receipt of invoices, but these terms are available only to businesses with 20 or fewer full-time equivalent employees.

Members noted that many businesses in the supply chain can incur substantial input costs, such as for the purchase steel or pipes. These businesses can have several million dollars in turnover but still not generate much more profit than much smaller businesses with lower input costs.

Businesses that appear most at risk of significant impacts arising from eligible payment terms are those operating on relatively low margins and also have a significant economic dependency on one or more large mining companies.

Duration of payment terms

Members almost uniformly consider that payment thirty days from the end of the month is a standard commercial term for contract or project work. Some Members indicated they were able to obtain more favourable payment terms that were less than thirty days. These Members either provided specialist skills that were not readily available through a general tender process or offered services at short notice whose cost was more than offset by avoiding disruptions to large mining companies' overall mining processes.

> *"Payment terms over 30 days are extended terms. Payment terms over 45 days are intolerable." RIN Member.*

Extended payment terms do not appear to be standard. Different large mining companies apply different payment terms. Members reported different terms amongst global mining companies that they worked with. Separately, it is noted that neither the Minerals Council of Australia (MCA) nor the Queensland Resources Council (QRC) provides specific guidance on payment terms for suppliers to mining companies. One industry participant observed that it appears the QRC does not consider it has a role in establishing industry standards for payment terms.

A number of MCA and QRC members are also members of the Business Council of Australia. The BCA has its own code regarding payment terms; however this is focused on very small businesses.

Some Members involved in the construction sector as well as the mining sector, highlighted the contrast provided by the *Queensland Building and Construction Industry Payments Act 2004*. This Act ensures that a firm is entitled to receive and is able to recover progress payments if it:

- carries out construction work under a construction contract; or
- supplies related goods and services under a construction contract.

Progress payments under construction contracts become payable under the Act either under a specified contract provision or, if no contract provision is made, 10 business days after a payment claim has been made.[1]

> *"There is no ability to negotiate payment terms. They are handed out to firms." RIN Member.*

In contrast, there is no ability to negotiate payment terms with large mining companies, with certain limited exceptions. RIN appears to have successfully helped at least one supplier to return to 30 day terms with a major mining company after it identified the supplier qualified for an exemption offered by the company to small businesses. Further, some Members have commented that, in order to retain 30 day payment terms, they were required to offer other concessions. These concessions include no price increases on contract roll-over or providing a discount on the face value of invoices.

Approval processes

Invoice approval processes have changed over the past five years, specifically with approvals moving from operational teams based on site to commercial/accounting teams based outside the region and, in some cases, even overseas. In some instances, Members indicated that delays in invoice approval occurred because corporate offices of their customers were in a different location, time zone or even country. In some cases, invoices have to be approved both at an operational level and at a commercial/accounting level, which delays the start time on the formal approval period for invoicing.

The 60-day extended payment terms emerged during the last commodity price downturn. A number of Members noted that some large mining companies sought these terms when their own cash flows were being significantly and negatively affected by the downturn. It now appears commodity prices and the cash flows of large mining companies have significantly improved.

> *"A lot of contracts [with extended payment terms] were negotiated in the last downturn. There will be a bit of a lag as these roll over." RIN Member.*

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[1] Queensland Building and Construction Industry Payments Act 2004, Section 15 Due date for payment.

C. Impacts of extended payment terms

Discussions with RIN Members highlighted a wide range of impacts of extended payment terms on their cash flows and operations. It is clear that for many:

- their margins have been squeezed;
- additional costs have been imposed on their businesses; and
- opportunities to invest more in people, innovation, and plant and equipment have been cut.

In the past, payments beyond 90 days were considered bad debts and written off. Increasingly, mining industry suppliers and banks are now considering 120 days as the new 'bad debts' threshold.

Downstream impacts

Members have started talking to their suppliers about passing through the impact of extended payment terms, especially where their suppliers are engaged on a project-specific basis. Several Members have commented that this has the potential to create further problems in the supply chain servicing large mining companies. Pressure on downstream businesses affects Members' ability to service their clients.

> *"In the short term our suppliers suffer. The market is picking up and the supply chain members will have more choices. Those opportunities will become more obvious." RIN Member.*

Several businesses indicated that, in response to extended payment terms, they are paying absolutely mandatory payments as and when they fall due (e.g. fortnightly wages, monthly or quarterly taxation), but they are deferring those payments they can. This includes, for example, invoices from their own suppliers and purchases of equipment they may otherwise make (in preference to hiring that equipment).

> *"It is very detrimental to the local community. I have seen competitors that are well managed go under because of the cash flow problems that are caused. Banks have taken advantage of customer invoices." RIN Member.*

Commercial margins

Extended payment terms have reduced commercial margins for members even as some large mining companies seem to be seeking to put additional pressure on margins through more price-oriented competition. Several Members commented that greater emphasis is being placed on tender prices, which puts further pressure on margins. This makes the impact of extended payment terms more significant.

Extended payments terms also create finance costs that are a large percentage of the margin on jobs that are already low margin projects. Availability of free cash flow is restricted and this impacts upon businesses that might only take on a small number of projects at one time.

Impacts relating to the nature of business inputs - labour and capital

Businesses with a significant labour component in their operations are affected more than other businesses because the extended payment terms imposed on them do not match the labour payment timings mandated under industrial relations legislation. There is a notable point of difference between businesses that provide a large amount of contract labour as part of the delivery of a project and professional service firms that supply particular technical and scientific skills. The former face significant set up costs and are more exposed to extended payment terms. Market intelligence suggests that a number of professional service firms have been able to establish direct debit arrangements.

Also, businesses which have to buy in large amounts of inputs from suppliers and where the production process can take several months are at high risk. Businesses may have to carry the high cost of work-in-progress for a significant period without any revenue coming in for the job. Ultimately this poses risks for large mining companies because it increases the risk of delivery of services to them, with potential additional costs for these companies where their suppliers have to be replaced.

Some large mining companies appear to be using their market power to improve their own bottom lines at the expense of their suppliers. In some cases, they are passing on financing costs to their suppliers, and hence extracting a share of the profits generated in their supply chain. Also, one supplier reported that a major mining company had asked to inspect invoices from his own suppliers so they could see just what margin the business was charging, with a view to encouraging the supplier to drop his margins and lower his prices.

"There is zero ability to negotiate terms. It is a monopsony-type environment." RIN Member.

Extended payment terms impose additional costs on businesses in the large mining companies' supply chains. Some Members commented that the additional invoice time meant that, in addition to financing costs, they had to devote more time to invoice management and addressing late payment by large mining companies.

Impacts on employment, innovation, and maintenance and repairs

There is some information that extended payment terms can affect the level of employment that Members can generate. The level of financing required to fund the longer time between invoice issue and payment was significant for a number of Members. In one instance it was clear the loss of cash flow to financing the extended terms was equivalent to four full time equivalent positions at the firm.

Discussion with Members highlighted less research and development can be funded from depleted cash flow. Members noted that large mining companies wanted greater innovation from their supply chain partners. This required investment in research and development, as well as a preparedness to take more risks with new, innovative and unproven systems and processes. However, this was difficult to do when free cash flow within Member firms was compromised by extended payment terms.

Members with a range of different asset bases engage with large resource companies. Construction and fabrication businesses, for example, have large asset requirements. In contrast, professional service firms such as engineering consulting practices apply a lot of human resources.

Firms with a lot of plant and equipment need to invest regularly in fleet renewal to maintain and improve productivity in their operations. Also, they need to maintain good standards for repairs and maintenance. Both of these are funded from free cash flows - either to directly purchase plant and equipment, pay equipment finance loans or meet reasonable repair and maintenance targets. Members noted that extended payment terms reduce their free cash flow, delaying both plant and equipment renewal, as well as deferring some preventative repairs and maintenance. In some cases, Members stated they had to move to a more reactive approach to repairs and maintenance.

D. Financing of extended payment terms

"Mackay is at the epicentre of invoice financing in Australia. More of it is done in the Bowen Basin than anywhere else. Very rarely does it go badly because it is a highly overseen product." Industry participant.

Extended payment terms could be simply be treated as a cost of doing business with some large mining companies where avenues to address this impost on RIN Members' cash flows could be financed. However, discussion with Members about access to sources of finance highlighted that financing these extended payment terms was more than just a cost of doing business. Having to access additional finance due to additional payment terms was also viewed as unfair by many RIN members interviewed, given the lower financing costs faced by large mining companies compared with their suppliers.

"We're not banks for the mining companies. Their margins are 17-20%, but we work on a 10% margin. Why should I have to mortgage my house to meet payroll?" RIN member.

Comments from industry participants indicate that the cost of financing is dependent on the financial instrument selected as well as the credit risk profile of the business obtaining finance. While the following rates are indicative of different types of finance, they are based on observations obtained through this study:

- invoice financing is typically in the range of 6½% to 8%;
- trade finance is typically 7% to 8½%; and
- overdraft facilities are typically 7½% to 9%.

It appears that most banks will recognise the strong credit worthiness of payments from large mining houses on invoices issued by much smaller businesses. Trade financing to assist businesses get projects underway is seen as having a high credit risk, while an overdraft facility generally has much higher credit risk from a bank perspective because of the discretionary way in which funds can be spent.

Self-funding

Financing of extended payment terms depends on the initial position of businesses when these terms were imposed. Some firms had built up a significant cash balance when commodity prices were strong. However, a combination of lean years following the end of the mining investment boom in 2013-14 and extended payment terms from major mining companies have meant that some companies now operate with much smaller cash reserves, increasing the likelihood they will have to obtain short-term financing. In some severe cases, extended payment terms have substantially increased the likelihood of insolvency, particularly for smaller businesses with low or negligible cash reserves.

In some cases, large contracts contain significant start-up and mobilization costs. Some large mining companies do not appear to consider these issues in imposing extended payment terms, as financing or funding these are not addressed. Some suppliers, however, have been able to negotiate larger up-front, first milestone payments, but such situations appear rare given the asymmetry in market power between the highly concentrated mining industry and its much less concentrated supply chain comprising large numbers of SMEs.

Bank financing

Invoice financing by the banks is not uncommon. When it occurs, financing is only provided for a percentage of the invoice value. Information provided by Members indicated that while banks were prepared to finance more than half the face value of invoices, many were only obtaining financial coverage for 65% to 80% of the face value.

On debtor financing, banks will provide some short term finance but will typically recall financing 60 or 90 days after the date of the invoice. A number of Members questioned the usefulness of debtor financing because of this recall characteristic. However, the impact of this is considered to be more significant where there is an actual cash flow delay of more than 60 or 90 days. Nevertheless, the cost of financing does not fully remove the cash flow risk to Members that have obtained debtor financing.

Bank overdrafts are accessed by some Members. Availability of overdrafts depends on the commercial relationship between a bank and its client. Less emphasis is placed on the quality of invoices. Businesses usually pay a fixed fee to ensure the availability of the facility and interest on the overdraft amount. Discussion with Members revealed there is a wide range of rates that are paid. The rate depends on the size of the bank overdraft, the overall cash flows of the business and the other trade finance facilities that a business might have with a bank.

Members have used bank guarantees but are often required to provide personal assets as collateral for those guarantees. Some Members were sanguine about needing to do this. However, there was a strong feeling among Members that personal assets should not be required to finance extended payment terms.

Extended payment terms have had a significant impact on cash flows of firms serving mining companies in the Bowen Basin region. In discussions with a number of industry participants, a natural experiment presented itself. Two actual businesses appeared to be almost like-for-like on a large number of measures: similar type of operations; similar number of employees; similar gross margins; similar turnover levels that exceeded $30 million a year. For confidentiality reasons additional details about each firm are not presented but they will be called Firm A and Firm B.

The distinguishing element was the payment terms separately facing Firms A and B. Firm A generated around 95% of its cash flow from Mining Company A. It received 14 day payment terms which required no invoice financing. Firm B generated a similar proportion of its cash flow from Mining Company B but was provided with 60 day payment terms. This required invoice financing by Firm B of approximately $8 million a year. The annual interest cost was between $400,000 and $500,000. The financial cost of the extended payment terms is clear in this situation as the other factors are largely the same.

Finance by large mining companies

Some large mining companies offer earlier payment if invoices are discounted. Payment terms can be cut from 60 days to 14 days. This is often at the expense of a 2% reduction in the face value of the invoice. This has had a mixed reception from Members interviewed, with some highly critical of it, but at least one member welcomed it and noted it provided an indication of what financing cost they should build into their quotes.

> *"Financing packages that take 2% off the invoice total are paid in 30 days. Some overseas companies are bidding for projects on that basis, which slashes margins—very nasty." RIN Member.*

In addition to large mining company offers of early payment for invoice discounting, some Members were told about an alternative finance option provided by Citibank. It involved the following features.

- The company agrees with its supplier on extended payment terms.
- The company holds on to cash longer, improving its own working capital.

- The supplier can opt for early payment at a discounted rate and improve their working capital.
- The rate offered by Citibank appears to be 5%.
- As the intermediary, Citibank debits the company's account on the agreed date.

Commercial terms are improved over a typical extended payment term arrangement by apparently giving suppliers discretion to seek earlier payment, and collection calls and administration are significantly reduced. However, for a lot of Members the discount on the face value of the invoice required by Citibank is too steep.

E. Interview Conclusions

The RIN Members interviews highlighted a range of issues about the nature, impact and financing of extended payment terms imposed on Members. The information gathered from these discussions has been synthesised to develop several key inputs for cashflow modelling presented later in this report.

Discussions with Members indicated a high level of uniformity regarding what constituted normal payment terms: 30 days from the end of the month. Extended payment terms imposed on Members have generally been for 60 days, either from the end of the month or from date of invoice acceptance by a large mining company. There is some evidence that payment delays have stretched payment times to between 75 and 100 days before Members have received funds.

It is clear from individual feedback provided by Members that there is no standard approach by large mining companies to extended payment terms. A wide array of arrangement were reported. Across Members there was consistency in payment terms they reported by each individual mining company. Members have noted that management of invoices by large mining companies has shifted within large mining companies from operational areas to head office commercial or accounting teams.

From discussions with Members, it appears there are some groups of Members that are likely to be more affected by extended payment terms than other Members. These include those Members who either:

- incur significant costs mobilising for projects;
- have significant higher levels of contracted staff;
- operate on relatively low margins; or
- have a higher level of reliance on revenues from the mining sector.

Several Members interviewed for this survey represented businesses that exhibited more than one of these characteristics.

Alternatives approaches that were canvassed with Members are either not widespread or required more expensive finance. While a local buy program coordinated by C-RES with

BHP offers 21 day payment terms, but it is only available to businesses that have 20 or less full time equivalent employees. Many Members are therefore effectively not eligible. Further, this program is currently only available to small businesses directly contracting to BHP. Small businesses engaged by major contractors working to BHP cannot do so. Separately, a Citibank invoice financing approach takes a 5% discount from the face value of invoices for earlier processing. Even some invoice financing offered by large mining companies requires a 2% discount on face value.

In a few, very limited cases Members have been able to negotiate more favourable terms. This is usually where a Member provides a unique or highlight specialist service that is urgently required or it creates significant savings in operating costs to the mining company where its intervention minimises disruption to mining production.

Members highlighted a wide range of ways that they have chosen to deal with the impost of extended payment terms:

- drawing heavily on cash balances built up during the boom;
- drawing further on established lines of finance with their banks (overdrafts, equipment financing, invoice and debtor financing);
- accessing invoice financing provided by the large mining companies; or
- considering third party financing (e.g. Citibank).

Data from the RIN Survey and subsequent interviews with Members have been used to inform the following economic analysis.

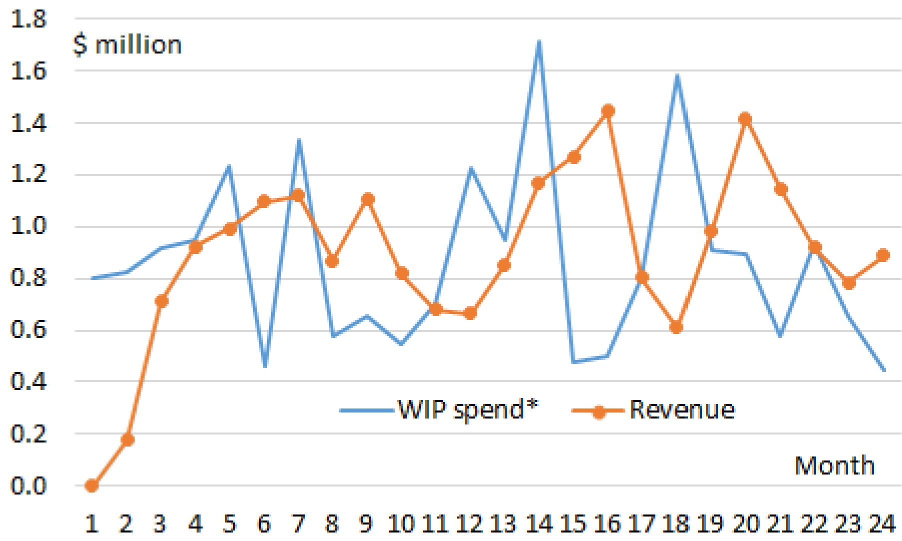
IV. Economic Analysis

A. Background

An economic analysis was undertaken as part of this report to examine the impact on individual businesses that are affected by extended payment terms. The analysis has been developed as a cash flow impact analysis. It has been prepared using a modelling approach in Microsoft Excel. Variations in assumptions and data, including uncertainty about key parameters and variables have been modelled using @Risk software.

The goal is to simulate the impacts on the financing needs and viability of businesses of extended payment terms, which increase the dislocation in time between spending on work-in-progress (WIP) and the revenue from that WIP (e.g. Figure 3 below). Because of extended payment terms, there can be a lag of several months between WIP expenditure and revenue, creating a need for external financing of operations. Note that Figure 3 is a simple example of a Monte Carlo simulation, the technique which is used later in this report to estimate the expected impact on a range of different businesses of extended payment terms.

Figure 3. Illustration of impact of extended payment terms using randomised data for a firm with average WIP of $1 million per month



Source: Lytton advisory analysis, assuming WIP of $1 million per month on average (standard deviation of $0.33 million), profit margin of 10%, 60% of payments on 60 day terms, 20% on 90 day terms and the remainder on 30 day terms.

B. Data

Drawing from the survey, one in three Members had 50% or more of their revenues subjected to extended payment terms. Only 4% of Members have been able to arrange back to back arrangements with their supplies to match these extended payment terms.

Discussion with RIN Members suggested that the percentage of the face value of the invoice financed by banks depended on the turnover of the Member. Also it was observed that higher margin businesses appeared to be able to obtain a higher percentage finance at a lower rate.

Further, over half of Members had turnover of $5 million or less.

C. Assumptions

In each scenario, a firm is assumed to start with a positive cash balance. The level of the cash balance has been arbitrarily set to reflect the need to fund a calendar month between payment of expenses and receipt of revenues.

Also, two main types of withdrawals are modelled in addition cash flows associated with extended payment terms. The first is a tax obligation based on accrued revenue, which is assumed to be paid monthly in cash. The second is a dividend paid to business owners on a six monthly basis, which is based on 50% of any surplus above the starting positive cash balance.

The cash flow impact of extended payment terms is assumed to be offset by 4% in order to represent the possibility that some cash flows are offset by back-to-back arrangements with suppliers.

Discussions with some RIN Members have indicated that annual gross margins can range from 5% to 15% of turnover. However, we are aware businesses can generate gross margins of 30% or greater. Further, Members typically have turnovers ranging from a couple of million dollars to over $25 million. Businesses with fewer than 20 employees and less than $2 million turnover may be eligible for 21 day payment terms. The cash flows of these smaller businesses are not modelled in this report.

It is assumed that the proportion of invoice face value financed by banks is greater when margins are greater and turnover is larger. This assumption is a proxy for details about how banks may actually assess creditworthiness. Typically this is done on the basis of a range of different factors that might consider issues such as:

- collateral (recourse to alternative sources of repayment);
- capacity (ability to service the debt);
- capital (extent of personal commitment to the debt);
- character (a personal assessment of director and senior management standing and capability); and
- conditions (local economic environment and competitive position of the borrower).

Also, as margins and turnover increase it is assumed that financing costs decrease.

The cash flows have been modelled for 12 month and 24 month periods.

D. Scenarios

RIN Members undertake a wide range of activities to support the mining industry, as well as a range of other industries in the region. These activities comprise business inputs of both labour, comprising professional and trade skills, as well as the use of plant and equipment. There are a large number of Members with extensive experience and expertise in their respective fields, which brings a third dimension of business know-how to their customers.

A challenge for any modelling approach is to provide representative but abstracted scenarios that capture this diversity of scale, scope and experience in the RIN membership base. Twelve different scenarios were considered in this analysis. They are based on three key elements driving the cash flow impact analysis:

- firm size (expressed in terms of turnover);
- firm profitability (represented by profit margin); and
- finance cost (expressed in terms of a monthly interest charge on negative cash balances held by the firm).

Turnover

Small businesses were modelled with turnovers of $3 million per annum and $8 million per annum. Medium businesses were modelled with turnovers of $25 million per annum. These levels reflect many of the businesses that form RIN's membership base.

Margin

Analysis of general data on the Australian resource and construction sectors has highlighted typical profit margins of 5-10% on expenditures. Many of these firms have financial commitments on plant and equipment. However, professional service firms could be expected to generate higher margins, mainly because the level of capital and fixed expenses is less as a proportion of labour costs. In the Mackay region, demand for services should support higher profit margins. So levels of 20% and 30% have been modelled.

Financing cost

From discussions with Members, most financing costs appear to be in the range of 0.58% to 2% per month. It appears finance charges may be negatively correlated both with the level of profitability and level of turnover but there is insufficient data to ascribe specific finance levels to turnover levels. A 1.5% monthly cost of finance has been assumed in the cash flow modeling. This assumption is consistent with some of the higher cost financing options that firms in the supply chain have had to access to manage extended payment terms.

The following table presents six scenarios that have been modelled for this report on the basis described above. The main purpose of the modeling was to contrast the cash flow impact of standard thirty (30) day payment terms with combined sixty (60) and (90) day terms. For all the scenarios, standard 30 day payment terms mean that additional external finance is unnecessary and the firm faces no risk of insolvency. However, these probabilities are significant in the scenarios modelled and are due to the impact of extended payment terms.

Each scenario was subject to a Monte Carlo simulation using the @RISK add on to Microsoft Excel, with each scenario run for 10,000 iterations in which different sets of random numbers for WIP expenditure each month and profit margin were generated in each iteration. The Monte Carlo simulation allows us to estimate the impact of extended payment terms on the probability that businesses would face the risk of insolvency.
Each iteration involves randomly varying the work-in-progress amount each month, to reflect the fact businesses will not have a predictable amount of work-in-progress and cash inflows and outflows each month. By simulating different scenarios, we can see just how influential extended payment terms are on a firm's financial viability.

Table 1: Cash Flow Impact Analysis Scenarios

Scenario	Firm Size (turnover $M p.a.)	Profit margin (%)	Interest Charge (% per month)	Revenue on 60 day terms (%)	Revenue on 90 day terms (%)
1	3.0	20%	1.5%	70%	20%
2	3.0	30%	1.5%	70%	20%
3	8.0	20%	1.5%	70%	20%
4	8.0	30%	1.5%	70%	20%
5	25.0	20%	1.5%	70%	20%
6	25.0	30%	1.5%	70%	20%

E. Results and findings

The Monte Carlo analysis reveals that extended payment terms result in:

- the need to seek additional finance for businesses in many different circumstances, with the majority of businesses needing external financing up front (Table 2); and
- a significant and non-trivial risk of insolvency for all businesses, which is even higher for smaller businesses and those with lower margins (e.g. Scenario 1 businesses in Table 2).

Table 2: Monte Carlo simulation results by scenario

Scenario	Assumed turnover ($M p.a.)	Assumed profit margin (%)	% needing external finance after 3 months	% needing external finance after 6 months	% running risk of insolvency*
1	3.0	20.0	93.1	19.3	15.3
2	3.0	30.0	86.1	0.8	9.5
3	8.0	20.0	93.7	19.5	9.8
4	8.0	30.0	87.0	0.9	6.1
5	25.0	20.0	93.2	19.2	6.0
6	25.0	30.0	87.3	0.7	3.1

* in absence of equity injections from owners/shareholders.

The analysis also confirms the view expressed in the consultations that extended payment terms pose an increased risk to firm viability, particularly in the first three months after they are first imposed. In these scenarios, during the first three months the majority of businesses need to source external finance (or require an equity injection from shareholders) to remain solvent.

V. Regional Economic Impacts

The scope of the study did not include detailed regional economic impact analysis of extended payment terms. Nonetheless we are able to conclude that extended payment terms are likely to have a significantly adverse regional economic impact based on available evidence.

From the RIN member survey, we know that extended payment terms have reduced the ability of three-out-of-four RIN members to invest in growth, plant and equipment or to employ additional staff. This finding was confirmed in the interviews conducted for this project in June 2018. Furthermore, there is US evidence suggesting payment terms can have a substantial impact on employment.

A 2016 US National Bureau of Economic Research study (Barrot and Nanda, 2016) of the Obama administration's program of accelerated payments to small businesses found that (p. 1):

"Despite firms being paid just 15 days sooner, we find payroll increased 10 cents for each accelerated dollar, with two-thirds of the effect coming from an increase in new hires and the balance from an increase in earnings."

Extrapolating this analysis to an Australian context suggests that improved payment terms in the Queensland resources sector could result in around 250 additional jobs, which would predominantly located in the Mackay and Central Queensland regions. This is based on at least 60 businesses being on extended payment terms (and being unable to pass them on to their suppliers), with an average turnover of $10 million, an average 50 percent of businesses being on extended payment terms, and average annual earnings/employee of $80,000. This is likely to be conservative because the improvement in payment terms is just 15 days. Where payment terms improve 30 or 60 days, the increase in employment is likely to be larger, especially where there is strong demand for workers.

An estimated $20 million in wages and salaries and $13 million in gross operating surplus (i.e. profits) are missing from the regional economy on the basis of the analysis above. It is important to take into account reasonable household expenditure patterns that recognise spending is less than income, and conservative multiplier effects to highlight how expenditures cycle through the local economy.

Using a regional input-output model, the regional economy is conservatively estimated to be losing around $50 million per annum (around 0.15 percent of the total gross regional product for the Mackay and Fitzroy regions) as a result of these extended payment terms, just from the experience of RIN Members. This implies a regional multiplier effect of 1.52. While input-output modelling has some limitations (e.g. see Gretton, 2013); estimates of the total regional impact are likely to represent an appropriate order of magnitude.

Taking into account flow-on effects, this would be associated with a total of 380 additional jobs, an improvement in wages of around $150 million over five years and a corresponding increase in gross regional product of around $250 million over five years at the same time.

VI. Conclusions

Extended payment terms are creating real adverse impacts for many businesses in the supply chains of large mining companies in Queensland, particularly in the Mackay and Central Queensland regions. Extended payment terms impose additional finance costs on many SMEs and increase the risk of insolvency. The risk to financial viability increases sharply for those firms with lower turnover (i.e. <$5 million) and cash reserves, which may find themselves having to carry the cost of work-in-progress before related revenue comes in. Larger businesses, and especially those with turnover of $25 million or more, appear more able to adjust to extended payment terms than smaller businesses.

Given that extended payment terms appear to result from an imbalance in bargaining power between mining companies and their suppliers, which typically have no choice but to take or leave the terms presented by mining companies, there may be a public policy rationale for Queensland state legislation defining appropriate payment terms. Our discussion with RIN members and a review of payment terms in other industries suggest a commercially appropriate level would be thirty (30) days. At the very least, there is justification for the development of a Regulatory Impact Statement (RIS) for public consultation on such a policy. The economic analysis in the RIS could usefully extend and expand the analysis within this report, which is largely based on consultations with a representative set of RIN members.

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6 August 2018

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