Forecasting Australian new motor vehicle prices

Background

The Economics@ANZ motor vehicle price model aims to forecast the price index for new cars as published by the Australian Bureau of Statistics in the quarterly Consumer Price Index release.

The forecasts should therefore be used with caution for the following reasons.

- The forecasts are for new cars rather than used cars. In countries such as New Zealand that have reliable used car indices, it can be shown that the relationship between new and used cars is reasonably stable. Nevertheless price movements in new cars can diverge from those of used cars.
- The index is an average across all new makes and models. Average movements can mask different price paths for individual models.
- The price index is quality-adjusted and can therefore not easily be directly compared to nominal price changes. If a manufacturer releases a new model of a vehicle that is better than its predecessor at the same price, then this is reflected as a price fall. Similarly if the same car is released at the same price, but is sold with previously optional extras as standard, then this is also considered a fall in price.

The model

Pricing in the Australian motor vehicle market is extremely competitive. Motor vehicle prices are predominantly affected by domestic input costs, such as the price of labour. However, given the increasingly globalised nature of motor vehicle manufacturing, it is no surprise that Australian car prices are also strongly affected by price movements of foreign manufacturers. Australian final car prices appear particularly sensitive to prices in Japan, the United States, Germany and Korea, which are Australia's four major sources of automotive imports.

The forecasts are based on an econometric model with the following explanatory variables: Australian underlying inflation[1] and a composite import price variable that approximates the cost of importing vehicles from Japan, the United States, Germany and Korea into Australia. The import price variable is based on:

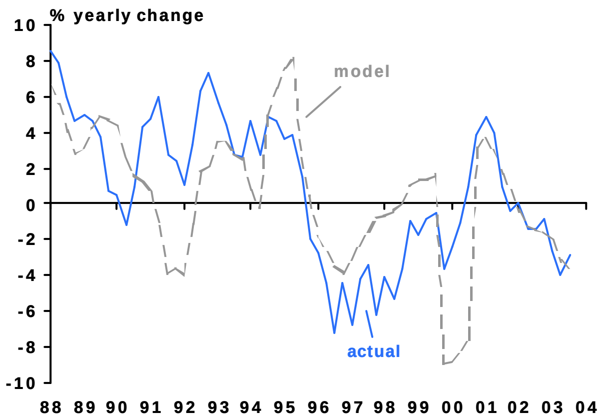
- The AUD/YEN exchange rate,
- The AUD/USD exchange rate
- The AUD/EUR exchange rate
- The AUD/WON exchange rate,
- Changes to the Australian Tax System
- Australian motor vehicle import tariffs.

The model was estimated in August 2004. The results yield two main 'rules-of-thumb':

- A 1% rise in underlying inflation leads to a 1.4% rise in motor vehicle prices over 1 quarter.
- A 1% rise in the import price variable leads to a 0.2% rise in motor vehicle prices over four quarters.

Chart 1 plots the historical fit between the actual car price movements and the model. As can be seen from the chart the ANZ car price model has a good relationship with the index of new car prices as published by the ABS over the estimation period.

Chart 1: ANZ's car price model



Source: ABS Cat. 6401.0, Economics@ANZ

[1] Market goods and services CPI excluding 'volatile' items and GST.

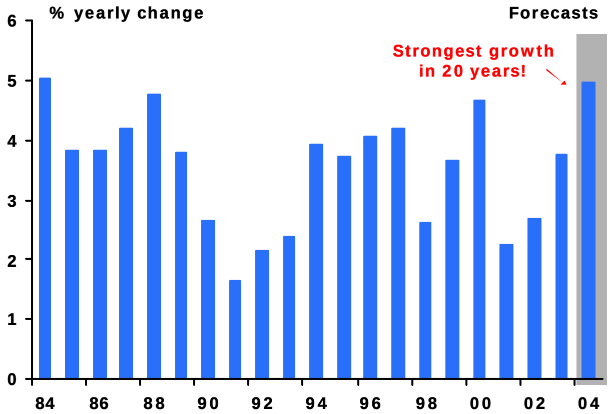
Recent trends in motor vehicle prices

Motor vehicle prices increased by 0.1% in the June quarter, the first quarterly price rise since December 2001. Australian new car prices are still 2.9% below year-ago levels however.

The main factor behind the slight rise in motor vehicle prices in the June quarter was the relatively large depreciation of the Australian dollar in this period. After appreciating to a 15-year high in February 2004, the Australian dollar depreciated sharply. By the end of June 2004, the Australian dollar had fallen by 19% against the EUR, 14% against the US$, 12% against the won and 11% against the yen from the February-peak. This sharp depreciation took most forecasters by surprise and led to a 4% rise in import prices in the June quarter, the biggest quarterly increase since June 2001.

Continued strong global demand is another factor that may have held up car prices recently. Persistent oversupply in the global motor vehicle manufacturing industry has put considerable downward pressure on motor vehicle prices in recent years. However, with the global economy now growing by the strongest pace in 20 years (Chart 2), oversupply, and thus downward price pressures in the global market, may be easing.

Chart 2: Global economic growth



Source: IMF, Economics@ANZ

One interesting trend in motor vehicle prices to emerge lately is that the pass through of the appreciation of the A$ into final import prices (including car prices) has quickened in recent years. ANZ's car price model, estimated over a 20-year sample period, estimates that it takes at least one quarter before changes in the exchange rate flow through to changes in final prices. Anecdotal evidence suggests that improvements in technology and stock management now allow some exchange rate movements to be passed through to final prices *within* a quarter. The ANZ car price model is not yet able to accurately account for this recent change in behaviour (see *Caveats* below), and so may now have a tendency to slightly underestimate the speed of exchange rate pass through to final prices.

Forecasts

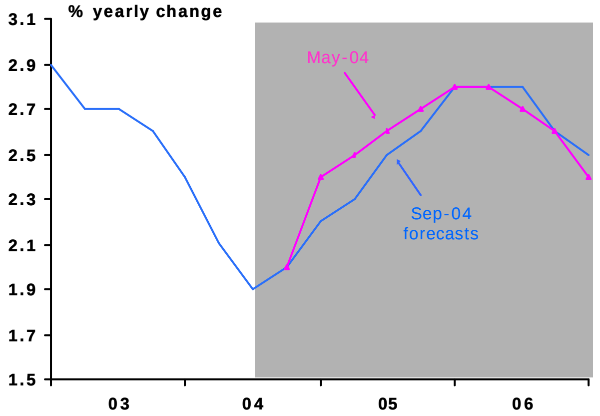
The latest forecasts for motor vehicle prices are outlined in Table 2.

Table 2: Motor vehicle price forecasts, August 2004

	CPI motor vehicles		
	Index	*% change*	
		Quarterly	*Yearly*
Sep-03	104.6	-0.5	-0.9
Dec-03	103.8	-0.8	-2.6
Mar-04	101.9	-1.8	-4.0
Jun-04	102.0	0.1	-2.9
Sep-04	101.5	0.0	-2.9
Dec-04	101.6	0.1	-2.1
Mar-05	101.6	-0.2	-0.3
Jun-05	101.6	-0.2	-0.4
Sep-05	101.6	0.0	0.1
Dec-05	101.4	0.0	-0.2
Mar-06	101.5	0.1	-0.1
Jun-06	101.6	0.1	0.0
Sep-06	102.2	0.6	0.5
Dec-06	102.8	0.6	1.4

The outlook for underlying inflation is the major driver these motor vehicle forecasts. Australian inflation has been well contained in recent times. However, increasing wage pressures from the tight Australian labour market, together with increasing global prices, will see Australian inflation rise over the coming period. ANZ currently expects that the underlying rate of inflation will average 2.1% in 2004 picking up to 2.5% in 2005 and accelerating further to 2.7% in 2006.

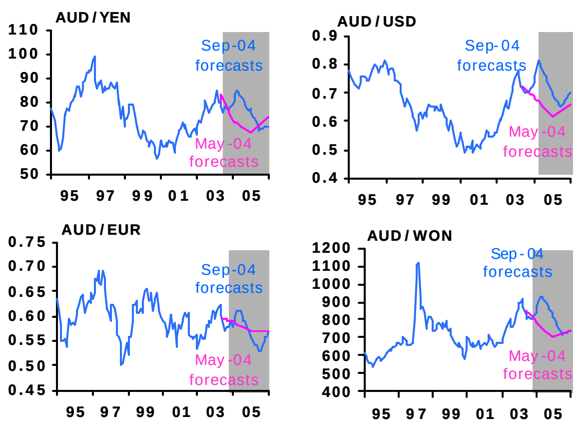
Chart 3: Underlying inflation forecasts



Source: ABS, Economics@ANZ

Exchange rates are the other major factor driving ANZ's motor vehicle price outlook. The most important exchange rate for the A$ price of motor vehicles is the AUD/YEN. In recent months ANZ has downgraded the outlook for the yen, largely due to the higher oil price. As Japan is a considerable net oil importer, higher oil prices tend to put downward pressure on the yen. The downgrade to our yen forecast means that we are now forecasting the AUD/YEN to appreciate in the next few months and we now expect the AUD/YEN will rise to 85.05 by the end of March 2005. We expect the AUD/YEN will resume depreciating from early 2005 and are forecasting the AUD/YEN to finish 2005 at 77.0.

Chart 4: Exchange rate forecasts



Source: Reuters, Economics@ANZ

It is a similar story for the other exchange rate forecasts. The AUD is expected to appreciate in the short-term against the USD, EUR and WON. Our March-2005 forecasts are now for an AUD/USD of 0.81, a AUD/EUR of 0.6100 and a AUD/WON of 933.

The AUD is expected to resume depreciating against these currencies over 2005. Our end-2005 forecasts are now for a AUD/USD of 0.7000, a AUD/EUR of 0.5600 and a AUD/WON of 819.

Another factor exerting downward pressure on our motor vehicle price forecasts is the cut in tariffs on motor vehicle imports, which will fall on 1 January 2005 from 15% to 10%. This policy change has been incorporated into the model and is dampening the motor vehicle price forecasts from the March quarter 2005.

Australia-US free trade agreement

This free trade agreement is not expected to have a discernable effect on motor vehicle prices, particularly in the short-run. Under the agreement, Australia will phase out all tariffs on finished passenger motor vehicles imports from the United States gradually between entry into force of the agreement and 2010. This means that by the end of 2010, imports of passenger motor vehicles from the United States will attract a zero tariff, while passenger motor vehicle imports from other countries will still attract a 5% tariff. This policy change can be expected to exert a little bit of downward pressure on overall car prices after 2005, however it will only be minor, given that the US accounts for just 4% of new passenger motor vehicles in the Australian market. That the reduction in tariffs will be phased in gradually will also reduce the magnitude of the negative impact on overall car prices. Indeed, the impact on year-by-year price growth from this cut in tariffs may prove negligible.

Under the Free Trade Agreement Australian tariffs on all other automotive goods (including car parts and commercial vehicles) will also be eliminated from day one of the Agreement. Currently, these tariffs are 5% for commercial vehicles and 15% (dropping to 10% in 2005 and 5% in 2010) on car parts. The United States accounts for a large 25% of total Australian imports of motor vehicle parts. However, many of these parts of imported duty free under the Government's ACIS scheme. The elimination of tariffs on those imports could exert a little downward pressure on final passenger vehicle prices. The extent will depend on how much of the reduction in tariff is passed through to final costs. History suggests that such price falls for intermediate imports does tend to be simply absorbed into profit margins, rather than passed onto consumers as genuine savings. As such the impact on prices would be minimal.

The elimination of tariffs on commercial vehicles from the United States may put a little short-term downward pressure on passenger motor vehicles prices, to the extent that consumers shift preference to lower-priced 4WDs for example. However, any impact on aggregate passenger motor vehicle prices would unlikely to be discernable.

Risks

The accuracy of the forecasts produced by a model is only as good as the quality of its inputs. The extent to which inflation or exchange rate outcomes deviate from our forecasts therefore is therefore a risk around the motor vehicle price forecasts presented.

Another significant risk to the short-term forecasts is the extent to which the pass-through of exchange rate fluctuations to imported car price fluctuations has changed (see *Caveats* below). As mentioned previously, the June quarter result suggests that changes in the exchange rate may now be passed through more quickly into final car prices. If this is indeed the case, the ANZ model may be overestimating the period that final motor vehicle prices will remain affected by the June quarter AUD depreciation[2]. This creates an upside risk to the forecasts for car prices in the September and December 2004 quarters.

The upcoming change in tariffs on motor vehicle imports to Australia is another risk to these price forecasts. As well as directly lowering the cost of imports, the cut in tariffs will also likely see local producers lower their prices in an attempt to maintain market competitiveness. This discounting is likely to occur gradually in the lead up to the cut in tariffs, suggesting motor vehicle prices will start to come under downward pressure during the final part of 2004. Any change in the pricing behaviour of local producers ahead of the cut in tariffs is not explicitly captured in the motor vehicle price model. This suggests some downside risk to the price forecasts over the late 2004 period.

Caveats

Due to the uncertain nature of the relationships between the independent variables and new car prices, the car price model developed is best suited to predicting medium term trends in car prices i.e. one to three years, rather than providing a short term estimate of prices over the next quarter or so. In addition, forecasting using historical relationships determined by econometric analysis explicitly assumes that these relationships will remain the same into the future, which may not always be the case. It is therefore necessary to use the model as a guide only and take into account various other market developments in setting the final used car price forecast rather than slavishly following the model's output. The model will, however, provide a framework in which we are able to more readily quantify the impact of identifiable market movements such as taxation and tariff changes, and also allow us to test the sensitivity of new car prices to forecast changes in exchange rates and external cost pressures.

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[2] The ANZ car price model estimates that the June quarter A$ depreciation will continue to exert downward pressure on car prices until June 2005, with the biggest upward pressure on prices in the September and December 2004 quarters.

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