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2012

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Long Run Trends in Australian Executive Remuneration: BHP 1887-2012^{*}

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Abstract

Outside the US, little is known of long-run trends in executive compensation. We fill this gap by studying BHP, a resources giant that has long been one of the largest companies on the Australian stock market. From 1887 to 2013, trends in CEO and director remuneration (relative to average earnings) follow a U-shape. This matches the pattern for US executive compensation, Australian top incomes, and (for the past two decades) average trends in executive compensation in top Australian firms. Like the US, Australia experienced a post-war ‘great compression’ prior to the recent ‘great divergence’.

^{*} We are particularly grateful to Geoffrey Blainey for valuable conversations about past BHP executive salaries, to Carola Frydman and Raven Molloy for sharing their data on long-run US CEO pay, and to Suzanne Wohlthat from Egan Associates for providing data on Australian executive remuneration. We are also grateful to Jeff Borland, Chris Skeels, David Peetz, Matt Cowgill, Jeff Tyndall and Richard Wise for comments.

1. Introduction

In a 2009 report on executive remuneration, the Productivity Commission (2009, p. 49) noted that from 1993 to 2009, average earnings of ASX100 CEOs rose from \$1 million (17 times average earnings) to \$3 million (42 times average earnings). According to that report, the top 20 Australian CEOs earn more than 100 times the average wage, with a significant number earning eight-figure salaries.

While little data exists on CEO pay prior to the 1990s (which could lead a casual reader to think that executive salaries have only ever risen) evidence from top incomes suggests otherwise. Using Australian taxation statistics, Atkinson and Leigh (2007) report that the income share of the top 1 percent and top 0.1 percent fell from the 1920s to the 1970s. Over the same period, they also report that High Court Justices, federal members of parliament, and top public servants saw their earnings grow more slowly than the average employee. Yet little is known about executive salaries over the full twentieth century.

In this paper, we fill this gap by looking at mining company BHP Billiton, known until 2001 as Broken Hill Proprietary Company Limited companies. For simplicity, we refer to throughout as 'BHP'. Throughout this period, its headquarters have been located in Melbourne, and BHP has been one of the most significant firms in Australia. Its market capitalisation has averaged 13% of Australia's domestic equity market capitalisation from 2002-2012, and reached 15-16% during 2008-2011.¹ As one of Australia's oldest and largest

¹ Based on data on BHP's market capitalisation from Bloomberg Based on BHP Billiton's market capitalisation of \$160.6 billion at 30 June 2012, shown in BHP Billiton (2012, p.80) and ASX data on domestic equity market capitalisation at 30 June 2012, shown in Australian Securities Exchange (2013).

companies, it has records of executive pay over a suitably long time period to be useful in examining long-run trends in executive pay in a leading Australian company.

We combine data from annual reports, unofficial papers, and data on average Australian earnings to estimate the ratio of director pay to average pay and CEO pay to average pay over a 125-year period. We compare our estimates with analysis on US CEO pay ratios over the long-run, and with estimated top income shares in order to see if a trend similar to that in the US has occurred (with a great compression in inequality in the post-war era, following by an expansion of inequality from the 1980s onwards). We also compare recent BHP data to average trends in executive pay in Australia.

To preview our results, we find that the earnings of those running BHP rose from the 1880s to the 1910s, trended downwards through the 1920s and into the 1930s, rose briefly during World War II and fell again from the 1940s until the 1980s. Over recent decades, the pay of those running BHP has risen sharply. Our findings suggest a ‘great compression’ in executive salaries during the post-war era, followed by an expansion again in the late-twentieth century, which matches analysis of US executive salaries from the 1930s to the 2000s by Frydman and Saks (2010), as well as the broader analysis of compression in the postwar US labour market (Goldin and Margo 1992; Goldin and Katz 2001; Piketty and Saez 2003).

2. Analysing Executive Pay

BHP is one of Australia’s oldest corporations. Its original venture was a silver and lead mine in the NSW town of Broken Hill in 1886. It diversified into steel in 1915, with a major steelworks in Newcastle. After World War II, BHP further diversified into other commodities, including petroleum, copper, coal and diamonds. In 2001, the company merged with Billiton, originally a Dutch firm whose mining interests included lead, tin and bauxite.

In this paper, our main focus is on the directors of BHP, and the chief executive (a position described as ‘managing director’ or ‘general manager’ during the company’s earlier years). Since 1887, BHP has had fifteen CEOs: William Patton (1887-1889), John Howell (1890-1894), Alexander Stewart (1895-1898), Guillaume Delprat (1899-1921), Essington Lewis (1921-1949), Norman Jones (1950-1966), Sir Ian McLennan (1967-1970), J C McNeil (1971-1982), Brian Loton (1983-1990), John Prescott (1991-1998), Paul Anderson (1999-2002), Brian Gilbertson (2002), Chip Goodyear (2003-2008), Marius Kloppers (2009-2013) and Andrew Mackenzie (2013-).

Our principal source of information is BHP’s annual reports. These are available in hard copy for 1887 to 1996, and in electronic form for 1997-2012.

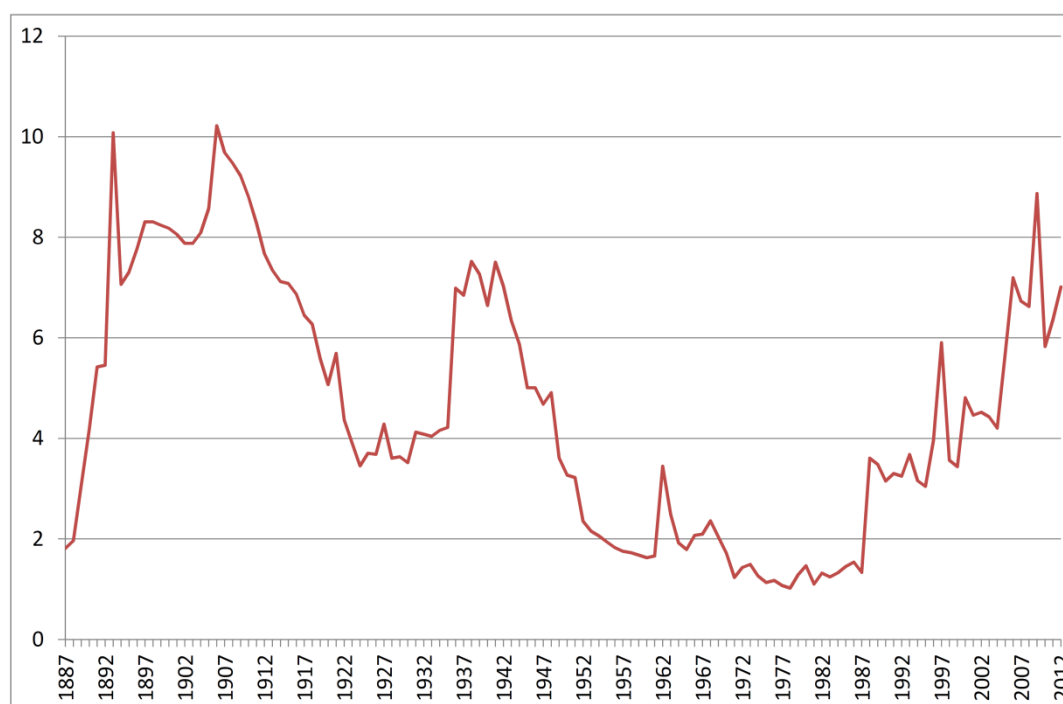
2.1 BHP Directors’ Earnings

We begin by estimating the ratio of an average BHP director’s remuneration to the pay of an average Australian.² Using the number of directors listed in BHP annual reports, we constructed a series measuring the average remuneration over the period, relative to observations of average Australian income.³ Given the multiple changes in tax regimes over the period, we used before-tax pay. This series is shown in Figure 1 below.

² Data on average income obtained from Hutchinson (2013). As Hutchinson’s data does not include employer superannuation contributions, wherever possible we exclude superannuation or retirement benefits from director remuneration. Hutchinson’s data does not include 2012, so we estimate the average earnings for 2012 using Series A2734032A in Table 3 of Australian Bureau of Statistics (2013).

³ From 1972 onwards we include only non-executive directors in this measure, so as to avoid skewing the average measure of director income with the significant rise in executive director pay during the 1980s (for example, while average remuneration for executive directors was approximately \$6,760 in the 1970s and \$8,020 from 1980-84, from 1985-89 average executive director remuneration was \$396,397, and from 1990-1994 it was \$967,299). From 1987-1998, director remuneration is stated in ranges rather than specific values. In order to construct a conservative estimate of non-executive director remuneration, executive directors removed from the data are assumed to have been earning at the upper bound of the stated range. Where directors are noted to have served for only part of a year (due to recent appointment or retirement), any remuneration specific to them has also been excluded as it is not directly comparable with annual income (and exclusion was preferable to

*Figure 1: Average BHP director remuneration (relative to average Australian earnings),
1887-2012*



We find that BHP directors remuneration was about twice as much as the average Australian earnings in 1887, but that this quickly rose to 7-10 times average earnings by the 1890s, and stayed at that level into the first decade of the twentieth century. From the early-1910s to the late-1920s, BHP directors' pay fell to as low as four times average earnings, and stayed at about that level through the Great Depression. World War II (in which BHP's steel production played a crucial role) saw directors' salaries rise to around seven times average earnings, before reverting to their 1930s level as soon as the conflict ended.

In the post-war decades, BHP directors' salaries were steadily outpaced by average earnings. A BHP director earned five times the average income in the late-1940s, but just three times average earnings in the early-1950s. By the late-1950s, BHP directors remuneration was

arbitrarily adjusting the remuneration to annualise the figure), and the director is excluded from the count of directors for the purposes of calculating the average director remuneration.

twice the average earnings. Their pay spiked briefly upwards in the 1960s, but by the late-1970s, a BHP director was paid not much more than the earnings of an average employee, earning just 1.02 times the average income in 1978.⁴ This ratio rose to around 1.5 in the mid-1980s before jumping up in the late-1980s and increasing from that point through to 2012, rising from around 3 in the early-1990s. From 2000-2012, an average BHP director earned at least 6 times the income of an average Australian (with a peak of 8.87 times the average income in 2009). By the end of the first decade of the twenty-first century, BHP directors' remuneration relative to average income had risen to pre-World War I heights.

2.2 BHP CEO Earnings

We now turn to the earnings of BHP CEOs. While directors' earnings were reported in the company's annual reports throughout the period in question, executive remuneration has only been reported by BHP since 1987. Prior to this year, therefore, we rely on external sources for CEO earnings. After an extensive search of company papers and history, we have discovered five reported salaries of BHP CEOs, covering the years 1887, 1899, 1903, 1921, and 1926.⁵ We make two uses of these reported salaries. First, we plot them directly into Figure 2. Second, we use each to calculate the ratio of CEO pay to average director pay. Excluding one outlier, the smallest of these ratios was 4.21 in 1921, and the largest was 7.18 in 1903.⁶ Based on accounts of the time, we assumed that as the first chief executive, Mr Patton remained on £4,000 for 1887-1889. From 1890-1984, we construct a series of the likely range of chief executive earnings based on the minimum and maximum ratios of 4.21

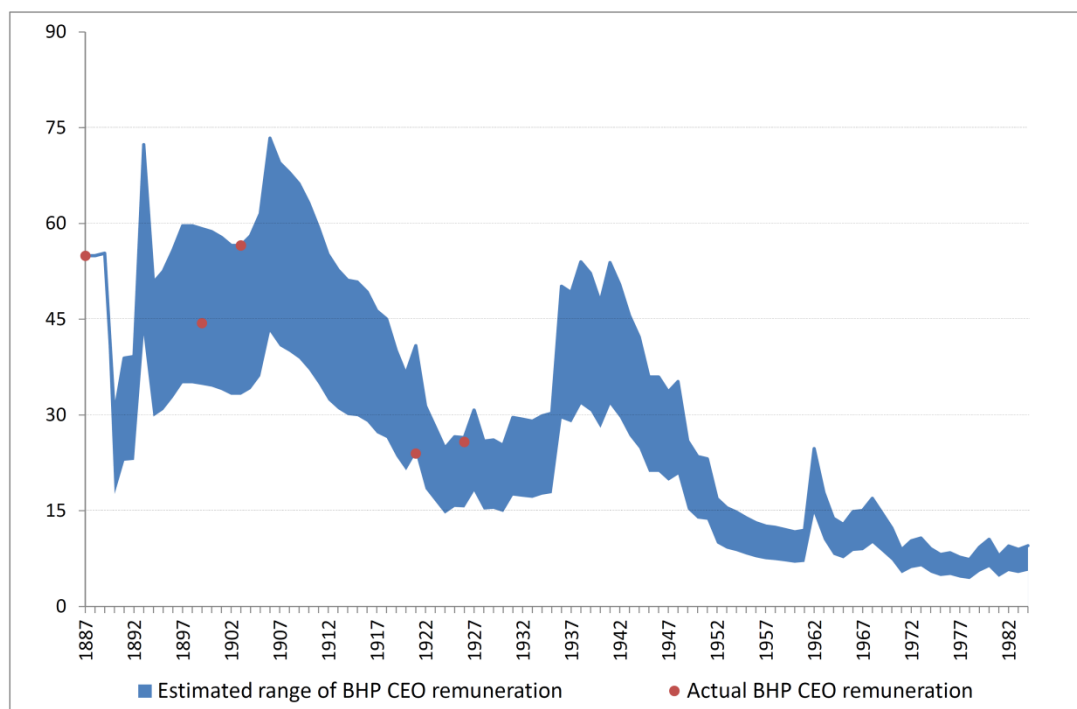
⁴ These earnings only measure remuneration paid to an average director by BHP, and so was not a limit to the total income than an individual serving as a BHP director could earn. Directors with sources of income other than their work on the BHP board would still have been able to earn more than the average employee.

⁵ The 1887 figure is from Trengove (1975, p. 16). The 1899 and 1903 figures are from Osborne (1981). The 1921 figure is from Blainey and Smith (1986). The 1926 figure is from Blainey (1971 p. 90).

⁶ The excluded outlier is the ratio of 30.34 in 1887, which was due to the atypically large salary paid to Mr. Patton to bring him to the job in Australia from the United States.

and 7.18.⁷ Actual CEO remuneration from 1987-2012 was substantially higher than this range (which is not unexpected given the substantial jump in director remuneration in the late 1980s observed in Figure 1). As a result, we first show in Figure 2 the estimated range from 1887-1984 (in order to allow for a clearer portrayal of variation in CEO remuneration) before showing it alongside the more recent data for the purposes of comparison in Figure 3.

Figure 2: BHP CEO remuneration (relative to average Australian earnings), 1887-1984



We estimate that after the very high earnings of Patton (around 55 times the average Australian earnings), the ratio of the BHP CEO's earnings to the average Australian earnings fell in the late-nineteenth century and then rose from around 25 to 45 in 1900. The ratio went still higher in the early-1900s, before declining to around 20 by 1930.

⁷ We estimate this range of likely CEO remuneration up until 1984. Beyond this point, executive director remuneration increases suddenly and substantially, and to the extent that CEO remuneration followed a similar trend, the method of estimating the likely range based on director remuneration is highly unlikely to be accurate.

On the assumption that CEO pay tracked average directors' pay, we estimate that relative BHP CEO remuneration rose again from the mid-1930s to the mid-1940s to around 40 times average earnings, before returning to the pre-World War II ratio of around 20 by 1950. From there, barring a short spike in the early-1960s, it trended steadily downwards for the next thirty years. Our estimates suggest that average earnings rose faster than the earnings of BHP's CEO during this period, such that by end of the 1970s, BHP's CEO earned around 6 or 7 times the average Australian earnings.⁸

For the period from 1987-2012 we used executive remuneration as reported in the company's annual reports.⁹ From 1987-1998, BHP reported remuneration of all executives, but gave ranges rather than specific values and did not identify the CEO. For this period, we have assumed that the highest-paid executive in each of these years was the CEO, and have been conservative in assuming that their remuneration was at the lower bound of the range stated in BHP's reports. Reports for this period do not distinguish between different components of remuneration, so we treat these figures as total remuneration for the purposes of comparison to data from 1999-2012. From 1999-2012, we have used total remuneration as reported by BHP.¹⁰ As CEO remuneration in this period incorporates cash payments, additional benefits,

⁸ It is worth noting that as these estimates are based on known values of CEO salaries up to 1926, the estimates for the 1980s are the most susceptible to measurement error. Another concern regarding the estimates' accuracy is that the change in director remuneration fluctuates more from 1960-1984 than from 1900-1944 or 1945-1959. For example, from 1900-1944 the mean and standard deviation of the growth in average director remuneration were 5.79% and 18.14%, and were -0.19% and 10.02% from 1945-59. By comparison, the mean and standard deviation were 15.74% and 36.33% from 1960-1984. Also, from 1945-59, the minimum and maximum changes -16.67% and 20.00%, as opposed to -25.97% and 139.51% from 1960-1984.

⁹ From 1987-1998, BHP reported remuneration of all executives, but gave ranges rather than specific values and did not identify the CEO. For this period, we have assumed that the highest-paid executive in each of these years was the CEO, and have been conservative in assuming that their remuneration was at the lower bound of the range stated in BHP's reports. Reports for this period do not distinguish between different components of remuneration, so we treat these figures as total remuneration for the purposes of comparison to data from 1999-2012. Note also that as the 1998 observation is an extreme outlier (being approximately \$11 million due to the inclusion of severance pay in total remuneration) it is excluded and the ratio for 1998 is instead calculated as the average of the 1997 and 1999 values.

¹⁰ The total remuneration reported in annual reports is based on the cash salary as well as the estimated values of non-cash remuneration in the form of incentives such as share options (an

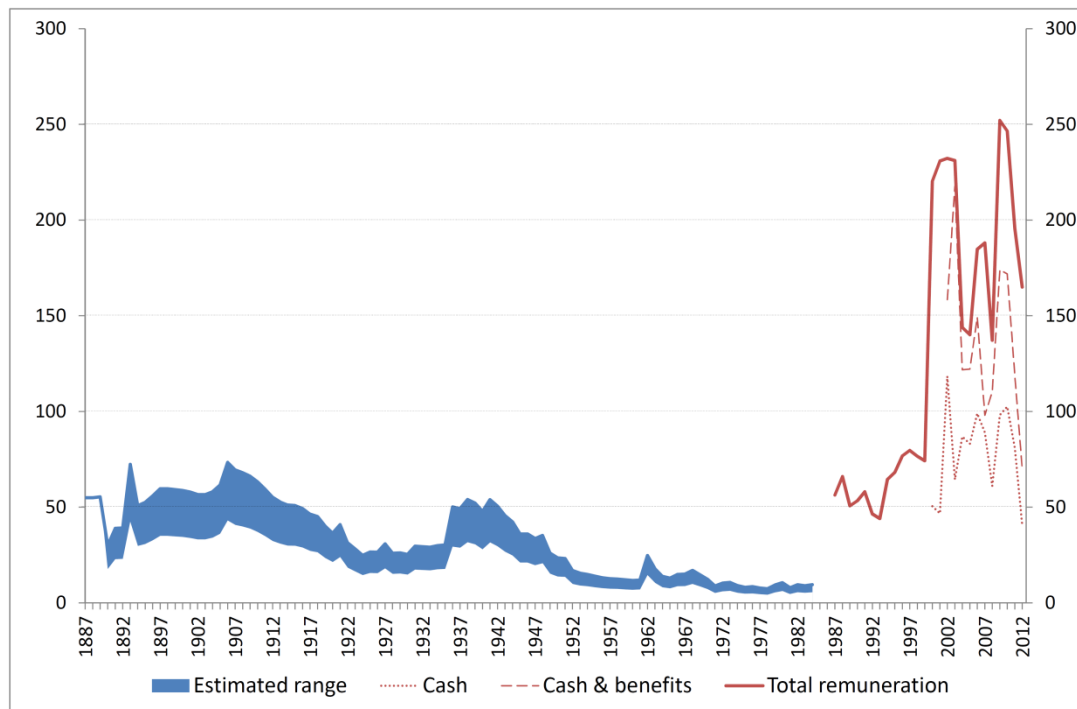
and long-term (at risk) incentives, from 1999 we show remuneration in three forms: (a) cash (including only salary and bonuses), (b) cash and benefits, and (c) total remuneration (which includes long-term incentives).¹¹

In Figure 3, these recent figures show a significant rise in the pay of BHP's CEO relative to the average Australian income. By the late-1980s, total CEO remuneration had returned to the ratio not seen since the start of the twentieth century, at or above 50 times average earnings. This rose to around 75 times average earnings by 1999. In the twenty-first century, when measuring cash remuneration only, CEO pay has fluctuated around this ratio. When incorporating benefits, the ratio has ranged from 100 to 150, and including long-term incentives shows CEO in this period range from 150 to 250 times average earnings. By any of these measures, the ratio of CEO remuneration to average earnings has exceeded the highest ratios previously seen at the beginning of the twentieth century).

Figure 3: BHP CEO remuneration (relative to average Australian earnings), 1887-2012

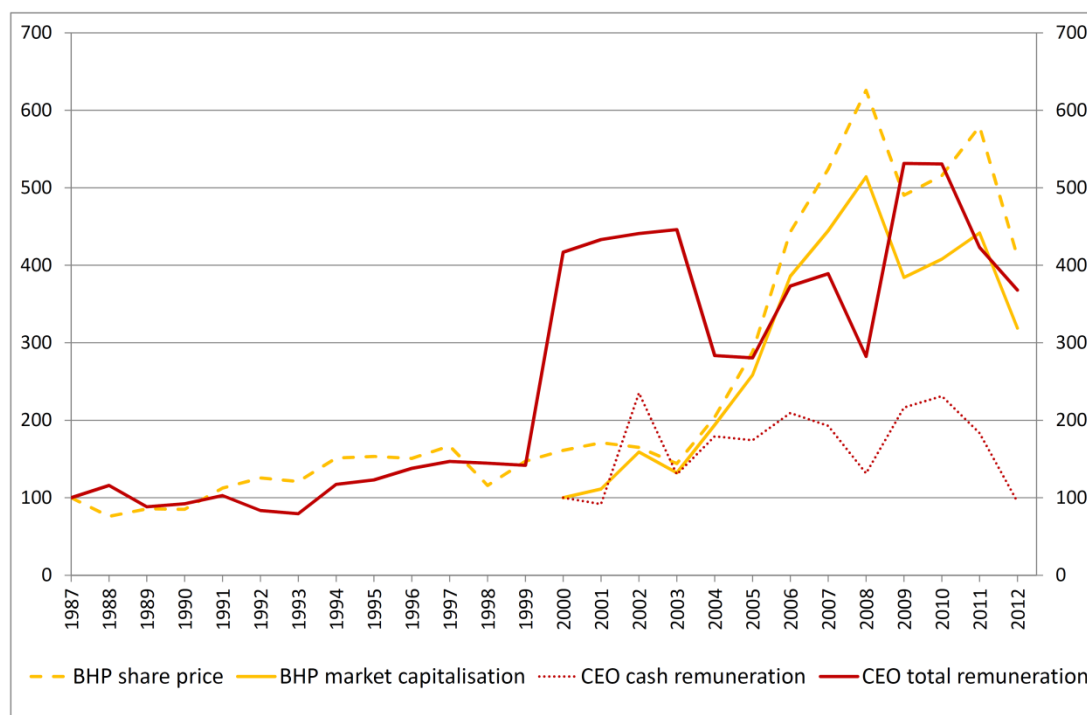
example of one common method for valuing stock options is through the use of the Black-Sholes pricing model). There is no guarantee of the accuracy of the estimates reported in the BHP annual reports. Valuation of share options, for example, may not accurately forecast the options' realised value. For more on this, and on reasons why such estimates may over- or under-estimate the realised value, see Productivity Commission (2009, pp. 45-7). For an example of BHP's methods for valuing incentives, see BHP Billiton (2012, pp. 149-156).

¹¹ Note that for comparison with data on average Australian earnings - which does not include superannuation contributions from employers - superannuation and retirement contributions from BHP to its CEOs (which averaged around \$600,000-\$700,000 per year for the last decade) are excluded from this data.



The substantial increase in total remuneration from 1999 to 2000 is reflective of the Productivity Commission's (2009, pp. 83, 110) finding that incentives were utilised increasingly in the 1990s, and that the internationalisation of the market for CEOs saw Australian CEO remuneration increase. That BHP wanted a CEO of high calibre from the international market is shown by a clear statement in the 1999 Annual Report by then Chairman of the Board of Directors, Don Argus, who identified 'finding world class executives with the requisite experience to lead and reshape BHP' as being 'one of [the Board's] most important tasks for the year'. The increase in remuneration upon hiring of Paul Anderson (and the incentives offered to Mr Anderson as CEO during the restructure and merger of the company as it transformed into BHP Billiton) suggests they were willing to pay a substantial premium for that 'world class' experience.

Figure 4: Indices of CPI-adjusted value of BHP CEO total remuneration (1987 = 100), cash remuneration (2000 = 100), BHP share price (1987 = 100), and BHP market capitalisation (2000 = 100).

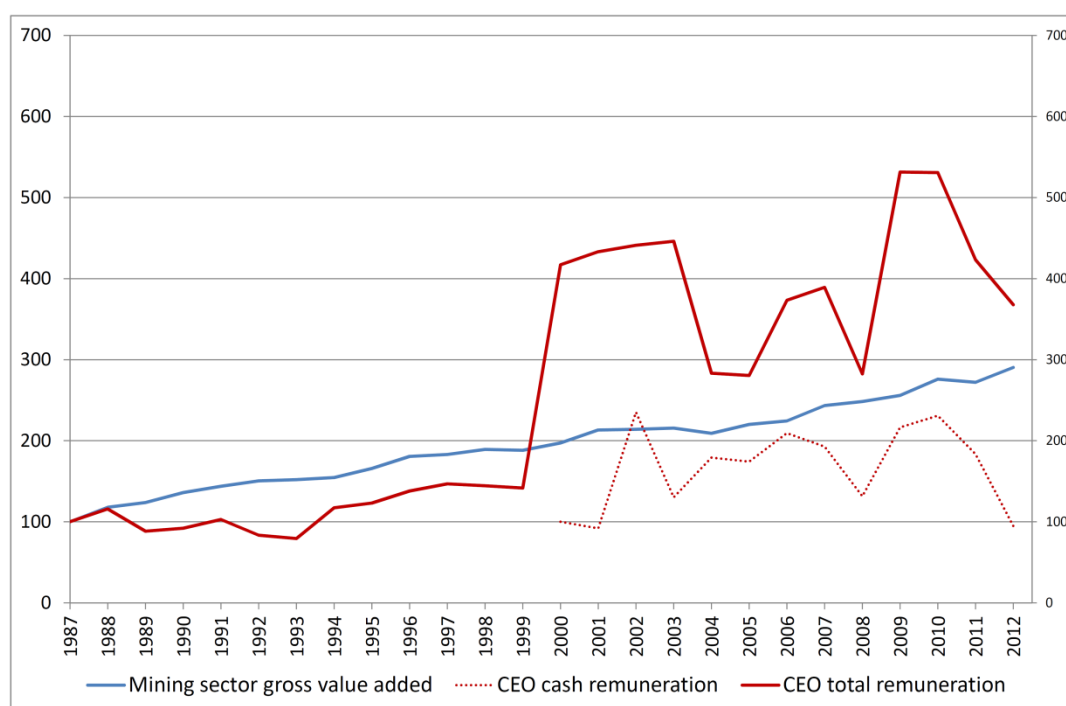


To compare trends in real growth, Figure 4 shows indexed measures of BHP's CEO total and cash remuneration (CPI-adjusted) compared to BHP's CPI-adjusted share price and market capitalisation, and Figure 5 shows the same measures of remuneration compared to the gross value added by Australia's mining sector.¹² The real growth in BHP CEO remuneration approximately tracks that of the company's share price, with total remuneration growing on average 3.18% per year faster than the share price (from 1987-2012), compared to cash remuneration, which grew on average 0.82% per year slower than the share price (from 2000-2012). CEO total and cash remuneration grew on average 10.41% and 3.14% per year slower than market capitalisation (from 2000-2012). Remuneration also outstripped growth in the mining sector's gross value added, with both total and cash remuneration increasing on average 6.75% per year faster than gross value added (from 1987-2012 for total remuneration and from 2000-2012 for cash remuneration).¹³

¹² Mining gross value added is the chain volume measure from Table 5 of the Australian Bureau of Statistics (2012). BHP AU Equity share price data and market capitalisation are from Bloomberg.

¹³ While the ABS uses an industry-specific deflator to calculate the mining sector's gross value added, comparing this to the CPI-adjusted remuneration is appropriate in terms of comparing the purchasing

Figure 5: Indices of CPI-adjusted value of BHP CEO total remuneration (1987 = 100) and cash remuneration (2000 = 100), compared to the gross value added of the Australian mining sector (1987= 100).



CEO remuneration also grew faster than average incomes in the mining sector as a whole.

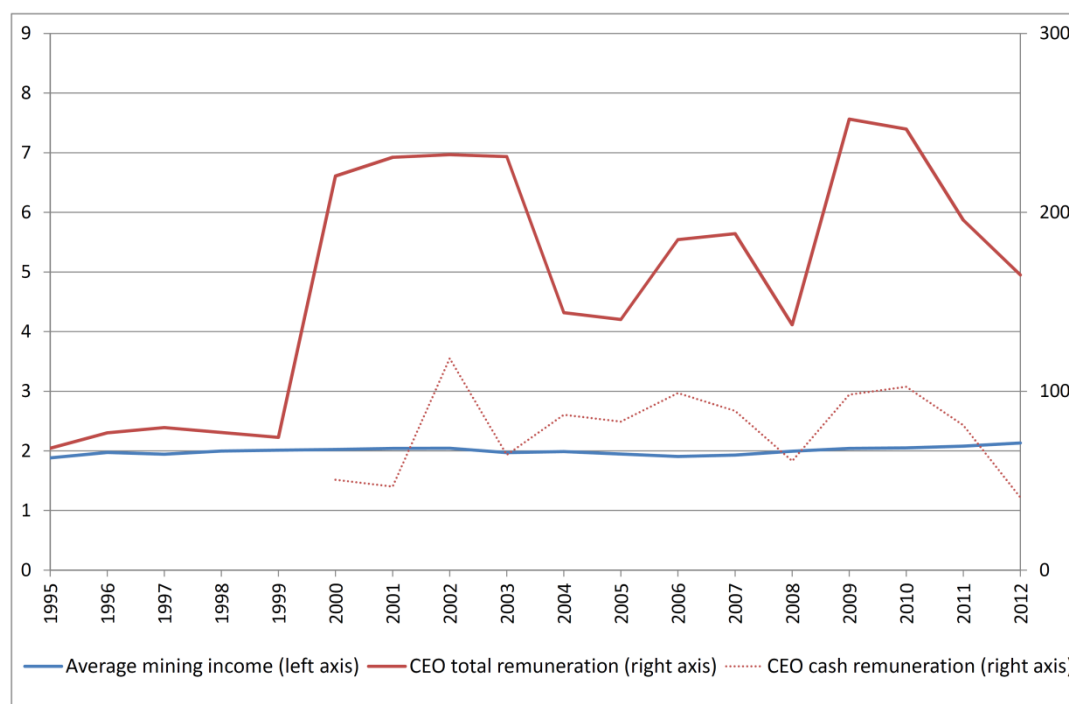
Figure 6 shows BHP total remuneration, cash remuneration and average remuneration in the mining sector, from 1995-2012, relative to average Australian income.¹⁴ Relative to the average Australian earnings, cash remuneration for the CEO of BHP grew on average 8.12% per year faster than average mining income (from 2000-2012), and total remuneration grew on average 14.55% per year faster than the earnings of the average mining sector employee

power of remuneration to growth in the real value of output specific to the mining industry. Deflating mining output by CPI shows total remuneration increased on average 5.07% per year faster than mining output, while cash remuneration grew on average 2.42% per year slower than mining output.

¹⁴ Mining sector income is from table 10 of Australian Bureau of Statistics (2013), measuring average weekly total earnings of persons employed in the Australian mining industry.

(from 1995-2012). Throughout the period, average mining sector pay remained at or around twice the average Australian earnings, with an average annual change of just 0.75%.

Figure 6: BHP CEO total remuneration, cash remuneration, and the average earnings in the mining sector (each relative to average Australian income), 1995-2012



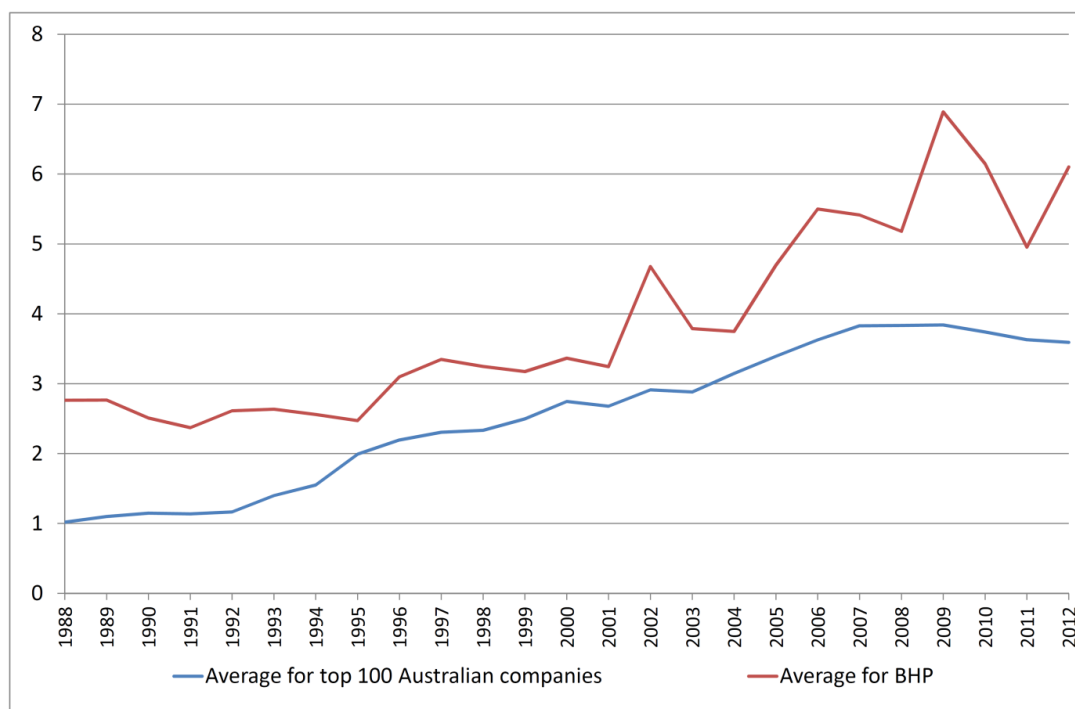
3. Benchmarking against other series

3.1 Comparison with CEO other Australian companies

As Australia's biggest company, and as a company involved in a booming mining sector, it is conceivable that the recent increase in BHP CEO and director remuneration might not be representative of trends in other Australian companies. To test this, Figure 7 plots data provided by Egan Associates on the average remuneration of the top five non-executive directors in the top 100 Australian companies (excluding the Chair of the Board of Directors) against the average remuneration of BHP's top five non-executive directors (excluding the Chair of the Board of Directors). Both are measured relative to the average earnings of all Australians. From 1988 to 2012, average BHP director remuneration relative to average

Australian earnings at BHP increased from 2.76 to 6.10 (an increase of 221%), while average director remuneration in the top 100 companies rose from 1.02 to 3.59 times average earnings (an increase of 352%). Thus while BHP directors were remunerated better than the average for the top 100 firms, their pay grew slightly more slowly over this period, albeit from a higher base. Nonetheless, the analysis suggests that the increase in BHP director remuneration is not uncharacteristic of trends in Australia as a whole.

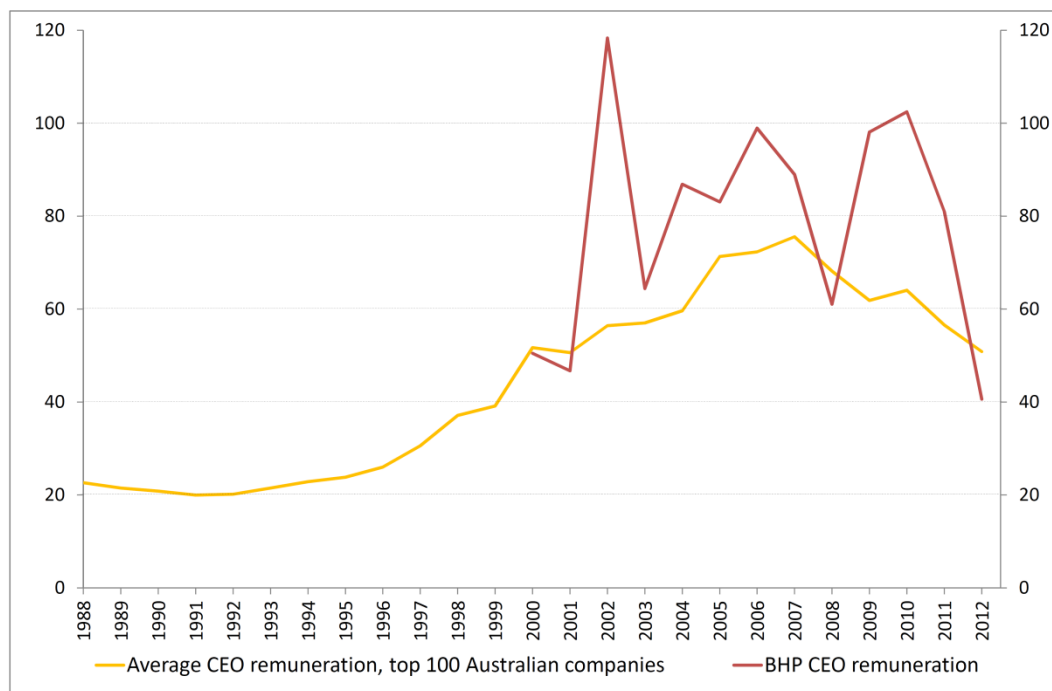
Figure 7: Average remuneration of top five non-executive directors excluding the chair, (relative to average Australian earnings), 1988-2012



We then perform a similar comparison for CEO pay. Figure 8 plots BHP's CEO remuneration alongside data provided by Egan Associates on the average CEO remuneration from the top 100 companies in Australia from 1988-2012. Both are measured relative to average Australian earnings. Egan Associates' data on average CEO remuneration includes only cash salaries and bonuses, so we use the same measure for BHP CEOs. This means we must exclude BHP data for 1988-1998, since the company did not separately report cash

remuneration from salaries and bonuses in those years (though this data follows the same general trend).

Figure 8: BHP CEO remuneration and average CEO remuneration among the top 100 Australian companies (both relative to average earnings), 1988-2012



Because the analysis in Figure 8 focuses only on cash salaries and bonuses, the BHP pay ratio is between 40 and 120 times average earnings (recall that the total remuneration measure in Figure 3 was between 70 and 250 times average earnings). Not surprisingly, because we are focusing on a single large company, the ratio of CEO pay to average pay is higher for BHP, and also more volatile. On average, across the top 100 Australia companies, CEO pay rose from 22.62 times average earnings in 1988 to 75.55 times average earnings in 2007, before falling to 50.84 times average earnings in 2012. The comparison suggests that the high BHP

CEO remuneration of the twenty-first century is, like the remuneration of its directors, not uncharacteristic of the Australian market as a whole.

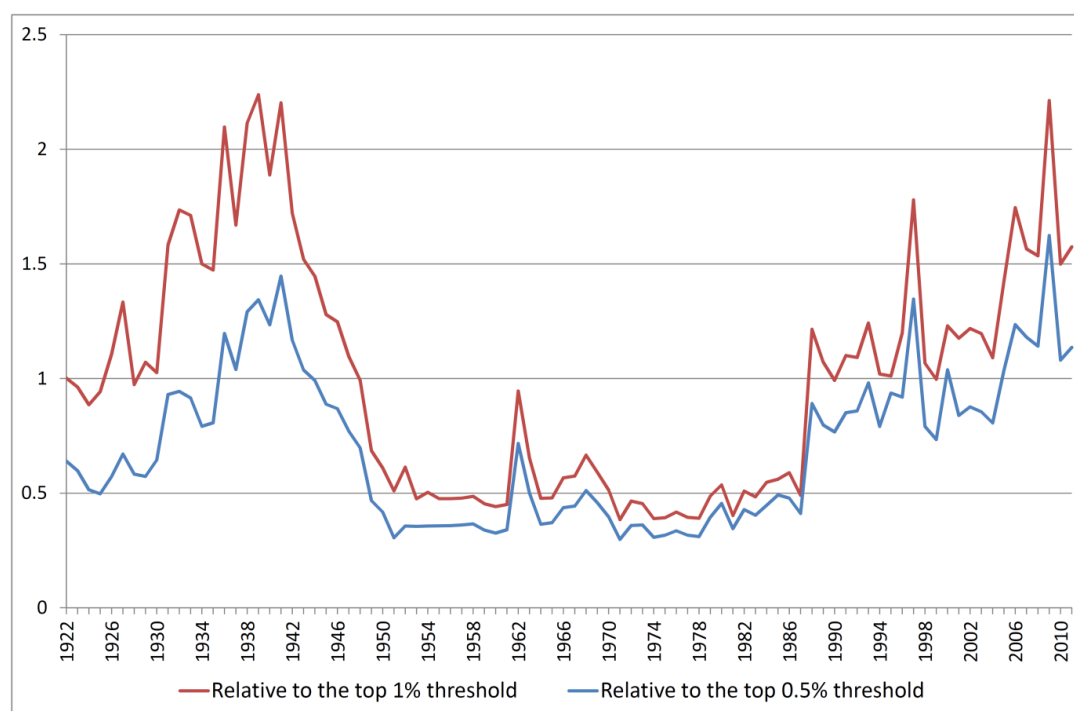
Taken together, Figures 7 and 8 suggest that trends in BHP director and CEO remuneration in the late-twentieth and early-twenty-first centuries are broadly consistent with those for the top 100 Australian companies. This gives us greater confidence that in addition to telling the story of BHP CEO remuneration, our 126-year series is also characteristic of trends in long-run executive pay ratios in general.

3.2 Comparison with top incomes

Figure 9 plots the average income of a BHP director as a ratio of the minimum incomes required to enter the top 1 percent and 0.5 percent of Australian income earners, as estimated by Atkinson and Leigh (2007), from 1922-2011.¹⁵ For most of the 1930s and 1940s, the average income of a BHP director increased sufficiently to see them retain an income equal to or greater than that required to enter the top 1 percent, and even break through into the top 0.5 percent.

¹⁵ The top incomes data contains observations for the year beginning 1 July from 1921-2010, which we match to BHP remuneration data for the financial year ending 31 May 1922-1999, and for the financial year ending 30 June 2000-2011.

Figure 9: Average BHP director income relative to the minimum incomes required to enter the top 1 and 0.5 percent of Australian income earners, 1922-2011



For example, in 1922 the average director's income of (£764.29) was virtually identical to the cutoff for the top 1 percent (£763), but fell short of the cutoff for the top 0.5 percent (£1,194) with a ratio of only 0.64. From 1936 to 1943, the average income of a BHP director was at least as much as was required to enter the top 0.5 percent of income earners in Australia. The decline in average director remuneration from the mid-1940s saw the ratio of that pay to the cutoffs for both the top 1 percent and 0.5 percent fall to around or below 0.50 for most of the following three decades, with only a short spike in the early- and late-1960s. By 1981, average BHP director's earnings (\$13,375) had fallen to almost two-fifths of the cutoff for the top 1 percent (\$33,266).

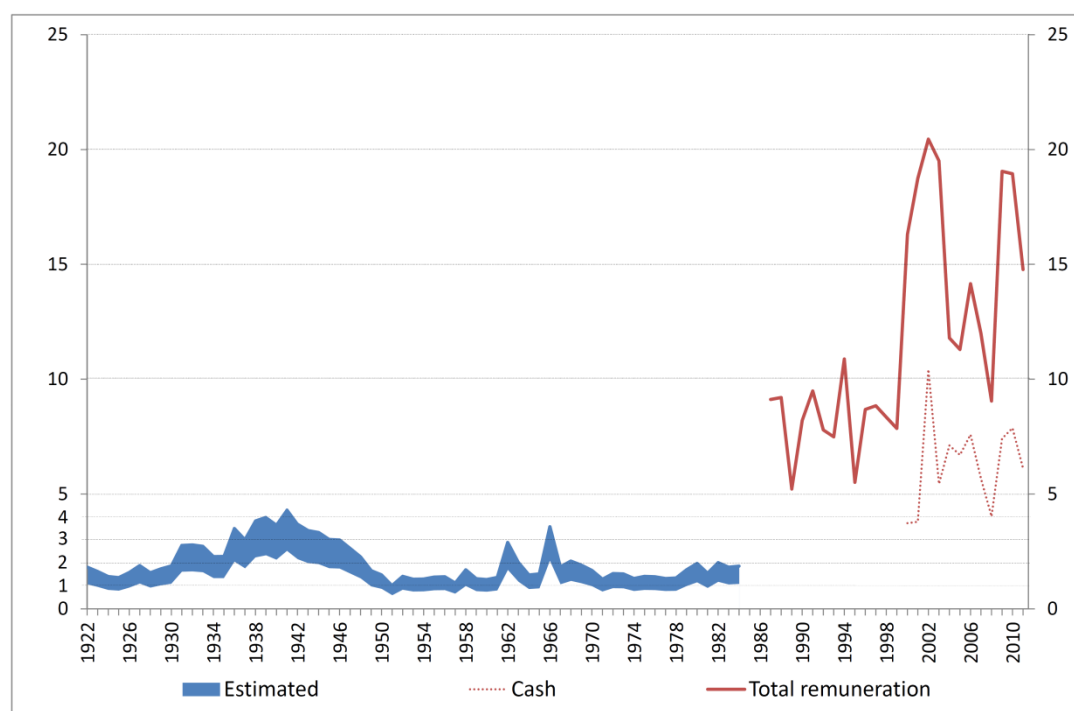
In the late-1980s, BHP director pay quickly outpaced that of other high-earning groups. For almost the entire time since 1988, BHP directors have been paid enough to put them in the

top 1 percent, and since 2005, BHP directors' remuneration has put them in the top 0.5 percent. By 2011, average remuneration of non-executive BHP directors (\$330,785.58) was 1.57 times the cutoff for the top 1 percent (\$210,121), and 1.14 times the cutoff for the top 0.5 percent (\$291,217). The average BHP director's remuneration now comfortably places them in the top 0.5 per cent, a situation not seen since World War II.

A particularly striking change that we observe is the changes in pay ratios from 1978 (when, as Figure 1 showed, a BHP director was paid almost exactly the same as an average worker) to 2012 (when a BHP director was paid enough to comfortably put them into the top 0.5 percent). It is possible that such a shift was accompanied by some reduction in other sources of income garnered by directors (e.g. perhaps BHP directors served on fewer boards in 2012 than 1978), but the change is so large that it is hard to see how other factors could offset it and, given the similar growth in director remuneration across Australia's top 100 companies (see Figure 6), it seems likely that this is representative of a broader increase in inequality between average workers and company directors.

Moving from directors to CEOs, Figure 10 plots BHP CEO income as a ratio of the minimum income required to enter the top 0.1 percent of Australian income earners, as estimated by Atkinson and Leigh (2007). It suggests that BHP CEOs have rarely earned much less than the amount required to be in the top 0.1 percent. For most of the period from 1922-1985, their incomes were between 1 and 3 times the cutoff for the top 0.1 percent. Since 2000, BHP CEO income has ranged from around 4 to 10 times the cutoff for the top 0.1 percent when measuring only salary (including bonuses), and from 10 to 20 times the cutoff when measuring total remuneration.

Figure 10: BHP CEO remuneration relative to the minimum income required to enter the top 0.1 percent of Australian income earners, 1922-2011

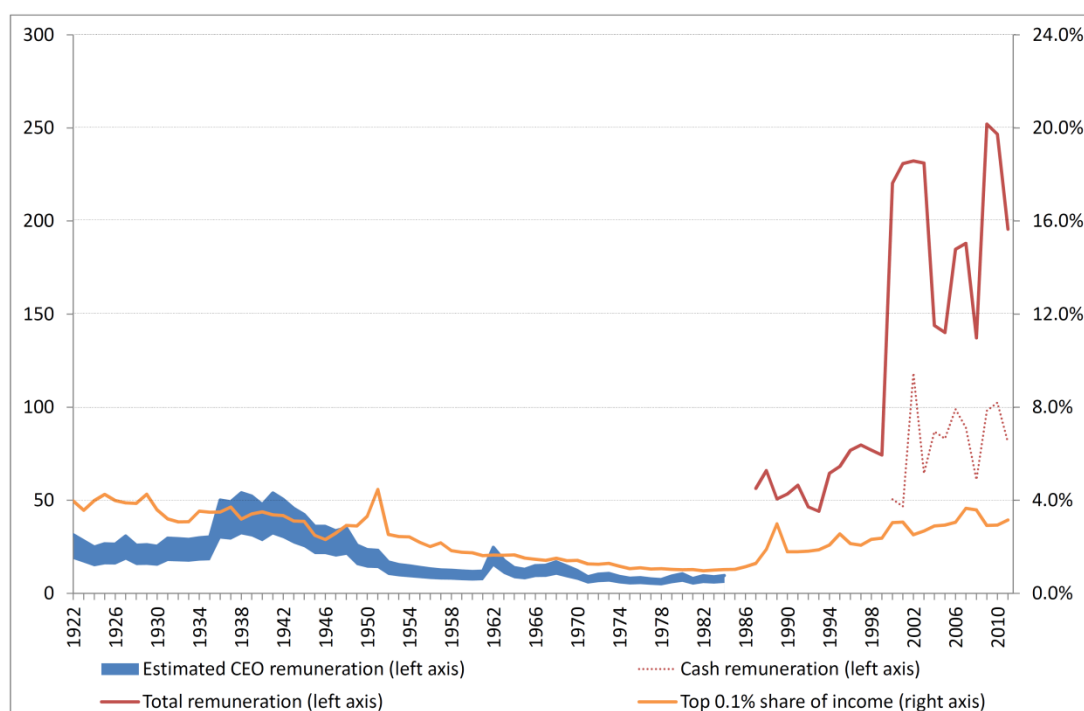


In Figures 9 and 10, we have compared BHP directors' and CEOs' remuneration to the cutoff necessary to enter top income groups. This effectively answers the question: 'where did BHP executives rank in Australian society?'. Another way of analysing the data is to compare the ratio of BHP CEO pay to average income (from Figure 2) with top income shares. This effectively compares two measures of inequality, posing the question: 'did executive pay ratios track Australian top income inequality?'

To answer this alternative question, in Figure 11 we plot the ratio of BHP CEO pay to average Australian earnings, and the share of total household income earned by the 0.1 percent of Australians, as estimated by Atkinson and Leigh (2007). Both series are U-shaped, and follow a similar downward trend from the 1950s to 1970s. However, the modern-day rise in BHP CEO pay is much greater than the increase in the income share of the top 0.1 percent.

One way to see this is to compare the 2000s with the 1920s. While the income share of the top 0.1 percent of income earners in Australia by the end of 2011 was a little lower than the mid-1920s peak of around 4%, BHP CEO remuneration was far higher than it had been at any point in the firm's history.

Figure 11: BHP CEO remuneration (relative to average Australian earnings) and income share of the top 0.1% of Australian income earners, 1922-2011



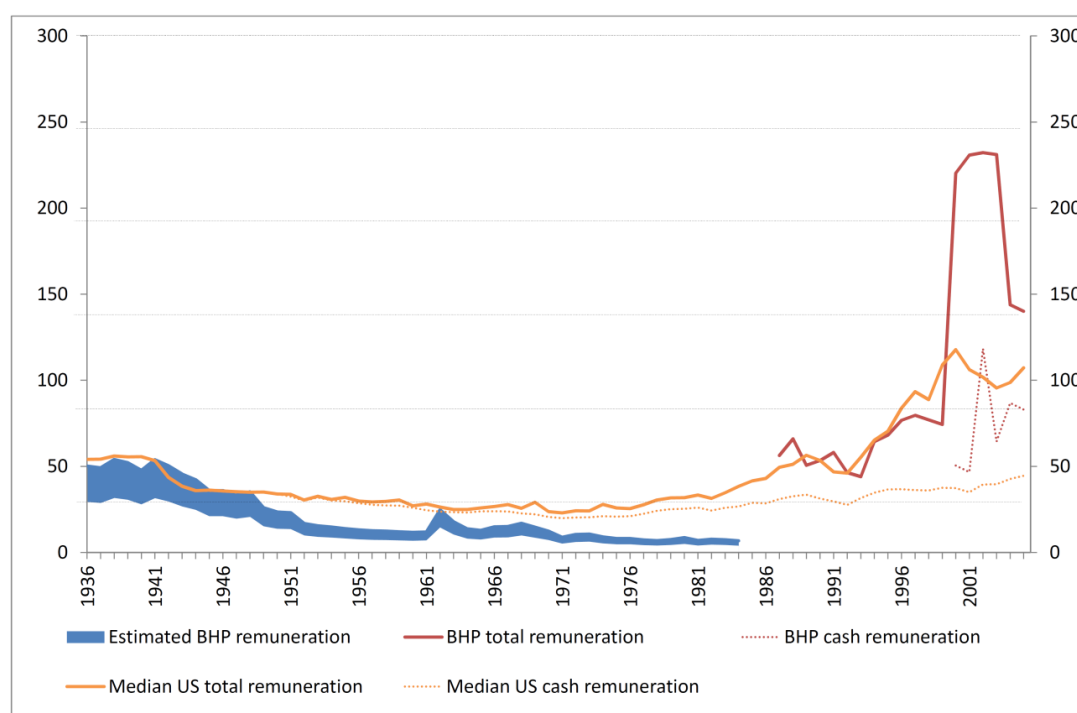
3.3 Comparison with Frydman-Saks data on remuneration of top US executives

Finally, we look at how the gap between executive pay and average pay in Australia compares with the United States. In Figure 12, we plot our estimates alongside the ratio of US executive remuneration in the top 50 firms to average earnings.¹⁶ Both BHP and US CEO remuneration are shown measuring salary (including cash bonuses) and total remuneration (comprising salary plus benefits and long-term incentives). Comparable data are available

¹⁶ Based on estimates of the median earnings of the top three officers in the top 50 firms in the US from 1941-2005, from Frydman and Saks (2010).

from 1936 to 2005. Both the US data and our estimates of BHP CEO income follow similar broad trends, with executive pay in both countries outpacing average earnings from World War II until the late-1970s (the so-called ‘great compression’). From the 1930s, the ratio of US CEO total remuneration to average pay fell from a peak of 56.07 to a low of 22.97 in the 1969, while the ratio of BHP CEO total remuneration fell from around 40 to around 10. After a period of stability in the 1970s, both series show a sharp increase in recent decades. From 1981 to 2005, the ratio of US CEO total remuneration to average pay rose from 31.83 to 107.21, while the ratio of BHP CEO total remuneration to average pay rose from to around 10 to 140.08.

Figure 12: BHP CEO remuneration and median earnings of top three executives of top 50 US firms (both relative to average earnings), 1887-2012



4. Conclusion

Through extensive analysis of the archival records of BHP, one of Australia's oldest and largest companies, we have uncovered new evidence that helps to paint the picture of long-run trends in inequality.¹⁷ Comparing the salaries of BHP directors and CEOs with those of average Australians, we find that top earnings rose from the 1880s to the 1910s, then fell steadily (with the exception of World War II itself) until the 1970s. From the 1980s to the 2010s, top corporate earnings have risen markedly, and are now at or above their level in the early-twentieth century.

Comparing trends in BHP executive pay with pay in the top 100 Australian firms (available since the late-1980s), we find quite similar patterns. The same is true when we compare our BHP executive pay series with remuneration in the top 50 US firms (available since the early-1940s). We also analyse top incomes data (available since the early-1920s), and find that while both executive pay ratios and top income shares follow a U-shaped pattern, the recent rise in Australian executive pay has outpaced the rise in top income shares.

What explains these trends? Given the commonality between BHP executive salaries and those in the broader Australian corporate sector (and indeed, the US corporate sector), explanations must go beyond those that affect BHP alone. The rise in BHP CEO salaries predates the twenty-first century mining boom, and outstrips growth in average mining sector value-added. And while total remuneration closely tracks the BHP share price (as is to be expected given the dependence on long-term incentives on the value of the company's stocks), changes in cash remuneration cannot be fully explained by variation in BHP's share price.

In our view, three explanations account for most of the growth in Australian executive pay. First, our largest firms have grown larger, so CEOs and directors end up being paid more to

¹⁷ For an analysis of inequality in Australia over more than two centuries, see Leigh (2013).

take on greater responsibility. In effect, mergers increase remuneration at the top of a firm, but not for the average employee. Evidence from the US shows this link between pay and firm size quite clearly, while Australian studies have noted similar trends in firm size (Gabaix and Landier 2008). For example, from 1987 to 2007, the top 20 firms grew more than twice as fast as the rest of the Australian share market (Productivity Commission 2009, p. 56). This explanation would also account for the substantial growth in BHP CEO remuneration (whether measured as cash or total remuneration) relative to growth in average incomes in the mining sector overall.

Second, as the market for English-speaking executives has become more integrated, and recruitment panels have sought out international expertise, salaries in Australia have been benchmarked against those in the United States. The labour market integration effect can be seen in the fact that top income shares have risen faster in English-speaking countries than in non-English speaking countries, and that in Canada, top incomes have risen more slowly in the French-speaking province of Quebec (Leigh 2013; Saez and Vaell 2005). The clearly stated intention of BHP in 1999 that they were seeking ‘world class’ experience and the subsequent jump in remuneration suggests that was a contributing factor in the more recent rapid increase in CEO remuneration - one which is reflected in trends in Australian executive pay in general.

Third, Board committees have played a part in boosting top income shares. While firms have looked in many places for savings, they have traditionally been reluctant to reduce costs by hiring a cheap CEO. In a 2009 survey, firms were asked how much they would be prepared to pay for a CEO. About 45 percent of firms said they would pay above-median, about 50 percent would pay the median, and about 5 percent would pay below-median (Peetz 2010). Even absent such a ‘Lake Wobegon effect’, remuneration committees have tended to take the

view that increased incentive payments make it necessary for firms to raise base remuneration, and less job security makes it necessary for firms to increase severance payouts. Again, these shifts have acted to boost total CEO pay.

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