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**Investigation into the Petroleum Resource Rent  
Tax and Debt Loading in Australia – 2012 to 2016**

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## Introduction

The objective of this study is twofold. First, to investigate the extent to which debt loading is potentially being used to reduce tax revenues in Australia, and to compare it to savings from Centrelink's Enhanced Welfare Payment Integrity measures. Second, to discuss the effectiveness of the Petroleum Resource Rent Tax, and to compare potential revenues raised by Alberta's Modernised Royalty Framework, and the U.S. Royalty scheme, using Australian industry data.

The scope of the study is limited to the following. First is a review of the use of debt loading by Chevron Australia and ExxonMobil Australia and estimate the loss of tax revenue over the previous four years. Second is a review of the PRRT literature identifying regulatory responses to problems that have been recognised in resource rent taxes. The PRRT review will also estimate the revenues that could potentially be raised in Australia by adopting the royalty-based schemes in operation in the U.S. and Alberta, Canada. Third, the study involves a comparison of the savings identified from debt loading by Chevron and ExxonMobil with the savings estimated from the current Centrelink debt collection program.

There has been heightened publicity around debt loading due to the Chevron Federal Court case.<sup>1</sup> In addition, the Australian Tax Office (ATO) recently raised concerns about the scale of debt loading in its submission to the Senate inquiry into corporate tax avoidance.<sup>2</sup> There has also been media articles centred on the effectiveness of the current PRRT, and the lower revenues it is raising in comparison to Norway,<sup>3</sup> Qatar<sup>4</sup> and Nigeria,<sup>5</sup> to name a few. To that effect, the Treasurer announced a review into the design and operation of the PRRT, crude oil excise and associated Commonwealth royalties.

There has been little academic research into the effectiveness of the PRRT or debt loading rules. A single paper has examined debt loading and it has been used as the template to estimate the revenues foregone as a result of excessive interest deductions claimed by Chevron and ExxonMobil. Therefore, our aim here is to estimate the extent to which debt

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<sup>1</sup> Chevron Australia Holdings Pty Ltd v FC of T [2015] FCA 1092

<sup>2</sup> Australian Tax Office (2017)

<sup>3</sup> Macdonald-Smith (2016)

<sup>4</sup> Ashton (2016a); Macdonald-Smith (2016)

<sup>5</sup> Ashton (2016b)

loading is being used to reduce tax revenues in Australia and to calculate the potential that could be raised in Australia using alternative resource tax regimes.

Data from the financial statements of Chevron Australia and ExxonMobil Australia are used to estimate interest rates and revenues from debt loading and compare it to the outcome from using other benchmark interest rates. The Alberta and U.S. royalty schemes are modelled using Australian historical data from the APPEA Financial Survey 2014/15 and compared to actual receipts from the PRRT. Finally, the savings from the debt loading analysis is compared to the savings estimated from the Centrelink debt program.

Applying the Hong Kong solution to debt loading of just two companies, Chevron and ExxonMobil, would raise an additional \$70 million over three years than the Centrelink debt collection measures. The adoption of Alberta's progressive royalty scheme could potentially provide an additional \$13.2 billion<sup>6</sup> in tax revenues each year. Even a flat rate royalty such as the U.S. scheme would raise an additional \$2.5 billion per year.

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<sup>6</sup> The monetary unit used throughout this report is the Australian dollar (AUD), unless another currency is specifically mentioned. All foreign currency amounts have been converted to AUD using the Reserve Bank of Australia's reported exchange rate at the relevant date.

## **Debt Loading/Thin Capitalisation<sup>7</sup>**

### Background

Debt loading refers to a tax avoidance strategy where business operations and investments are funded with excessive debt rather than equity.<sup>8</sup> Excessive use of debt compared to equity creates “debt loaded” or “thinly capitalised” structures. Debt loading is often used by subsidiaries of multinational entities to shift profits from high to low tax jurisdictions.<sup>9</sup> Higher debt levels lead to higher interest payments to the parent or the “lending” subsidiary, which is often located in a low tax jurisdiction. This inflated interest expense is then used as a deduction against taxable income in the high tax jurisdiction reducing, or in some cases eliminating their tax liability completely.

Dividend imputation reduces the incentive to use debt loading for Australian domestically-owned companies.<sup>10</sup> Any reduction in tax at the corporate level is recouped through lower imputation tax credits available to investors to offset their personal tax liabilities. However, private foreign-owned subsidiaries operating in Australia are unable to access the value of the tax credits,<sup>11</sup> and therefore, may be motivated to engage in tax minimisation activities. This includes debt loading.

Debt loading is perceived to create problems for two classes of people:

- Creditors who bear the solvency risk of the company as there is less contributed capital from the owners to cover debts; and
- Revenue authorities, who are concerned about abuse through excessive interest deductions for tax purposes.

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<sup>7</sup> For most intents and purposes, the terms “debt loading” and “thin capitalisation” have the same meaning. Debt loading is the more general term used in the media and in business circles to describe companies taking on unrealistic amounts of debt, whereas thin capitalisation is a technical term used in tax legislation and accounting policies. This report will use the term “debt loading” in keeping with general usage, except when specifically discussing tax rules or tax legislation.

<sup>8</sup> For a more detailed definition and description of debt loading/thin capitalisation, see: Richardson et al. (1998); Taylor, Tower and Vander Zahn (2010).

<sup>9</sup> The use of debt loading by multinational entities is discussed in detail in: Shackelford & Shevlin (2001); Taylor & Richardson (2013).

<sup>10</sup> The effect of Australian dividend imputation on corporate tax avoidance is examined in McClure et al. (2017).

<sup>11</sup> The foreign shareholders of these companies are non-residents for tax purposes and therefore cannot claim a deduction against their personal tax for the tax credits.

### Combating Debt Loading

Since 1990, the number of tax jurisdictions that have some form of ‘thin capitalisation’ rules in their tax laws to combat debt loading has increased fourfold to over forty countries.<sup>12</sup> In some jurisdictions, the ‘thin capitalisation’ rules are limited to those corporate groups with foreign entities, to restrain “tax leakage” to other jurisdictions. The new U.S. ‘earnings stripping’ rules are an example of this type of legislation.<sup>13</sup> Hong Kong uses even stronger rules to protect their tax revenues by prohibiting taxpayers from claiming tax deductions for any interest paid to foreign related entities, thus eliminating any possibility of firms using debt loading to shift income to a lower-tax jurisdiction.

While the corporation and tax laws in some countries allow for companies to engage in debt loading (ie. there is no limit on the amount of borrowings by a company), those laws usually limit the amount of interest a company can claim as a tax deduction, particularly when it receives loans at non-commercial rates (e.g. from associated or related parties). Australia, achieves the same outcome by limiting the amount of debt that can be used to generate interest deductions.

In Australia, the ‘thin capitalisation’ rules are found in Division 820 of the ITAA 97<sup>14</sup>. They attempt to put a limit on the amount of interest a company can claim as a deduction in its tax return. ‘Thin capitalisation’ rules put an upper limit on the level of debt for which interest deductions can be claimed for tax purposes. This limit on debt is called the ‘safe harbour debt limit’ (SHDL). However, these rules do not apply to related companies that operate on a purely domestic basis, as an interest expense for one company will be interest income for the other and their tax returns will offset one another.

Critically, the Australian ‘thin capitalisation’ rules allow companies to exceed the SHDL where the interest rates are determined at “arm’s length” (ie. commercial rates). This was the

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<sup>12</sup> Kayis-Kumar (2015)

<sup>13</sup> The U.S. introduced the ‘earnings stripping’ rules in April 2016. The U.S. has a large problem with corporate inversions, where companies are taken over by, or merged with a foreign-based company, with the resultant entity headquartered overseas. Following the take-over or merger, the entity engages in debt loading and uses interest deductions to strip profits out of the U.S. to a lower-tax jurisdiction. The new rules treat “financial instruments that taxpayers purport to be debt as equity in certain circumstances”(US Treasury 2016). In other words, deductible interest payments from related parties are re-classified as non-deductible dividends.

<sup>14</sup> Income Tax Assessment Act, 1997

crux of the recent ATO case against Chevron Australia<sup>15</sup>. Central to the proceedings was an agreement for a \$2.5 billion credit facility between Chevron Australia Holdings Pty Ltd and Chevron Funding Corporation. The agreement did not breach ‘thin capitalisation’ rules or anti-avoidance provisions in Part IVA of the ITAA 36.<sup>16</sup> However, the ATO argued that the agreement breached arm’s length provisions also defined in the ITAA 36.<sup>17</sup> This was a related party transaction and the acquisition amount exceeded an amount that could reasonably be regarded as commercially sound. The agreement was also found to be in contravention of the international agreement on cross-border transfer pricing rules (as set out in the Cross-Border Transfer Pricing Act 2012<sup>18</sup>), and therefore, it also contravened the transfer pricing rules in Australia’s double tax agreements with the U.S.

The details of the case are as follows. ChevronTexaco Funding Corporation is a wholly-owned subsidiary of Chevron Australia Holdings Pty Ltd, registered in the U.S. state of Delaware. Between 2004, and 2008, ChevronTexaco Funding Corp raised funds by issuing commercial paper on the U.S. bond market. The funds were raised in USD and the AUD equivalent was on-lent to Chevron Australia through a loan facility. Chevron Australia was liable to pay the interest on the loan, and repay the principal, in AUD. ChevronTexaco Funding Corp raised USD to the equivalent of AUD2.5million at 1.2% p.a. and loaned it through the credit facility to Chevron Australia at 8.9% p.a.

Chevron argued that the arm’s length comparison rate should be the rate that would apply to a company of similar size and in the same industry, acting alone. However, the Federal Court held that Chevron Australia was not some “orphan” company facing the global finance industry alone, but part of a very large and wealthy group that could raise funds at much lower rates than a lone company. The issue was the interest rate obtained by the Chevron Group on its external debt compared to the interest rate charged on the intra-group loan. The court held that the interest rate able to be obtained by the group as a whole is a reasonable equivalent of the arm’s length rate for an intra-group loan with a subsidiary. The rate obtained by the group is a much clearer estimate of the rate Chevron Australia could have

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<sup>15</sup> Chevron Australia Holdings Pty Ltd v FC of T [2015] FCA 1092

<sup>16</sup> Income Tax Assessment Act 1936 (ITAA 36)

<sup>17</sup> ITAA 36 s.136AD(3)(c)

<sup>18</sup> Tax Laws Amendment (Cross-Border Transfer Pricing) Act (No. 1) 2012.

obtained if it had issued the bonds itself, rather than through its subsidiary.

The Chevron case has redefined “arm’s length” for debt loading purposes in Australia. It had previously been generally accepted that the intra-group rate only needed to be in the vicinity of that obtained by a comparable firm (based mainly on assets, revenues and industry). Chevron argued that only the credit rating of a subsidiary as a standalone entity needed to be considered and suggested the inter-bank swap rate (AUD LIBOR) plus 4.14% per annum was the suitable comparison rate. However, this was rejected by the Federal Court. The change in definition has flowed through to tax compliance with the Tax Commissioner launching a direct attack on related party loans in the oil and gas industry in 2017.<sup>19</sup>

Due to the prevalence of thin capitalisation rules globally, multinational entities have developed processes that circumvent them. The ATO has drawn attention to some of these strategies (ATO 2017).<sup>20</sup> One method involves trading derivatives for related party interest payments, effectively inserting a third, unrelated party between the related parties through which the interest is funnelled. This allows a company to claim interest deduction, which appears to be at arm’s length (non-related party transaction), but to report no related party interest expense in their tax return. Canada has enacted legislation that allows tax authorities to disregard the middle party in ‘back-to-back’ loans when determining thin capitalisation restrictions.

Large, multinational resource and energy corporations, such as those involved in oil and gas extraction activities in Australia, usually operate in a number of different jurisdictions. The Australian operations are mostly wholly-owned subsidiaries of a foreign parent company. This provides these operations two distinct benefits. First, they are only required to make minimal disclosures regarding their operations here. The reduced disclosure allows them to avoid public scrutiny of their finances and helps obscure tax minimising activities from the Australian public. Second, the international nature of their operations reduces the costs involved in setting up profit-shifting structures, such as subsidiaries in low tax jurisdictions. Despite these advantages to undertaking debt loading, the Chevron case does appear to have produced some deterrent effect. Estimated interest rates have been extrapolated from interest and debt reported in the financial statements of Chevron Australia and ExxonMobil Australia.

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<sup>19</sup> Butler (2017)

<sup>20</sup> Australian Tax Office (2017)

These show a decline since the beginning of the Chevron Australia court case in 2012. However, this may be due to an outside effect, such as interest rates declining in general, or it may be coincidence due to the small sample. In early 2017, the Tax Commissioner, Chris Jordan lamented the high number of companies that were still arranging loan agreements with their overseas parent entities that “do not reflect commercially rational behaviour.”<sup>21</sup>

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<sup>21</sup> As quoted by Butler (2017)



## Case Studies – Chevron & ExxonMobil

In order to investigate the extent that debt loading is being used to reduce tax liabilities in Australia, an examination of the debt loading activities of two companies involved in the oil and gas extraction industry have been undertaken. For the 2014/15 financial year, the Australian oil and gas industry produced the equivalent of 434 million barrels of oil at an estimated average realised price of \$69.10 per barrel, generating sales revenue of almost \$30 billion. The industry is dominated by just six major companies who account for almost three-quarters of the sector's sales revenue.<sup>22</sup> The two companies selected for review are Chevron Australia Holdings Pty Ltd and ExxonMobil Australia Pty Ltd, two privately-owned, multinational entities that account for 12.4% and 12.1% of Australian total oil and gas sales respectively.<sup>23</sup>

This research concentrates on these two private, multinational entities for two reasons. First, there is strong evidence that multinational corporations, in particular, shift profits from high-tax to low-tax jurisdictions, and that profit shifting is more aggressive when non-tax shifting costs are lower, as is the case with private multinational entities.<sup>24</sup> Second, foreign-owned entities do not benefit from Australian dividend imputation. Dividend imputation removes the incentive for companies to artificially reduce their taxes and eliminates the tax advantage of debt for Australian domestically-owned firms. This makes debt loading an ineffective mechanism for tax avoidance purposes for Australian domestically-owned companies but not for foreign-owned companies.<sup>25</sup>

Chevron Australia Holdings Pty Ltd is wholly owned by the U.S.-based Chevron Corporation which has global upstream and downstream operations in oil and gas as well as chemicals and coal mining. Chevron Australia engages in petroleum exploration, refining and fuel manufacturing and wholesaling in Australia. Chevron's projects include the Barrow Island and Thevenard Island oil fields off Western Australia and a sixth share of the North West Shelf Project. It is developing large scale LNG projects such as its 47.3% stake in the Gorgon

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<sup>22</sup> The other companies are Woodside Petroleum Ltd (market share = 13.5%), BHP Billiton Ltd (13.2%), Santos Ltd (11.8%) and, Shell Energy Holdings Australia Ltd (10.3%). Source: IBIS World Australia - Oil & Gas Extraction - Industry Report, based on 2014 data.

<sup>23</sup> IBIS World Australia - Oil & Gas Extraction - Industry Report

<sup>24</sup> Beuselinck et al. (2015)

<sup>25</sup> McClure et al. (2017)

Project, and a 64.1% stake in the Wheatstone Project. Chevron Australia reported a profit of \$191 million in 2015, on revenue \$2.14 billion and with assets totalling over \$70 billion.

ExxonMobil Australia Pty Ltd is a wholly-owned subsidiary of Exxon Mobil Corporation, a US-based oil and gas corporation. ExxonMobil Australia is engaged in oil and gas exploration and production, as well as refining and distribution of petroleum products. Projects include oil and gas production in the Bass Strait with BHP, and it is also involved in the Gorgon Project of Western Australia. In 2015, ExxonMobil Australia reported a loss of \$60 million, with revenues of \$7.4 billion and assets totally over \$31 billion.

### Methodology

In order to ascertain the extent to which Chevron and ExxonMobil are using debt loading to reduce tax revenues in Australia, two main tests are undertaken. First, the safe harbour debt limit (SHDL) is calculated based on the model developed in Taylor and Richardson (2013). With effect from 1 July 2014, new thin capitalization rules basically provide for a safe harbor limit at 60% (previously 75%) of assets net of non-debt liabilities.

$$SHDL = (Average\ Total\ Assets - Non-Interest-Bearing\ Liabilities) \times 60\% \ (75\%)$$

From this limit the maximum allowable debt (MAD) ratio is calculated as:

$$MAD\ Ratio = Average\ Debt / SHDL$$

A mad ratio greater than one indicates the company has breached the thin capitalisation provisions. Critically, as adjustments<sup>26</sup> can be applied to Total Assets and Non-Interest-Bearing Liabilities, the results from this analysis are indicative only and cannot be interpreted as the company having actually breached the legislative provisions. However, most of the adjustments are usually for fairly minor amounts, such as external equity interests and controlled foreign entities, and have little effect on the results.

The second test is for arm's length interest rates. This involves estimating the interest rates for the company and comparing it to certain benchmarks. The interest rates are estimated using an effective interest rate which is the interest expense as a percentage of average debt.

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<sup>26</sup> The numbers behind these adjustments are not disclosed in the financial statements, but they are reported on a company's tax return.

$$\text{Effective Interest Rate} = \text{Interest Expense} / \text{Average Interest-Bearing Liabilities}$$

The effective interest rate for the company will be used to compare results from Australia's thin capitalisation rules with alternative solutions to debt loading, along with estimates of the effects on tax revenue. First, the effective interest rate will be adjusted for the MAD Ratio and the change in tax revenues will be calculated. Second, the corporate groups' effective interest rate on external debt as prescribed by the judgement in the Chevron case will be compared to the effective interest rate. This is now the benchmark arm's length rate in Australia.<sup>27</sup> The change in tax revenues will be estimated. The third comparison is an estimate of the tax revenues that would be generated by adopting the Hong Kong approach that disallows interest deductions for related party transactions compared to revenues generated by the current regime.

### Data

Data for this analysis comes from the IBIS World - Industry and Company Research database. This data provides results from financial statements for the most recent five year period and is converted into AUD at the balance date. As average amounts are required in some calculations, the data affords four or five years of analysis. The IBIS World data has been verified against actual financial statements for at least two years. Even though the numbers for ExxonMobil Australia are confirmed in aggregate, the Notes to the financial statements indicate that ExxonMobil Australia capitalises a large portion of its interest charges. The interest charges on their debt are disclosed in the Notes. Therefore, 'borrowing costs' from the Statement of Cash Flows is used instead of the interest expense when calculating the effective interest rate for ExxonMobil Australia. The effective interest rate for each global group is calculated from data in the consolidated financial statements of the ultimate parent companies.

The ATO has some concerns regarding the interest expense reported by companies on their tax returns,<sup>28</sup> and these issues may distort the analysis or create bias in the results. First, companies that capitalise interest charges incurred during the construction and development

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<sup>27</sup> The Federal Court in the Chevron case held that the rate that would be the comparable rate to an independent commercially sound rate would be the interest rate that the group can negotiate on its external debt. Now that a court has decided on this matter, it has set a precedent for the ATO and companies to follow.

<sup>28</sup> Australian Tax Office (2017, p.7)

phase, do not record an interest expense in their accounts. This may result in an understatement of interest payments on related party debt, as was the case with ExxonMobil Australia who capitalise a portion of their interest. Second, some companies do not claim a deduction for related party interest, thereby reducing the interest expense reported in their tax return, even though they book the debt in their liability accounts for financial reporting purposes. As it is the interest deduction that makes debt loading a viable strategy, these firms would not be regarded as engaging in debt loading because they are not reporting an interest expense. Therefore, the company-level analysis in this report is not affected. However, at an aggregate-level, the non-recognition of related-party interest may bias any analysis away from finding evidence of debt loading in industries where debt loading may be prevalent. A third distortion of the data can result from companies entering into derivative trades for their related party transactions, whereby they pay amounts equivalent to their interest liabilities, but do not classify those payments as interest in their tax returns. This will have a similar effect to capitalising interest.

### Analytical Results

The results from the analysis of the thin capitalisation provisions including the SHDL, interest rates and their effect on tax revenues are presented in Table 1. In the four years from 2012 to 2015, Chevron Australia (Panel A) reported interest expenses totalling over \$6.275 billion. The average interest expense is \$1.57 billion per year on average debt of nearly \$30 billion. Chevron has an average Maximum Allowable Debt (MAD) Ratio of 99%, indicating its debt levels are on or about the safe harbour debt limit. Their MAD Ratio increased from 82% in 2012 to 116% in 2015. During the same period, ExxonMobil Australia (Panel B) disclosed interest charges<sup>29</sup> totalling \$2.7 billion at an average of \$680 million per year and an average debt of \$14.5 billion. ExxonMobil has appeared to breach the safe harbour debt limit every year with an average MAD Ratio of 117%, ranging from 110% to 135%. Any result greater than one is potentially in breach of the thin capitalisation rules.

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<sup>29</sup> Note that the estimated effective interest rate calculated for ExxonMobil Australia uses the 'Interest Paid' amount from the Statement of Cash Flows rather than the 'Interest Expense' from the Profit & Loss, or Income Statement. This is due to ExxonMobil capitalising a large portion of the interest charges (ie. the amount of interest due on outstanding loans).

**Table 1: Thin Capitalisation - Safe Harbour Limit and MAD Ratio**

**Panel A: Chevron Australia Holdings Pty Ltd**

	<i>2015</i>	<i>2014</i>	<i>2013</i>	<i>2012</i>	<i>Total</i>	<i>Average</i>
<b>Data</b>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>
Interest Expense	2,196	1,837	1,266	976	6,275	1,569
Total Assets	70,291	57,065	45,601	33,949		51,726
Interest-Bearing Liabilities	41,143	36,467	25,675	15,309		29,649
Non-Interest-Bearing Liab.	7,928	9,266	8,908	8,445		8,637
<b>Thin Capitalisation</b>						
Average Total Assets	63,678	51,333	39,775	28,693		51,726
Non-Interest-Bearing Liab.	-7,928	-9,266	-8,908	-8,445		-8,637
	55,750	42,066	30,867	20,248		43,089
<i>%age Limit</i>	<i>60%</i>	<i>67.5%</i>	<i>75%</i>	<i>75%</i>		<i>69%</i>
<b>Safe Harbour Debt Limit</b>	<b>33,450</b>	<b>28,395</b>	<b>23,150</b>	<b>15,186</b>		<b>29,893</b>
Av. Interest-Bearing Liab.	38,805	31,071	20,492	12,467		29,649
<i>MAD Ratio</i>	<i>116.01%</i>	<i>109.43%</i>	<i>88.52%</i>	<i>82.09%</i>		<i>99.18%</i>

**Panel B: ExxonMobil Australia Pty Ltd**

	<i>2015</i>	<i>2014</i>	<i>2013</i>	<i>2012</i>	<i>Total</i>	<i>Average</i>
<b>Data</b>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>
Interest Charges	810	754	629	525	2,718	680
Total Assets	31,226	26,883	23,676	19,493		25,320
Interest-Bearing Liabilities	18,226	16,930	13,218	9,766		14,535
Non-Interest-Bearing Liab.	7,354	6,999	7,665	7,806		7,456
<b>Thin Capitalisation</b>						
Average Total Assets	29,055	25,280	21,585	17,447		25,320
Non-Interest-Bearing Liab.	-7,354	-6,999	-7,665	-7,806		-7,456
	21,701	18,281	13,920	9,641		17,864
<i>%age Limit</i>	<i>60%</i>	<i>67.5%</i>	<i>75%</i>	<i>75%</i>		<i>69%</i>
<b>Safe Harbour Debt Limit</b>	<b>13,020</b>	<b>12,339</b>	<b>10,440</b>	<b>7,231</b>		<b>12,393</b>
Av. Interest-Bearing Liab.	17,578	15,074	11,492	8,424		14,535
<i>MAD Ratio</i>	<i>135.00%</i>	<i>122.16%</i>	<i>110.08%</i>	<i>116.50%</i>		<i>117.29%</i>

The results from the examination of effective interest rates, relevant benchmarks and other

approaches to debt loading, as well as the effects these have on tax revenues, are presented in Table 2.

### *Thin Capitalisation Rules*

The effective interest rates for Chevron Australia are in Panel A. Chevron has an average effective interest rate (a) of 6.4% over the four year period. However, it has steadily reduced from 7.8% in 2012 to 5.7% in 2015. The MAD-adjusted interest rate (b) represents the limit on the interest deduction when total debt exceeds the SHDL. As Chevron is very close to its SHDL, the MAD-adjusted rate varies only slightly from the effective rate. It should be noted that the test for the SHDL is done each year and is not averaged over multiple periods, and therefore, cannot be carried forward from one period to the next. Applying the ‘thin capitalisation’ rules to Chevron’s accounts each year over the four-year period would reduce Chevron’s interest deduction by \$461 million and potentially generate an additional tax liability of \$138 million.

### *Global Group Effective Interest Rate*

The Global group effective interest rate is calculated in the same way as the subsidiary company effective interest rates, except they use consolidated group accounts from the parent company. As all intra-group debt and interest payments are eliminated during consolidation,<sup>30</sup> any debt and interest in the consolidated accounts is external to the group, and therefore, these rates are assumed to be commercial, at arm’s length. It is expected that corporations of Chevron’s size and financial strength allow it to negotiate very competitive (ie. low) rates on its external borrowings. This was at the core of the Federal Court case and is now the benchmark adopted by the ATO. If Chevron was limited to an interest deduction at the group’s external interest rate, the interest deduction would be reduced by \$4.84 billion over the four year period, and potentially generate additional tax revenue of \$1.45 billion.

### *Hong Kong Solution*

To combat debt loading, Hong Kong has implemented a blanket measure that is both simple and effective. Hong Kong disallows any deduction for related-party interest payments, making abuse of the system difficult. Investment in Australian oil and gas extraction is

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<sup>30</sup> These, along with other intra-group transactions, are eliminated from the group consolidated accounts to prevent double-counting. See AASB10, Appendix B86(c).

almost entirely in the form of related party loans.<sup>31</sup> Chevron Australia's debt is 100% related party loans. If the Hong Kong solution was operating in Australia, Chevron would have been denied \$6.275 billion in interest deductions and this would potentially increase tax revenues by \$1.89 billion over the four year period.

**Table 2: Thin Capitalisation - Interest Rates and Tax Revenues**  
**Panel A: Chevron Australia Holdings Pty Ltd**

	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>Total</b>	<b>Average</b>
<b>Interest Rates</b>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>
<i>a. Effective Interest Rate</i>	5.66%	5.91%	6.18%	7.83%		6.40%
<i>b. MAD-adjusted EIR</i>	4.88%	5.40%	6.98%	9.54%		6.70%
<i>Difference (b - a)</i>	-0.78%	-0.51%	0.80%	1.71%		0.30%
Interest Expense effect	-303	-158	0	0	-461	-115
Tax effect	91	47	0	0	138	35
<i>c. Global Group EIR</i>	1.29%	1.29%	1.40%	2.00%		1.49%
<i>Difference (c - a)</i>	-4.37%	-4.62%	-4.78%	-5.83%		-4.90%
Interest Expense effect	-1,697	-1,436	-980	-727	-4,840	-1,210
Tax effect	509	431	294	218	1,452	363
<i>d. Related-Party Interest</i>	-2,196	-1,837	-1,266	-976	-6,275	-1,569
Tax effect	659	551	380	293	1,883	471

<sup>31</sup> Australian Tax Office (2017)

**Panel B: ExxonMobil Australia Pty Ltd**

	2015	2014	2013	2012	Total	Average
<b>Interest Rates</b>	\$m	\$m	\$m	\$m	\$m	\$m
<i>a. Effective Interest Rate</i>	4.61%	5.00%	5.47%	6.23%		5.33%
<i>b. MAD-adjusted EIR</i>	3.41%	4.09%	4.97%	5.35%		4.46%
<i>Difference (b - a)</i>	-1.19%	-0.91%	-0.50%	-0.88%		-0.87%
Interest Expense effect	-210	-137	-58	-74	-479	-120
Tax effect	63	41	17	22	144	36
<i>c. Global Group EIR</i>	1.51%	1.30%	1.88%	4.79%		2.37%
<i>Difference (c - a)</i>	-3.09%	-3.70%	-3.60%	-1.44%		-2.96%
Interest Expense effect	-544	-557	-413	-121	-1,636	-409
Tax effect	163	167	124	36	491	123
<i>d. Related-Party Interest</i>	-790	-742	-624	-523	-2,679	-670
Tax effect	237	223	187	157	804	201

*Thin Capitalisation Rules*

The effective interest rates for ExxonMobil Australia are in Panel B. ExxonMobil has an average effective interest rate (a) of 5.33% over the four year period. As with Chevron, the interest rate has also steadily declined from 6.23% in 2012 to 4.61% in 2015. As ExxonMobil exceeded its SHDL each year, its MAD-adjusted interest rate (b) is significantly lower than its effective interest rate. If the ‘thin capitalisation’ rules were applied to ExxonMobil Australia’s accounts for the period, it would reduce their interest deduction by \$479 million and potentially generate \$144 million in additional tax revenue.

*Global Group Effective Interest Rate*

The Global group effective interest rates are estimated from ExxonMobil’s consolidated accounts. The ExxonMobil Group capitalises a portion of its interest payments.<sup>32</sup> Therefore, interest paid from the cash flow statement is used instead of the interest expense. Using the interest expense may distort the group effective interest rates downwards.<sup>33</sup> Limiting ExxonMobil Australia to the external group interest rate each year would reduce the interest

<sup>32</sup> In certain circumstances, companies can elect to “capitalise” interest paid on loans by including it in the cost base of the assets the loan was used to fund. Instead of an immediate deduction for the interest expense, it is depreciated over the life of the asset.

<sup>33</sup> Australian Tax Office (2017)



deduction by \$1.636 billion and increase tax revenues by \$491 million over the four year period.

### *Hong Kong Solution*

The Hong Kong solution would eliminate \$2.68 billion of interest deductions and provide an additional \$804 million in Australian tax revenue.

This analysis provides evidence of the magnitude of tax revenues involved in what would be regarded as non-aggressive tax minimisation.<sup>34</sup> However, the scale of funds involved in gas and oil extraction results in small percentage adjustments creating economically significant effects on overall tax revenues. The amount of additional tax revenues that could be generated by adopting one of the three measures, just for these two companies is set out in Table 3. The adoption of the global group interest rate would have generated almost \$2 billion in additional tax revenue over the four years and the Hong Kong solution would have generated almost \$2.7 billion in additional tax revenue, or an additional \$672 million per year.

**Table 3: Thin Capitalisation - Total Tax Revenues (Chevron & ExxonMobil)**

	<i>2015</i>	<i>2014</i>	<i>2013</i>	<i>2012</i>	<i>Total</i>	<i>Average</i>
<u>Effect on Tax Revenues</u>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>
MAD-adjusted EIR	154	89	17	22	282	71
Global Group EIR	672	598	418	254	1,943	486
Related-Party Interest	896	774	567	450	2,686	672

### Conclusions

As the ATO acknowledges, significant capital injections have been required to fund the growth and expansion of Australia's offshore oil and gas projects. These funds have mainly originated from offshore, in the form of equity and related party debt. This provides a debt loading opportunity for companies to shift profits to lower tax jurisdictions. The vast size of the funds being invested in these projects provides a strong incentive to find savings in tax as a small increase in the interest rate can produce a large reduction in the magnitude of a

<sup>34</sup> It must be emphasised that there are no accusations that any companies in this analysis have breached and laws or regulations. This analysis provides evidence of the magnitude of tax minimisation permitted under current tax regime legislation.

company's tax liability. Accordingly, a new ATO submission to the Senate Economic Reference Committee singled out corporate tax avoidance and minimisation in the Australian offshore oil and gas industry.<sup>35</sup> The Chevron Australia tax case provided direction for acceptable levels of interest on related party loans. The judgement was based on the premise that all members of a corporate group should benefit equally from the lower interest rates available due to the financial strength of the group as a whole. However, the Hong Kong solution makes the interest rate irrelevant and discourages companies from loading excessive debt into the corporate structures of their subsidiaries and also prevents companies trying to "game the system" with non-commercially sound interest rates. The examination of the debt loading by Chevron Australia and ExxonMobil Australia demonstrates the large amount of additional tax revenues that could be generated by just two companies involved in oil and gas extraction in Australia.

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<sup>35</sup> Australian Tax Office (2017)

## **Petroleum Resource Rent Tax**

The Australian Petroleum Resource Rent Tax (PRRT) is a tax imposed on profits realised from the extraction of oil and gas resources. Resource rent taxes are imposed on non-replenishable resources because their one-off exploitation generates economic rents. Taxes on economic rents can be beneficial to improving productivity of resource usage such as land taxes in early 20<sup>th</sup> century Australia, and unlike royalties, taxes on economic rents do not distort investment decisions. However, there are weaknesses in the PRRT and limitations to its suitability for natural gas production in its current form. Consideration still needs to be given to royalty-based schemes such as Alberta's Modernized Royalty Framework which took effect from January 2017. This scheme partially emulates some of the benefits of the PRRT without its deficiencies.

### Economic rents

Economic rent describes the surplus value, derived from land or resources, that is subject to a separate 'rent' tax (eg. council rates on the unimproved land values). The concept was originally developed by classical economists such as David Ricardo and Adam Smith. The Henry Tax Review (2009) defines economic rents:

*“The finite supply of non-renewable resources allows their owners to earn above-normal profits (economic rents) from exploitation. Rents exist where the proceeds from the sale of resources exceed the cost of exploration and extraction, including a required rate of return to compensate factors of production (labour and capital). In most other sectors of the economy, the existence of economic rents would attract new firms, increasing supply and decreasing prices and reducing the value of the rent. However, economic rents can persist in the resource sector because of the finite supply of non-renewable resources. These rents are referred to as resource rent.”*<sup>36</sup>

In 1910, Australia adopted a rent tax on the unimproved value of land. The rate of tax was such that it became prohibitive for absent landholders to merely occupy land without producing income. This led to the divestment of large tracts of land being held by wealthy landholders and smaller more intensive farmers were able to buy land, improving farm

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<sup>36</sup> As quoted in McLaren (2012, p.45); Henry et al. (2009)

productivity and rural output in Australia.<sup>37</sup>

For oil and gas extraction, economic rent is the amount by which the payment received from bringing to market a barrel of oil exceeds the minimum return required for the activity to be undertaken in the first place. Taxing these rents is attractive to governments as they can be taxed at up to almost 100 percent without changing investor behaviour.<sup>38</sup> A Resource Rent Tax (RRT) has been used by a number of countries. Both the United Kingdom (UK) and Norway impose a RRT on profits derived from North Sea oil and gas reserves. The UK introduced the tax in 1975 when the North Sea reserves were initially developed. The UK continued to impose royalties on production as well as the RRT until royalties were abolished in 2002. The UK scheme has been amended and altered a number of times since it was introduced. Norway abolished royalties at the time it introduced the RRT in 1986. Royalties are regarded as regressive taxes due to taxing of gross revenues. The “rate” of tax as a percentage of profits increases when prices or production levels fall, and acts as a disincentive to exploration and production investment.<sup>39</sup> Unlike Australia and the U.K., Norway does not allow the special petroleum tax as a deduction for income tax purposes, creating an effective marginal tax rate of 78 percent on the income from oil and gas extraction. It should be noted however, that Norway retains significant government ownership of its oil and gas resources through equity stakes in the oil and gas industry.

#### Australian resources and economic rents

Australia is naturally endowed with a large, high quality non-renewable resource base comprising stocks of minerals and petroleum that are subject to depletion and can be exhausted (ie. can only be exploited once). The majority of these resources are publicly owned with the rights to exploit them vested in the Crown. Non-renewability allows exploitation of these resources to generate economic rent (above normal profit<sup>40</sup>). A feature of economic rent is that it can generally be taxed without distorting the decisions of investors if the tax is well designed.

There are three main types of resource taxes: excises, royalties and resource rent taxes.

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<sup>37</sup> McLaren (2012)

<sup>38</sup> Broadway & Keen (2010) as quoted in McLaren (2012, p.45)

<sup>39</sup> McLaren (2012)

<sup>40</sup> Normal profit is the minimum level of profit required for a company to remain competitive in the market taking into account the need to produce a required return on capital.

Excises have to a large degree, ceased to be applied to much economic activity in Australia, especially export production. They are now mainly applied to items such as alcohol and tobacco to cover some of the societal costs created by these products and to discourage their use, or fuel taxes to cover the cost of providing common-usage roads. The crude oil levy in Australia is a form of excise but was phased out and replaced by the PRRT in 1987. Excise taxes are not imposed on offshore production of oil and gas in Australia, except for crude oil and condensate production from the North West Shelf which is still subject to the crude oil levy. North West Shelf oil production is exempt from the PRRT.

State and Territory governments in Australia typically tax non-renewable resources by applying a royalty to production. Royalties are generally applied on the basis of volume or value of output and do not take into account the profitability of a mining operation. Therefore, royalties may only recover a small portion of the economic rents from mining when mining profits are high, but will continue to tax mining operations where no economic rent is present, such as when profits are low. Additionally, output-based royalties can discourage investment and production because they are levied irrespective of the costs of production. Consequently, investors receive a lower post-tax return from more expensive operations because costs are not recognised for tax purposes. This is particularly important for the more risky projects. Output-based royalties can therefore result in some economically viable projects not proceeding.

Resource rent taxes are profit-based taxes. They differ from most royalties in that they take into account the profitability of a mining operation. A resource rent tax collects a percentage of the resource project's economic rent. The Australian PRRT is levied on the profits from oil and gas extraction on a project-basis.<sup>41</sup> There is no refund when the cash flow is negative or the taxpayer is making a loss. Instead, losses are carried forward until the project becomes cash positive. Losses are subject to an uplift factor, such as the long-term bond rate plus a percentage. The uplift rate was introduced to preserve the value of the taxpayer's losses as they do not get an immediate cash refund for the tax value of the government's contribution to the mining project.<sup>42</sup> The uplift rate also includes a premium to compensate for the risk that

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<sup>41</sup> The Australian PRRT is a Garnaut/Clunies-Ross resource rent tax, named after the Australian economists Ross Garnaut and Anthony Clunies-Ross.

<sup>42</sup> The PRRT is based on the Government gaining a share of profits from then exploitation of non-renewable resources. The uplift factor can therefore be seen as the Government's contribution to the losses associated

the taxpayer may never get to apply losses carried forward against future profits. This premium applies at a higher rate for exploration expenditure to encourage further exploration.

The Australian PRRT is imposed on a project-by-project basis. For PRRT purposes, a project comes into existence when a production licence is granted under the Offshore Petroleum Act. The PRRT is imposed at the rate of 40% of “taxable profit” in any tax year. Taxable profits are assessed annually and arise when assessable receipts from oil or gas production exceed deductible expenditure. Receipts and expenditures can be of a capital or revenue nature. Assessable receipts are the total receipts derived from a project including the proceeds from the sale of oil or gas, as well as project assets. Deductible expenditure is the total expenditure incurred in relation to the project, including exploration, development, production, and closing-down costs. Exploration expenditure is not “ring fenced” and is transferrable between projects within a company at a notional taxable profit.<sup>43</sup> Expenditure not recouped against receipts for a tax year is carried forward to be recouped against future receipts and is subject to an uplift rate (augmentation) until recovered. The uplift rate is the long-term bond rate plus 15% for exploration costs, and the long-term bond rate plus 5% for development and production costs. Some types of expenditure are not allowed as tax deductions: the cost of capital, whether debt or equity (interest and dividends); private overriding royalty payments; private payments made to acquire interests in petroleum titles; income tax, fringe benefit tax and goods and services tax payments; indirect administrative costs such as head office costs; and payments made to acquire petroleum titles under the Offshore Petroleum Act. The PRRT is payable in cash only, not in kind.

### Current Issues with PRRT Revenue Collection

The main issues with the PRRT are: uplift rates considered to be quite generous; the transfer of exploration costs between projects; and the suitability of the PRRT to liquefied natural gas (LNG) projects that require massive upfront expenditure over long periods.<sup>44</sup>

At the time the PRRT was designed, the economic conditions were far different than they are now. During the period when the PRRT was first being discussed and legislation drawn up in

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with these projects, in lieu of a cash refund.

<sup>43</sup> Kraal (2016)

<sup>44</sup> For example, the Gorgon project involved capital outlays for almost eight years before it started to produce output.

the 1980's, Australia and most developed countries, were experiencing high levels of inflation of around 12 to 15% or more and oil prices were at historical highs. In that context, the uplift rate of 15% plus the long-term bond rate did not look excessive under those conditions. If the long-term bond rate was only 1%, the uplift rate for exploration costs would still double the value of those costs in just five years due to their compounding nature. For instance, in the eight years that it has taken the Gorgon project to come on-line, the uplift rate would more than triple the value of the exploration costs. As all exploration costs have to be utilised before the production costs are recouped, even the less generous uplift rate for production costs would double the value in twelve years.

The ability to transfer exploration costs between projects within a company exacerbates the problem with the uplift rates. Some projects may be loaded up with "costs" from other projects earlier in its life to generate maximum benefit from the compounding nature of the uplift rate. The uplift rate is an incentive for companies to undertake risky and expensive exploration projects. It encourages the funding of exploration from the profits of current production projects. The cost to tax revenues of the uplift rate can be seen as the Government sharing in the down side of oil and gas exploration as well as the upside when projects are successful. If exploration is successful in discovering large, valuable reserves, it will lead to future resource rent taxes. However, as the exploration costs have already been recouped, the tax revenues will start to flow at an earlier stage of the future project. The problem is that the eventual payout is over the forecast horizon, with only a trickle for the foreseeable future. The government is foregoing substantial current tax revenues based on an uncertain future. The transfer of exploration costs to encourage exploration may have been appropriate when Australia had very limited known reserves of oil or gas, but Australia is about to become the world's largest exporter of LNG with reserves that are expected to continue producing for the next 40 of 50 years.

In the past, the PRRT has worked efficiently for oil production but, in its current form it has limitations when applied to natural gas production. For natural gas production, there are substantial pre-production outlays and an extended construction phase before any sales revenues can be generated. Once again, this is exacerbated by the problem with the uplift rates. The Gorgon Project in northern Western Australia has cost anywhere up to \$50 billion and has taken almost seven years for construction and development before it began

generating revenue late in 2016. Allowing for the cost of capital, the uplift rates would still double the value of any exploration costs before any sales revenues were received. The Chief Economist at Goldman Sach's predicted the uplifted costs will offset all receipts from gas sales until at least 2025.<sup>45</sup> A second issue with natural gas extraction is the prevalence of integrated upstream/downstream operations. This creates an opportunity for transfer pricing abuse as the valuation of production output occurs at the well-head where there is no external market to compare.

### Alternative Resource Taxes

An examination of the effectiveness of the PRRT includes a comparative analysis of the PRRT and the royalty-based schemes in the U.S. and Alberta, Canada. All three jurisdictions impose corporate income tax and, at some level of government, they also impose royalties on some oil and gas extraction. Australian states impose royalties on oil and gas extraction from onshore reserves. However, the PRRT is the only tax on Australia's large offshore reserves. Other differences between the schemes arise over leases, bonuses, and "ring fencing" rules.

Both the U.S. and Alberta have competitive bid auctions for exploration leases. These bids are a lump sum payment due when the lease is issued. They are known as lease bonus bids, and as such reflect the market value of the leasehold rights. The U.S. has minimum bid levels for different areas and resources, such as \$US100 per acre for Mexico Gulf rights below 400 metres. The cost of oil and gas rights is capitalised and depleted (depreciated) based on the volumes of production sold each year, as a percentage of the estimated remaining reserve. The U.S. charges lease rents per acre leased. The rate is dependent on the resource and the location. In Canada, the cost of acquiring leasehold rights is accumulated in a cost pool and a deduction of 10% of the closing balance allowed each year, with indefinite carry-forward of the remaining balance. Alberta also charges rent on leases and on land used for infrastructure, such as buildings and infrastructure. Australia also has competitive bidding for oil and gas rights but the bids are assessed on proposed work programs, including financial resources and technical expertise. This reflects the resource security aspects of Australia's oil and gas resources policies.

Royalties for oil and gas extraction in Australia are State-based and cover on-shore reserves

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<sup>45</sup> MacroBusiness (2015)



only. Royalty regimes in the U.S. and Canada are a combination of both Federal and State-based. However, this investigation will focus on the U.S. Federal royalty scheme, and the Alberta Provincial-based royalty scheme. The U.S. scheme is imposed at a flat rate on the gross well-head value of production which are calculated as a function of well productivity (volumes) and the well-head price.<sup>46</sup> In response to low and declining revenues received from the oil and gas sector in the early 2000's, the royalty rate was increased progressively from 12.5% to 18.75% between 2006 and 2008. While the increase to the rate met with opposition from the oil and gas sector, there appeared to be little adverse effects on exploration or production.<sup>47</sup>

The Alberta royalty scheme was only introduced in 2016 and became effective in January 2017. It attempts to address some of the negative consequences generally associated with royalty schemes, such as the disincentive to undertake costly exploration and development of lower quality reserves, or the abandonment of projects with low productivity before the reserves are depleted. The scheme has different provisions and rates for each phase of production: in the start-up phase, the maximum royalty rate is limited to 5% for the first 12 months of production; in the "mature" or production phase, the royalty rate varies between 5% and 36% depending on the type of petroleum and the market price; a reduced rate applies when production volumes decline as reserves begin to be depleted. The Alberta/Canadian scheme does not differentiate between on-shore and off-shore reserves for royalty purposes.

Many jurisdictions "ring fence" petroleum projects by prohibiting the transfer of costs between projects. Costs of each project can only be deducted against the revenues from the same project. However, Australia, the U.S. or Canada do not ring fence their petroleum projects. Australia allows the transfer of exploration costs but not development and production costs between projects within same tax entity. Critically, Australia also allows tax consolidation within a corporate group meaning these costs can be transferred anywhere within the group. The U.S. scheme is materially the same as Australia other than they also allow the transfer of development and production costs between members of the same tax

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<sup>46</sup> The well-head price is a concept used throughout the oil and gas industry. It is the value of the oil or gas before it is transferred to storage, processing or transport infrastructure. The value commonly relies on estimates, as realised prices are often determined at a certain market point (e.g. West Texas crude) or in a different form (e.g. Liquefied Natural Gas).

<sup>47</sup> The production of oil and gas increased by over 20% for the eight years after the increase in the royalty rate compared to the eight years prior (U.S. Energy Information Administration 2017).

consolidation group. In Alberta, costs can be transferred between projects for the same company. Canada does not allow tax consolidation with each company being treated for tax purposes as an entity in isolation from other members of a corporate group.

### Incentives and Capital Allowances

Capital allowances and other investment incentives are important to investment decisions, particularly with the substantial sums being invested in the Australian oil and gas industry. These investment incentives provide relief from corporate income tax and are not directly related to the operations of the PPRT. However, these incentives reduce tax revenues and therefore should be considered in an evaluation of the PRRT. Generous capital allowances may be compensated by higher tax rates on income in one jurisdiction with the reverse in another jurisdiction. There is a large divergence in the capital allowances and other incentives available to companies in Australia, Canada and the U.S. The effect of the incentives can be illustrated by the effective marginal tax rate<sup>48</sup> which measures the percentage of tax paid on marginal investments, net of depreciation. Due to differences in the treatment of depreciation for tax purposes between jurisdictions,<sup>49</sup> the effective marginal corporate tax rate for the U.S. is 18.6% with an average statutory tax rate of 39.1%. Canada is 8.5% (26.1%) and Australia at 10.4% (30%).<sup>50</sup> The difference in the spread between the two rates suggests that Australia and Canada may have quite generous depreciation rules in comparison to the U.S. The generous depreciation rules are designed to encourage investment in depreciable assets in Australia and Canada, but reduce average effective tax rates and tax revenues.

While capital allowances provide incentives through corporate income tax, further incentives are provided in Australia through the PRRT itself. The uplift rate of the long-term debt rate plus 15% for exploration costs provides an incentive for companies in the oil and gas industry to undertake costly and risky exploration activities. A further incentive is the ability to transfer exploration expenditure between projects, to either offset against current receipts, or to be “uplifted” for use against future receipts. This transfers some of the risk for

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<sup>48</sup> The effective marginal corporate tax rate is a measure of a corporation’s tax burden on returns from a marginal investment (one that is expected to earn just enough, after taxes, to attract investors). It is the rate that managers apply to investment decisions. For more details, see U.S. Congressional Budget Office (2017)

<sup>49</sup> Some tax regimes give companies choices with respect to depreciation including estimating of the expected life of an assets or the type of depreciation method used, such as declining balance which allows greater deductions early in the life of an asset. Other regimes put strict limits on these aspects of depreciation.

<sup>50</sup> U.S. Congressional Budget Office (2017)

unsuccessful exploration expenditure to the Government, as taxes will be reduced, not just by the full amount of such expenditure, but potentially by an augmented (uplifted) amount, if the project where these expenditures are transferred is not currently generating sufficient profits to absorb these additional costs.

### Analysis

An examination of the effectiveness of the PRRT, and of equivalent schemes in other jurisdictions necessitates an analysis of the production volumes, gross receipts from oil and gas sales, assets, profitability and taxes of the oil and gas extraction industry in Australia. Receipts from Australia's PRRT are compared to estimates of revenue that could have been generated from royalty-type taxes that have been imposed in the U.S. and Alberta, Canada.

### Data and Methodology

The data used in this analysis is sourced from the APPEA Financial Survey 2014-15.<sup>51</sup> The survey reports aggregated data for the oil and gas industry on production volumes, revenue from oil and gas sales, total industry assets, net profits, selected non-tax costs and taxes, including the PRRT and royalties. The reported data is sufficient to calculate both the U.S. and Alberta royalty schemes. The approach is to apply the royalty rates from the U.S. and Alberta schemes to the production volumes and estimated realised prices reported by the Australian industry.

Both the U.S. and Alberta have altered their schemes over the years, with Alberta designing a new resource taxing framework that came into effect in January 2017. As the U.S. scheme is a flat royalty rate, changes in the rate could be incorporated. However, for Alberta, the changes to the schemes have been far more radical and only the most recent form has been modelled.

### Revenues Raised

While much of this analysis has been examining the efficiency of the PRRT, a major component of that would be the amount of revenue raised. However, according to Crommelin

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<sup>51</sup> APPEA (2016)

(2009), maximising government revenues has not been a major objective of petroleum resource taxes in Australia. An exception was the crude oil levy that was imposed on Bass Strait oil production between 1978 and 1987. That was replaced by the PRRT after 1987 and this “coincided with the resurgence of energy security as the predominant policy consideration”.<sup>52</sup> However, the PRRT has raised substantial amounts since it was introduced. Between 1987 and 2015, \$33.22 billion has been paid in PRRT by the oil and gas industry, representing 7% of gross receipts from oil and gas sales, and 27% of after tax net profit. This equates to \$1.19 billion per year since the PRRT was introduced, and \$1.36 billion per year between 2009 and 2015.

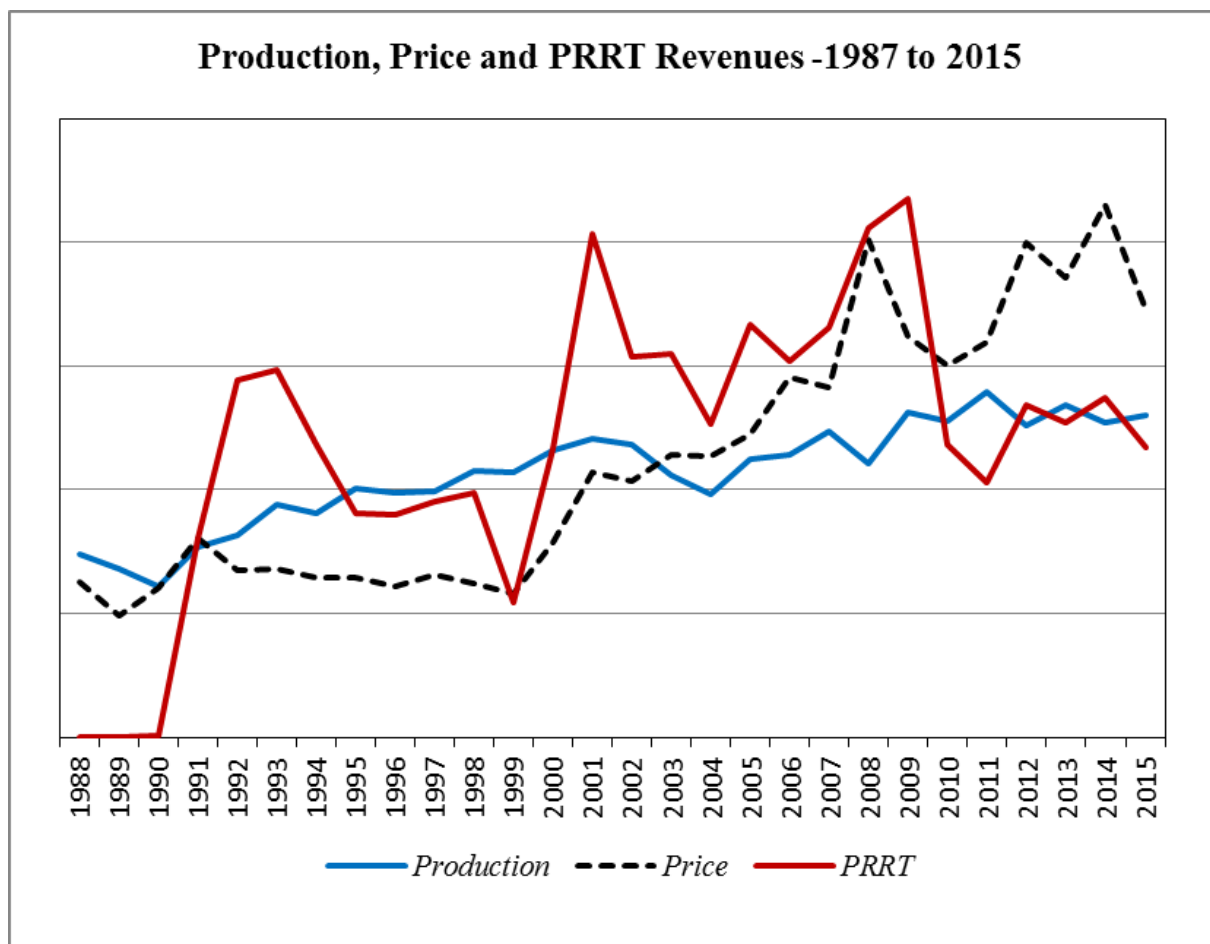


Fig.1: Australian Oil and Gas Extraction - Production volumes, price received and PRRT revenues paid – 1988 to 2015. Source: APPEA Financial Survey – 2014-15.<sup>53</sup>

<sup>52</sup> Crommelin (2009, p.51)

<sup>53</sup> The true relationship between production, price and PRRT receipts are not represented in Fig. 1. The numbers have been scaled in order to compare the changes. Hence, the absence of scale on the y-axis.

Figure 1 shows the changes in gas and oil production volumes, the estimated price realised on sales, and the level of PRRT receipts. The relation between these variables is as expected for the first twenty years after the introduction of the PRRT. Overall, the PRRT trended up at a slightly higher rate than production volumes until 2008. However, there was volatility around price changes. Price changes tended to produce higher rates of change in PRRT receipts, regardless of whether prices went up or down. This occurred because existing production became far more profitable when prices increased. As projects still faced the same level of production costs, any price increase went directly to profit. It also took time for less profitable, but now viable projects to begin production. Hence, PRRT receipts increased disproportionately to the price increases. However, since 2009, PRRT receipts have declined despite sustained high prices. This may be a result from increased exploration and development costs being transferred to existing projects, as participants seek to expand overall production to take advantage of the higher prices.

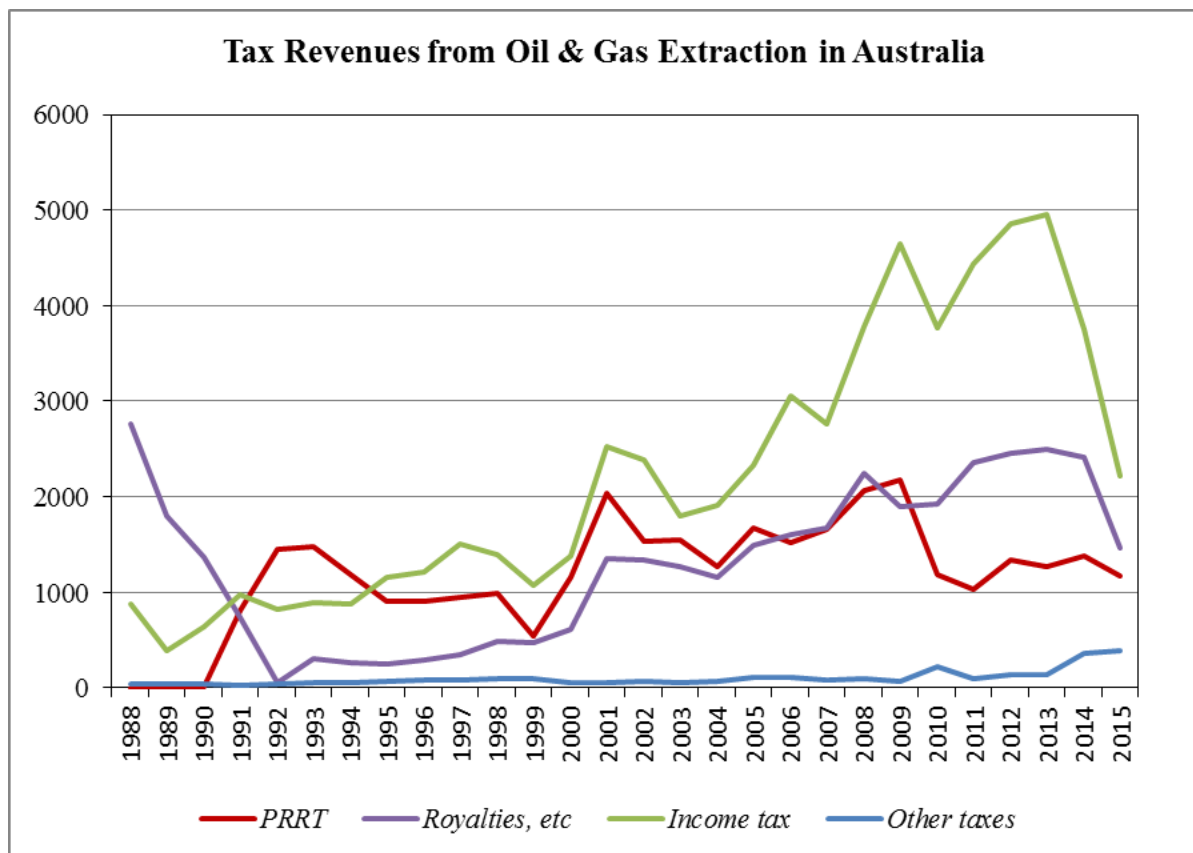
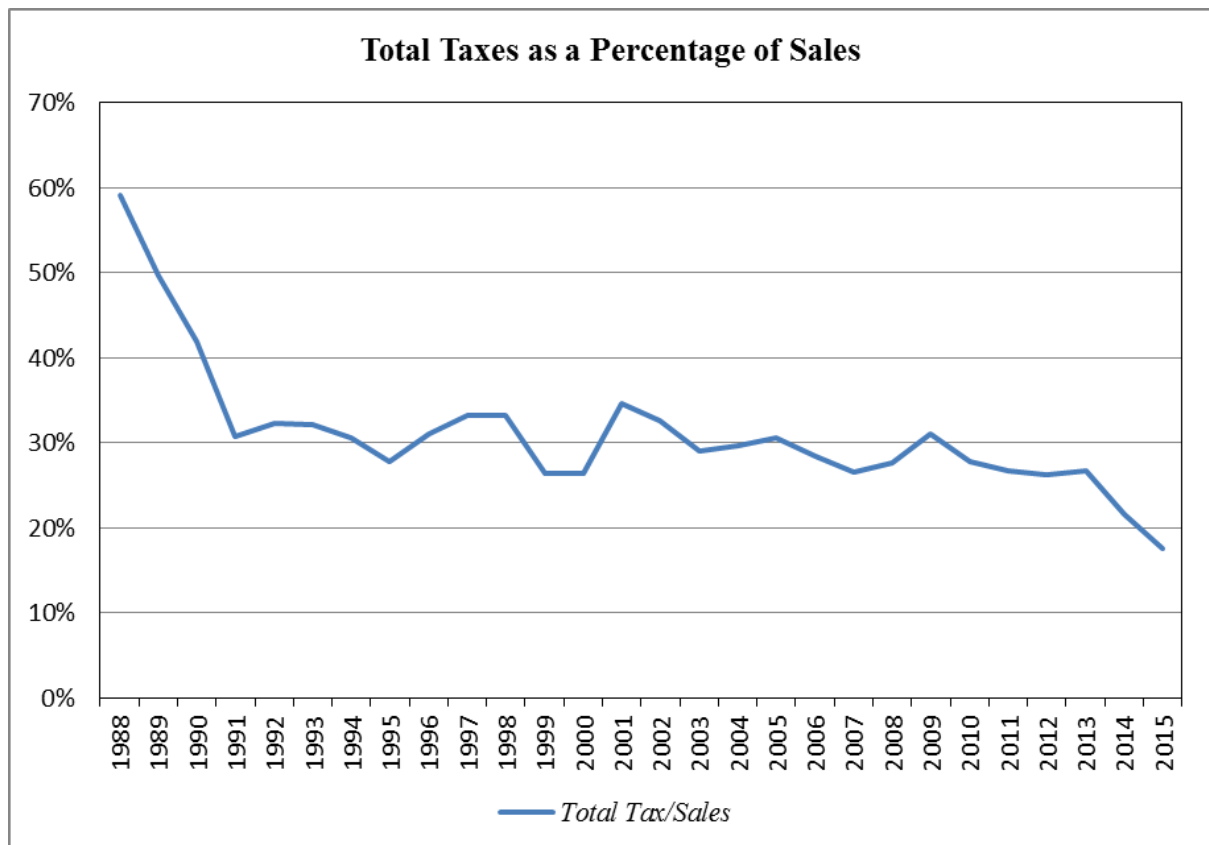


Fig. 2: Australian Oil and Gas Extraction – Tax Revenues Raised from the PRRT; Royalties, excise and fees; corporate income tax; and other taxes and fees – 1988 to 2015. Source: APPEA

*Financial Survey – 2014-15.*

Figure 2 displays revenue raised from the different taxes that are imposed on oil and gas extraction in Australia. The majority of revenues are raised through corporate income tax, with royalties, excise and fees providing a similar return to the PRRT. Unlike 2001 to 2003, the drop-off in the PRRT since 2008 does not have a corresponding decline in corporate income tax or royalties until four to five years later.



*Fig 3: Australian Oil and Gas Extraction – Total Taxes as a Percentage of Sales – 1988 to 2015. Source: APPEA Financial Survey – 2014-15.*

Figure 3 shows the total tax revenue raised from oil and gas extraction in Australia as a percentage of sales. It reveals a sharp decline from almost 60% when the PRRT was first introduced and then maintained a fairly constant relationship around the 30% mark until the most recent six or seven years when it has started to decline again. This recent decline has appeared as a disruption to the previously, relatively constant relationship between PRRT revenues and other financial variables, such as sales, prices and other taxes.

As a comparison to the level of Australian taxes on oil and gas, the U.S. raised \$10.1 billion in 2012 from petroleum production on total sales of \$68.6 billion, making oil and gas extraction one of the U.S. Federal Government's largest non-tax sources of revenue.<sup>54</sup> The total revenues consisted of \$8.8 billion from royalties, \$983 million in bonus bids and \$282 in lease rental fees. Alberta's revenue from petroleum production in 2015 was \$9.1 billion.<sup>55</sup> This included \$8.4 billion from royalties, \$483 million from bonus bids and \$175 million from lease rentals. However, royalties, bonuses and rents were projected to fall by 67% to around \$3 billion in 2016 due to lower market prices.

#### Revenue Estimates from Alternative Resource Taxes

The petroleum resources tax regimes in the U.S. and Alberta have been applied to Australian historical volume and price data. The U.S. scheme has been applied on the basis of the applicable rates that were in place each year, whereas the Alberta scheme was only implemented at the start of this year and has been applied in its current form to all years.

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<sup>54</sup> Ernst & Young (2015)

<sup>55</sup> Alberta Government (2015)

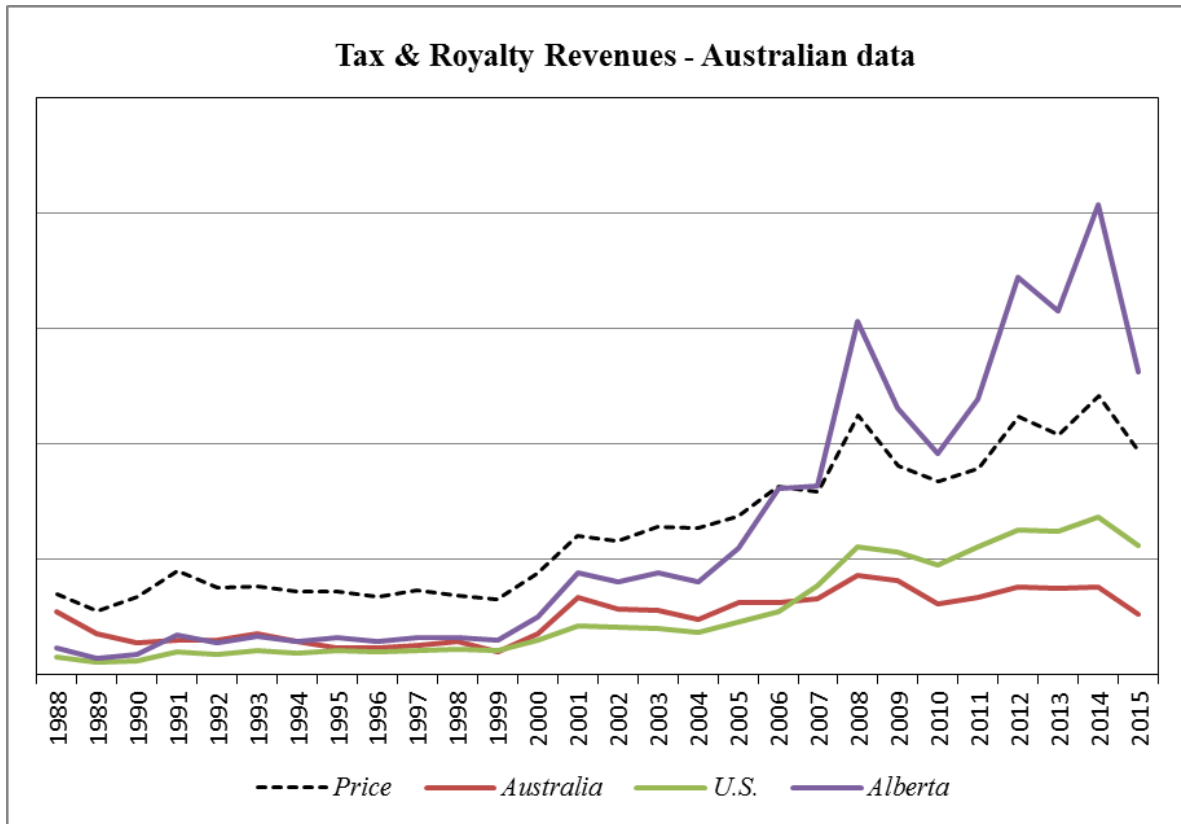


Fig 4: Australian Oil and Gas Extraction – Taxes and Royalties from Alternative Resource Tax Schemes – 1988 to 2015. Source: APPEA Financial Survey – 2014-15.<sup>56</sup>

Figure 4 presents the outcome of applying other tax regimes to the Australian data. The results show the Alberta scheme reacts to higher prices more appropriately than either the U.S. royalty regime or the Australian PRRT. In fact, the PRRT is the worst performer in that regard with a subdued reaction to price changes.

<sup>56</sup> The lines are not in correct scale with each other. The numbers have been scaled for display and comparative purposes.



**Table 4: Comparative Analysis of Alternative Oil and Gas Taxes using Australian Historical Data**

	1988-1991	1992-1995	1996-1999	2000-2003	2004-2007	2008-2011	2012-2015
<b>Production Volume (boe)*</b> <i>* estimated barrels of oil equivalent</i>	233	306	344	384	374	424	432
<b>Receipts</b>							
Oil and Gas Sales Revenue (\$m)	5,960	8,074	8,482	15,473	19,679	28,301	33,334
Total Revenue (\$m)	6,150	8,305	8,994	16,102	21,517	33,801	37,951
<b>Estimated Average Realised Price (boe)</b>	\$25.55	\$26.41	\$24.64	\$40.27	\$52.62	\$66.71	\$77.25
<b>Total Industry Assets (\$m)</b>	16,425	22,515	26,430	37,781	67,294	143,943	285,429
<b>Industry Net Profit (\$m)</b>	1,093	1,710	1,809	4,437	5,913	9,222	6,621
<i>Profit as a % of Total Revenue</i>	17.8%	20.6%	20.1%	27.6%	27.5%	27.3%	17.4%
<i>Profit as a % of Total Assets</i>	6.7%	7.6%	6.8%	11.7%	8.8%	6.4%	2.3%
<b>Taxes &amp; Charges</b>							
Petroleum Resource Rent Tax (\$m)	203	1,255	844	1,571	1,529	1,612	1,290
Production Excise, Royalties & Fees (\$m)	1,664	218	397	1,145	1,482	2,107	2,211
Corporate Taxes (\$m)	719	939	1,301	2,021	2,515	4,159	3,944
Other Taxes and Fees (\$m)	35	56	89	56	89	119	257
<i>Total</i>	2,620	2,467	2,630	4,793	5,615	7,996	7,702
<b>Taxes as a % of Sales Revenue</b>	42.6%	29.7%	29.2%	29.8%	26.1%	23.7%	20.3%
<b>Australia PRRT &amp; Royalties</b>							
Total (PRRT + Royalties) (\$m)	1,866	1,472	1,241	2,716	3,011	3,719	3,501
<b>US Royalty Scheme</b>							
Royalties (\$m)	745	1,009	1,060	1,934	2,702	5,306	6,250
<b>Aust - US</b>	<b>1,121</b>	<b>463</b>	<b>181</b>	<b>782</b>	<b>309</b>	<b>-1,588</b>	<b>-2,749</b>
<b>Alberta (Canada) Royalty Scheme</b>							
Royalties (\$m)	1,135	1,540	1,563	3,862	6,447	12,104	16,626
<b>Aust - Alberta</b>	<b>731</b>	<b>-67</b>	<b>-322</b>	<b>-1,146</b>	<b>-3,436</b>	<b>-8,385</b>	<b>-13,126</b>

Source: : APPEA Financial Survey – 2014-15

The results from running the alternative tax models are presented in Table 4. The data has been aggregated into yearly averages over each 4 year period. The results show that oil and gas sales revenues have increased from an average of \$5.96 billion per year between 1988 and 1991, to an annual average of \$33.34 billion. The rows in bold represent the increase or decrease in tax revenue from applying the other models. In 2012-2015, the U.S. scheme would have raised an extra \$2.75 billion per year and the Alberta scheme would have added over \$13 billion per year to government revenue.

The U.S. royalty scheme charges a flat percentage royalty on production at the well-head. The rate of the royalty was progressively increased from 12.5% to 18.75% from 2006 to 2008. Based on the data from Australian production volumes and realised sales prices, a

scheme like the U.S. royalty scheme would have produced an additional \$5.925 billion in revenue since 1988, or \$212 million per year.<sup>57</sup> However, over the period from 2010 to 2015, the additional revenues would have been almost \$2.5 billion per year. This is a function of the decline in the PRRT revenues relative to price and volumes, and the increase in the royalty rate in the U.S.

The Alberta royalty scheme would raise substantially more revenue than either the PRRT or the U.S. scheme. The Alberta scheme is progressive in nature as the royalty rate increases with the realised price, similar to income levels and personal income tax rates. The scheme has been amended many times and the current scheme was only implemented in January 2017, so the full effects of this scheme will not be evident for some time. Based on the data from Australian production volumes and realised sales prices, the Alberta royalty scheme would have produced an additional \$103 billion in revenue since 1988, or an additional \$3.68 billion per year. As the scheme was only implemented this year, these results may be unrealistic, but are indicative of the level of revenue that can be raised. Over the period from 2010 to 2015, the additional revenues would have been \$11.3 billion per year.

### Discussion and Conclusions

In these models, both the U.S. and Alberta royalty schemes would have raised more revenue than the PRRT since it was introduced in 1988. They also provide the revenues from early on in production phase. The Alberta scheme increases substantially when prices are high and declines in line with them as well, displaying its progressive nature. The regressive nature of previous royalty schemes was a major drawback to their use. The Alberta scheme appears to have overcome that problem.

The PRRT can be seen as a long-term investment by the government in future PRRT revenue. It defers current consumption of the PRRT revenue by diverting it into generous incentives for exploration and development of petroleum reserves. These projects are forecast to become highly profitable once the initial exploration and development costs are recouped. However, if there is a long time delay before projects become cash positive, such as building delays and cost over-runs, or low prices for petroleum products, the generous uplift rates will increase

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<sup>57</sup> These figures are from the full model and have not been tabulated due to space.

accumulated costs to the point where virtually no PRRT will be collected.

The long delay between capital outlays and production output creates a problem for the PRRT due to the calculation of the uplift rate. A solution may be to set the uplift rate as a fixed multiple of the long-term bond rate rather than the bond rate plus a fixed percentage. When the PRRT was being implemented, the 15% “added on” for exploration costs was close to the same as the long-term bond rate due to high levels of inflation. With current low inflation rates and low interest rates, the “added on” percentage is now close to six times the long-term bond rate.

An issue that arises with any change to tax regimes is sovereign risk. This is the risk that a government will change tax laws to the detriment of producers after they have made investment decisions on the basis of existing laws. Governments attempt to avoid creating sovereign risk as it can have long term negative effects on investment in the country, especially foreign investment. However, the U.S. and Alberta schemes have been altered regularly. The U.S. increased the royalty rate by 50% between 2006 and 2008 but production levels are at historic highs nonetheless.<sup>58</sup> The U.K. has also varied the rate both up and down on its equivalent of the PRRT, as well as reducing capital incentives without the industry going into decline or becoming unprofitable.

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<sup>58</sup> U.S. Energy Information Administration (2017)

## Comparison to Other Government Revenue Measures

### Centrelink Debt Recovery

In order to demonstrate the level of savings from enhanced debt loading rules, such as the Group effective interest rate or the Hong Kong solution, the savings from just two multinational corporations operating in the oil and gas industry are compared to another government program that is currently receiving a high level of public scrutiny – the Enhanced Welfare Payment Integrity (EWPI) measure, familiarly known as Centrelink’s RoboDebt. The estimated savings for debt loading measures are the annual savings identified in Section 2 – Debt Loading, for Chevron Australia and ExxonMobil Australia.

**Table 5: Savings to Revenue from Enhanced Welfare Payment Integrity**

	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>Total</b>	<b>%age</b>
<b><u>Savings</u></b>					
Income data matching	603.6	625.0	22.4	1251.0	
Non-employment income data matching	257.3	241.9	195.7	694.9	
<b>Total</b>	<b>860.9</b>	<b>866.9</b>	<b>218.1</b>	<b>1945.9</b>	<b>100.0%</b>
<b><u>Debt Loading Solutions</u></b>					
Global group EIR (add'n revenue p.a.)	486.0	486.0	486.0	1458.0	74.9%
<i>Difference</i>	<i>-374.9</i>	<i>-380.9</i>	<i>267.9</i>	<i>-487.9</i>	
Hong Kong solution (add'n revenue p.a.)	672.0	672.0	672.0	2016.0	103.6%
<i>Difference</i>	<i>-188.9</i>	<i>-194.9</i>	<i>453.9</i>	<b>70.1</b>	

Source: APPEA Financial Survey - 2014/15; 2015-16 Mid Year Economic Fiscal Outlook

The results of the comparison are presented in Table 5. The two data matching measures outlined in the EWPI program are estimated to produce budget savings of \$1.95 billion over a three year period. Over a similar period, using the Group effective interest rate as the arm’s length rate would provide three-quarters of those funds, while the Hong Kong solution would provide more than the EWPI is estimated to save, potentially providing savings over \$2 billion over three years.

These results demonstrate the severity of the debt loading problem. It is encouraging that the Tax Commissioner has directed resources at this problem. Just two foreign-owned companies can legitimately minimise their tax liabilities to the same extent as Centrelink’s debt recovery

program.

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