INFLATION

INFLATION SET TO PEAK IN LATE 2022 THEN MODERATE THROUGH 2023 AND INTO 2024

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Westpac Institutional Bank

November 2022

Breakdown of Q3 CPI to WBC forecast

1.8%

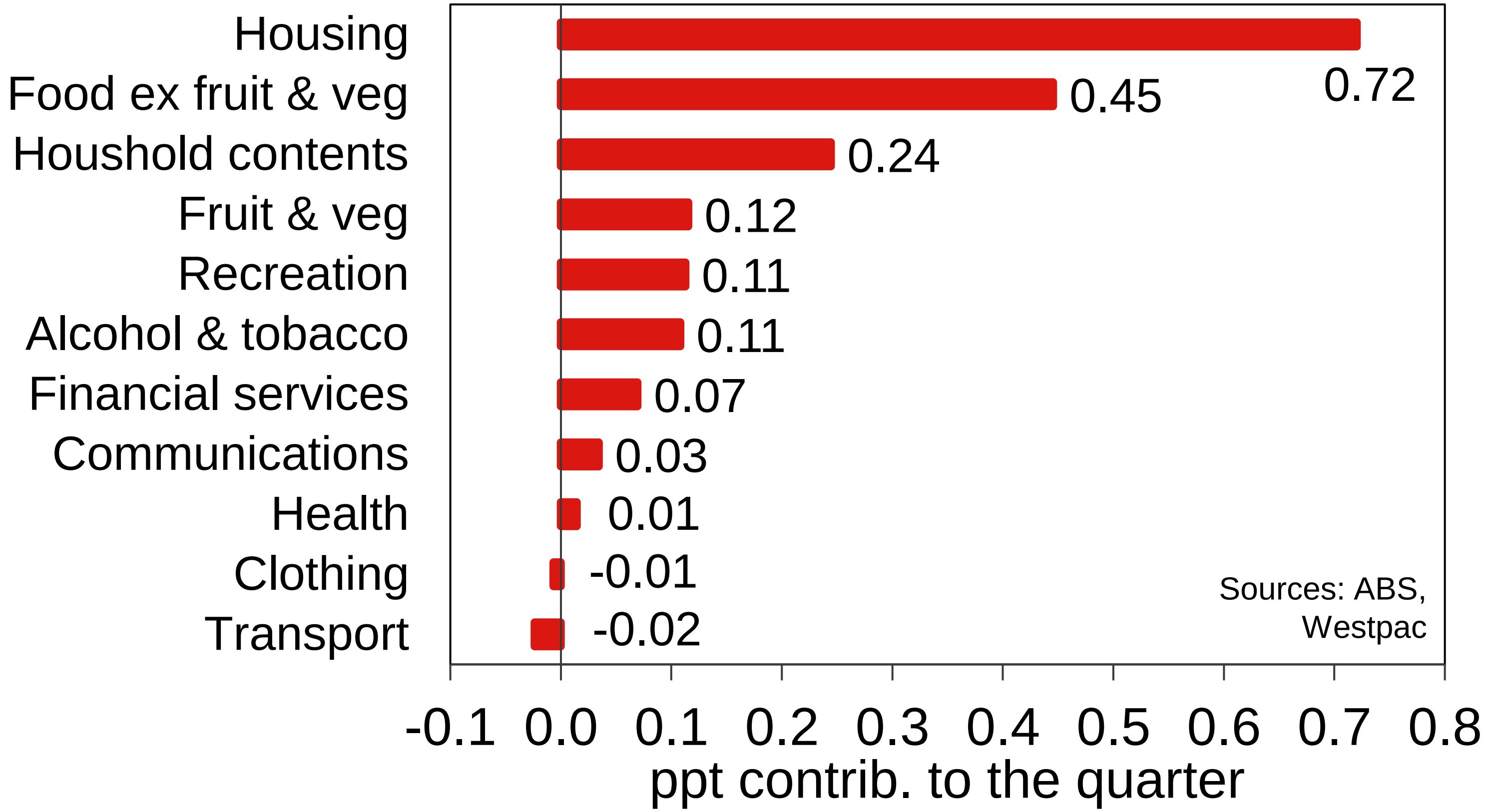
Housing, the main contributor (0.75ppt) even with the state governments' energy & cost of living rebates.

Broader price gains elsewhere boosted the outcome.

CPI forecasts Item	Sep-22 Actual % qtr	contrib	Sep-22 Forecast % qtr	contrib
Food	3.2	0.56	2.3	0.39
of which, fruit & vegetables	4.5	0.11	4.9	0.12
Alcohol & tobacco	1.2	0.11	1.8	0.17
of which, Tobacco	0.9	0.04	1.9	0.07
Clothing & footwear	-0.2	-0.01	-0.7	-0.02
Housing	3.2	0.75	0.5	0.12
of which, Rents	1.3	0.09	1.0	0.07
of which, House purchases	3.7	0.31	4.0	0.33
of which, Utilities	4.8	0.22	-8.6	-0.39
H/hold contents & services	2.8	0.25	2.4	0.22
Health	0.3	0.02	0.3	0.02
of which, Pharmaceuticals	-1.9	-0.02	-0.9	-0.01
Transportation	-0.4	-0.04	-0.5	-0.05
of which , car prices	0.5	0.01	2.1	0.05
of which, auto fuel	-4.3	-0.15	-4.7	-0.17
Communication	1.4	0.03	-0.7	-0.02
Recreation	1.3	0.12	3.3	0.28
of which, audio visual & computing	0.6	0.01	0.7	0.01
of which, holiday travel	4.0	0.09	9.8	0.21
Education	0.0	0.00	0.0	0.00
Financial & insurance services	1.3	0.07	0.6	0.03
CPI: All groups	**1.82**	–	**1.11**	–
CPI: All groups % year	**7.3**	–	**6.5**	–

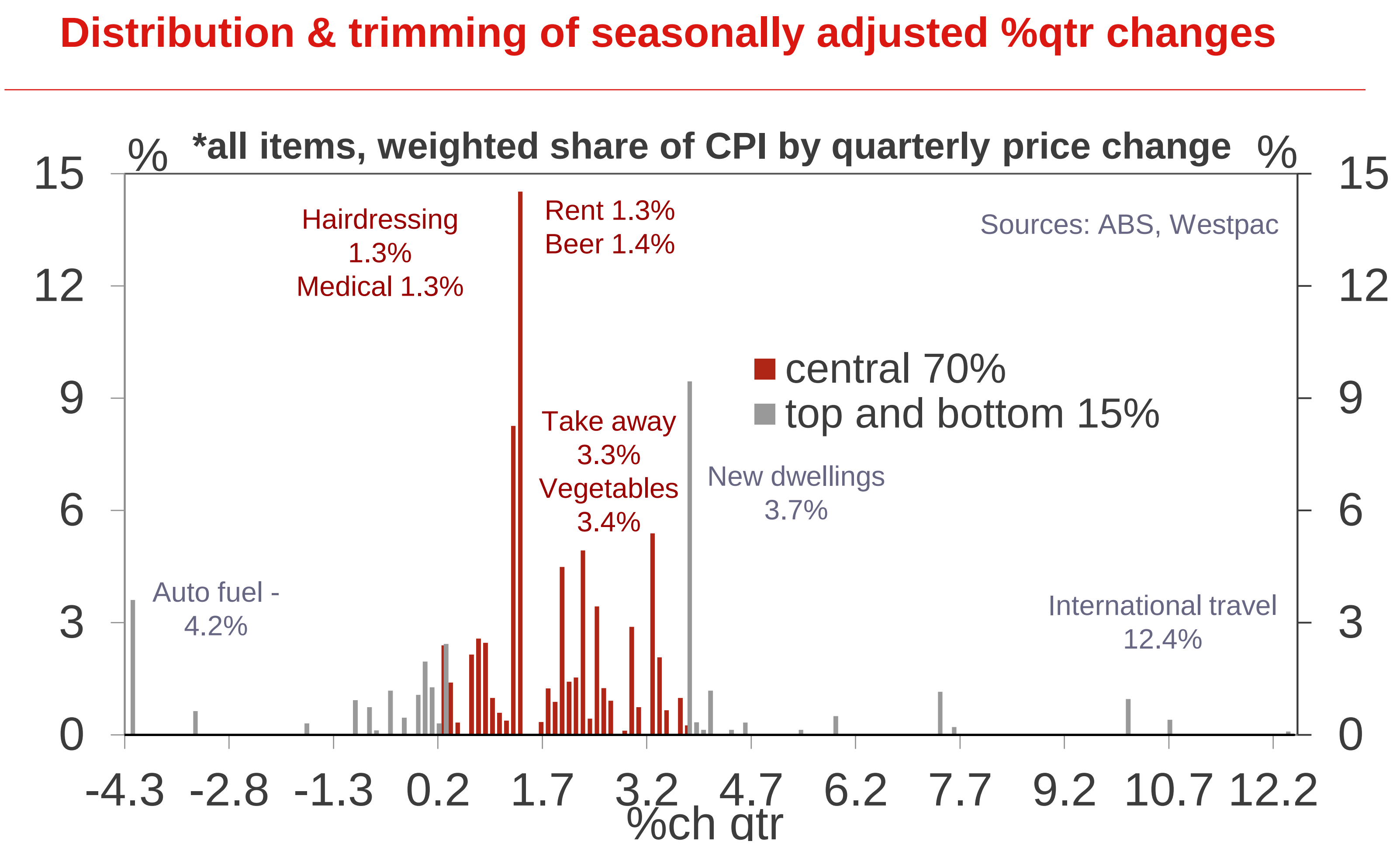
Contributions to 2022Q2 CPI 1.7%qtr forecast

Housing again the critical component but food is not far behind



- The 1.8% September print was significantly greater Westpac's 1.1% forecast and higher than the market's 1.6%.
- The main difference between our forecast and the print was the +3.6% in electricity prices; Westpac had forecast a -17% fall due to the state government rebates. Not only did we overestimate the impact of the rebates we underestimate the 25% increase in Sydney power bills.
- The ABS estimates that excluding the rebates electricity prices would have risen 15.6% in the quarter.
- The annual pace lifted from 6.1% to 7.3%, the fastest pace since June 1900 (7.7%yr) and significantly faster than the 5.0%yr pace at the peak of the mining boom (September 2008).
- The most significant rises were for food (3.2% vs 2.3% WBC), dwellings (3.7% vs 4.0% WBC), utilities (4.8% vs WBC -836%) and household contents & services (2.8% vs WBC 2.4%).

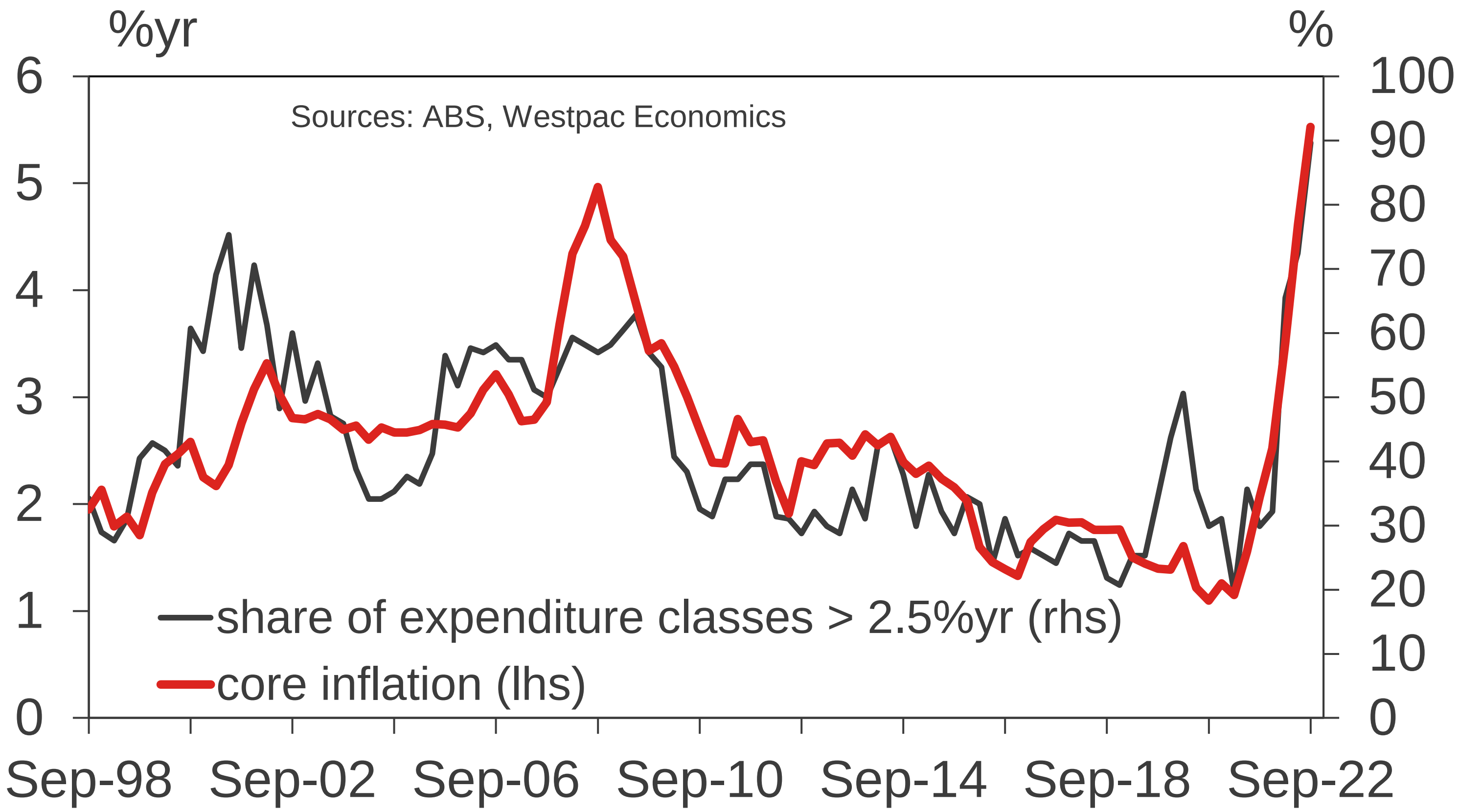
Broad based price pressure reflected in core



- A broad inflationary pulse was captured by a 1.8% gain in the Trimmed Mean; the largest quarterly increase since December 1990.
- The lower 15% trim starts at 0.3%. Trimmed are; auto fuel (-4.3%), games, toys & hobbies (-3.4%), womens' footwear (-1.7%), other rec. & sporting (-1.1%), lamb & goat (-0.9%), household textiles (-0.9%), mens' footwear (-0.7%), audio visual & comp. (-0.6%), deposit & loan (-0.3%), womens' garments (-0.1%), wine (-0.1%), pharmaceuticals (0.0%), books (0.1%), electrical appliances (0.2%), tertiary education (0.2%), and accessories (0.3%).
- The top 15% trim starts at 3.7%. Trimmed are; furniture (3.7%), new dwellings (3.7%), ice cream (3.8%), breakfast cereals (4.0%), carpets & floor coverings (4.1%), snacks (4.1%), spreads (4.4%), cheese (4.6%), eggs (5.3%), urban transport (5.9%), fruit (7.3%), oils & fat (7.6%), gas & fuels (10%), milk (10.7%) and international holidays (12.3%).

Inflationary pressures continue to spread

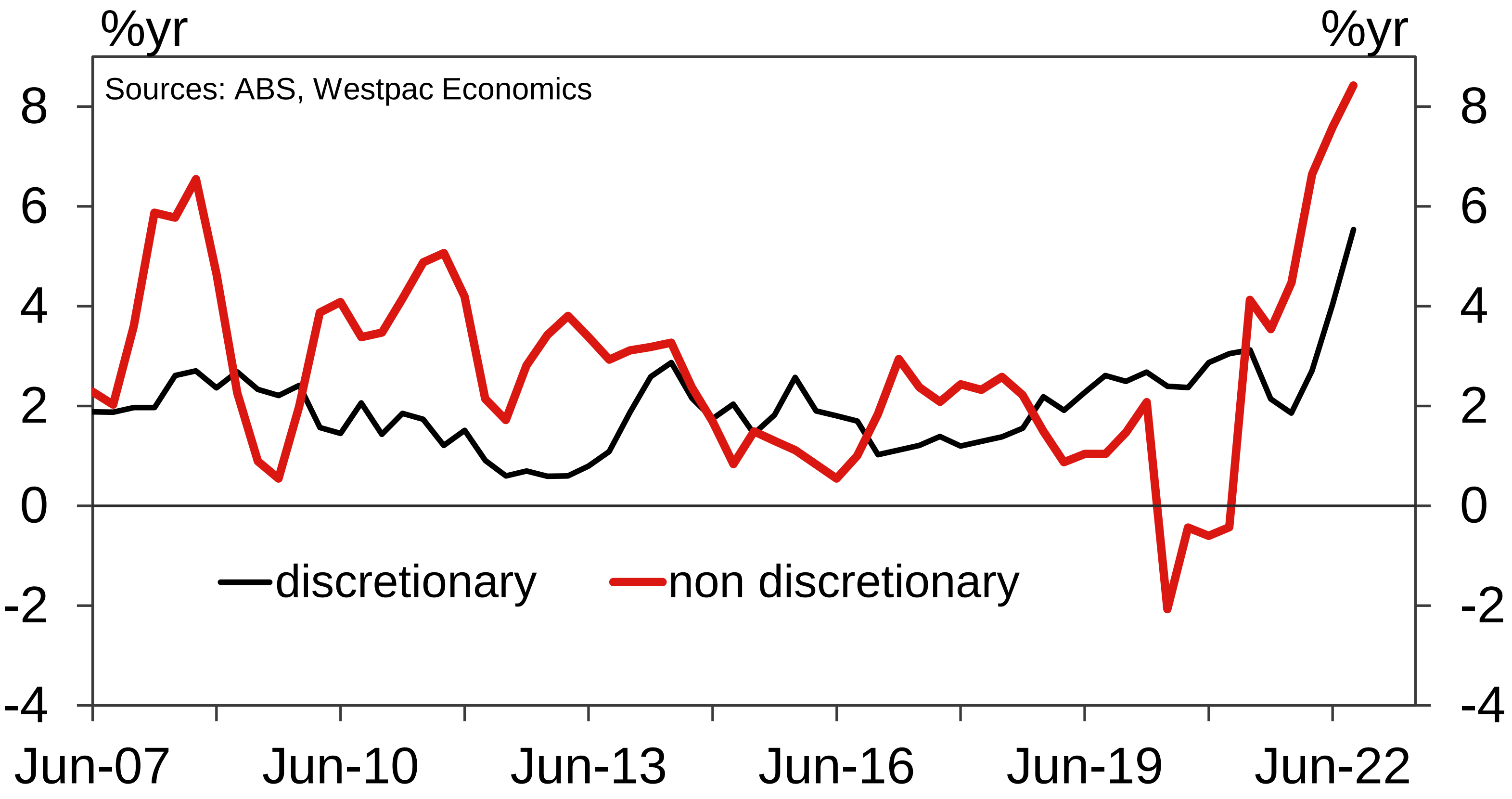
The number of sectors running faster than 2.5%yr in increasing



- Just how widespread the inflationary pulse is is further emphasised by the rise in the share of components running faster than 2.5%yr.
- From a low of 32.2% in December 2021 it lifted to 65.5% in March 2022, 72.4% in June then to 89.7% in September.
- This is the largest share since September 1989 when it was 90.9%.
- There is no doubt the most recent accelertion in inflation is not just an energy or housing issue but rather is based on broad spread of faster than usual price gains.

Non discretionary prices have led the charge

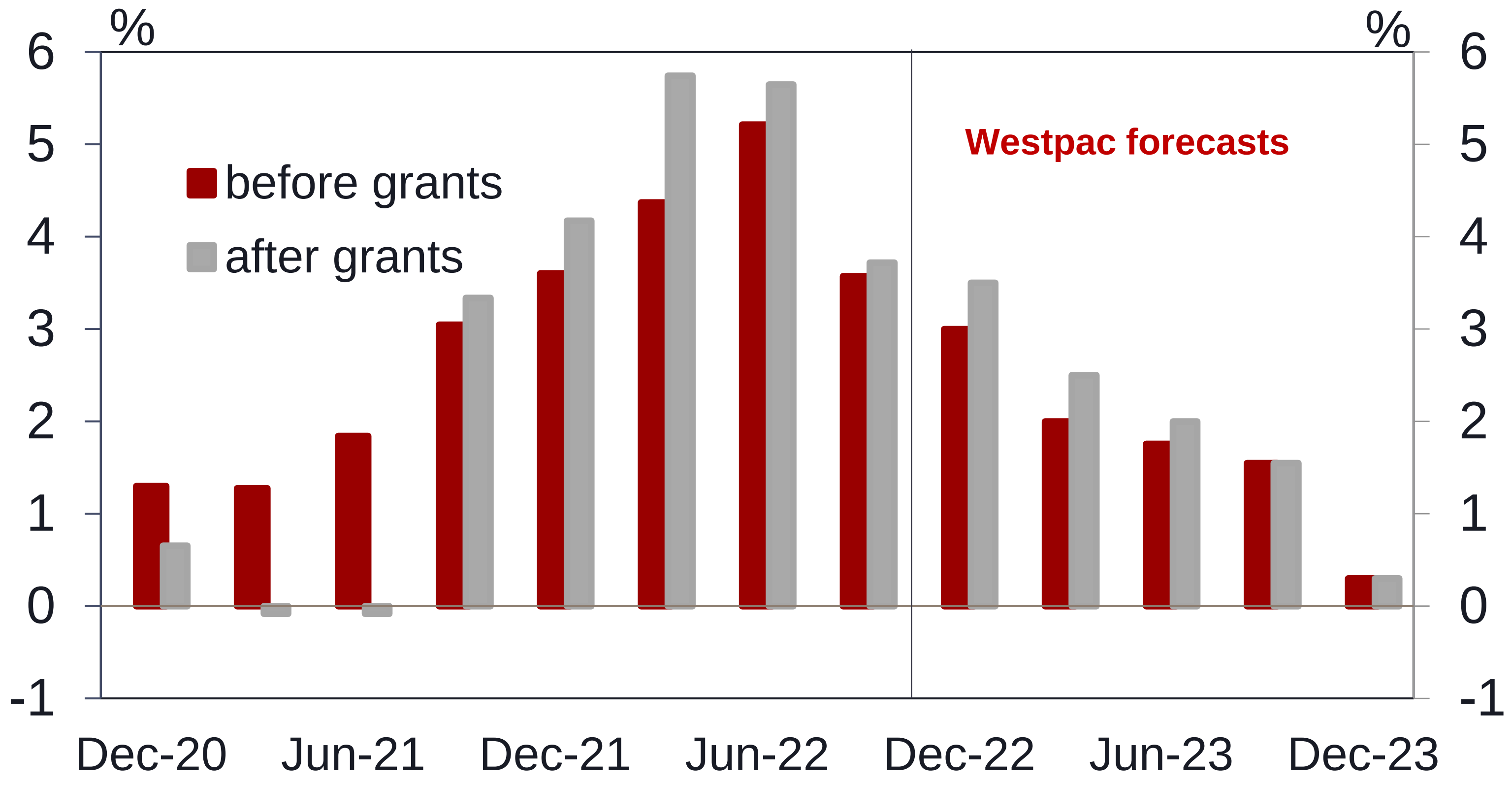
Discretionary inflation starting to catch up with non discretionary



- Non-discretionary inflation (8.4%yr) is running faster than the CPI (7.3%yr) & a bit less than twice the rate of discretionary (5.5%yr).
- The quarterly rate of increase for non-discretionary moderated from the 3.0% in March to a 1.8% in June then a 2.0% gain in September.
- But note that the September increase includes the 3.6% gain in electricity prices which were held back from a measured 15.6% gain by state energy rebates. Westpac is forecasting a 15% increase in power bills in December.
- Discretionary prices lifted 1.7%qtr in September, matching the June increase which was up from 0.8% gain in March. The June increase was the strongest rise in the history of the series which starts at September 2005.

Grants first suppressed then boosting dwellings

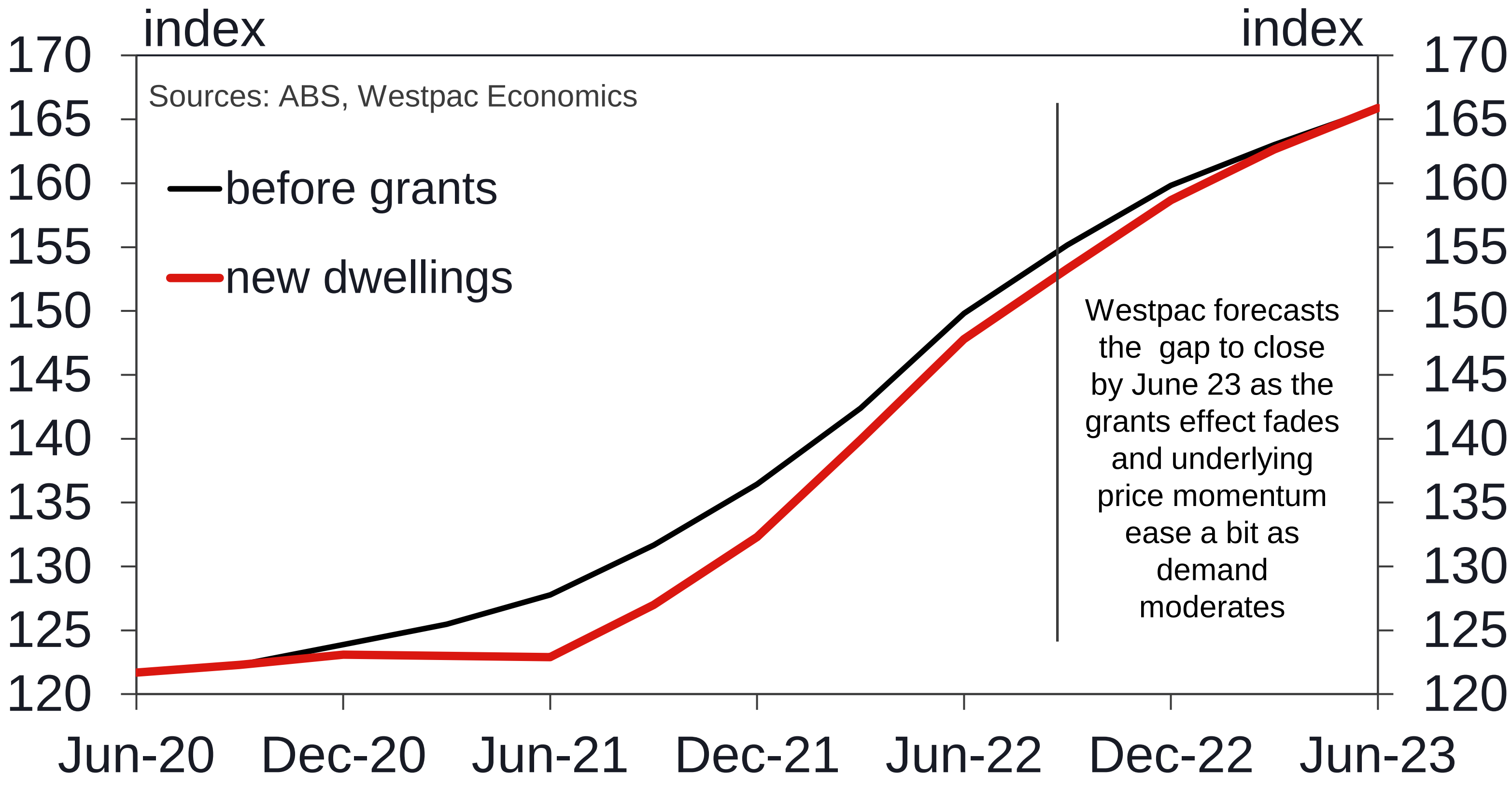
As the grants are used up dwelling prices jump higher



- Since June 2021 the unwinding of the grants have been a significant factor, but not the main story, behind the burst in dwelling price inflation.
- Grants have the effect of reducing out-of-pocket expenses for new dwelling purchases thus boosting inflation when they are no longer available.
- Fewer payments of construction grants compared to the previous quarter also contributed to the rise this quarter but by less than expected.
- In September, grants were still holding the level below that of measured prices.
- The unwinding of the grants was worth just 0.1ppt of the 3.7% rise in dwelling prices. As such, the level of dwelling prices are still 1.2% below the level of dwelling prices before grants.
- We expect this gap to close from December 2022 through to June 2023.

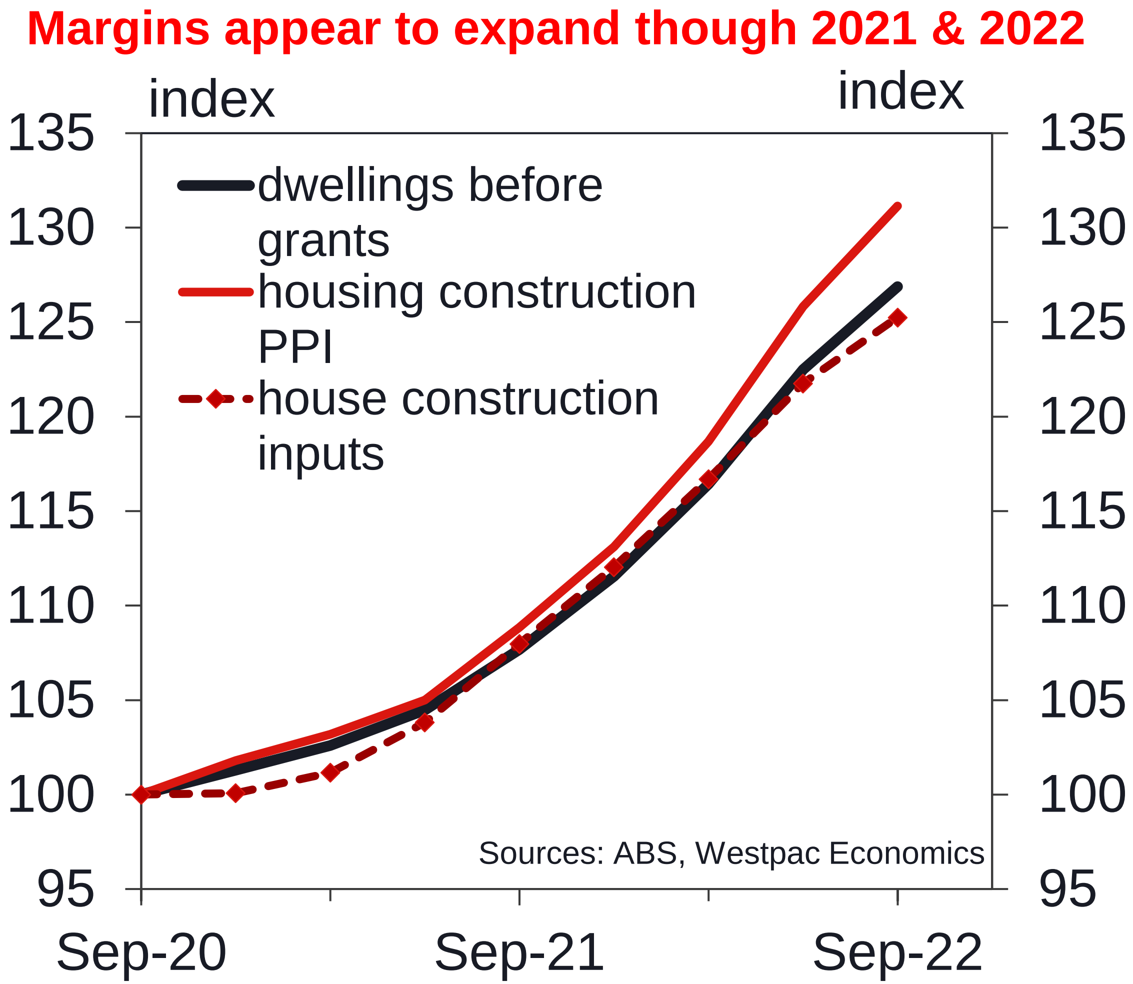
Expect grants to fade to zero in 2023

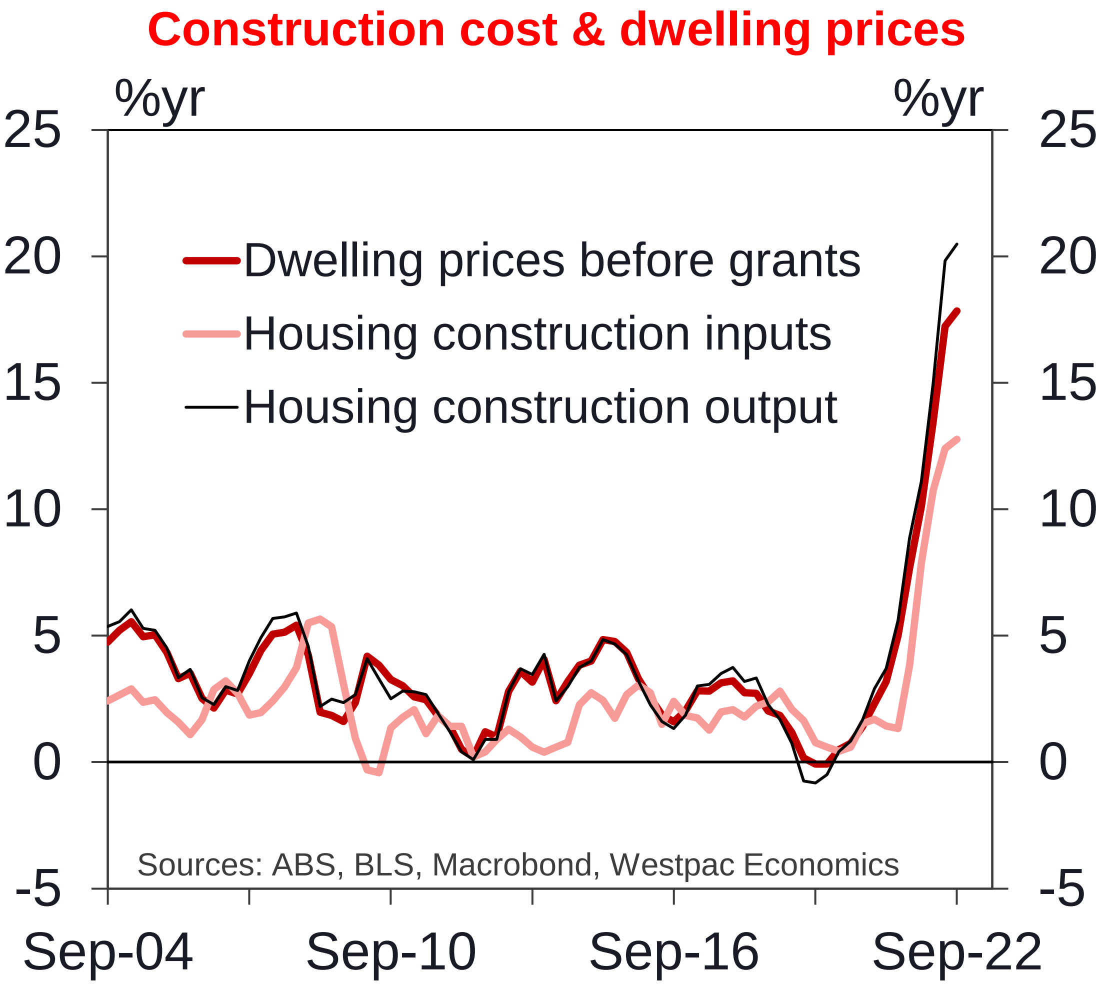
Risk is that underlying prices could rise faster than expected



- The more important story in Q3 was that robust construction activity, and ongoing shortages of labour and materials, continued to drive new dwelling prices higher.
- The quarterly rate of growth eased somewhat, 3.7% compared to a record 5.7% in March and a comparable 5.6% in June, the annual pace hit a record high of 20.7%; new dwelling prices entered the CPI in June 1999.
- Dwelling prices excluding grants lifted 3.6% in September following a 5.6% increase in June, 4.4% in March, 3.6% in December 2021, 3.0% in September 2021 and a 1.8% rise in June 2021.
- Dwelling prices before grants are up 17.8%yr compared to a 20.7%yr increase in CPI new dwellings. dwellings purchase prices.

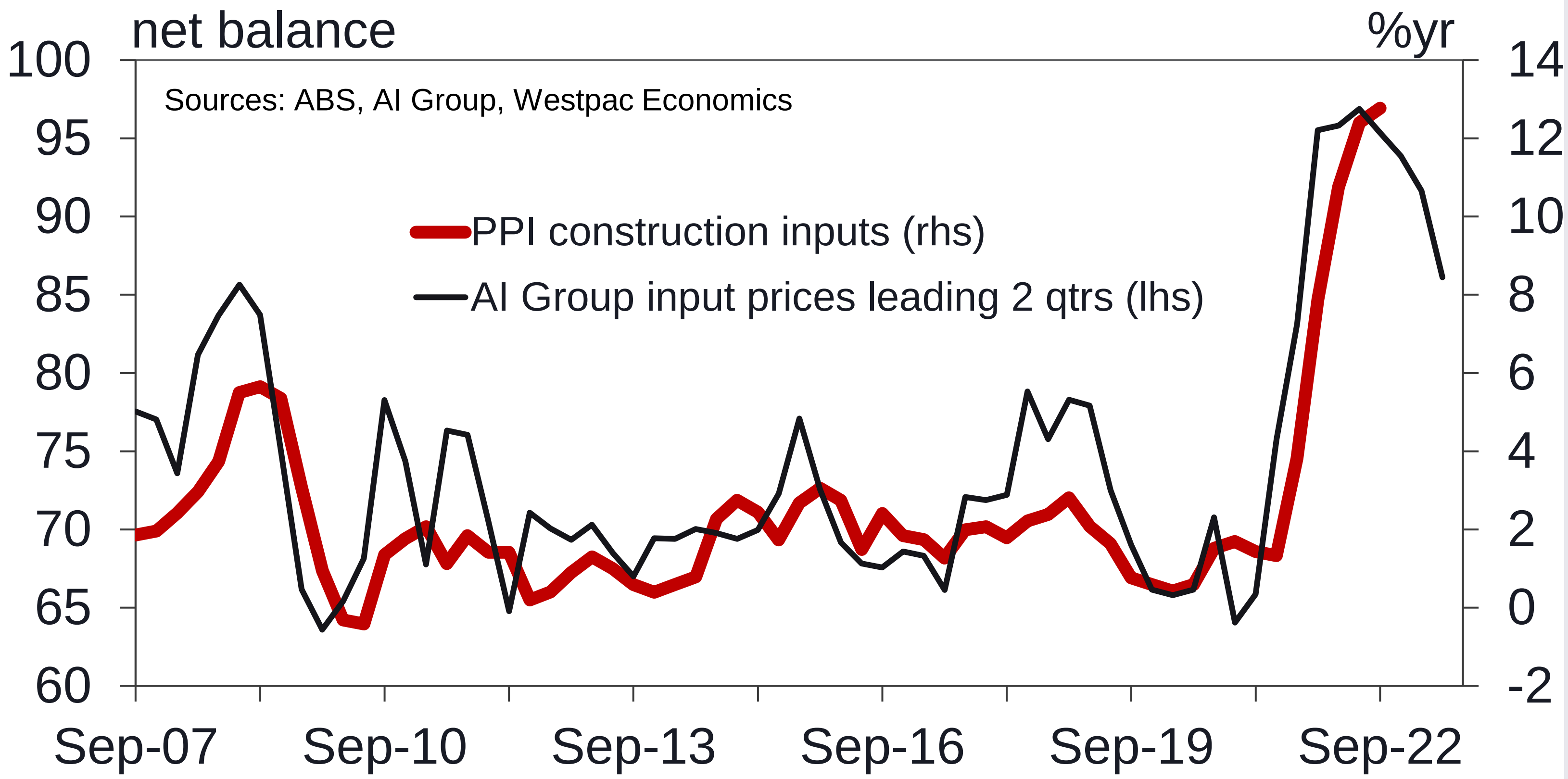
Construction output prices running ahead of input prices





Dwelling construction inflation peaking

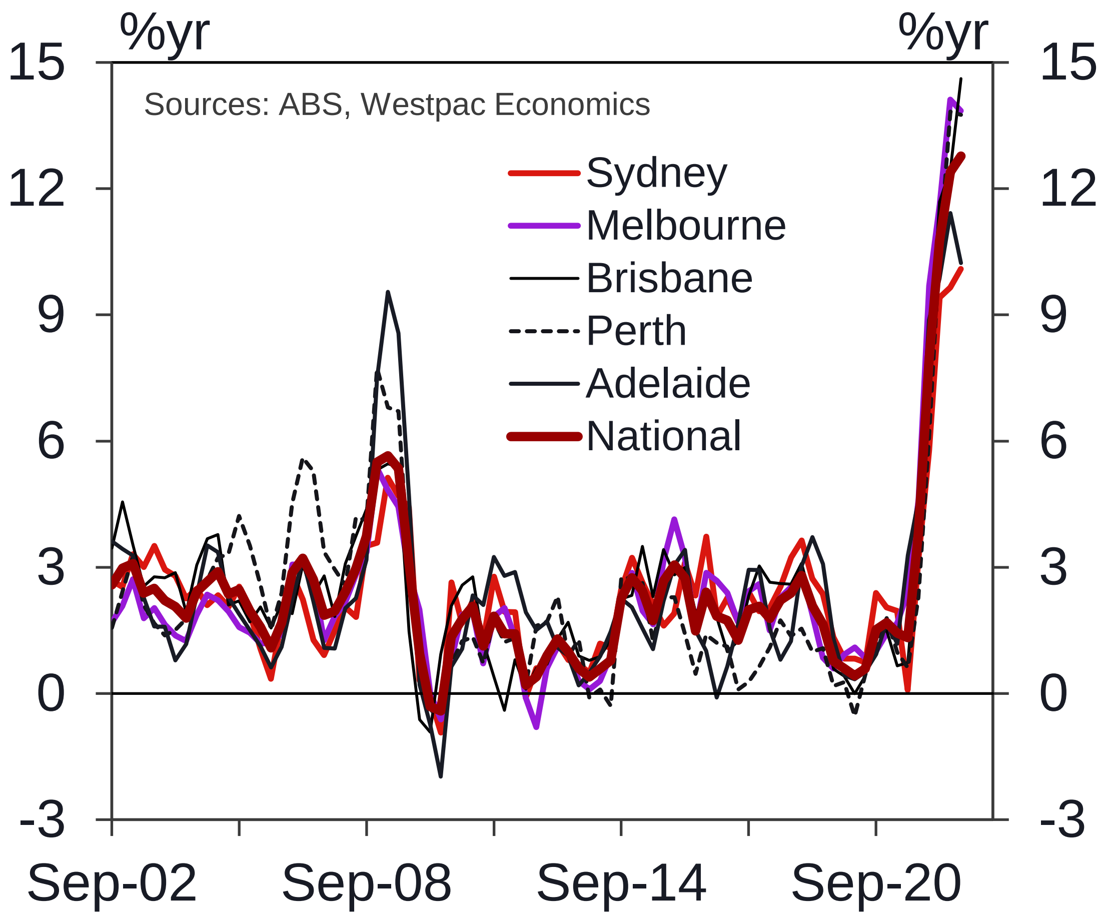
Business surveys suggest construction cost inflation has peaked



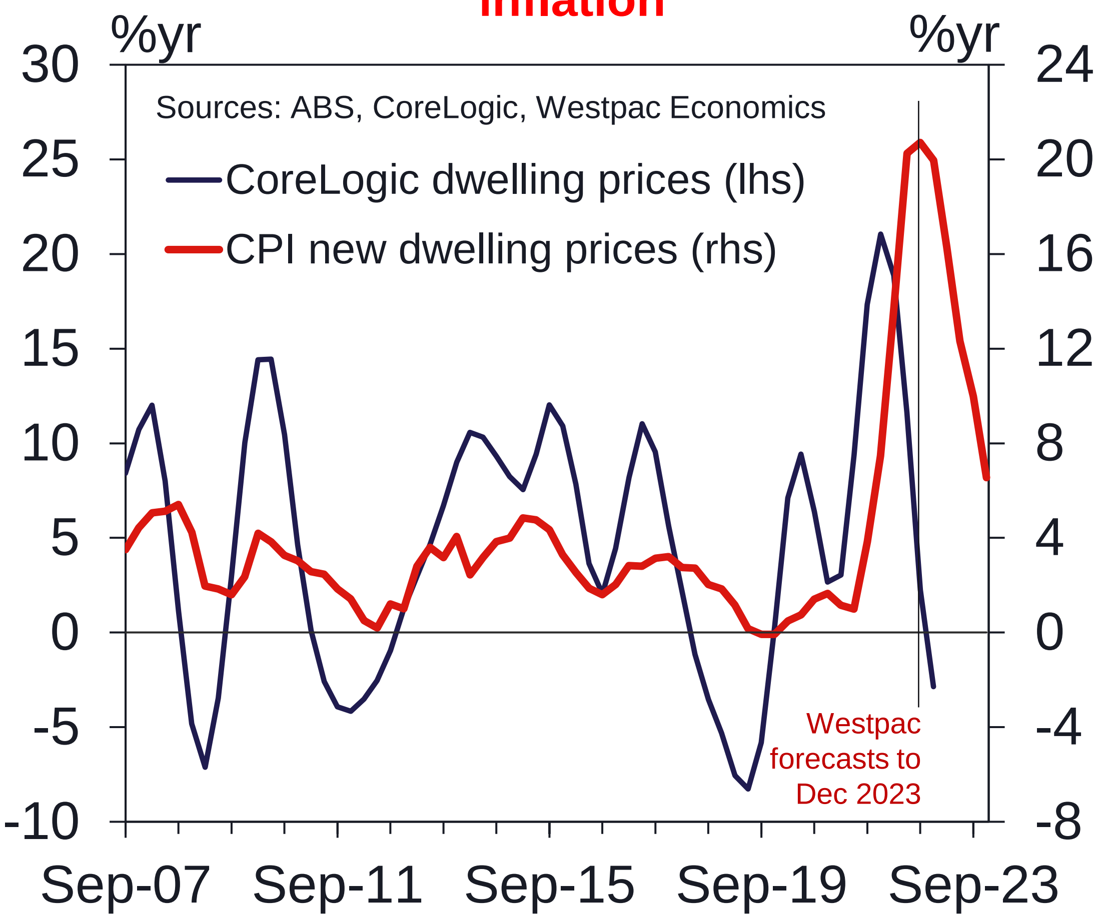
- Dwelling price inflation moderated as input costs shows signs of peaking and the demand boost from government grants fades.
- House Construction PPI lifted 4.2% in September, 6.0% in June and 4.9% in March to be up 20.5%yr. This series looks to be nearing a peak, it was 19.8%yr in June.
- House Construction Inputs look to be peaking at around a 13%yr, somewhat less that the rise in output prices. CPI dwelling prices (before rebates) have, over the past year, lagged housing construction output prices more than usual.
- We expect dwellings prices to moderate as we move through 2023 due to contracting home sales and falling established home prices, reflecting softer demand for new homes and compression of developer margins.

Construction costs peaking taking pressure off dwellings

Greater than usual city dispersion

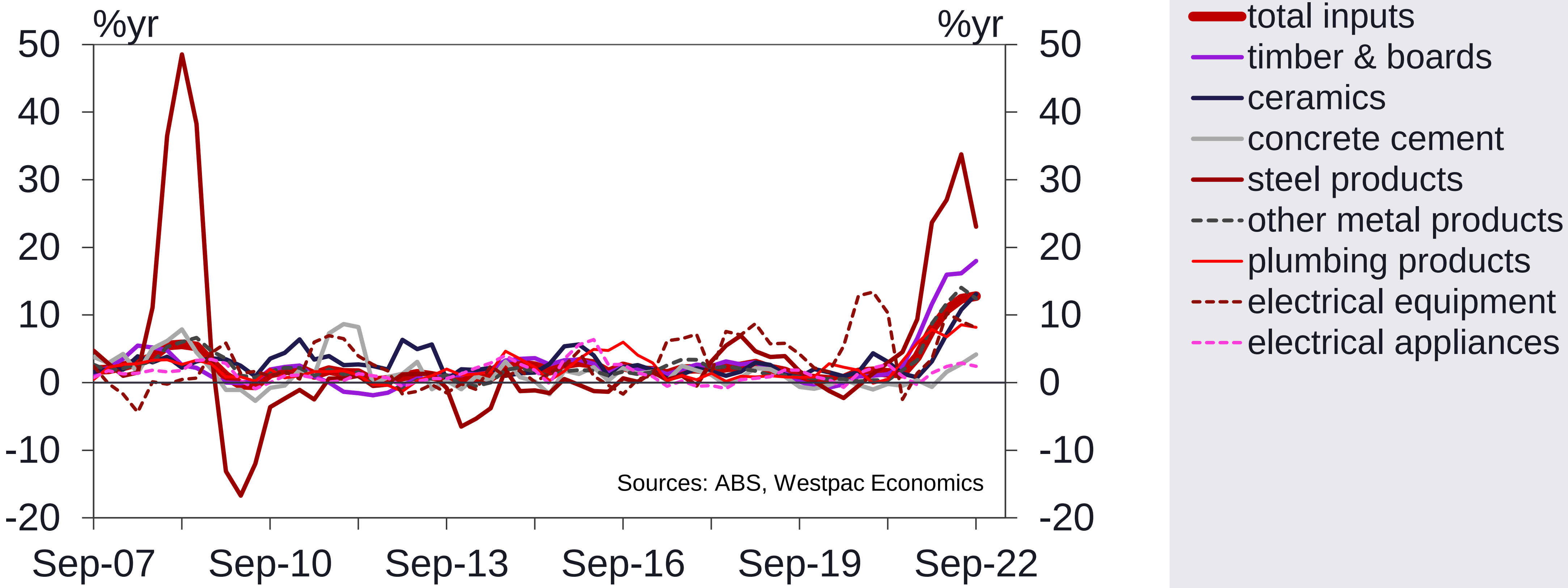


Falling house prices damper dwelling inflation

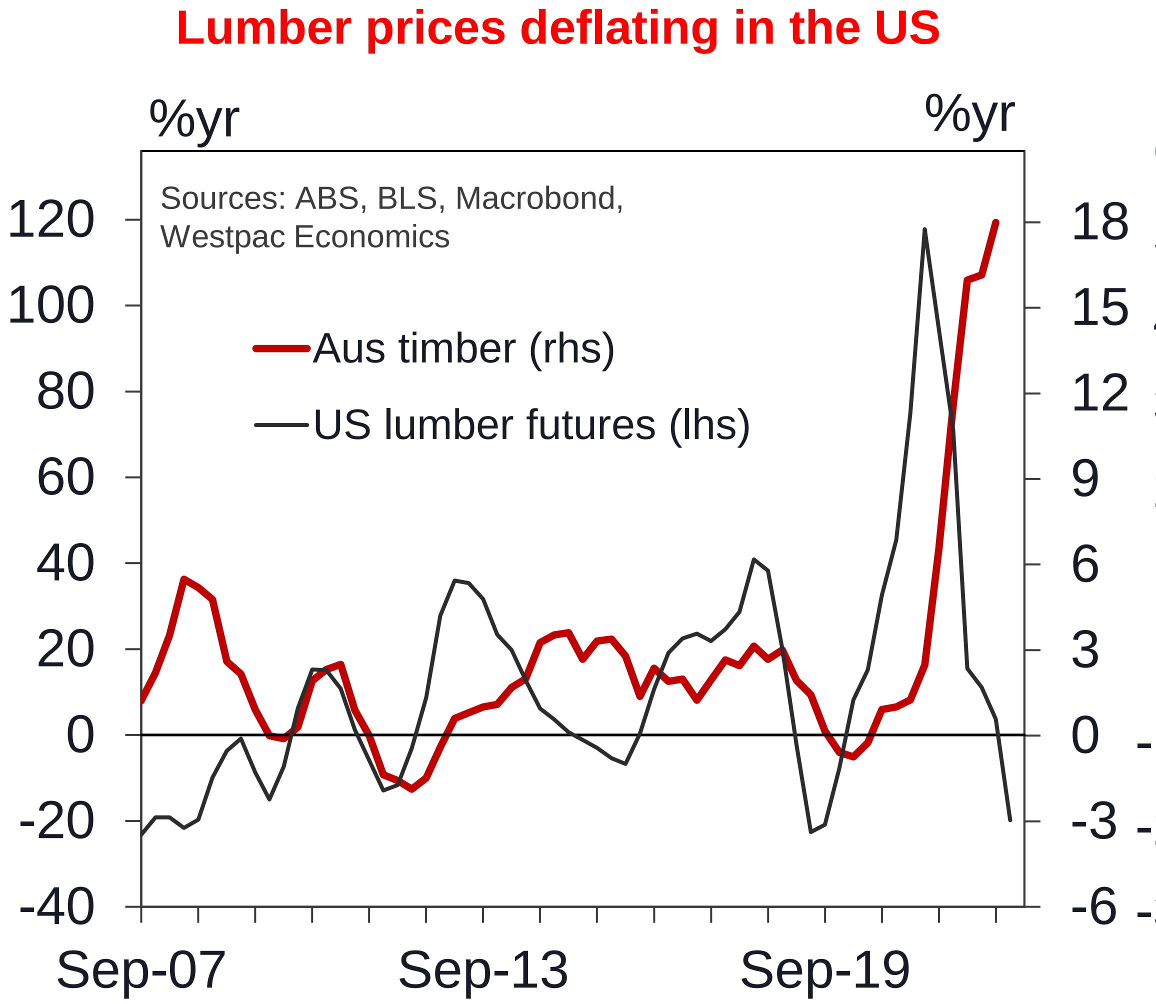


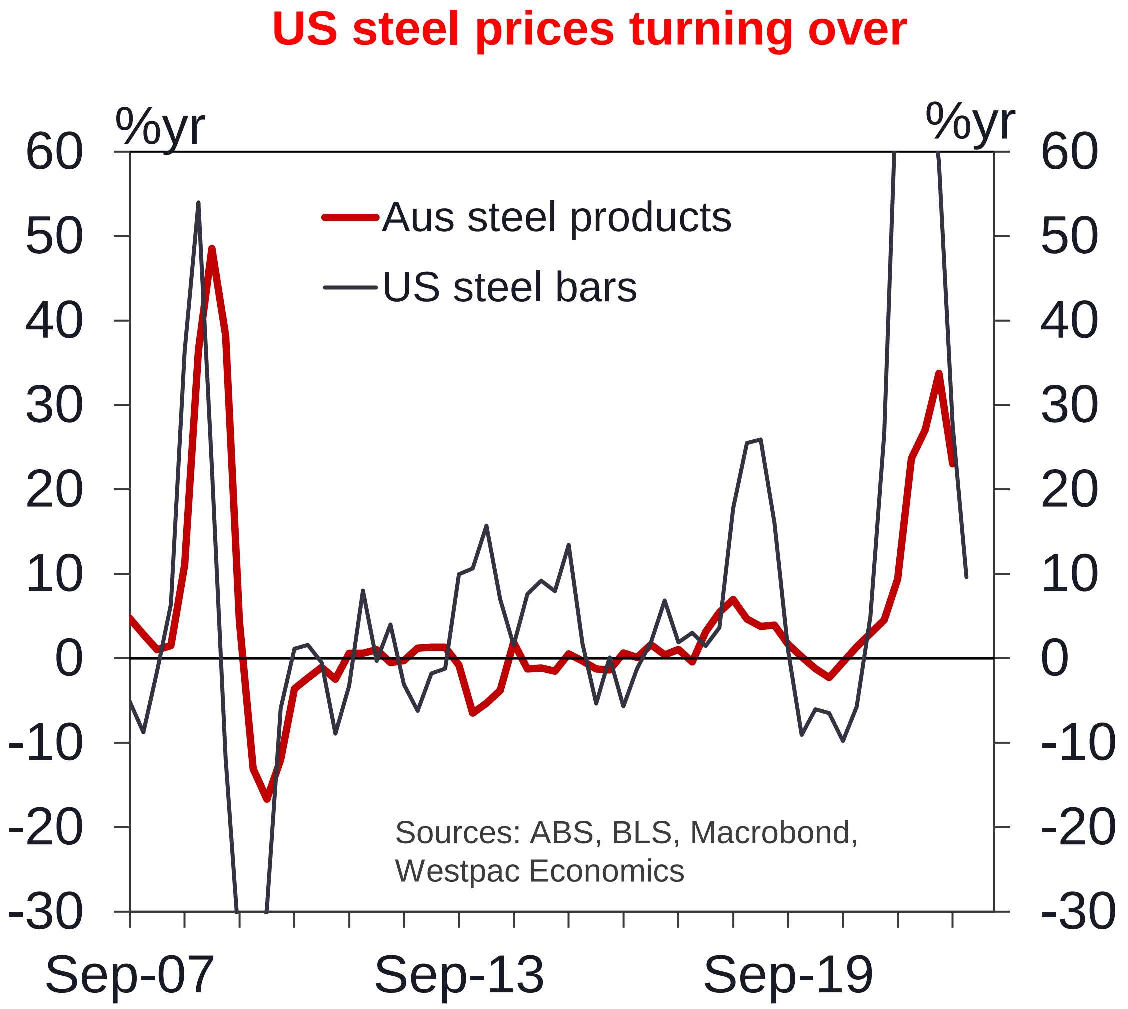
Dwelling inputs costs may be peaking

In 2008/09 it was steel inflation, this time it's more widespread



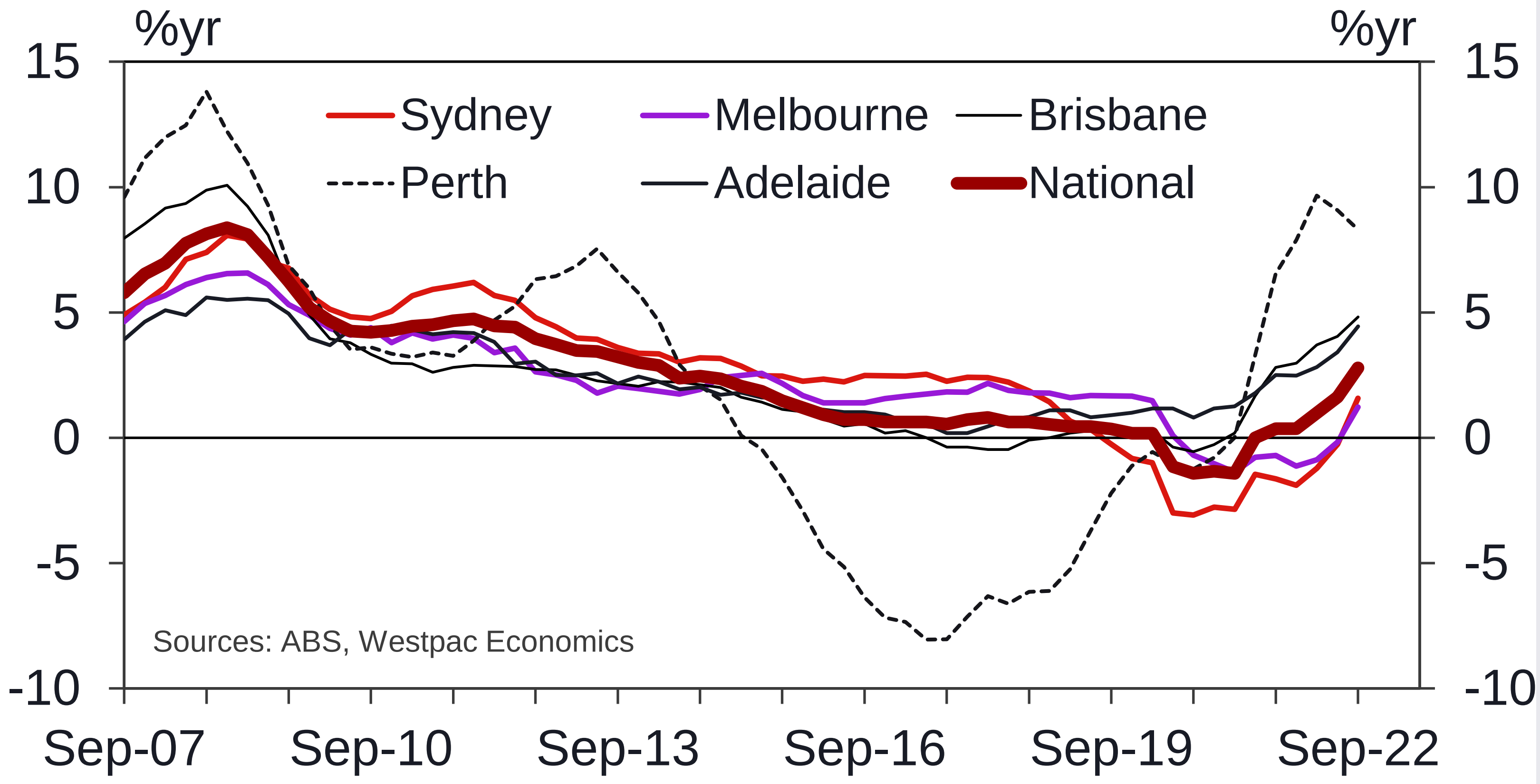
International construction cost inflation has peaked





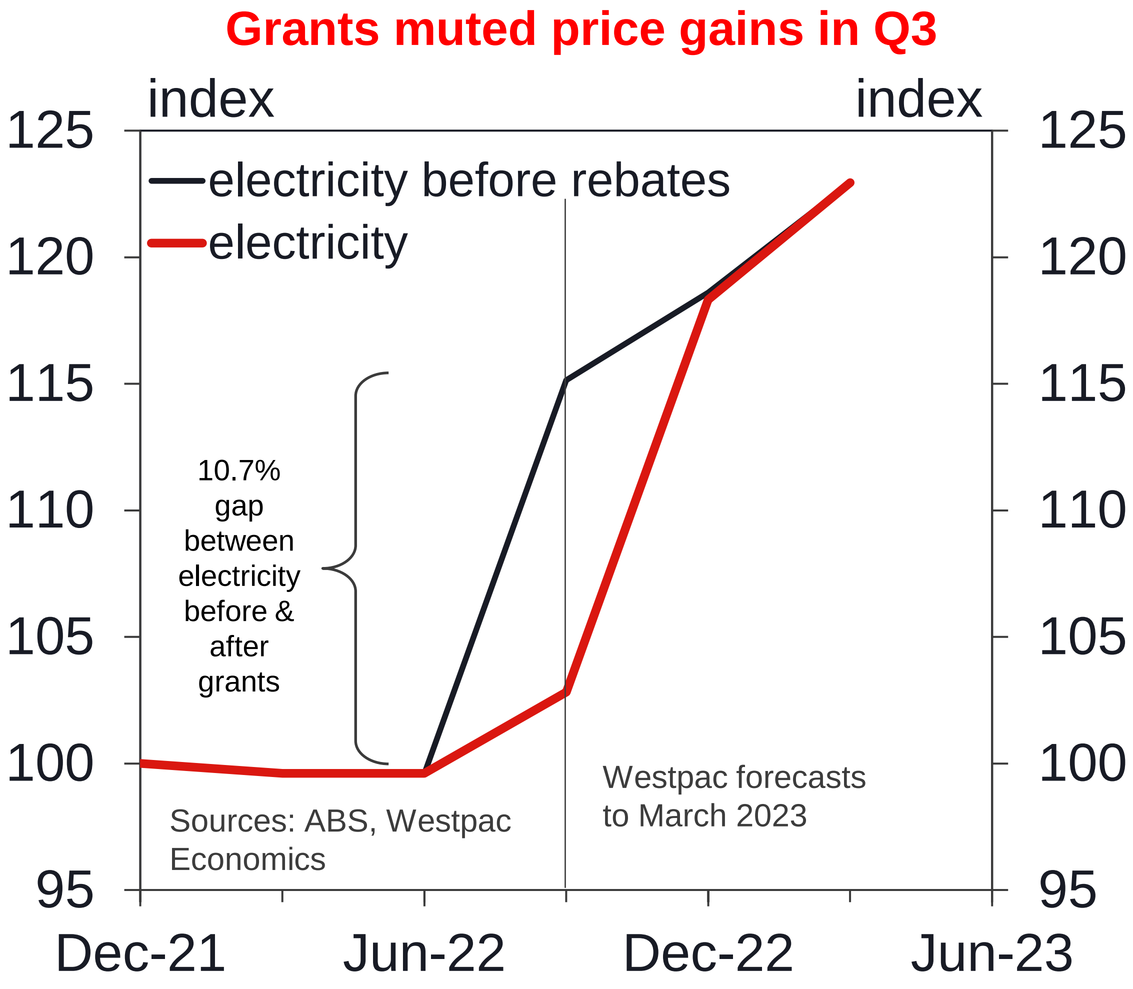
Rental price inflation picking up steam

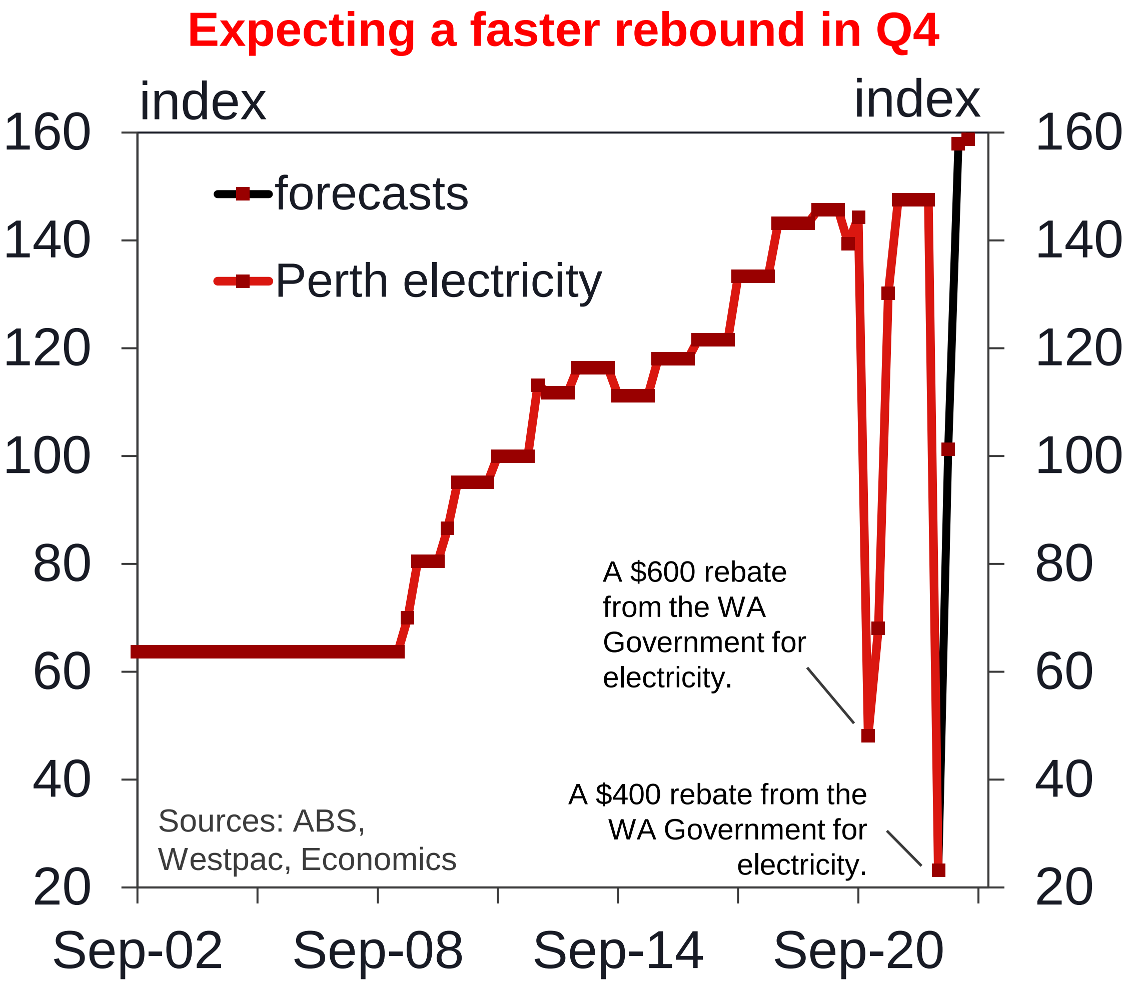
As vacancy rates fall rents pick up in Sydney & Melbourne



- Rental price growth in Sydney and Melbourne increased in September (1.3%qtr & 1.1%qtr respectively) following subdued growth since the onset of the COVID-19 pandemic in 2020.
- In June rents increased 0.4%qtr and 0.2%qtr respectively.
- A third consecutive quarter of rent rises for these two cities a significant step up from the previous trend for falling rents.
- This shift is consistent with the recent drop in vacancy rates.
- The remaining capital cities have recorded higher increases in rent prices reflecting historically low vacancy rates.
- Westpac is forecasting rents to make an increasingly larger contribution to inflation at least to the first half of 2023 with rental inflation peaking at around 6%yr in June 2023.

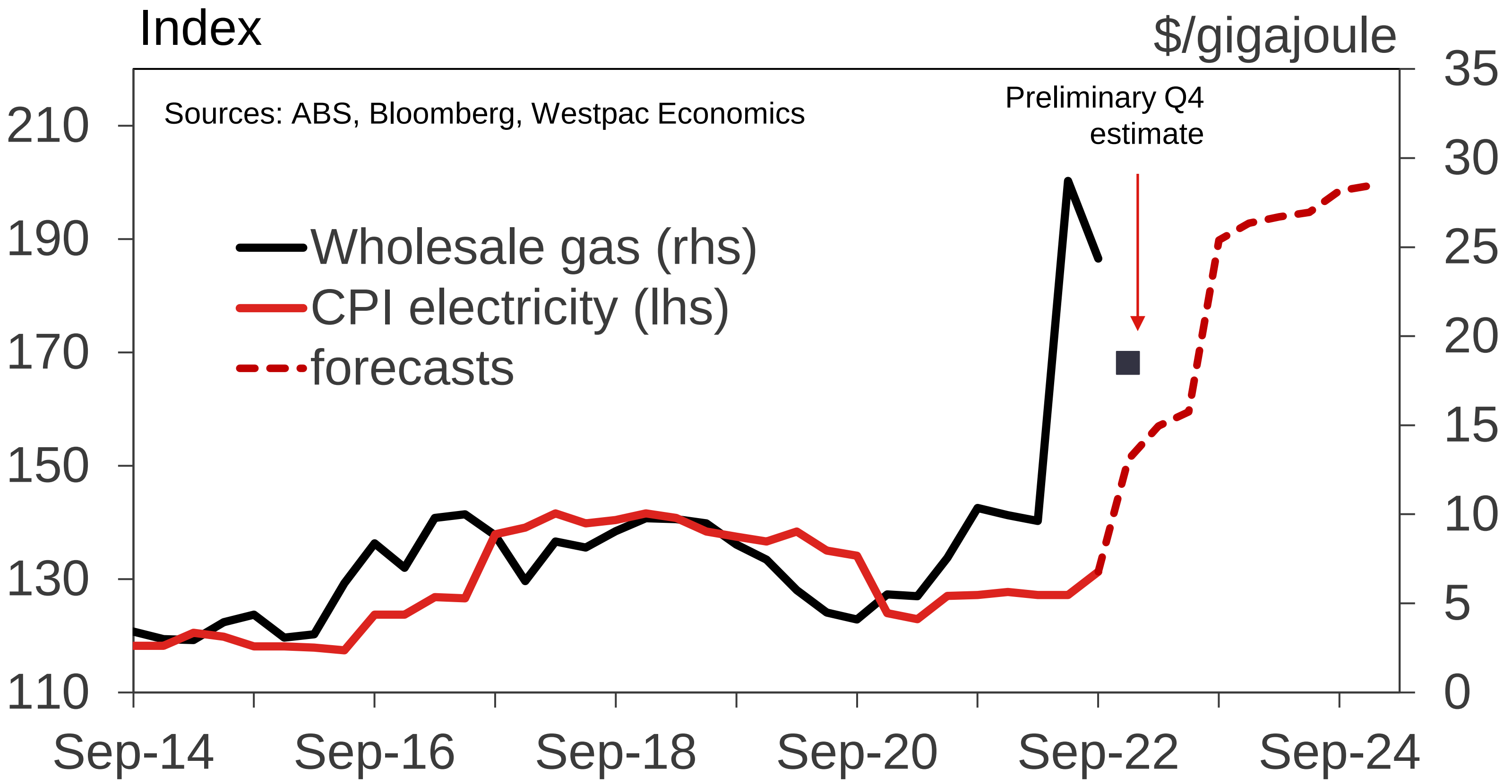
Reversal of grants set to supercharge power inflation in Q4





Rebates a temporary offset for power bills

State energy rebates adds volatility by delaying inflation

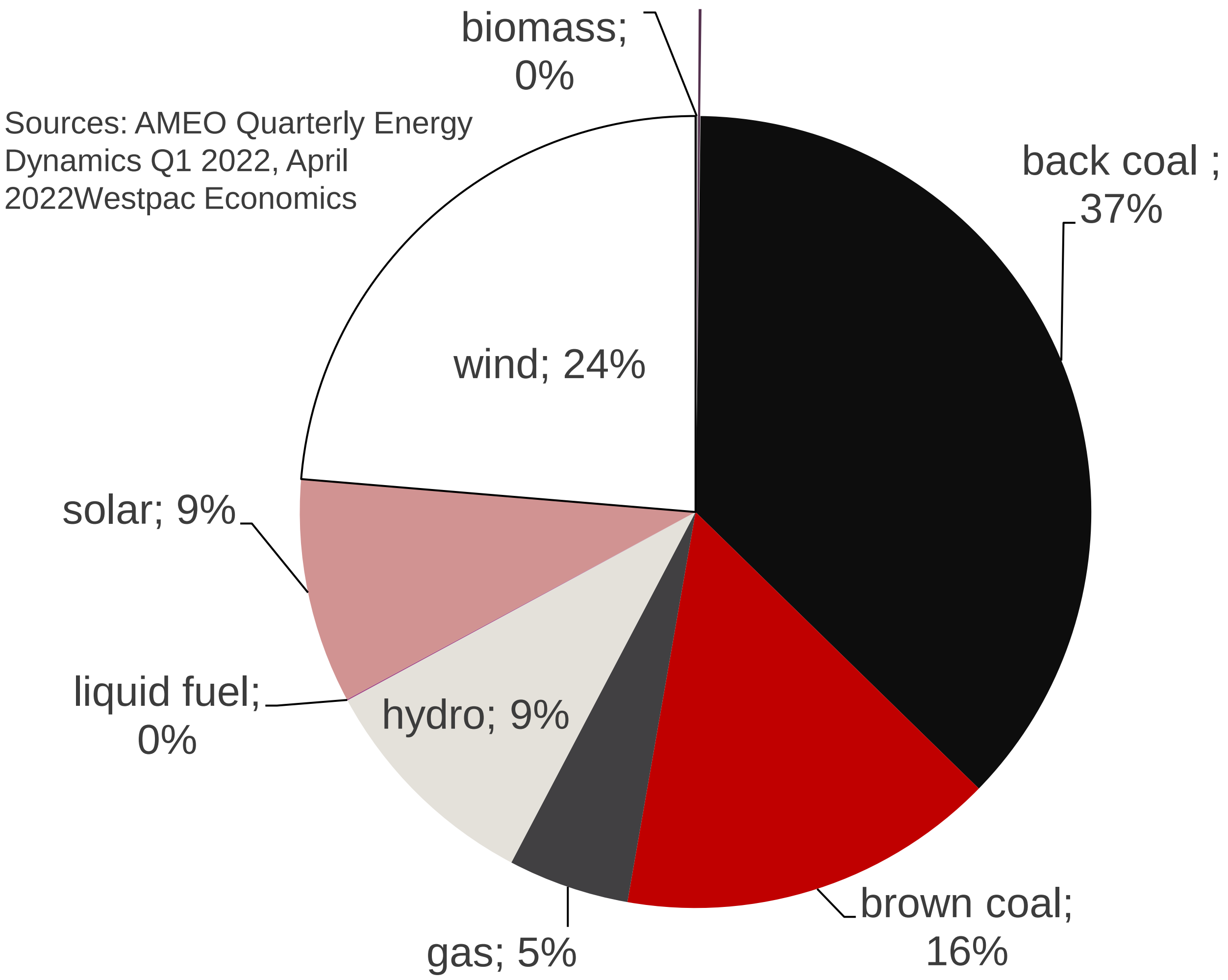


- Utilities rose 4.8% in the quarter, driven by gas & other household fuels (+10.9%) and electricity (+3.2%).
- This is the strongest rise for gas & other household fuels since September 2012 (14.2%).
- Gas and electricity price rises reflect annual reviews with retailers across all cities passing through higher wholesale prices.
- The rise in electricity was partially offset by the introduction of rebates including the WA $400 household electricity credit introduced, The Qld $175 Cost of Living rebate and the ACT $50 rebate for concession households.
- Excluding the grants electricity prices would have risen 15.6% in the quarter. This has shifted the timing of the increase in electricity to the December quarter, and possibly the March quarter, as the rebates are used by households.

Gas

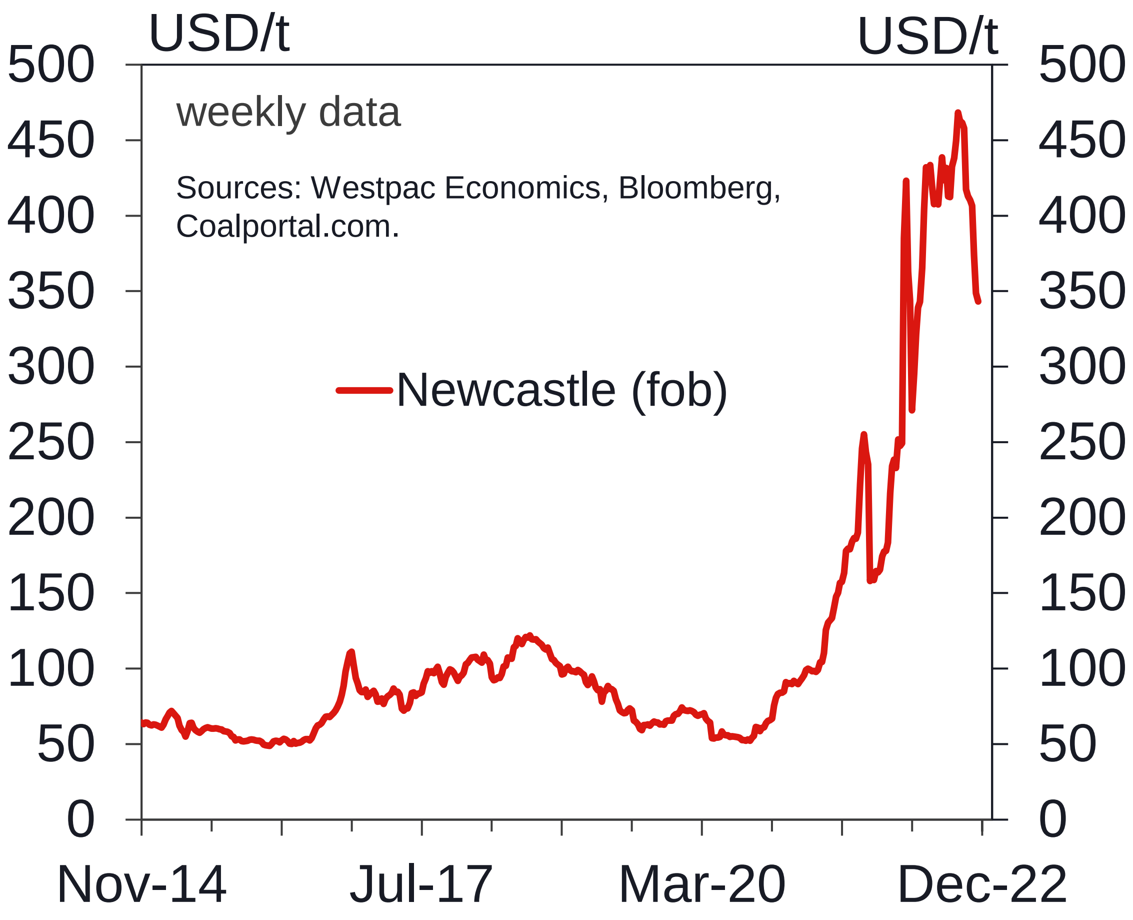
Gas may only be 5% of generation but as the marginal producer, mostly used during peak requirements, it is the price setting fuel.

Fuel mix in Australian National Energy Market

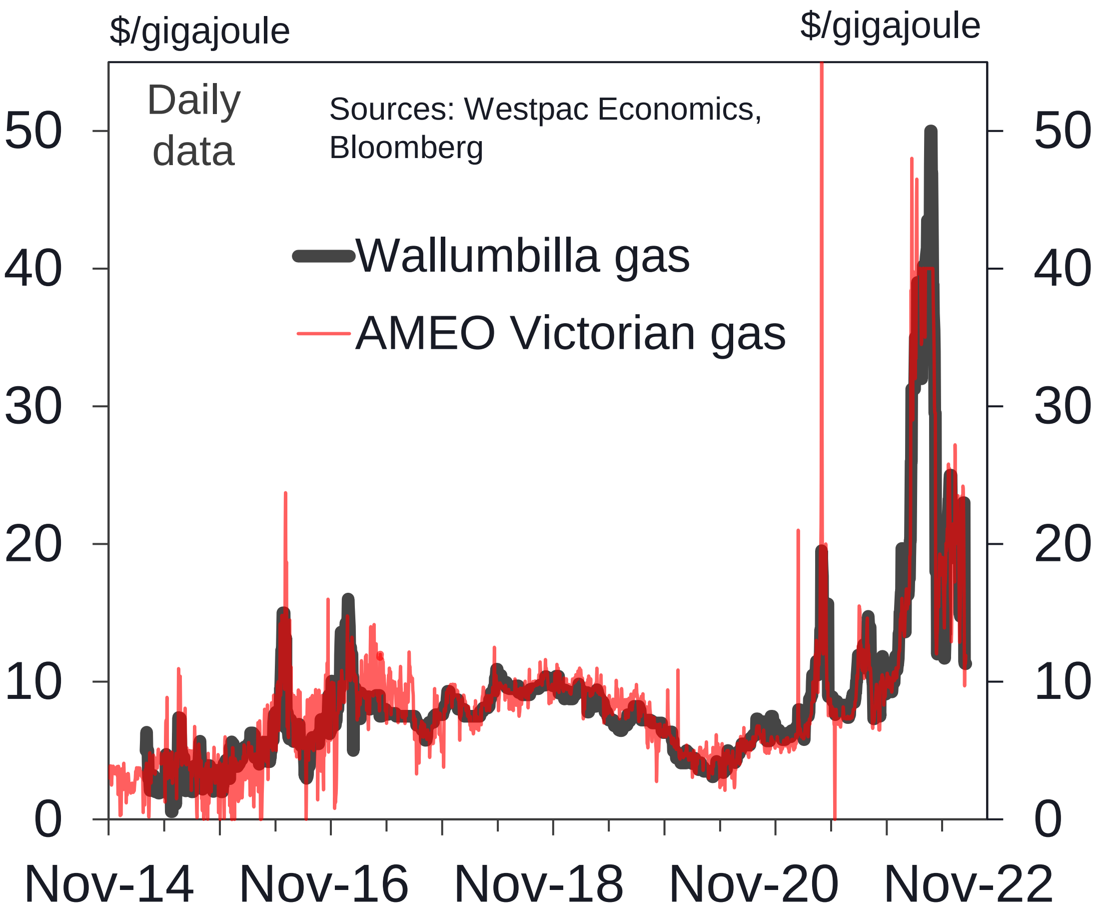


Speculation the Government will introduce price caps

Potential price cap $70/t

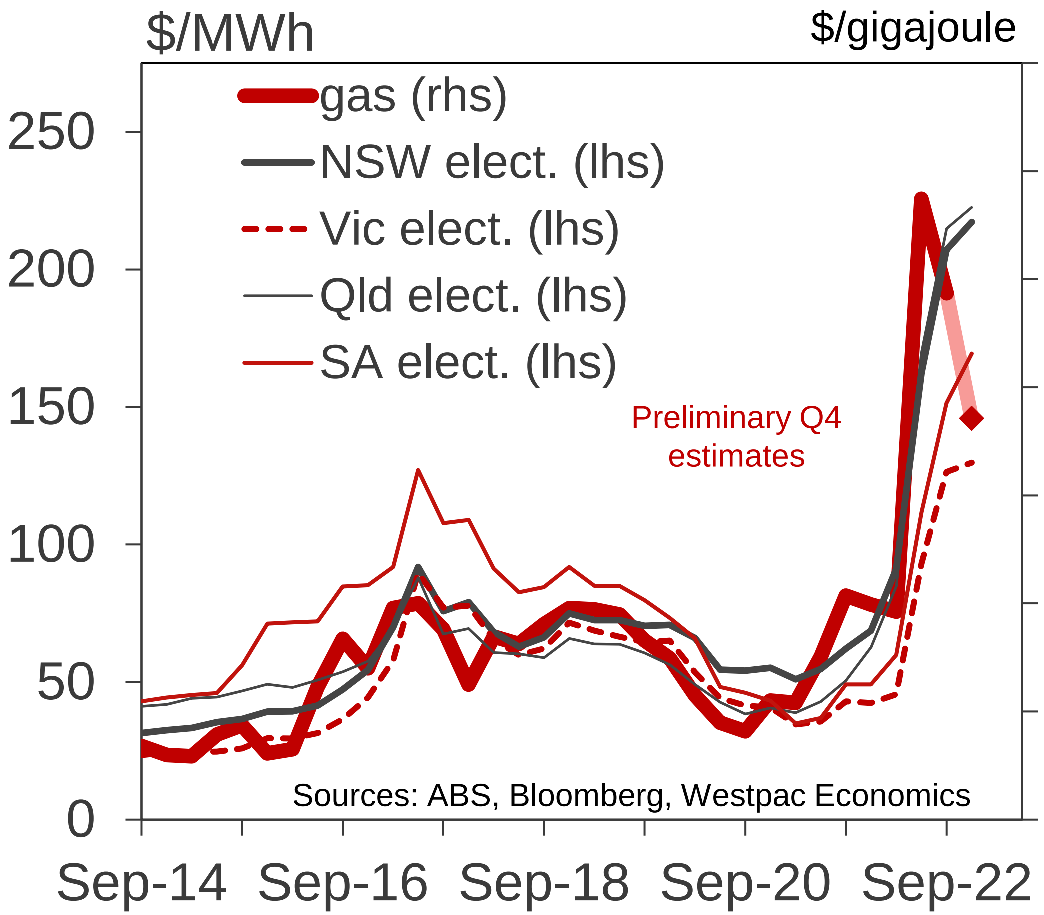


Potential price cap $10/gigajoule

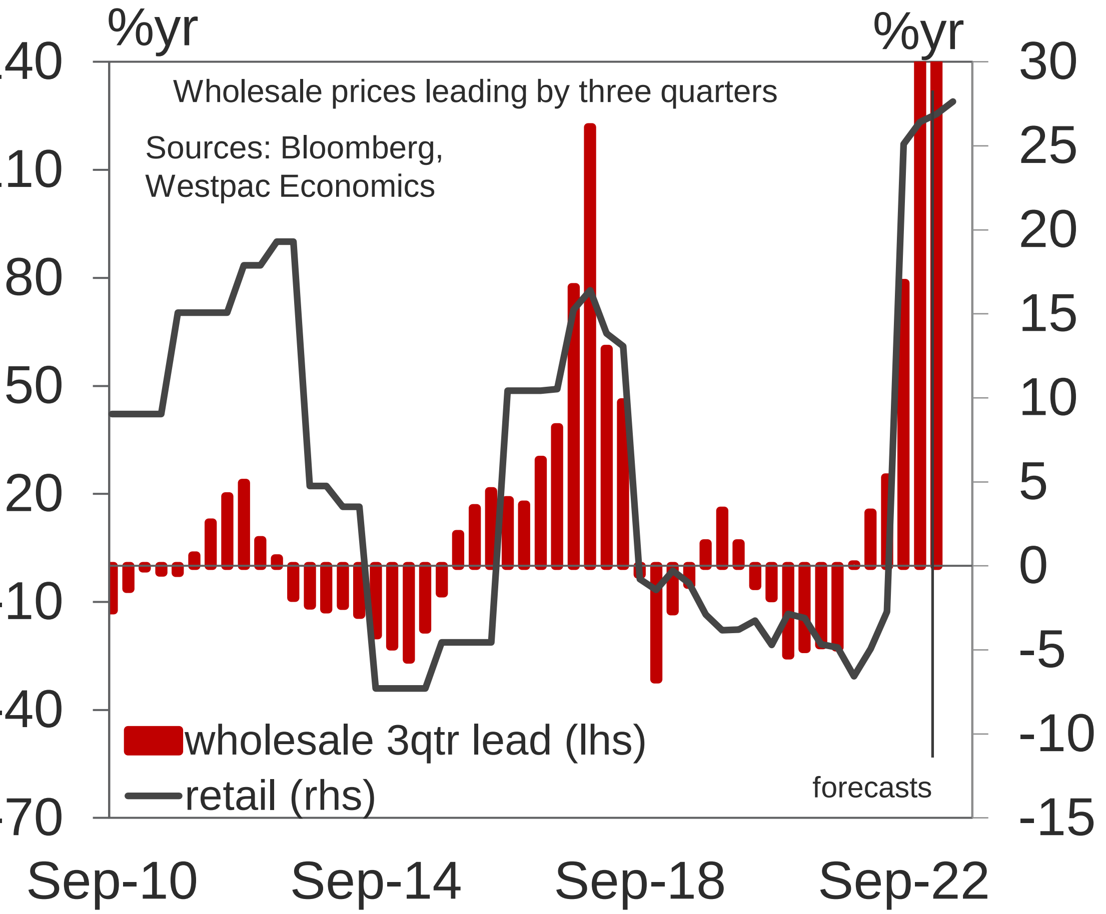


Gas sets marginal power prices but regional issues matter

Gas prices vs elect. futures

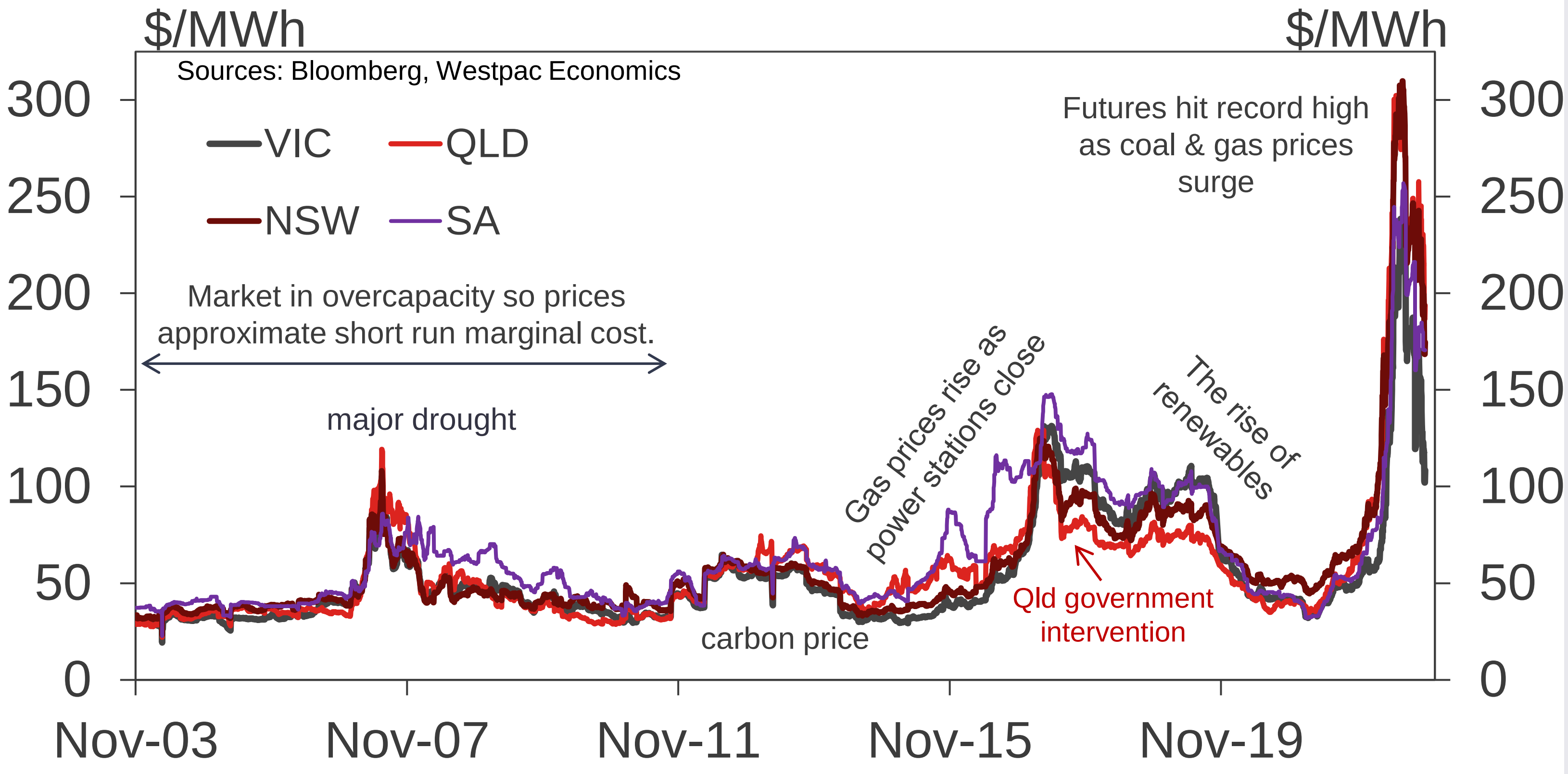


Retail prices trend with wholesale



History of electricity futures prices

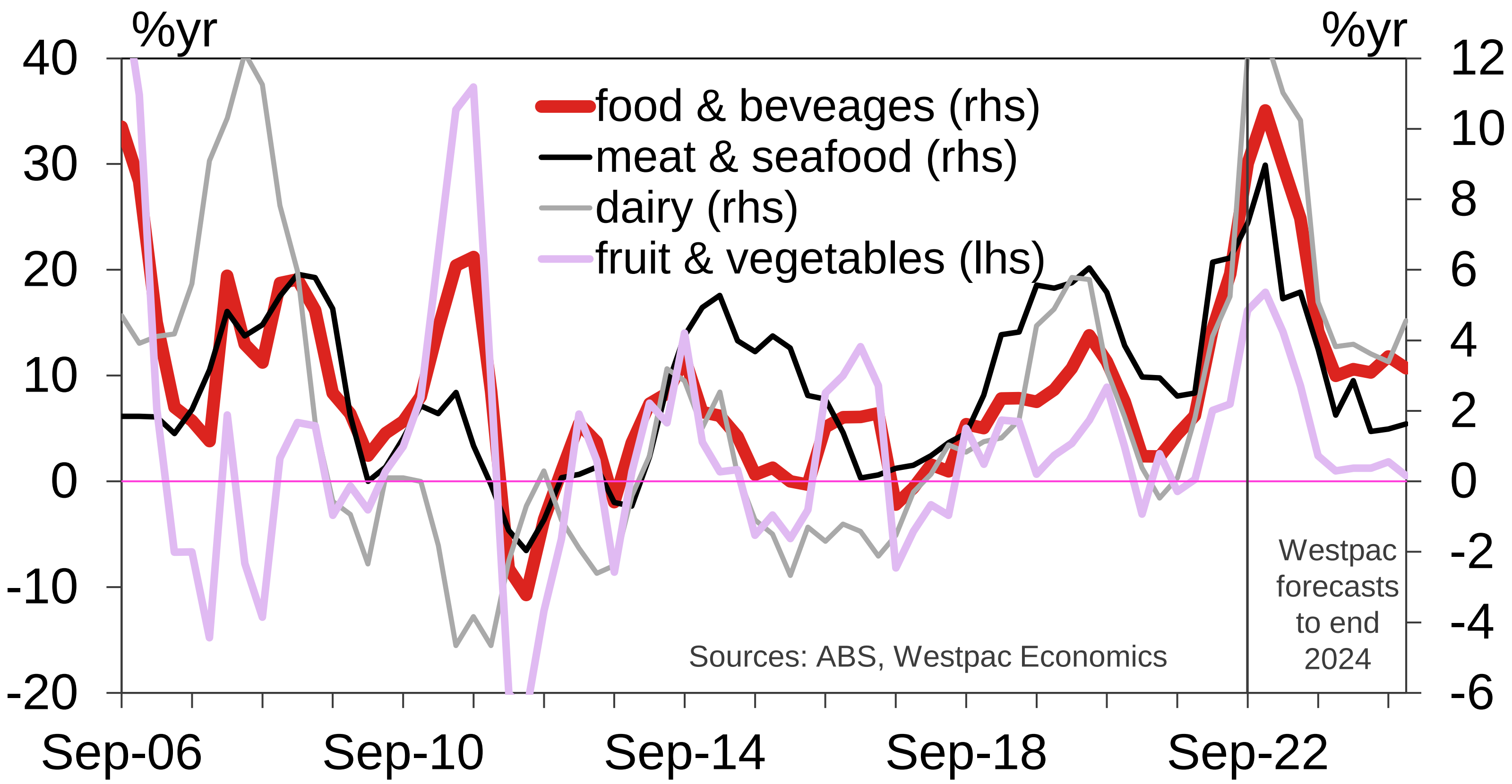
Electricity futures are volatile but 2022 is extreme



- Up to 2016, & outside the carbon tax/drought periods, there was over capacity in generation with prices approximated short run marginal cost of coal fired power plants.
- In 2016/2017 a number of older, more marginal coal fired power plants were retired sooner than expected. Renewable power generation could not fill the gap so gas fired generators stepped up. As such gas now sets the marginal price.
- Australian gas exports rapidly expanded drawing supplies from the local market forcing domestic prices into alignment with global prices. Global demand for LNG was very solid pushing prices higher.
- Qld react first lifting generation and thus reducing prices. This was followed by a lift in generation from other states just as global gas prices eased.
- From 2019 the rise of renewables with marginal cost of zero saw generation continue even when power prices fell below the cost of production.
- Combined with falling gas prices, futures fell back to the short-run marginal cost. This new equilibrium lasted till the energy shock of 2022.

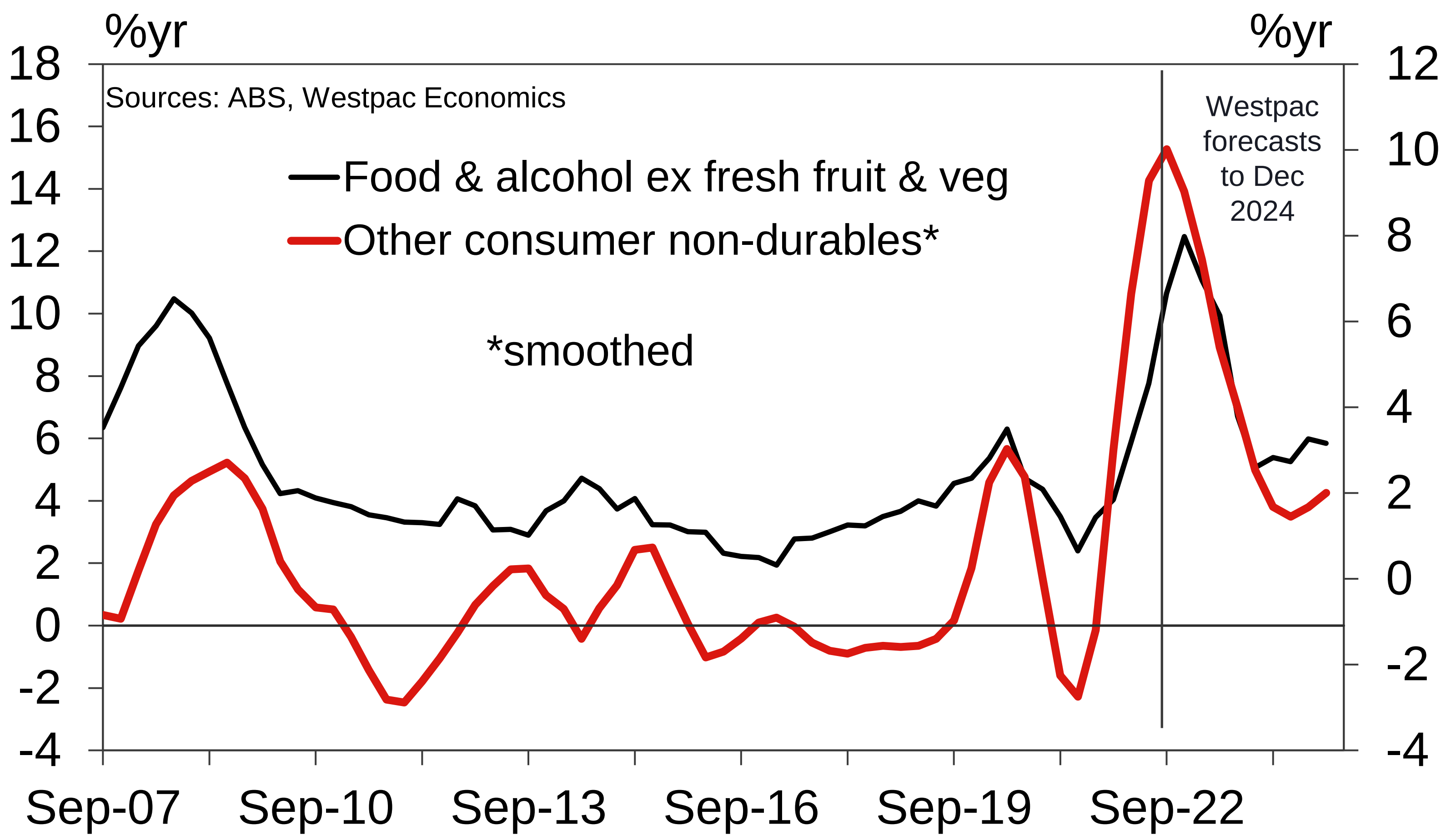
Food inflation remains elevated

Strong gains seen across food & non-food grocery products



- Fruit & vegetables rose 4.5%qtr due to heavy rainfall and flooding in key growing areas with higher transport and fertiliser costs also contributed to the rise.
- Meals out & take away foods gained 2.9% due to rising input costs and labour shortages, and an end to the NSW Dine & Discover.
- The roll-out of the Victorian Dining & Entertainment Program partly offset the rise. Excluding the impact of these voucher schemes, meals out & takeaway foods rose 3.1%.
- Dairy and related products rose 6.8% due to higher milk prices.
- Fruit & vegetables gained 16.2%yr while dairy products lifted 12.1%yr.
- Food lifted 3.2% compared to our 2.3% forecast. This upside surprise in food prices has lead us to upgrade our food price inflation profile through to early 2023.

Non-durables inflation is not just about food

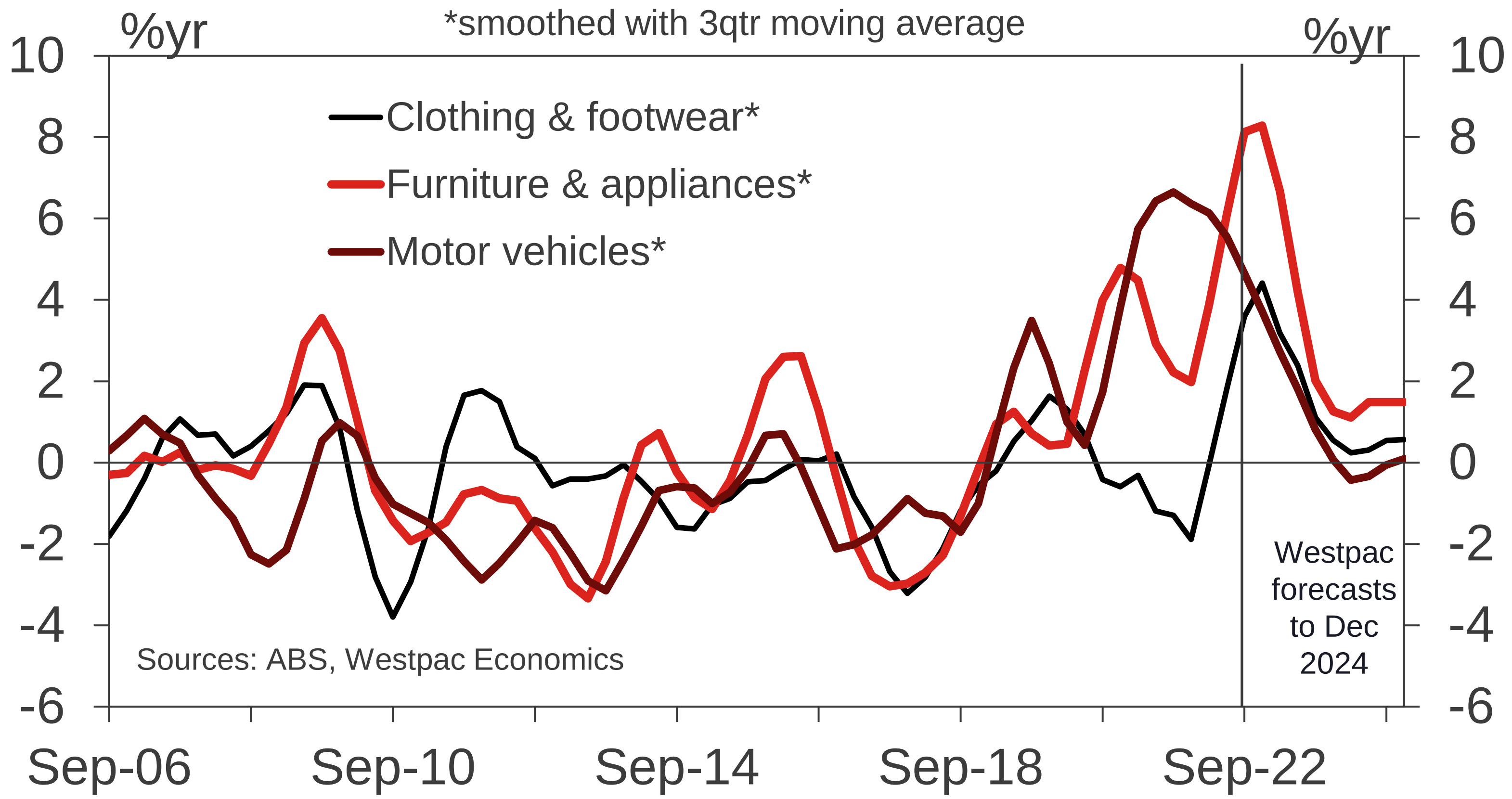


Step

Once the inflationary pulse passes we expect non-durable inflation to continue at a faster pace than it was pre-COVID.

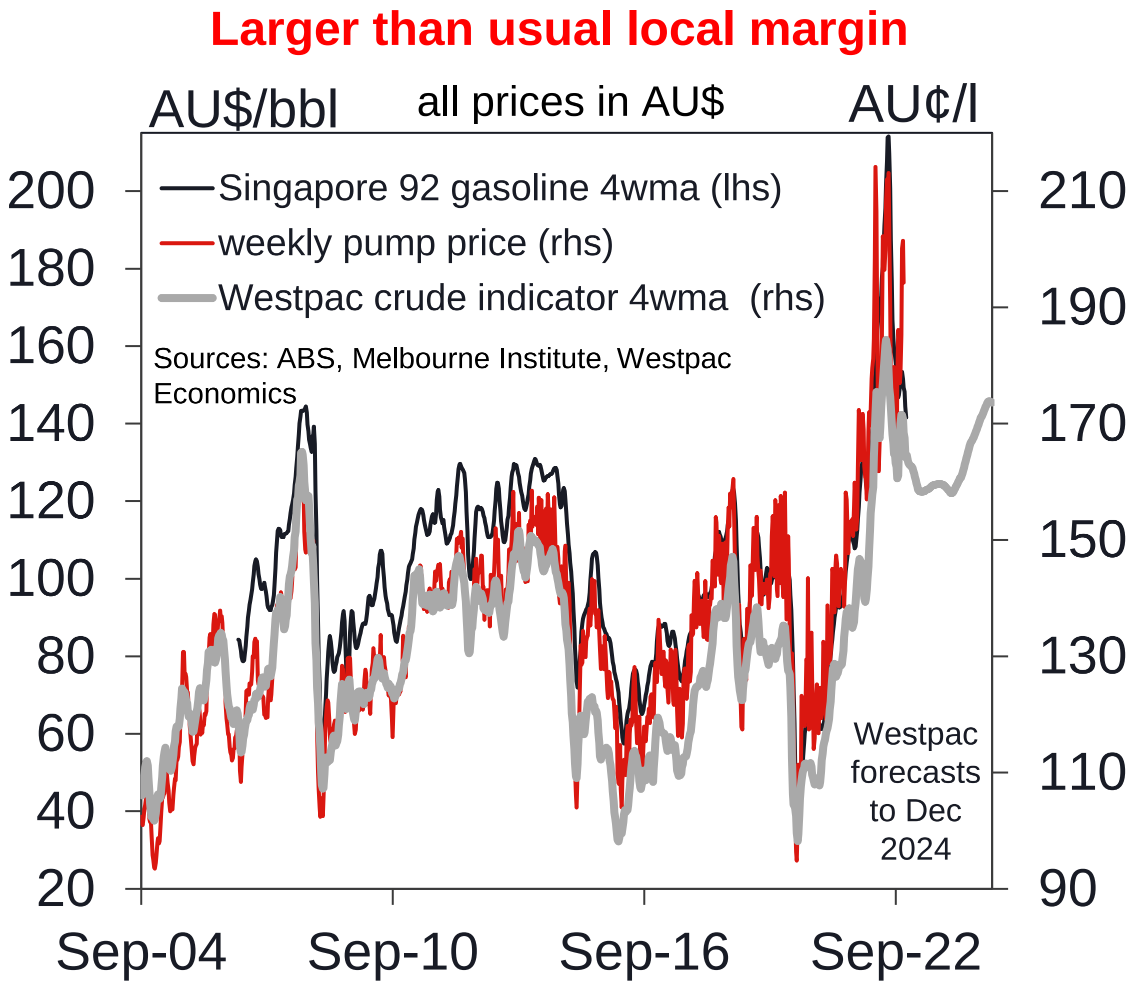
Durable goods inflation extends into 2023

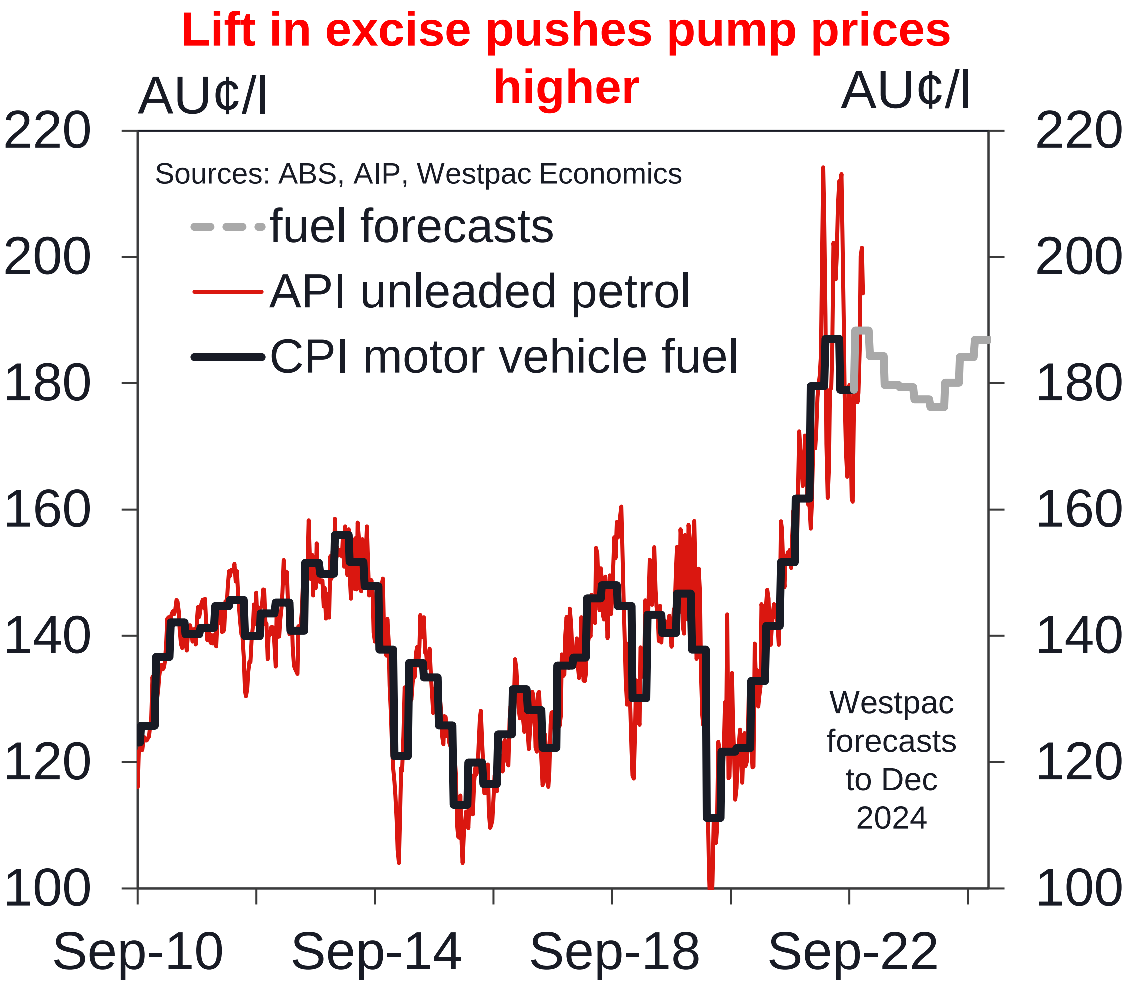
Clothing, footwear & furniture to see sustained higher inflation



- Clothing & footwear fell -0.2% in September. A -2.5% fall in footwear was the main contributor.
- This group lifted 5.3%yr. Garments for women, up 7.8%yr, was the main contributor. *In seasonally adjusted terms the group recorded no change in the quarter.*
- Furnishings, household equipment & services lifted 2.8%qtr. Furniture rose 6.6% due to ongoing supply chain issues, higher freight and raw material costs.
- Non-durable household goods lifted 2.2% due to increases in a range of products including toilet paper, tissues and hair care products.
- Household services rose 1.9% due to minimum & award wage increase and higher operational costs..
- This group lifted 7.7%yr. Other non-durable household products (16.2%yr) and furniture (11.4%yr) were the main contributors. Seasonally adjusted, this group gained 2.1%. Furniture (3.7%) was the main contributor.

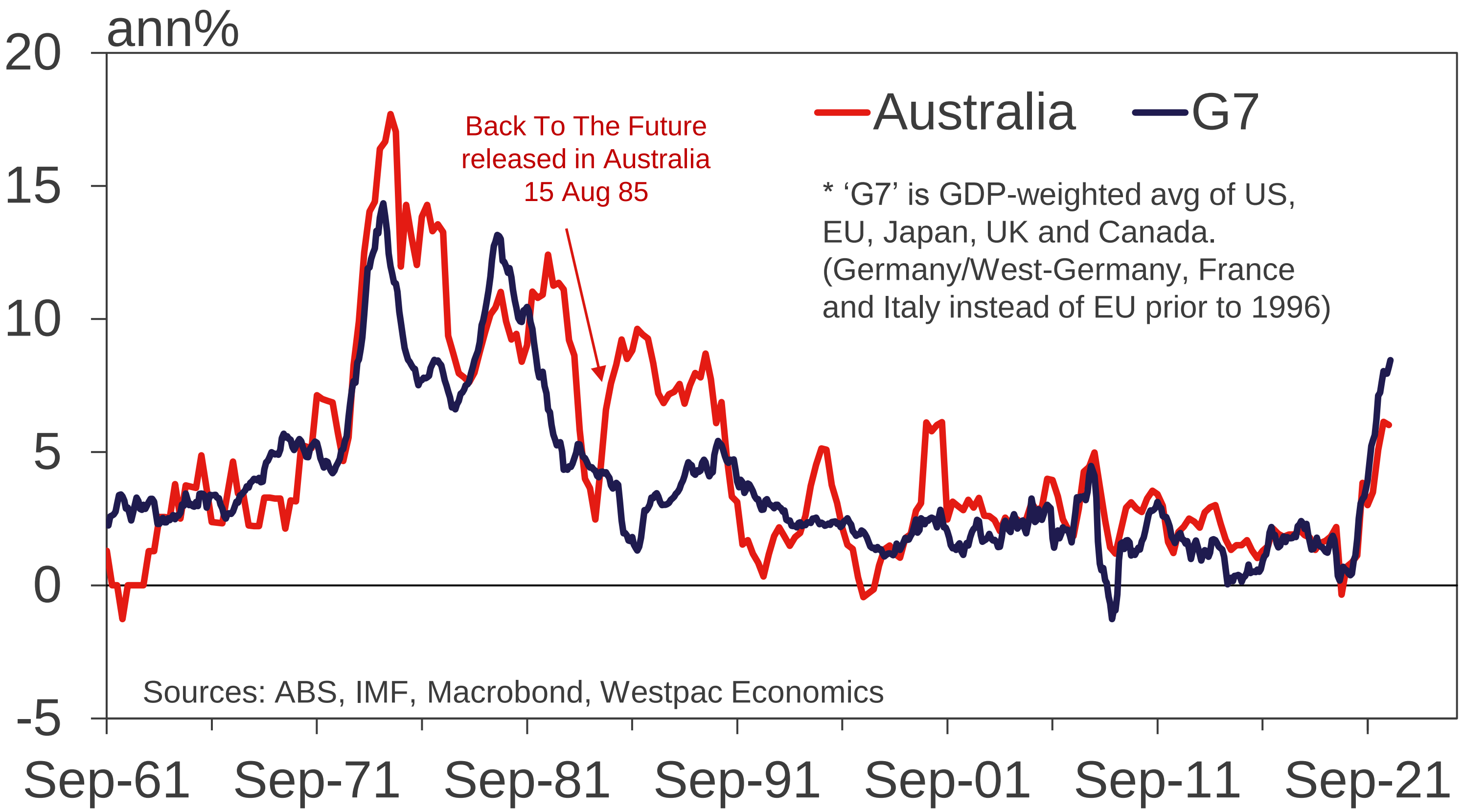
Temporary fuel price relief from lower crude prices





Inflation, 1970's & '80's vs now

Australian inflation has tended to move with global inflation

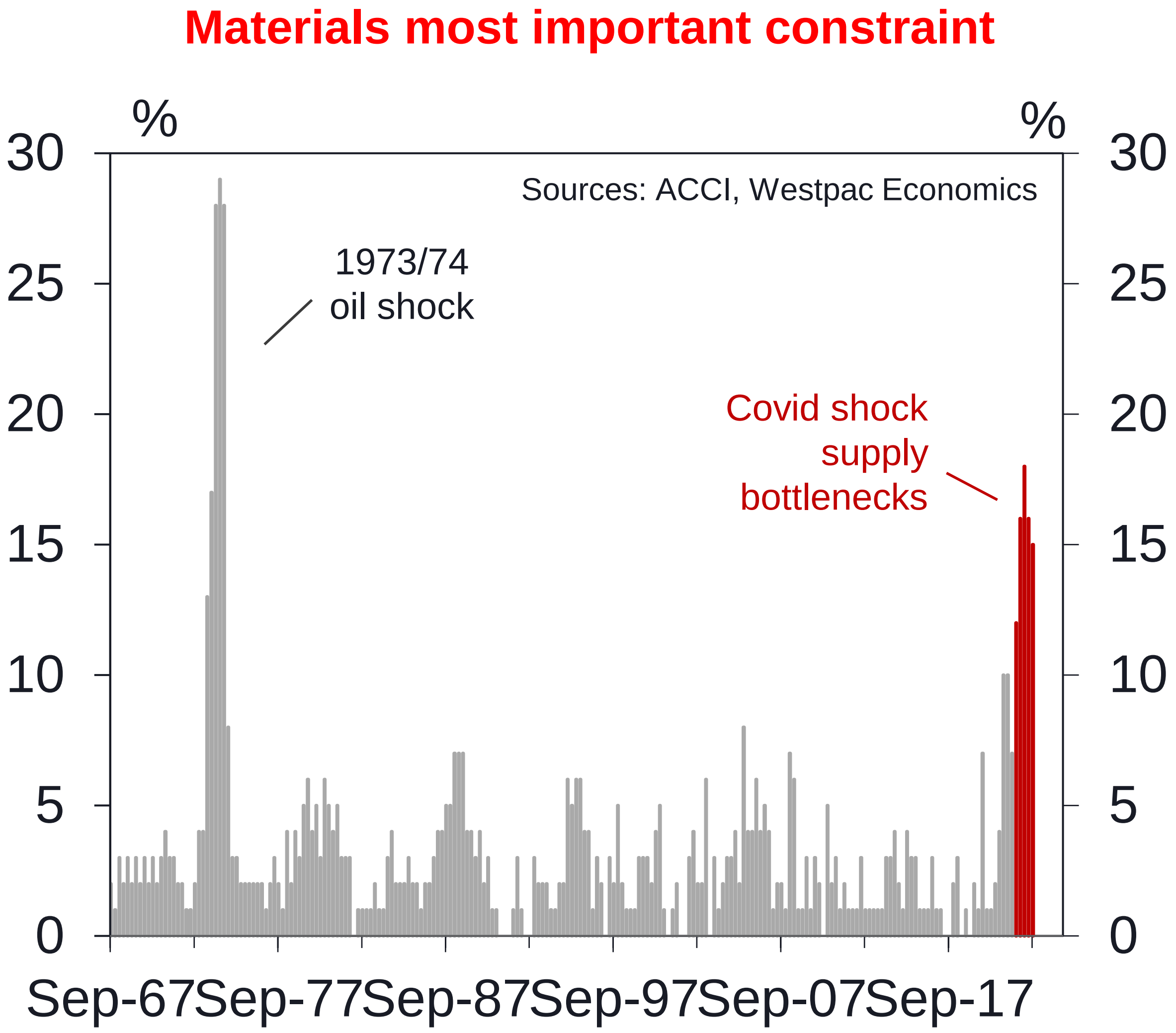


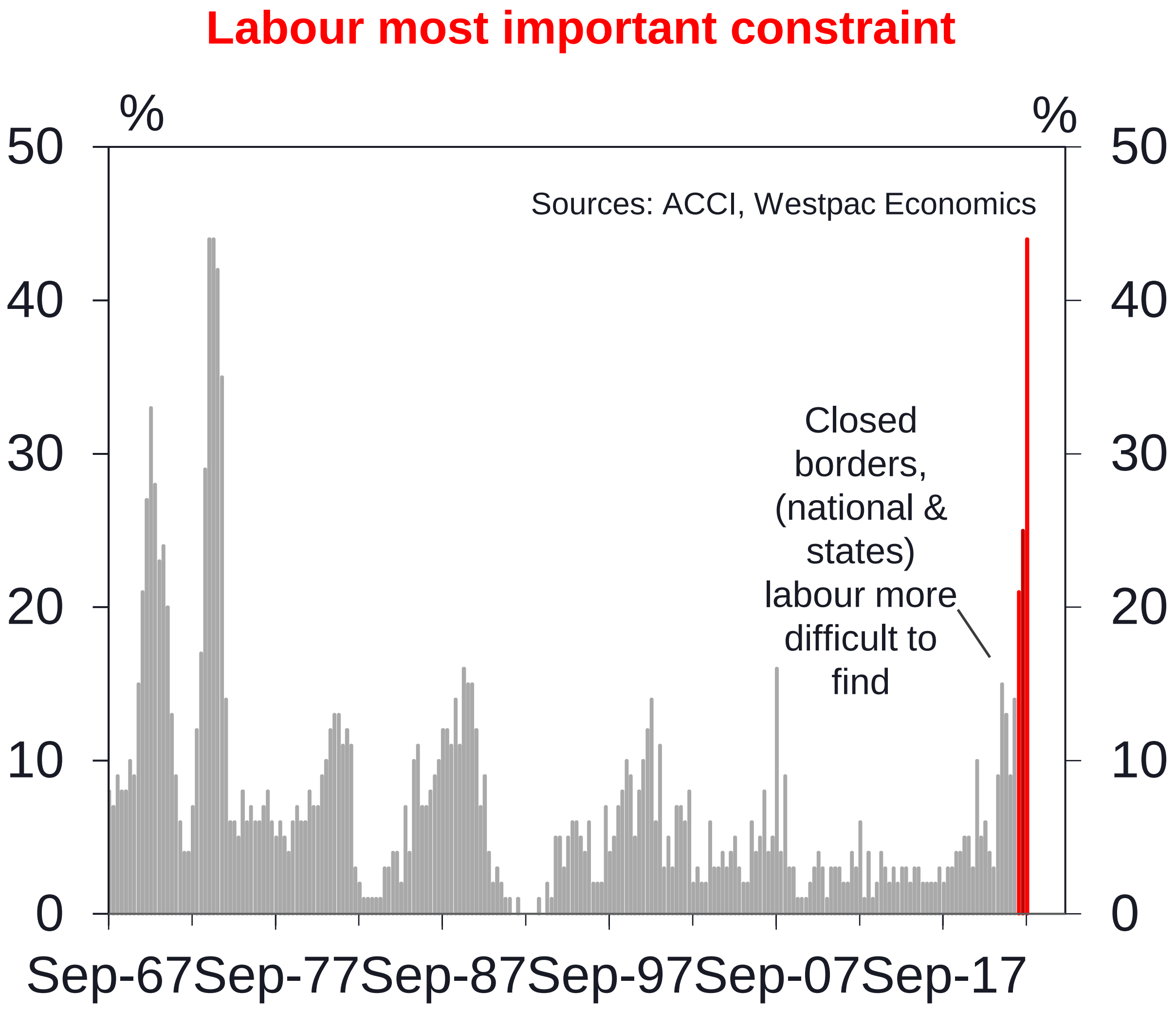
Inflation hitting 40yr high with biggest annual lift in nearly 50yrs.

Key differences this time compared with the 1980s:

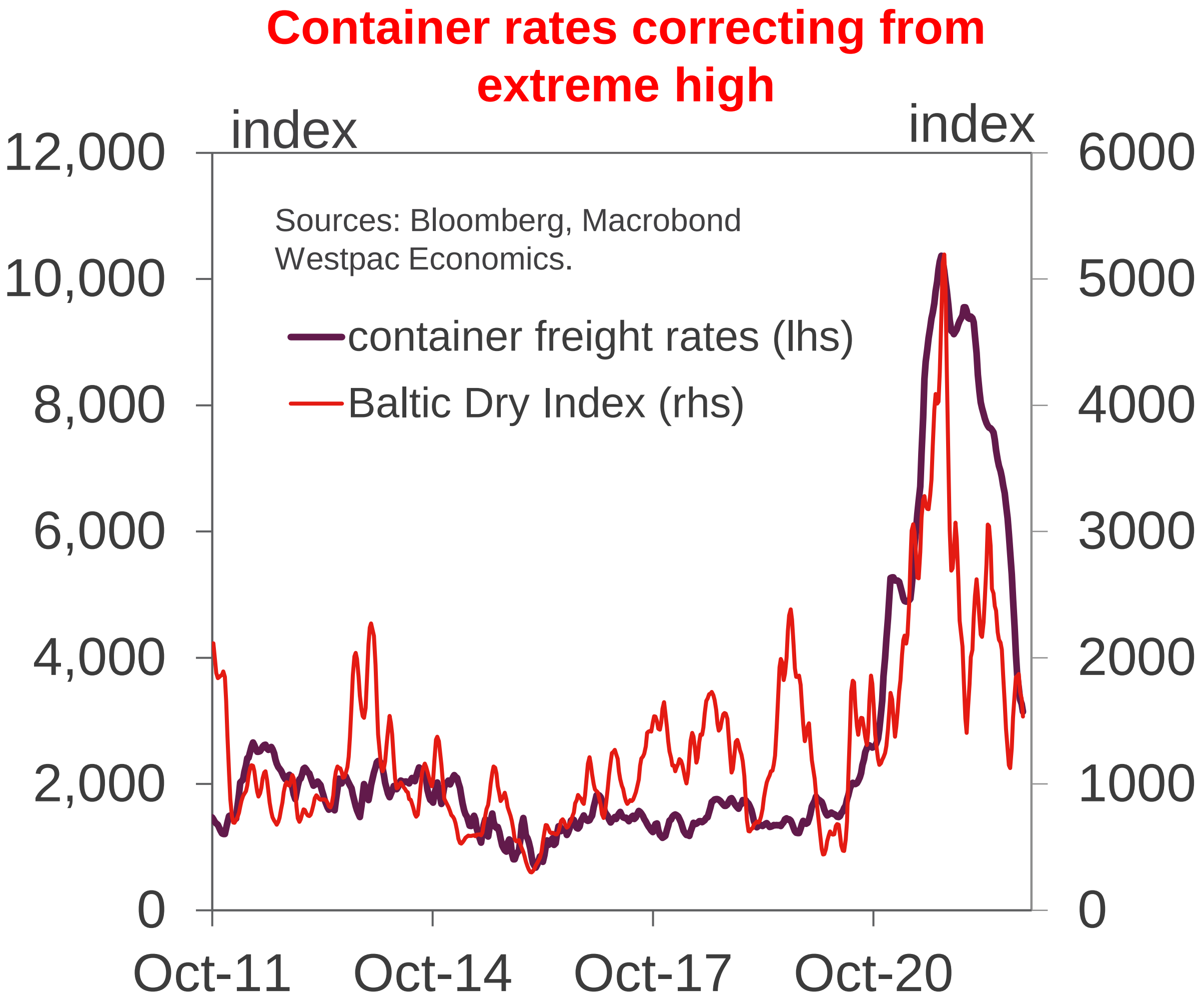
- scale and duration of shocks,
- economy's energy dependence,
- structural rigidities (i.e. labour market structure, corporate strategies, globalisation), and
- central bank independence and inflation based mandates.

Covid biggest supply shock to hit Australia since 1970's

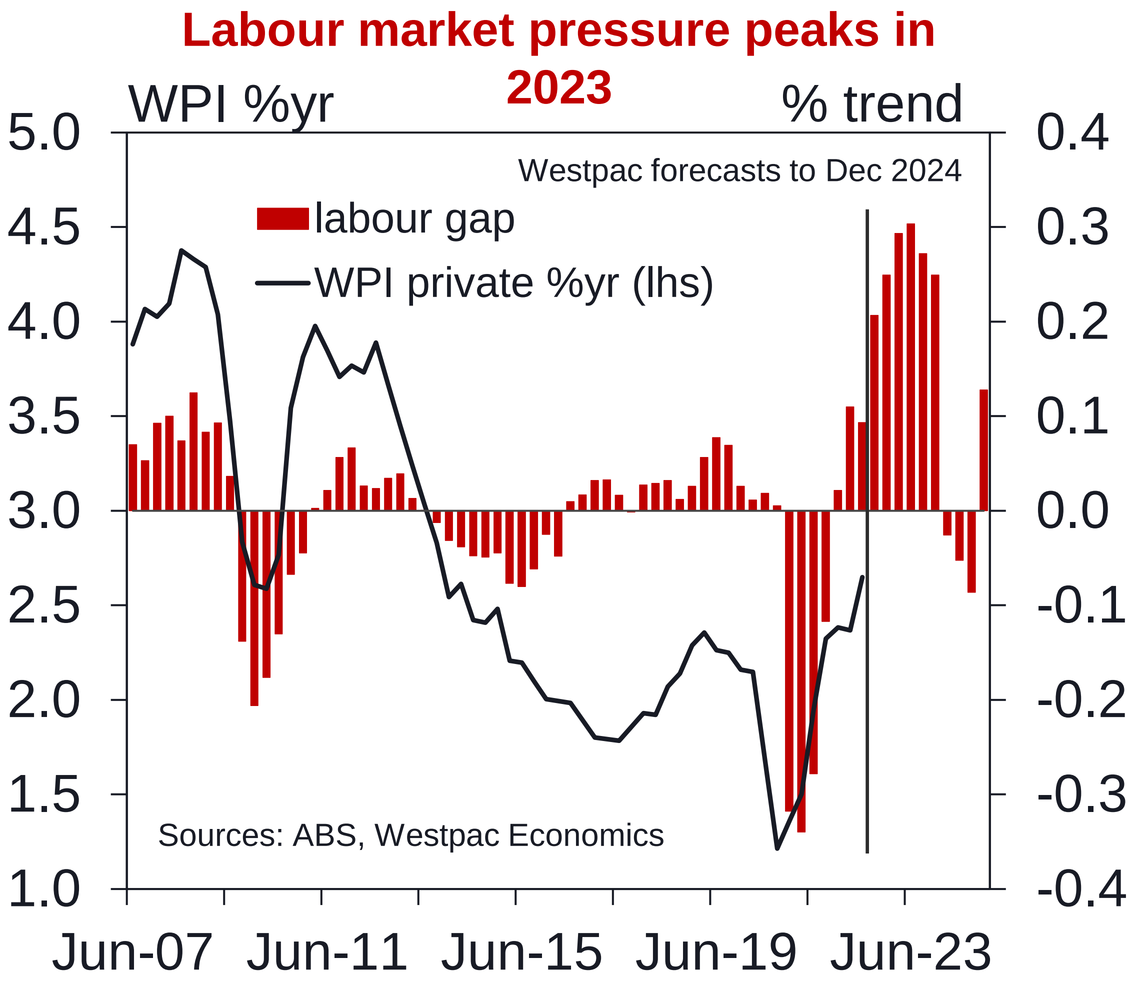




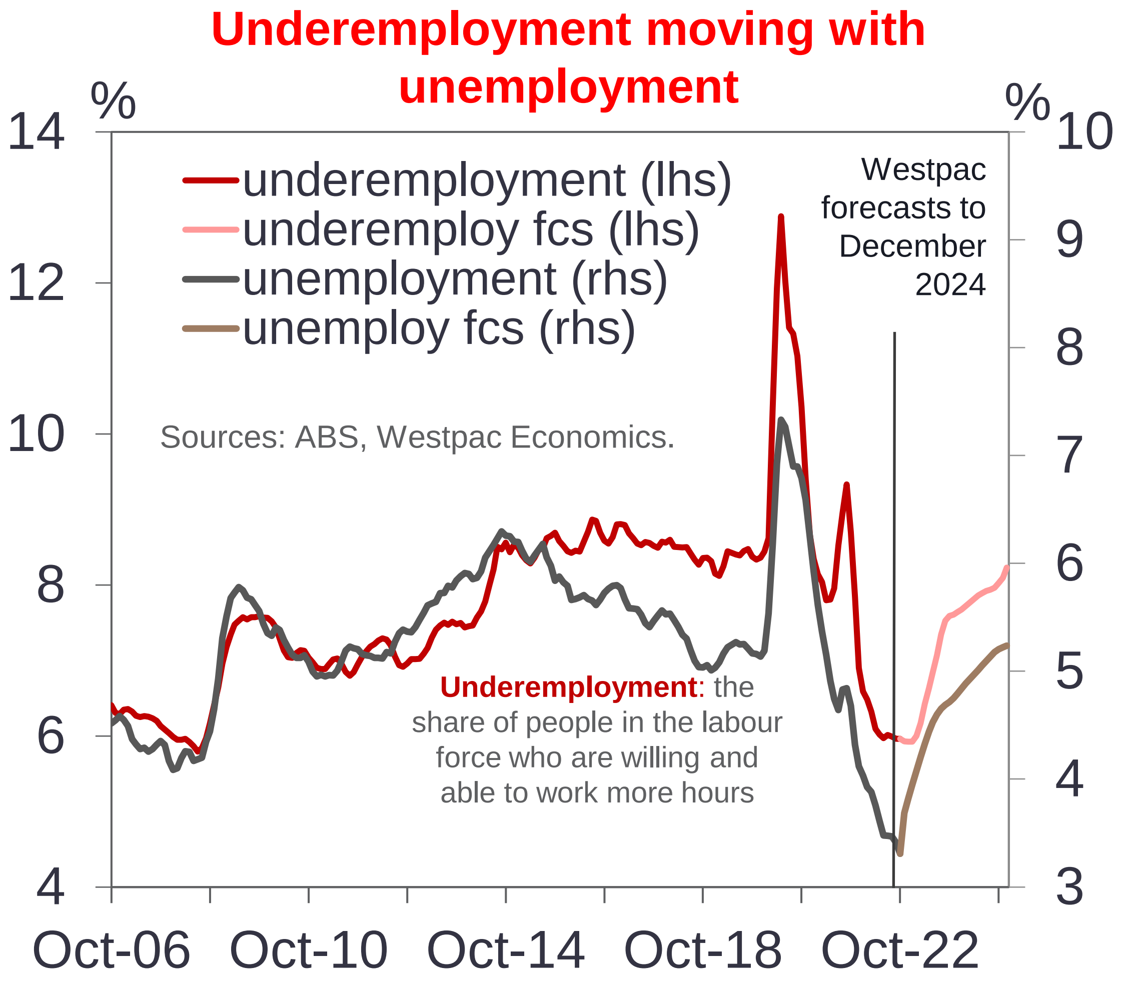
Shipping rates ease, container rates fall as supply chains improve

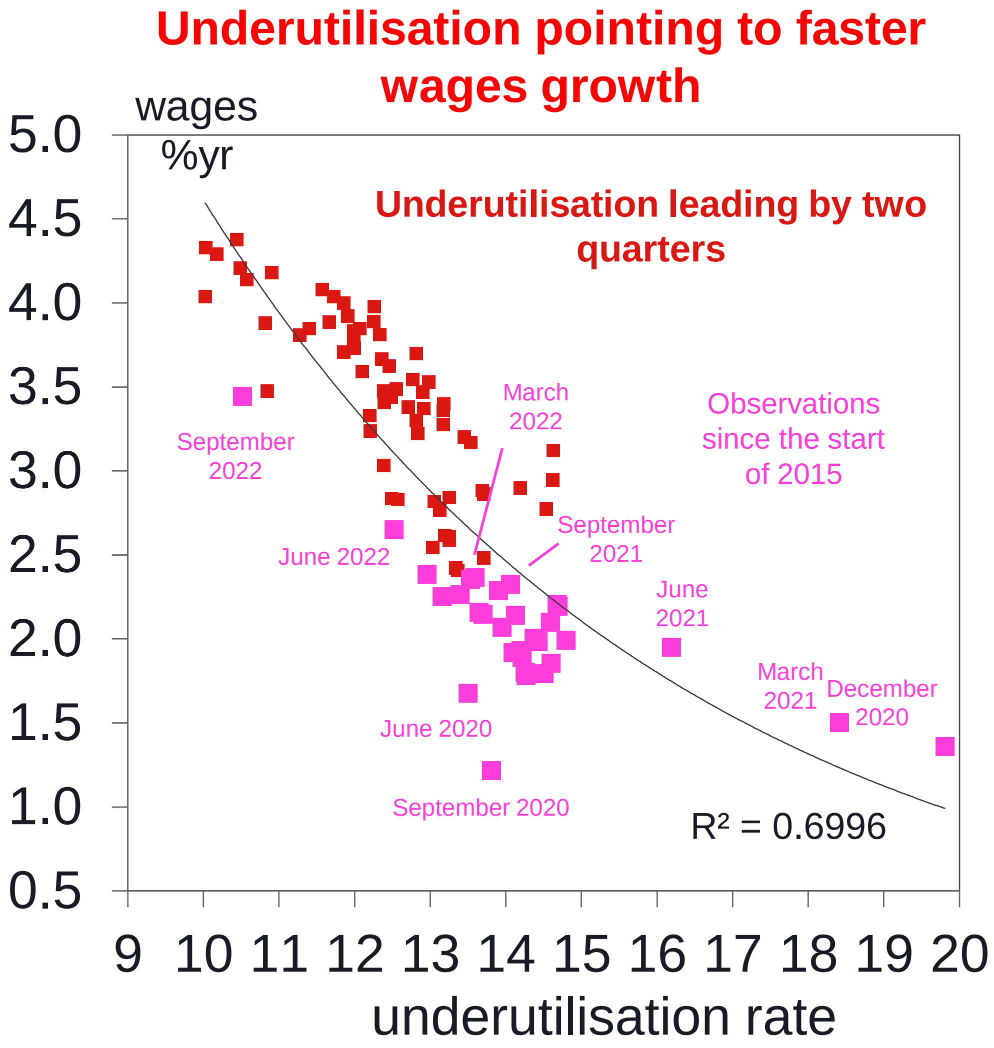


Labour market is as tight as it has ever been



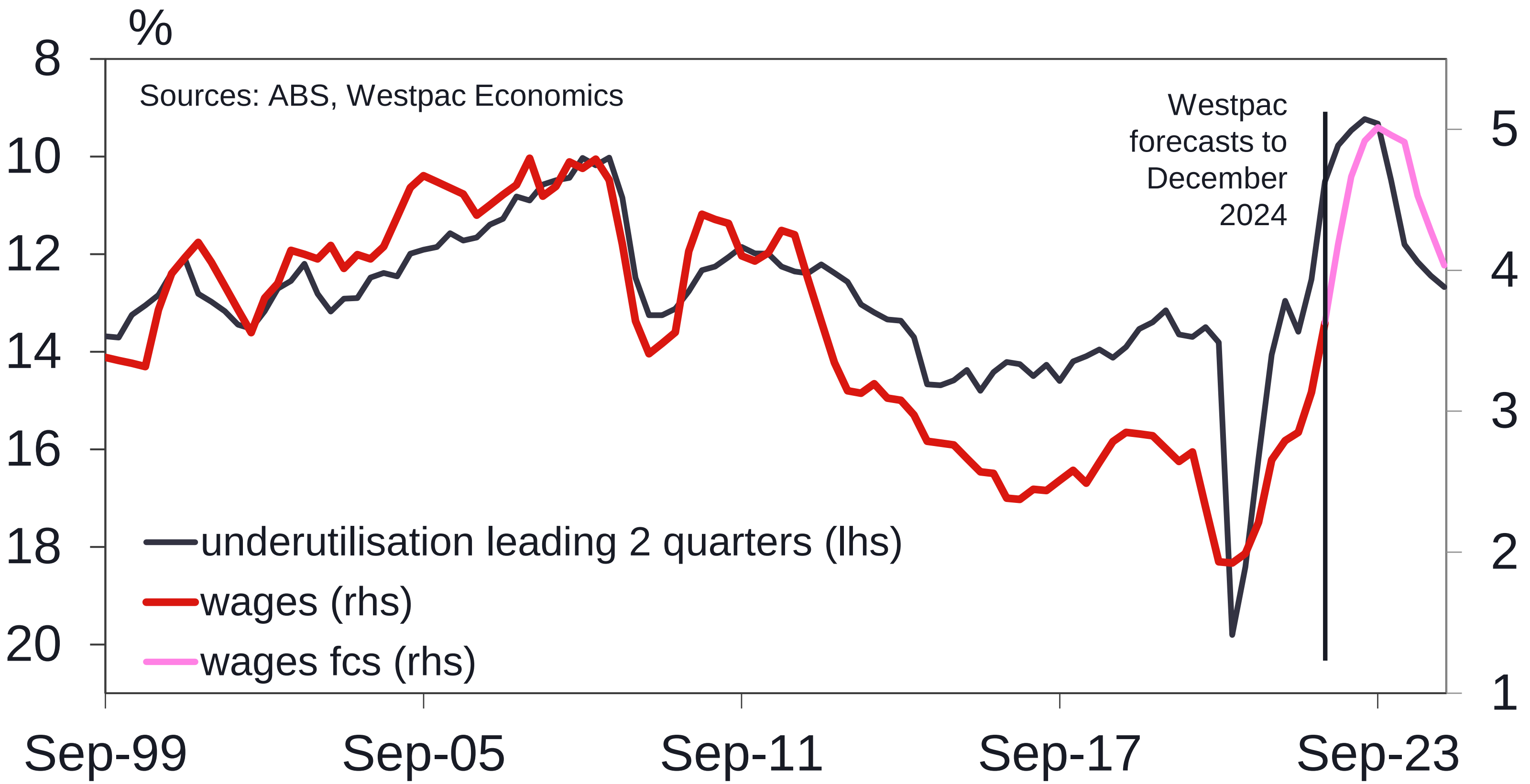
A tight labour market has, and will continue to, lift wages





The lagged effect of a tight labour market

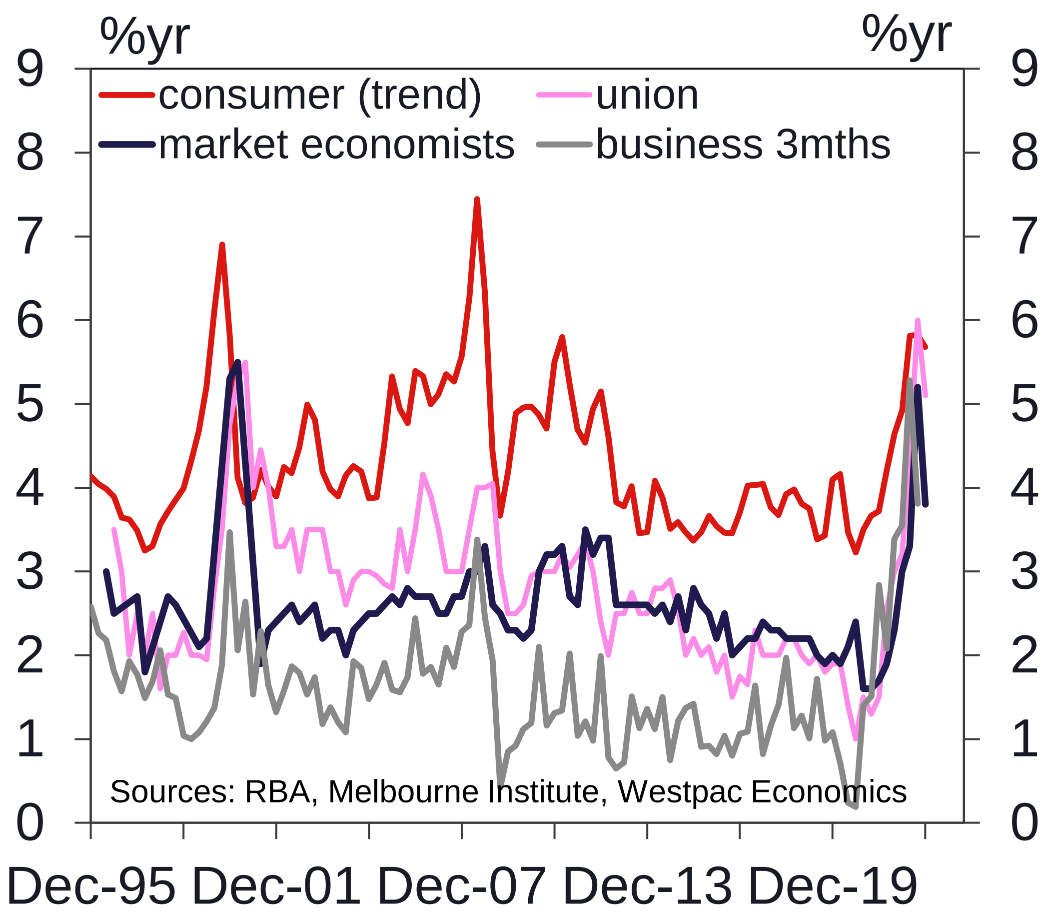
The fall in underutilisation has set in train a lift in wages



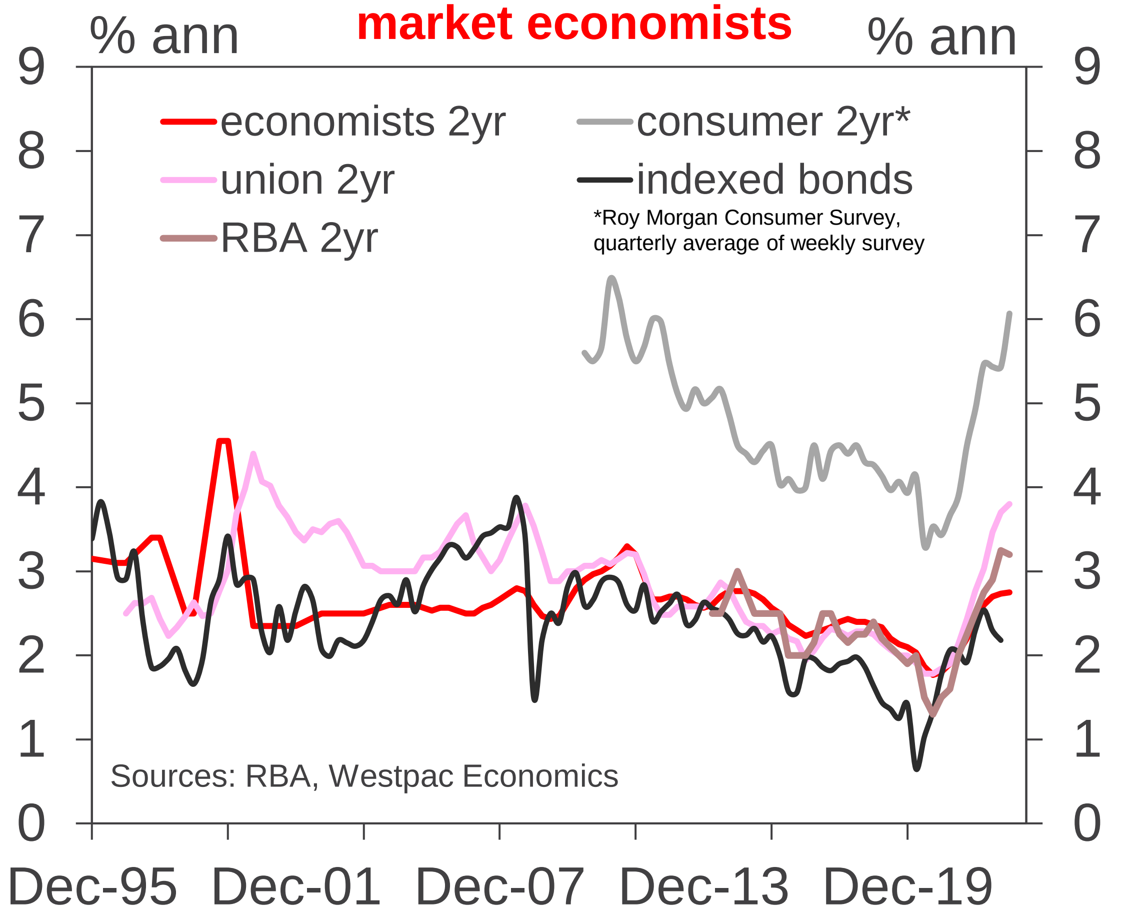
- The earlier fall in underutilisation, and the outsized gain in the minimum wage/awards rates of pay in 2022, have set in train forces that are set to lift wages to around 5% by the second half of 2023.
- The change in underutilisation hits wage inflation with a 2 quarter (six month) lag.
- We see wage inflation peaking in the second half of 2023 as the underutilisation rate starts to lift in early 2023 leading to an easing in wage pressures, thus softer wage outcomes, in late 2023
- This is based on the dynamics we have observed in the labour market for the last 20 year which is most strongly noted in individual wage bargaining arrangements.
- The risk is that higher inflationary expectations become embedded into awards/enterprise bargaining negotiations locking in higher wage claims at a time when unemployment has started to rise.

Near term inflation expectations appear to be peaking

Near term, 1yr, inflation expectations

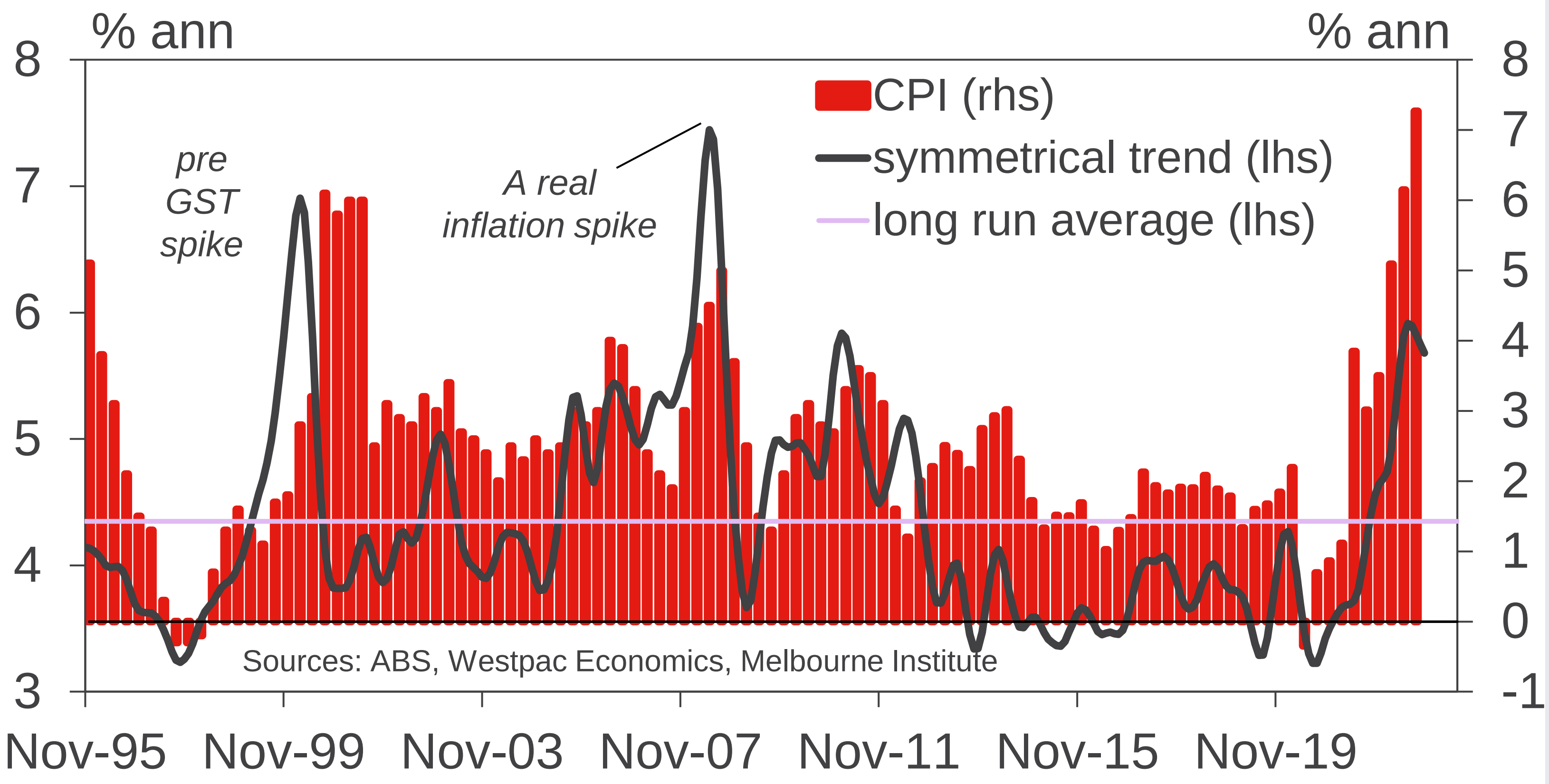


RBA expectations split unions & market economists



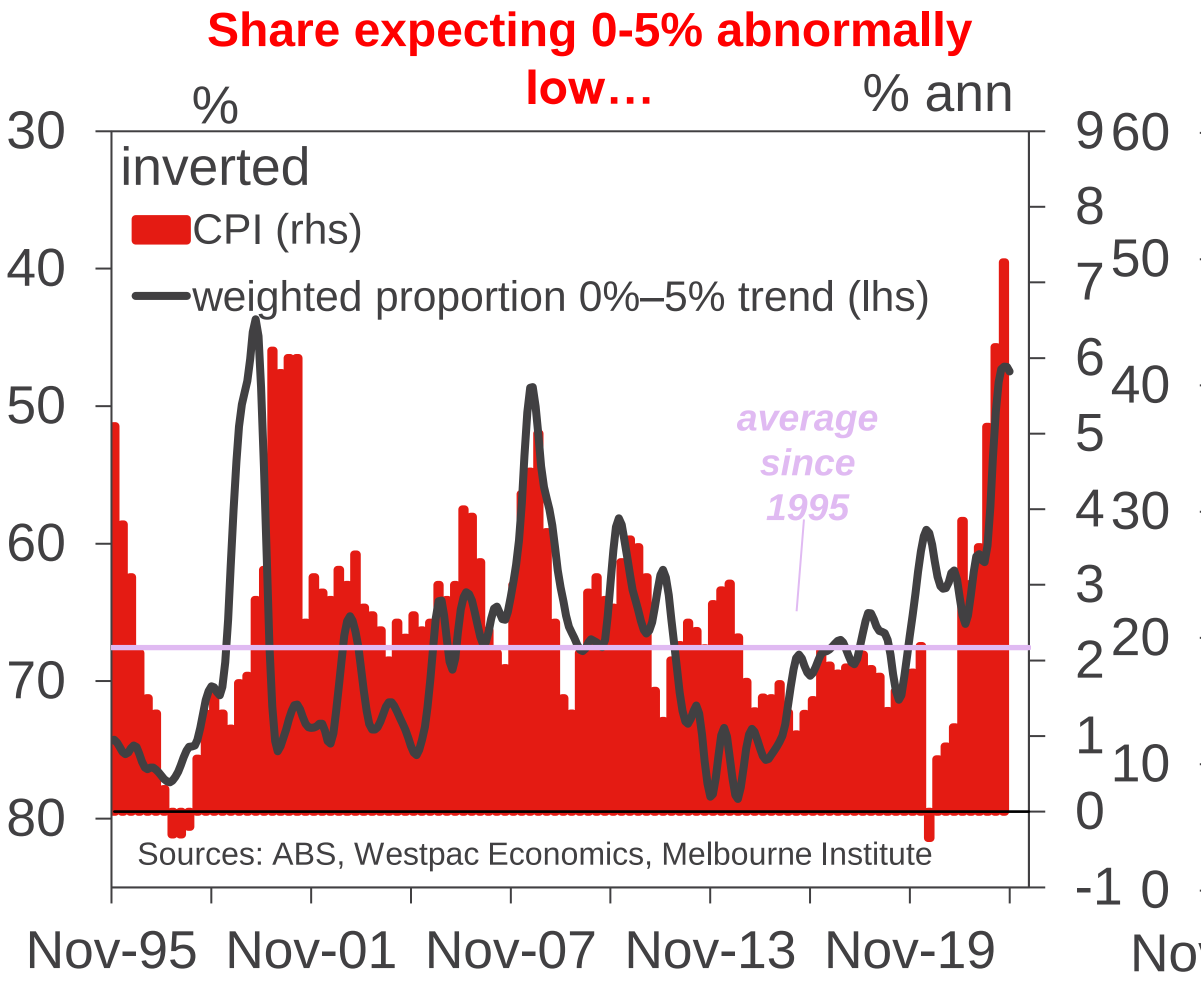
Consumer inflation expectations

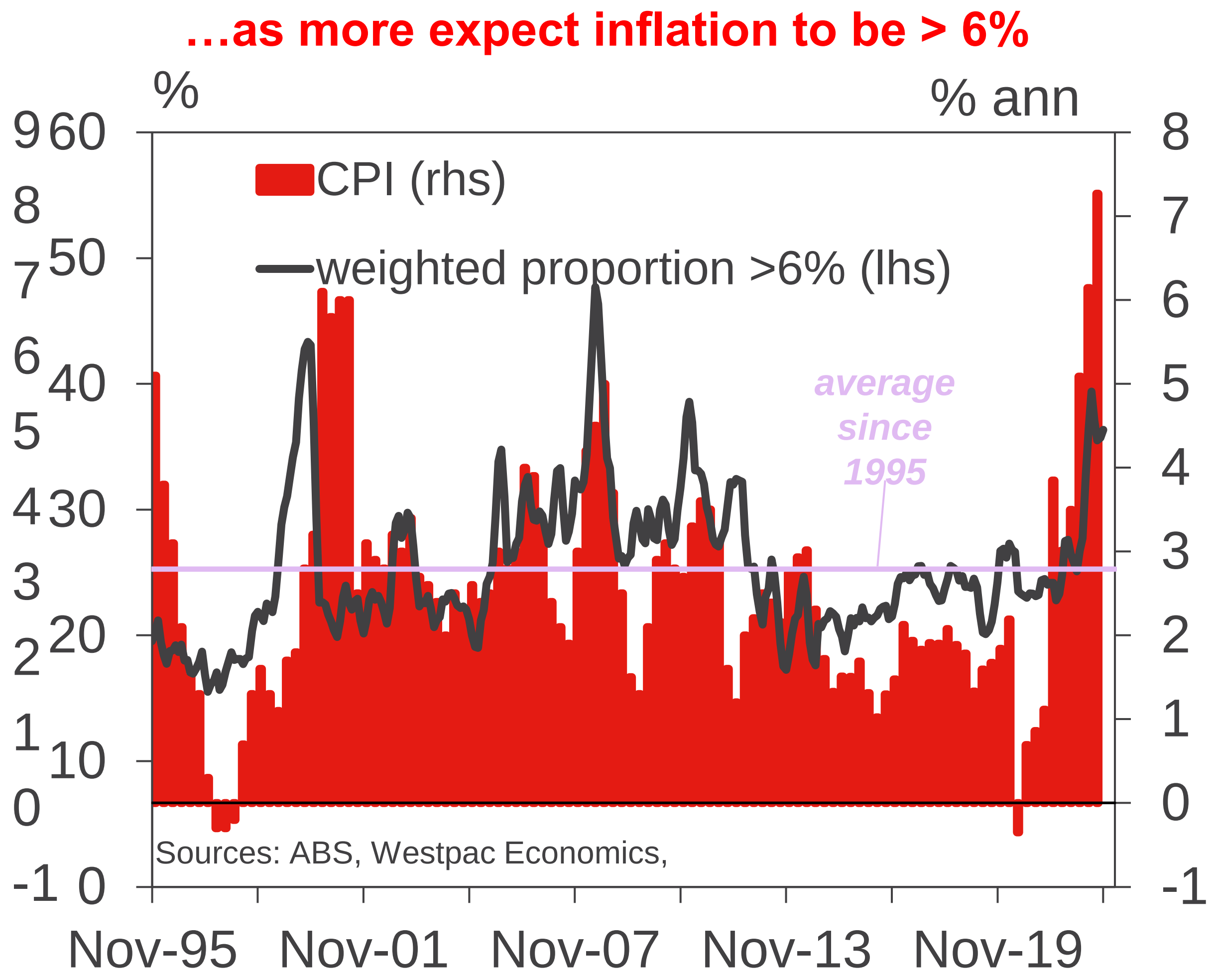
Not as high as the peak seen during the mining boom



- Near term (1 year) inflationary expectation appear to have found a peak in Q3 2022.
- Business, union and market economist expectation are off their earlier high while consumer expectations are only just starting to tip over. This is consistent with the idea inflation could peak in late 2022 or early 2023.
- However, medium term (2 year plus) expectations, which have not lifted as much as near term expectations, are still yet to set a definitive peak. Consumer expectations are still rising, as are union expectations with the later at a lower level.
- Market economist medium term expectations are flattening while bond market expectations have started to ease.
- The share of those expecting inflation to be within 0%-6% declines, and share of those expecting more than 6% climbs, pointing to greatest increase in inflationary expectations since 2008.
- However, it appears expectations are no worse than they were at the peak of the mining boom.

Expectations are breaking out of the 0%-6% range





Peak

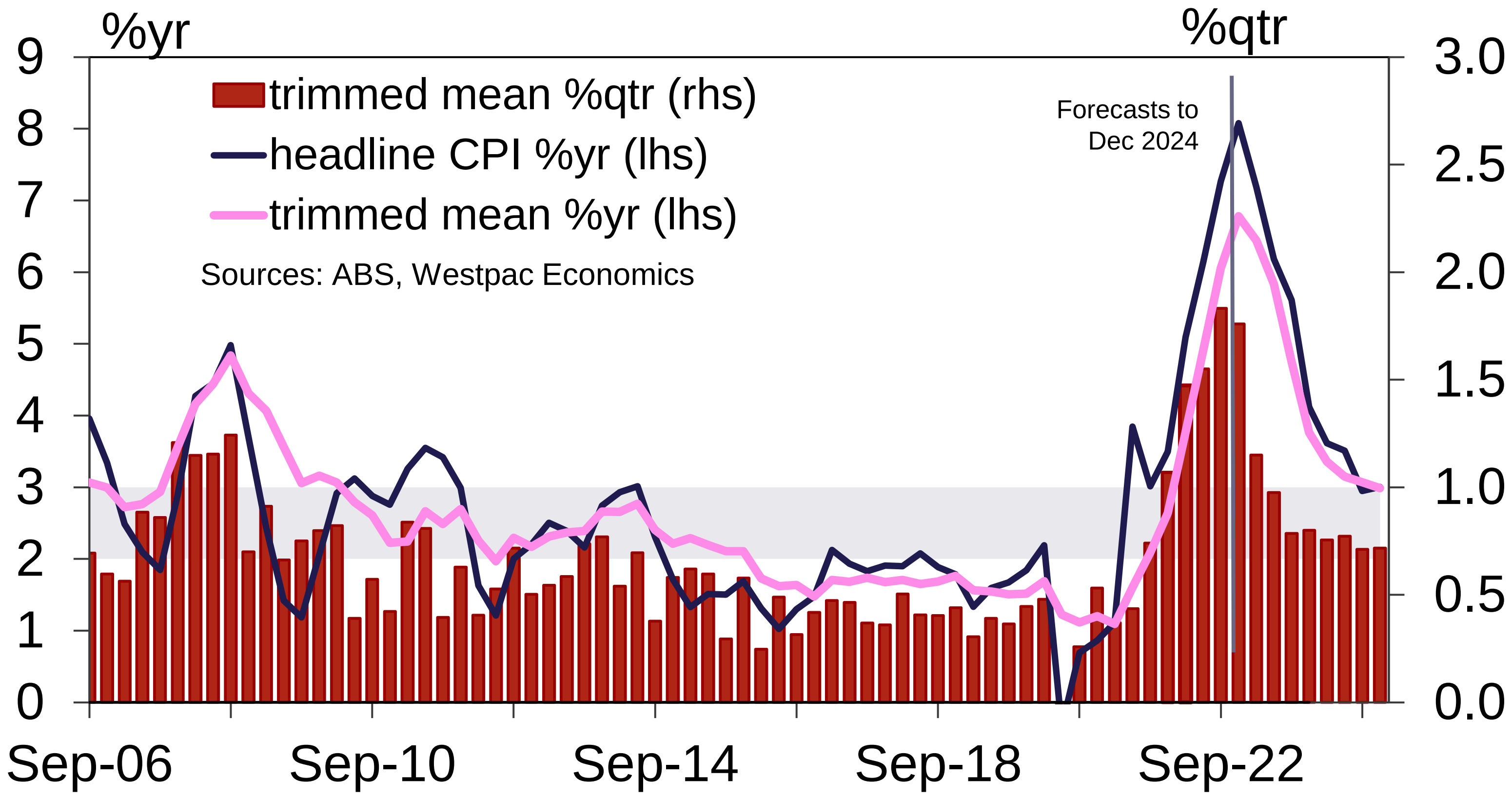
Inflation is now forecast to peak at 8.1%yr in Q4 2022. The reversing of the fuel excise cut, and expiration of power/cost of living rebates, boost inflation in Q4.

Breakdown of next four quarters

CPI forecasts	Dec-22		Mar-23		Jun-23		Sep-23	
Item	% qtr	contrib	% qtr	contrib	% qtr	contrib	% qtr	contrib
Food	1.9	0.33	1.4	0.23	0.6	0.10	0.2	0.03
of which, fruit & vegetables	0.6	0.01	2.5	0.06	1.0	0.02	-1.8	-0.05
Alcohol & tobacco	1.6	0.15	0.4	0.04	0.3	0.03	0.2	0.02
of which, Tobacco	2.8	0.11	0.3	0.01	0.2	0.01	0.8	0.03
Clothing & footwear	1.2	0.04	-0.4	-0.01	1.1	0.04	-0.4	-0.01
Housing	3.6	0.84	2.1	0.50	1.5	0.34	3.8	0.90
of which, Rents	1.8	0.12	1.6	0.11	1.3	0.09	1.1	0.07
of which, House purchases	3.5	0.29	2.5	0.21	2.0	0.17	1.5	0.13
of which, Utilities	8.4	0.38	3.1	0.14	1.0	0.04	13.8	0.63
H/hold contents & services	1.5	0.14	-0.3	-0.03	1.8	0.16	0.0	0.00
Health	-0.3	-0.02	2.4	0.16	0.9	0.06	0.0	0.00
of which, Pharmaceuticals	-1.4	-0.02	5.9	0.06	-1.3	-0.01	-2.3	-0.02
Transportation	2.4	0.26	-0.4	-0.04	-0.3	-0.03	0.5	0.05
of which , car prices	1.1	0.03	-0.1	0.00	0.1	0.00	0.0	0.00
of which, auto fuel	5.2	0.19	-2.1	-0.08	-2.5	-0.09	-0.2	-0.01
Communication	0.8	0.02	1.4	0.03	0.4	0.01	0.9	0.02
Recreation	2.6	0.23	0.5	0.05	0.7	0.06	1.4	0.12
of which, audio visual & computing	0.9	0.02	-0.8	-0.01	0.8	0.01	0.8	0.02
of which, holiday travel	6.8	0.15	-0.3	-0.01	-0.3	-0.01	2.8	0.06
Education	0.0	0.00	5.9	0.28	0.0	0.00	0.1	0.00
Financial & insurance services	1.8	0.09	1.7	0.09	1.5	0.08	1.6	0.08
CPI: All groups	**2.10**	–	**1.30**	–	**0.83**	–	**1.27**	–
CPI: All groups % year	**8.08**	–	**7.18**	–	**6.19**	–	**5.61**	–
Core inflation	**%qtr**	**%qtr**	**%qtr**	**%qtr**	**%yr**	**%yr**	**%yr**	**%yr**
	Dec-22	**Mar-23**	**Jun-23**	**Sep-23**	**Dec-22**	**Mar-23**	**Jun-23**	**Sep-23**
CPI seasonally adjusted	2.26	1.14	0.90	1.19	8.2	7.2	6.3	5.6
CPI ex housing	1.23	0.78	0.47	0.30	6.4	5.1	4.0	2.8
Weighted median	1.75	1.20	1.03	0.96	5.8	5.9	5.5	5.0
Trimmed mean	1.80	1.15	0.98	0.78	6.8	6.5	5.9	4.8
Average RBA core	1.78	1.18	1.00	0.87	6.3	6.2	5.7	4.9
Traded good & services	1.7	0.1	0.5	0.4	9.0	6.1	3.9	2.8
Non-traded goods & services	2.3	2.0	1.1	1.8	7.7	7.9	7.6	7.3

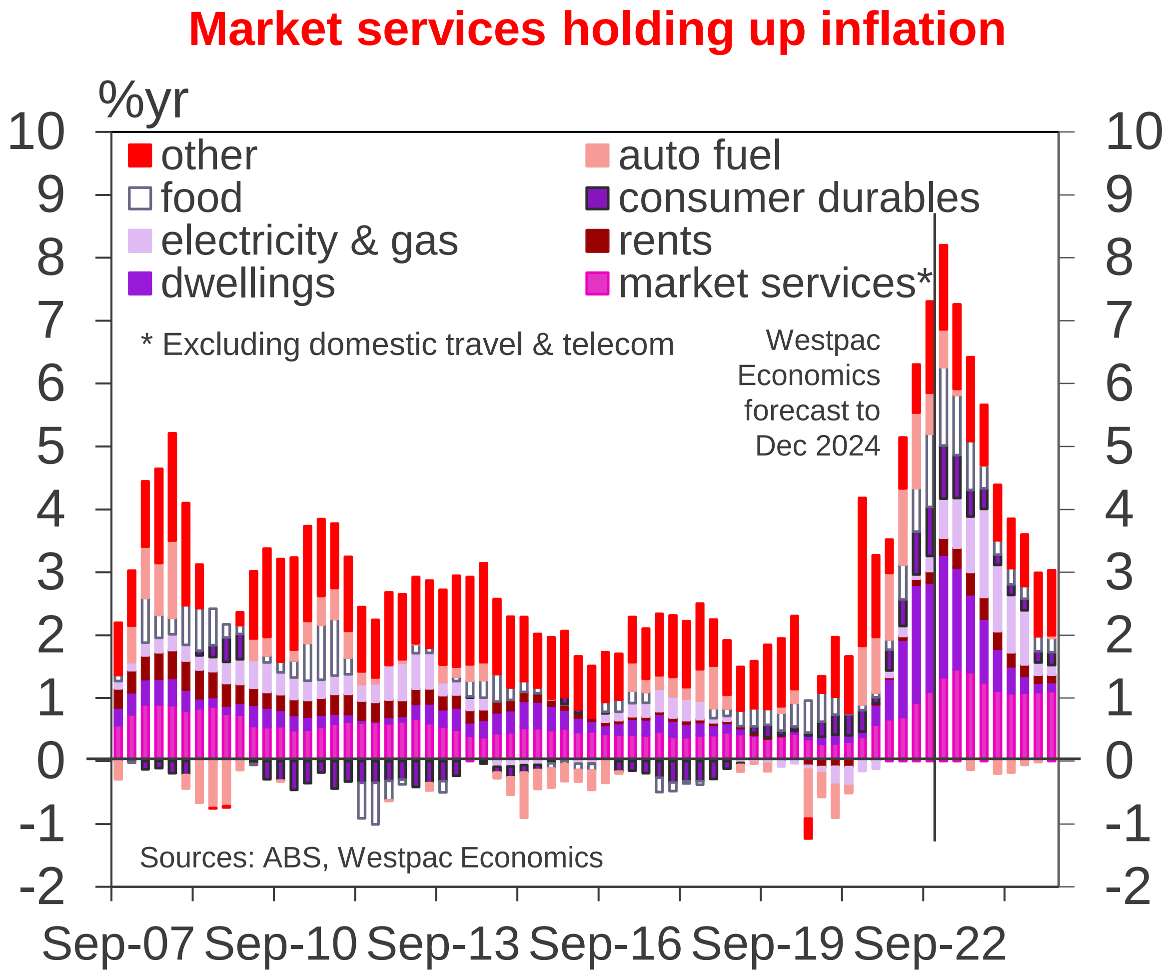
End 2022 to see the peak in inflation

Moderating dwellings, falling fuel



- Key to why our inflation forecasts peak in late 2022 then moderate though 2023;
  - Food prices stabilise though 2023 as seasonal conditions stabilise and supply chains improve.
  - Durable goods pressure ease as global supply chains improve & freight rates come down.
  - Dwelling price inflation moderates in the face of falling established home prices.
  - Car price flatten as supply chains improve.
  - Auto fuel prices ease on the back of falling crude oil prices.
  - Rising unemployment and below trend growth in 2023 and 2024 widen the output gap shifting the macro settings from being inflationary to disinflationary.
  - Why the big gap between our end 2023 CPI forecast (4.1%) and the RBA (4.7%)?
- We suspect it is the RBA's assumptions for steady crude oil prices, a stable currency (we have crude falling and AUD strengthening) as will as our larger widening of the output gap that explains the difference.

Contribution to annual inflation

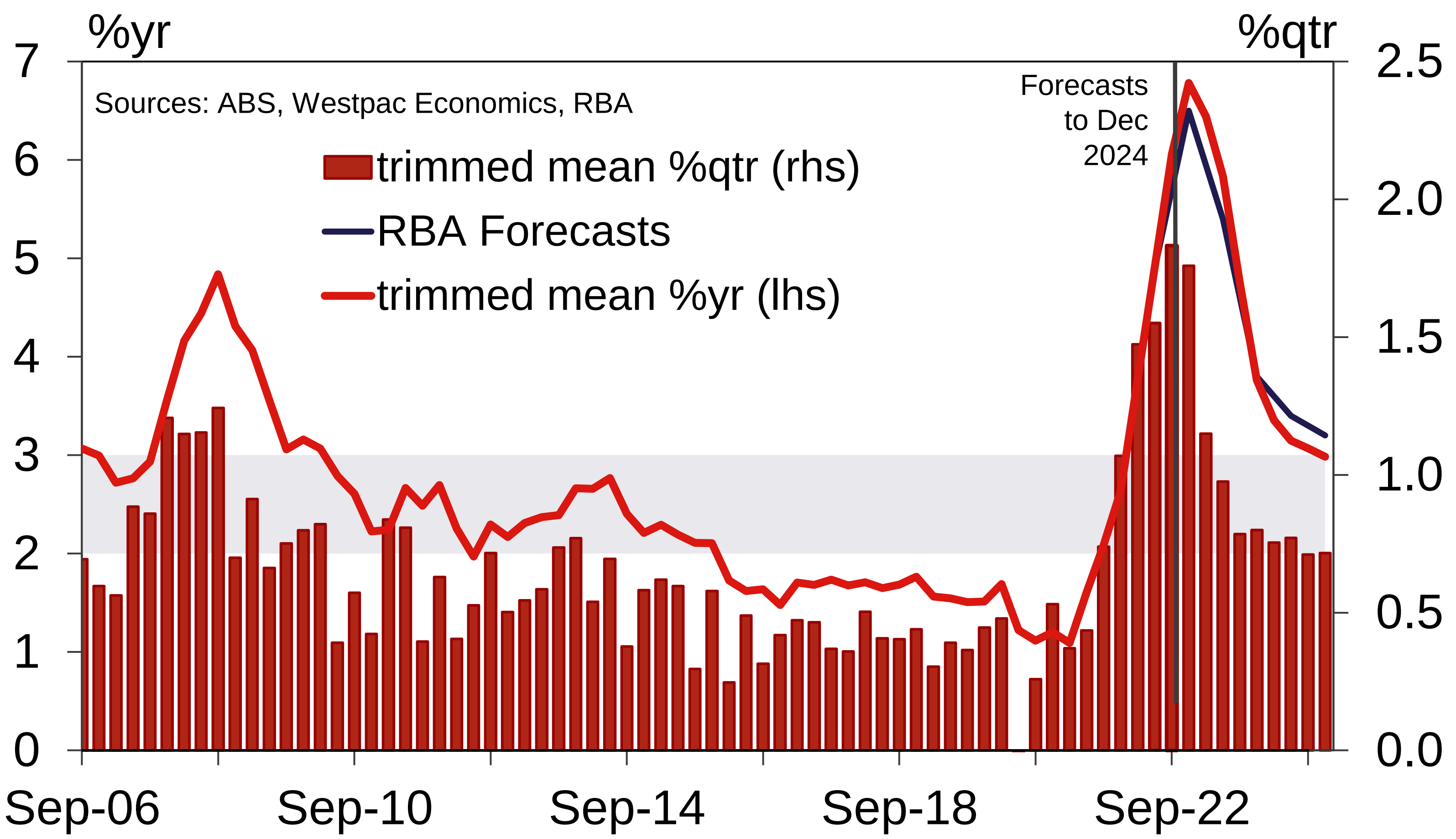


CPI forecasts	Dec-22		Dec-23	
Item	%yr	contrib	%yr	contrib
Food	10.0	1.76	2.9	0.49
of which, fruit & vegetables	16.7	0.44	1.0	0.02
Alcohol & tobacco	4.7	0.42	2.3	0.20
of which, Tobacco	5.9	0.21	5.0	0.18
Clothing & footwear	3.9	0.13	0.1	0.01
Housing	11.9	2.99	7.9	2.06
of which, Rents	4.4	0.27	4.6	0.28
of which, House purchases	18.6	1.95	6.3	0.67
of which, Utilities	14.1	0.64	18.7	1.04
H/hold contents & services	7.9	0.75	2.0	0.18
Health	2.6	0.16	3.0	0.18
of which, Pharmaceuticals	1.3	0.01	0.0	0.00
Transportation	8.5	0.94	-0.4	-0.04
of which , car prices	3.8	0.11	-0.3	-0.01
of which, auto fuel	16.1	0.60	-5.9	-0.20
Communication	2.7	0.06	3.3	0.08
Recreation	6.0	0.52	4.6	0.39
of which, audio visual & computing	2.2	0.04	0.3	0.01
of which, holiday travel	12.5	0.27	8.0	0.18
Education	4.5	0.20	6.1	0.28
Financial & insurance services	4.7	0.27	6.6	0.38
CPI: All groups	**8.1**	–	**4.1**	–

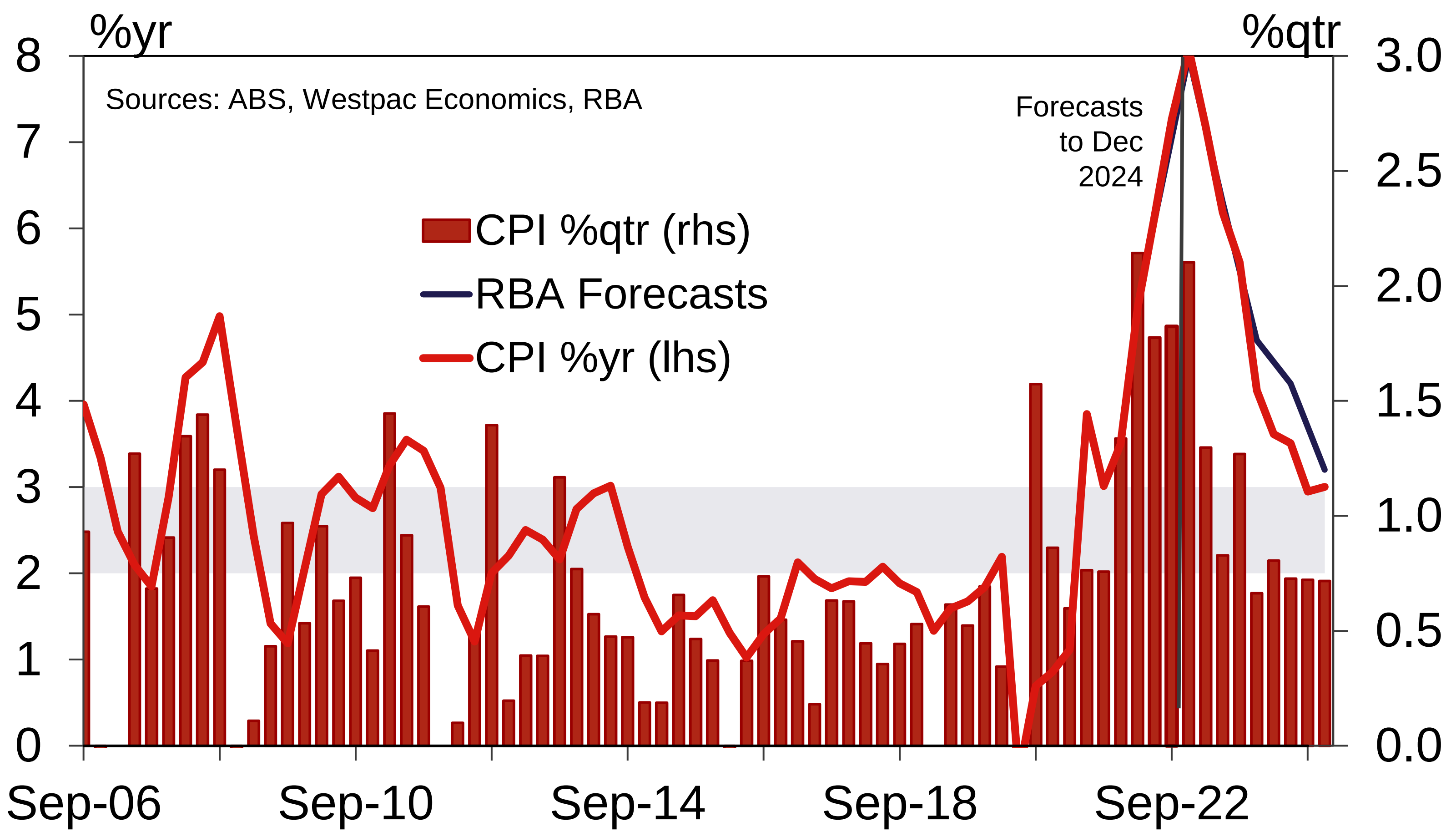
Peak

Core inflation to peak in late 2022 with the pace continuing to moderate out to 2023.

Westpac vs. RBA core inflation forecasts



Westpac vs. RBA CPI forecasts



Crude

The decline in crude oil prices is critical to the decline in headline inflation. Domestic economic slack will enhance the disinflationary pulse as will the moderation in energy price inflation in 2024.

Macroeconomic factors & inflation

Disinflationary to end 2023 then modestly inflationary

	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
AUD/USD	0.65	0.66	0.67	0.68	0.71	0.73	0.74	0.74	0.75
AUD/USD %yr	-10.9	-9.4	-6.7	0.0	9.4	10.7	10.5	8.3	5.2
TWI	61.2	61.2	61.0	61.5	62.8	62.9	63.4	62.8	63.2
TWI %yr	-0.4	0.0	-2.7	-1.8	2.6	2.9	3.9	2.1	0.7
Brent US$bbl	92	87	86	89	91	95	102	108	113
Brent %yr	16.5	-9.3	-21.4	-6.8	-0.8	10.0	18.5	21.7	24.1
Output gap t-3	0.93	0.31	-0.13	-0.40	-0.48	-0.57	-0.63	-0.65	-0.56

Consumer Price Index										
		Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
CPI	(index)	131.1	132.8	133.9	135.6	136.5	137.6	138.6	139.6	140.6
	(%qtr)	2.1	1.3	0.8	1.3	0.7	0.8	0.7	0.7	0.7
	(%yr)	8.1	7.2	6.2	5.6	4.1	3.6	3.5	2.9	3.0
Trimmed mean#	(%qtr)	1.8	1.1	1.0	0.8	0.8	0.8	0.8	0.7	0.7
	(%yr)	6.8	6.5	5.9	4.8	3.8	3.4	3.2	3.1	3.0

- The currency shifts from being inflationary force to disinflationary in the second half of 2023.
- Crude oil is set to move into an inflationary pulse as we move through 2023.
- As unemployment starts to rise thought 2023 the lagged impact of the widening of the output gap, should start to appear as a moderation in the pace of inflation as 2023 ends.
- Moving into 2024 wage inflation should also be moderating adding another leg to the disinflationary dimension unfolding.

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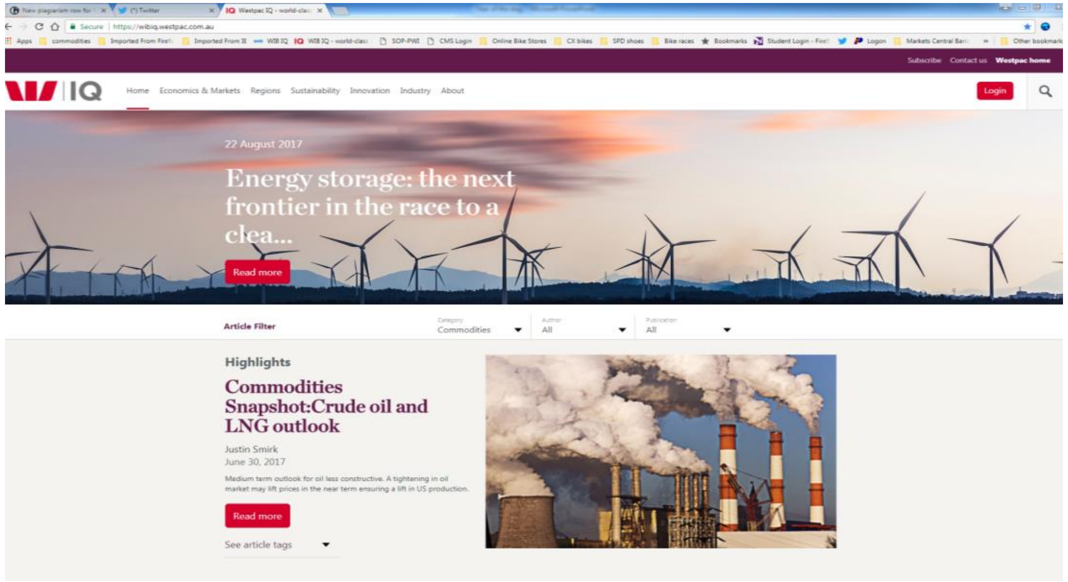

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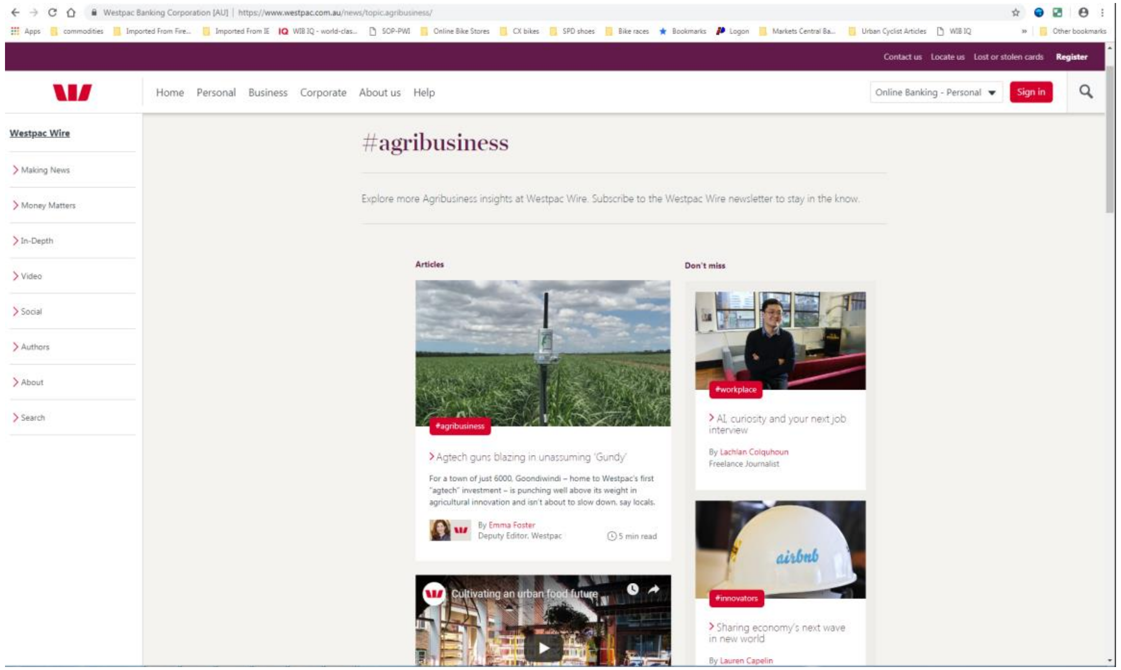

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