Seasonal Adjustment of Ai Group Performance Indices

Introduction

Consistent with the methodology used by the Institute of Supply Management (ISM) and Markit Economics for constructing sectoral performance indices, Ai Group's Economics and Research Unit conducts a seasonal adjustment process for each of its performances indices (the Australian PMI®, Australian PSI® and the Australian PCI®).

Ai Group's three performance indices are constructed by applying weights to diffusion indices for four of the key survey indicators – production/sales/activity, employment, new orders and supplier deliveries (components). Seasonal adjustment factors are then applied to each of these components. A final composite index is then constructed from these seasonally adjusted components.

This means that seasonal factors are not derived for the aggregate performance indices, rather the seasonally adjusted PMI, PSI and PCI are constructed by applying weights to the seasonally adjusted components.

The sub-sector indices of the both the PMI and PSI (see Table 1) are constructed on an unadjusted basis before seasonal factors are applied. Sub-sector indices are not constructed for the PCI; rather the survey generates diffusions indices for activity and new orders across the housing, apartments, commercial and engineering sectors.

- Ai Group has applied monthly seasonal factors to both the PMI component and the PMI state sub-indices since the series began in its monthly form in May 2001. Seasonal factors have been applied to the PMI sector sub-indices since April 2006.
- Ai Group has applied monthly seasonal factors to both the PSI component and the PSI sector sub-indices since April 2006.
- Ai Group seasonally adjusted the sub-components of the PCI by applying the factors derived for the Markit Economics UK Construction index, adjusted for Australian conditions. In April 2010, Ai Group applied its own 'Australian' factors to the PCI time series.

Table 1: Constructed sub-indices of the Australian PMI and the Australian PSI

	Australian PMI®	Australian PSI®
Sub-indices	Food & beverages	Wholesale trade
	Textiles	Retail trade
	Clothing & footwear	Accommodation, cafés & restaurants
	Wood products & furniture	Transport & storage
	Paper, printing & publishing	Communication services
	Chemicals, petroleum & coal products	Finance & insurance
	Construction materials	Property & business services
	Basic metals	Health & community services
	Fabricated metals	Personal & recreational services
	Transport equipment	
	Machinery equipment	
	Miscellaneous manufacturing	

Ai Group's approach to seasonal adjustment: 2006 to 2009

Between 2006 and 2009, Ai Group has generated seasonal factors for both the PMI and the PSI using the SEATS/TRAMO method, implemented through Eurostat's Demetra 2.0 seasonal adjustment interface.

- SEATS/TRAMO is a seasonal adjustment methodology, developed by Victor Gomez and Augustin Maravall. The methodology uses the SEATS (Signal Extraction in ARIMA Time Series) program, which estimates and forecasts the trend, seasonal and irregular components of a time series using signal extraction techniques applied to ARIMA model. It also utilises the companion TRAMO (Time series Regression with ARIMA Noise, Missing Observations and Outliers) program, which is used to pre-adjust a series, by estimating and forecasting regression models with ARIMA errors and missing values, before it is seasonally adjusted by SEATS.[1]

Ai Group's historical seasonal factors have been reviewed on an annual basis, every April, in light of the 12 additional time series observation. As part of this process, the Demetra program has been used to generate forecast seasonal factors for the coming 12 months.

Between April 2006 and April 2010, seasonal factors were generated for both the PMI and the PSI using the SEATS/TRAMO option of Demetra and Eviews. As well as correcting for any seasonal pattern inherent in the time series, the process also made adjustments for the calendar day effects and the timing of public holidays.

[1] Australian Bureau of Statistics website, www.abs.gov.au.

Until April 2010, an insufficient number of time series observations prevented Ai Group from generating its own seasonal factors for the PCI. To overcome this problem, Ai Group drew on the factors derived by Markit Economics for their UK Construction PMI and adjusted these for Australian conditions (upward revisions were made to the January and June seasonal factors, and these were offset by downward revisions to the factors for August and November).

Seasonal adjustment 2010: ABS engagement

The ABS is at the forefront of seasonal adjustment technology in Australia and has a long history of providing assistance in this area to both public and private sector organisations. NAB, for their Monthly and Quarterly Business Surveys, and Advantage Professional, for their Advantage Job Index, are two examples where the ABS has provided guidance on how to seasonally adjust time series.

In late May 2010, the ABS provided Ai Group's Economic team with these alternative seasonal factors and forward factors, along with a brief description and justification of the methodology they used. An overview of the ABS findings is provided in the following section.

ABS findings

A comparison of the seasonal factors derived by Ai Group and the ABS confirms that Ai Group has been appropriately adjusting the PMI and PSI series for inherent seasonality.

By contrast, a comparison of the PCI based on UK Construction Index factors adjusted for Australian conditions, with the ABS's seasonally adjusted PCI time series suggests that the former technique was not entirely effective in removing the seasonality inherent in the data. As part of its 2010 reanalysis of seasonal adjustment, Ai Group found that with an additional 12 time series observations, it could generate 'Australian' PCI factors. When these new factors, which have been applied to the PCI since April, are reviewed against the ABS's seasonally adjusted PCI time series, only minor variances are apparent.

A more detailed comparison of the ABS and Ai Group seasonal factors is provided in the following section and Appendix 1.

Filter-based versus model-based methods

The ABS elected to use it SEASABS seasonal adjustment package to derive seasonal factors and forward factors for Ai Group performance indices. SEASABS uses a filter-based method to seasonally adjust time series, as opposed to the model-based method used by Ai Group. The basic difference between the two is that filter based methods apply a set of fixed filters (moving averages) to decompose a time series into a trend, seasonal and irregular component, while model-based methods require the three components to be modelled separately.[2] The difference in the methods used will partly explain the minor variances in the factors generated by the ABS and Ai Group.

[2] Australian Bureau of Statistics website, www.abs.gov.au.

Moving seasonality

The ABS review of Ai Group's performance indices found that varying degrees of moving seasonality (seasonal factors changing over time) were present in each series. Consequently, the ABS strongly discourages the application of historical seasonal factors across time for the purposes of seasonal adjustment. Using their SEASABS program, the ABS has generated forward factors for each component, sector and state of the three indices, to March 2011.

Corrections

When seasonally adjusting Ai Group's time series, the ABS elected not to apply adjustments for outliers, seasonal breaks, trend breaks or moving holidays (such as Easter). On the justification that Ai Group's performance indices are stock series (in that they measure activity at a certain point in time), the ABS also elected not to apply trading day adjustments to the time series.

By contrast, Ai Group's seasonal adjustment process has traditionally made adjustments for both trading days and moving holidays. Again, this might partly explain the minor variances in the factors generated by the ABS and Ai Group, particularly around the March and April months.

Testing for seasonality

The volatile nature and short time span for most of the time series made it difficult for the ABS to detect seasonality. To overcome this, the ABS used seasonality significance tests (F-tests) to determine whether a series contained a seasonal element that should be removed. A list of the components, sub-sectors and states where the ABS failed to detect seasonality is provided in Table 2.

While the ABS derived seasonal factors and forward factors for all components, sectors and states of the PMI, PSI and PCI, they recommended that a number of series should not be adjusted due to insignificant evidence of seasonality.

Table 2: Components, sectors and states with an insignificant measure of seasonality

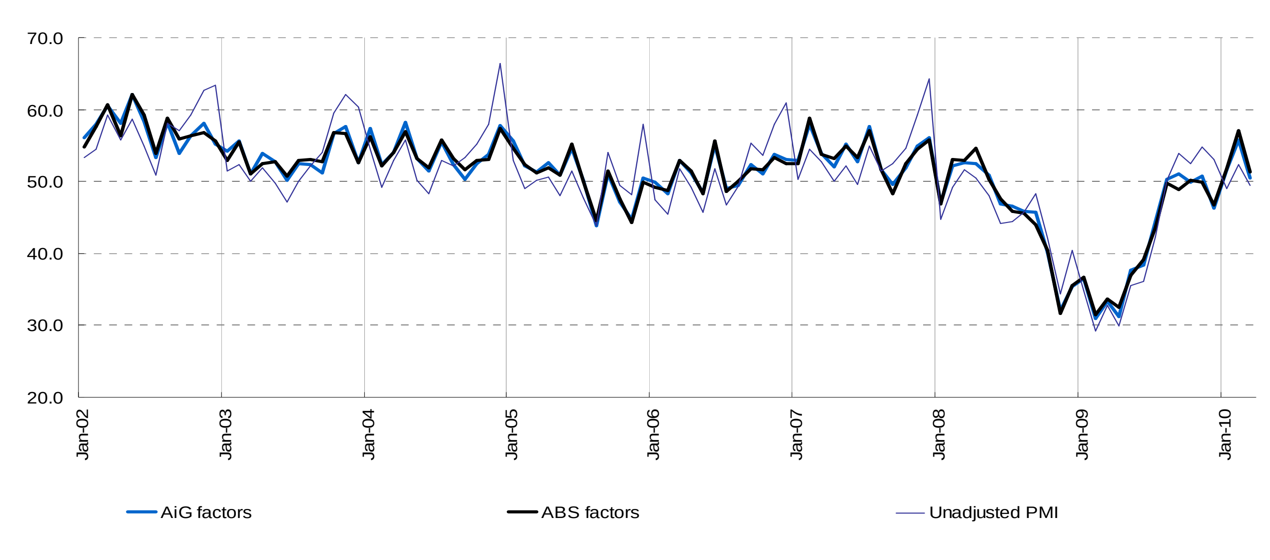
	Components, sectors and states
Australian PMI	Input prices Exports Textiles Basic metals Fabricated metals Transport equipment Miscellaneous manufacturing
Australian PSI	Wholesale trade Property & business services
Australian PCI	None

Comparisons

Australian PMI

A comparison of the seasonally adjusted composite Australian PMIs, generated using (i) Ai Group's seasonal factors; and (ii) the ABS's seasonal factors, is provided in Chart 1.

Chart 1: Comparison of Ai Group and ABS seasonally adjusted PMI – 2004-2009



The 'aggregate' PMI seasonal factors derived from the Ai Group adjusted components and the ABS adjusted components are very similar, with both pointing to a pattern of seasonally stronger activity through the months September to December, offset by seasonally weaker activity in the first eight months of the calendar year.

Table 3 compares the average 'aggregate' PMI seasonal factor for each month, deduced from the Ai Group seasonally adjusted PMI components and the ABS seasonally adjusted components. The seasonal factors are divisive, meaning figures above 1.0 point to a positive seasonal pattern in a particular month.

Table 3: Average 'aggregate' PMI seasonal factors – 2002 to 2009

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ABS factors	0.96	0.94	0.98	0.96	0.95	0.93	0.96	0.99	1.06	1.04	1.09	1.15
Ai Group factors	0.95	0.94	0.98	0.96	0.94	0.94	0.95	1.00	1.06	1.05	1.08	1.15

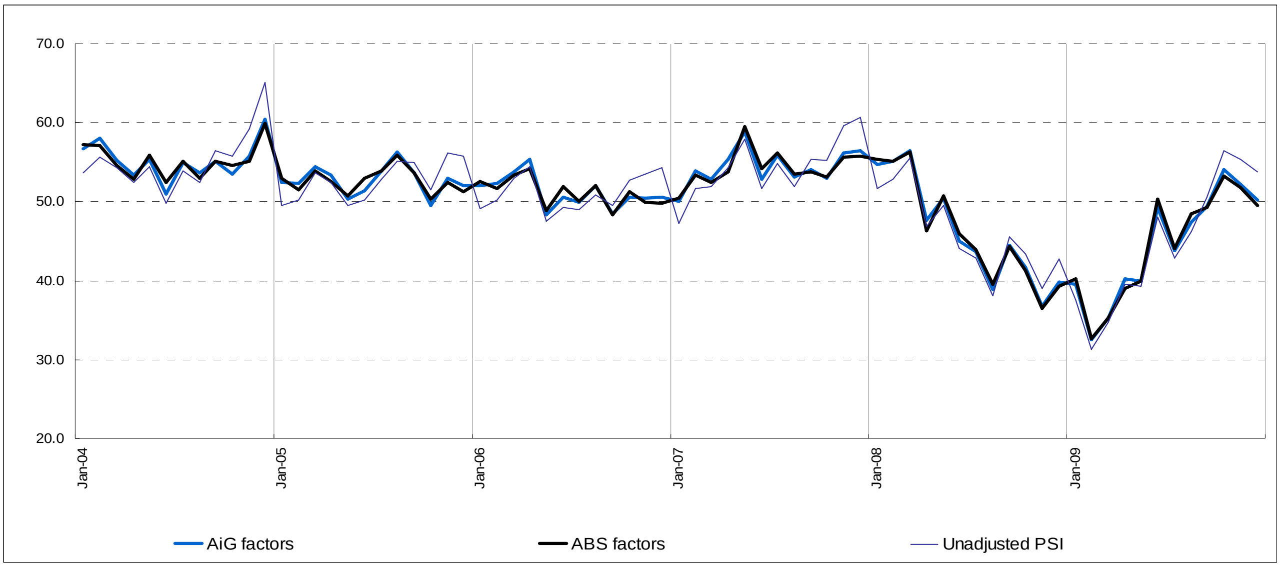
There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors. The variances can be largely attributed to the differences in methodologies detailed in the previous section.

A review of the seasonal analysis conducted by Ai Group and the ABS for each of the individual components and sectors of the PMI is provided in Appendix 1.

Australian PSI

A comparison of the seasonally adjusted composite Australian PSIs, generated using (i) Ai Group's seasonal factors; and (ii) the ABS's seasonal factors, is provided in Chart 2.

Chart 2: Comparison of Ai Group and ABS seasonally adjusted PSI – 2004-2009



As is the case for the PMI, the 'aggregate' PSI seasonal factors derived from the Ai Group adjusted components and the ABS adjusted components are very similar. Both point to a pattern of seasonally stronger activity through the months of September to December, offset by seasonally weaker activity in the first eight months of the calendar year.

Table 4 compares the average 'aggregate' PSI seasonal factor for each month, deduced from the Ai Group seasonally adjusted PSI components and the ABS seasonally adjusted components.

Table 4: Average 'aggregate' PSI seasonal factors – 2004 to 2009

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ABS factors	0.93	0.97	0.99	1.00	0.98	0.95	0.98	0.97	1.03	1.04	1.07	1.09
Ai Group factors	0.94	0.96	0.98	0.98	0.98	0.98	0.98	0.98	1.02	1.04	1.06	1.07

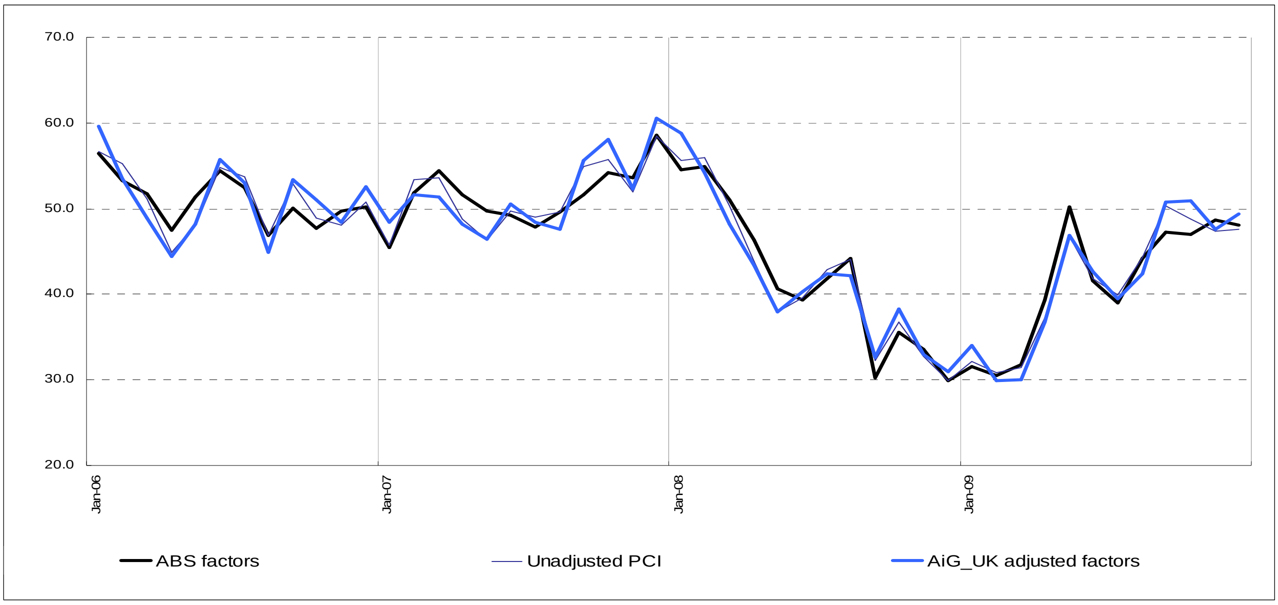
Both the Ai Group and ABS 'aggregate' PSI factors reveal that while the PMI and PSI share a common seasonal pattern, the size of the downward adjustment required in the September to December period is smaller for the PSI, particularly in the month of December. There are some minor differences in the magnitude of adjustment implied by the two sets of seasonal factors, which can be attributed to the small differences in methodologies used. In particular, the ABS's decision not to adjust for moving holidays will have impacted on the seasonal adjustment applied to services activity in the Easter months of March and April.

A review of the seasonal analysis conducted by Ai Group and the ABS for each of the individual components and sectors of the PSI is provided in Appendix 2.

Australian PCI

A comparison of the seasonally adjusted composite Australian PCIs, generated using (i) the factors derived in 2009 for the Markit Economics UK Construction index, adjusted for Australian conditions; and (2) the ABS's seasonal factors, is provided in chart three.

Chart 3: Comparison of Ai Group and ABS seasonally adjusted PCI – 2004-2009



The 'aggregate' PCI seasonal factors derived from the UK Construction Index factors and the ABS factors contain are inconsistent, despite the adjustments made by Ai Group to reflect the nature of the Australian market, and clearly point to the need for Australian-specific factors to be generated. Table 5 compares the average 'aggregate' PCI seasonal factor for each month, deduced from the two seasonally adjusted series.

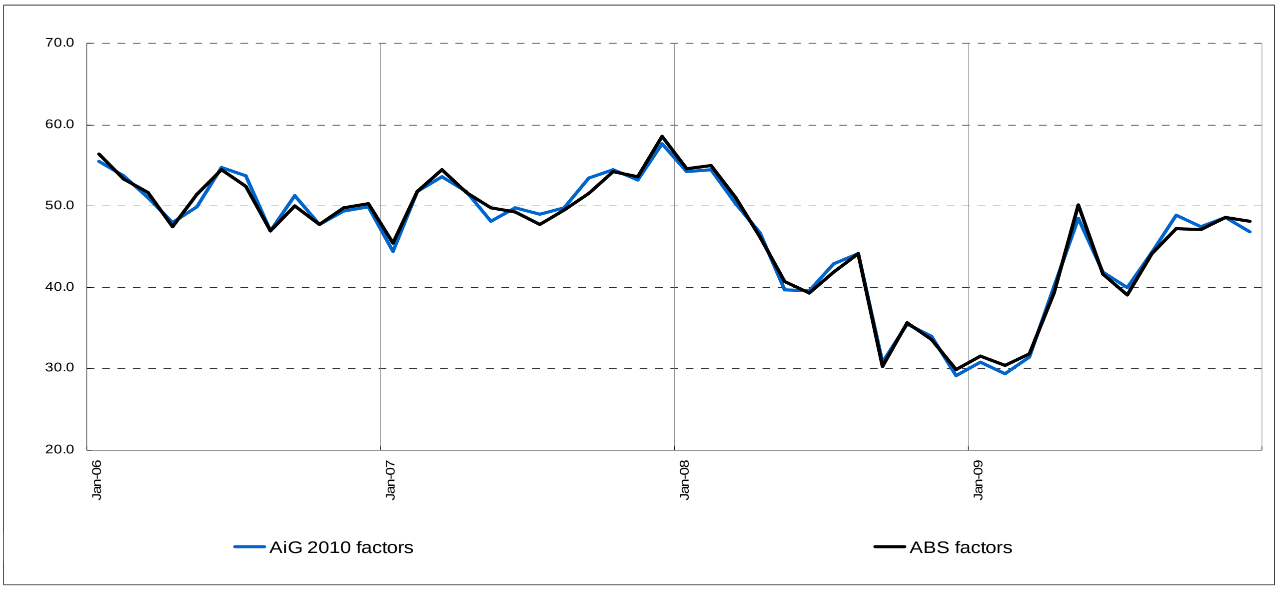
Table 5: Average 'aggregate' PCI seasonal factors – 2004 to 2009

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ABS factors	1.01	1.03	0.99	0.95	0.93	1.01	1.03	1.00	1.06	1.03	0.97	1.00
Ai Group factors (UK adjusted)	0.95	1.03	1.04	1.01	1.00	0.98	1.01	1.04	0.99	0.96	0.99	0.96

Through the period September to January, excluding the month of November, the ABS factors identified a seasonally strong pattern of activity, in contrast to the adjusted UK factors which cited the need for upward adjustments. Similarly the two sets of seasonal factors tended to make contrasting seasonal adjustments in the months between March and May.

During the period where the ABS was reviewing the seasonality of Ai Group's performance indices, the Ai Group Economics and Research Unit utilised the extra 12 time series observations (April 2009 to March 2010) and attempted to generate 'Australian' PCI seasonal factors using the TRAMO-SEATS procedure. A comparison of the seasonally adjusted composite Australian PCI using these factors, with the ABS adjusted series is provided in chart 4 and shows a much closer relationship.

Chart 4: Comparison of Ai Group and ABS seasonally adjusted PCI – 2004-2009



While there are some small variances in the average 'aggregate' PCI seasonal factor for each month (see table 6), deduced from the two seasonally adjusted series, these are likely to reflect some minor differences in the methodologies used by the ABS and Ai Group.

Table 6: Average 'aggregate' PCI seasonal factors – 2004 to 2009

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ABS factors	1.01	1.03	0.99	0.95	0.93	1.01	1.03	1.00	1.06	1.03	0.97	1.00
Ai Group 2010 factors	1.03	1.03	1.00	0.93	0.96	1.00	1.00	1.00	1.03	1.03	0.97	1.02

The 'aggregate' PCI factors point to a less volatile seasonal pattern, relative to the PMI and PSI. This reflects diversity in the conditions in the four sub-sectors of construction (housing, apartments, commercial and engineering), which tend to counterbalance one another when aggregated to derive a total construction measure.

A review of the seasonal analysis conducted by Ai Group and the ABS for each of the individual components and sectors of the PCI is provided in Appendix 3, and indicates the volatile seasonality evident in the four sub-sectors of construction.

Conclusion

Given the relatively close relationship between the seasonal factors generated by Ai Group and the ABS for the PMI and the PSI, and the fact that new seasonal factors were applied to the historical time series in April 2010, the historical PMI and PSI time series adjustments will remain unchanged until the annual seasonal reanalysis in April 2011; and the ABS's forward factors are applied to future readings of the PMI and PSI.

As part of the Economics team's 2010 seasonal reanalysis, new 'Australian' seasonal factors were applied to the historical PCI time series. Given the close relationship between these and the ABS's historical PCI factors, hence the historical PCI time series adjustments remain unchanged until the annual seasonal reanalysis in April 2011; and the ABS's forward factors will be applied to future readings of the PCI.

Contact
Nicholas James, Senior Economist, Ai Group Economics and Research Unit, http://www.aigroup.com.au/economics.

Appendix 1: Seasonal adjustment of PMI components and sectors

Production

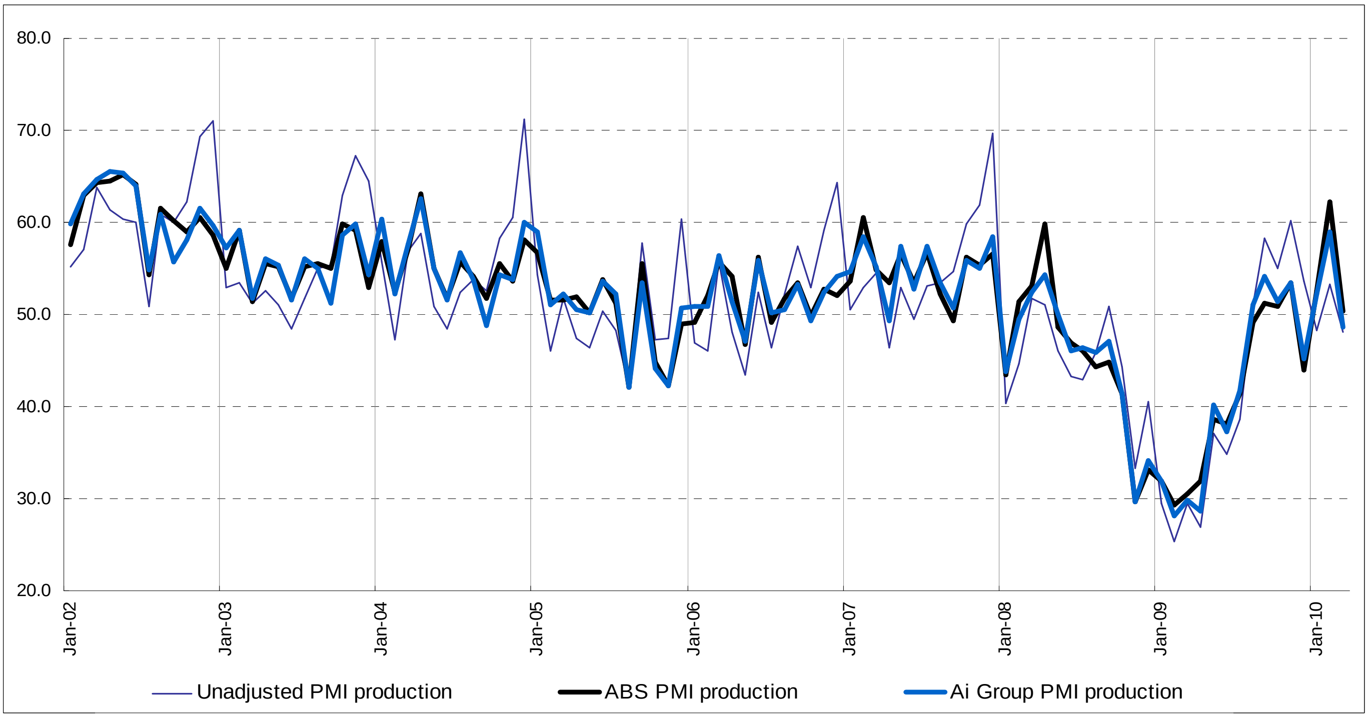
The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the production component of the PMI. A review of the average monthly seasonal factors points to the need for significant downward revisions in the period between September and December (most notably in November and December), to be offset by upward revisions over the first eight months of the calendar year.

There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PMI production seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI production_ABS	0.95	0.89	0.99	0.90	0.93	0.93	0.94	1.01	1.06	1.06	1.13	1.22
PMI production_Ai Group	0.92	0.90	0.99	0.94	0.92	0.94	0.93	1.00	1.08	1.07	1.13	1.19

Original PMI production and seasonally adjusted PMI production (Ai Group and ABS)



Employment

The seasonal factors generated by both Ai Group and the ABS point to a more moderate seasonal pattern in the employment component of the PMI, relative to production, although the directions remain similar. A review of the average monthly seasonal factors points to the need for significant downward revisions in the period between September and December (most notably in December), to be offset by upward revisions over the first eight months of the calendar year.

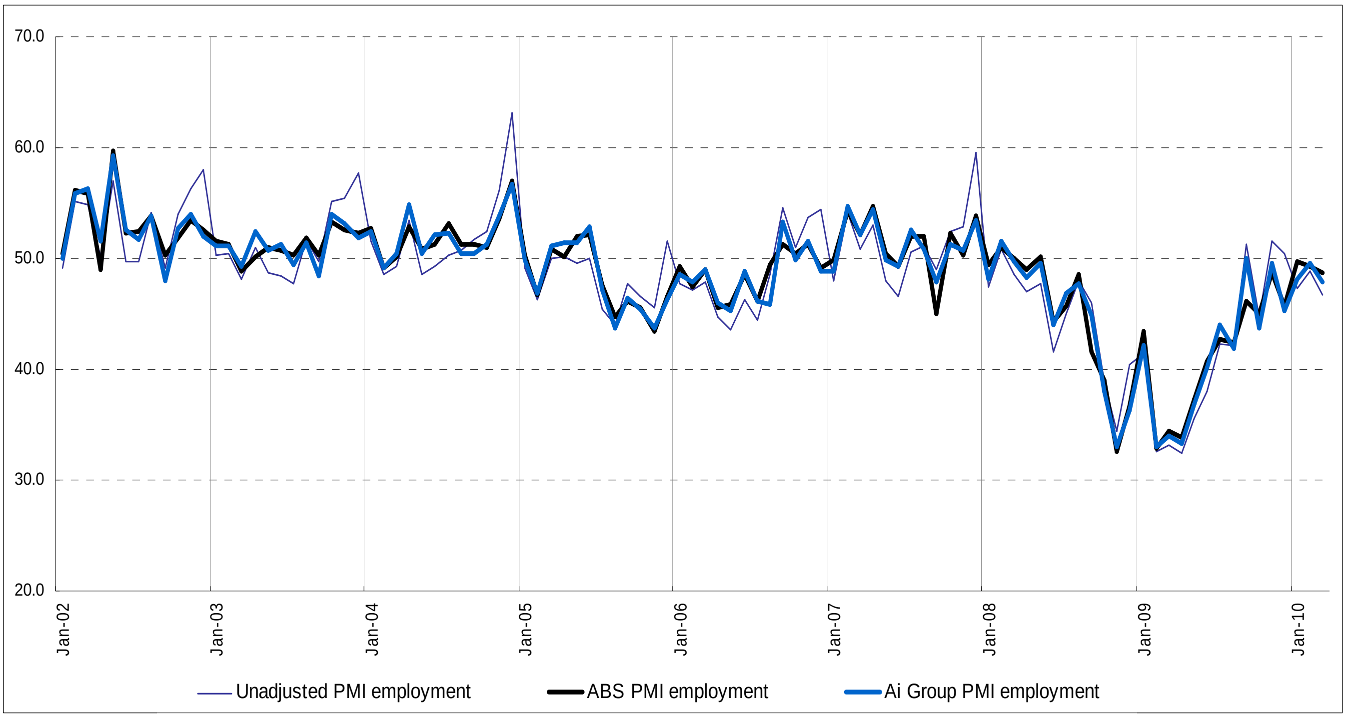
There are some minor differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays.

The direction of adjustment for each month is consistent across the two sets of factors, although for the month of August, the ABS factors point to the need for a slight upward revision, in contrast to the slight downward revision suggested by the Ai Group factors.

Average monthly PMI employment seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI employment_ABS	0.97	0.99	0.98	0.99	0.95	0.95	0.96	0.99	1.05	1.02	1.05	1.10
PMI employment_Ai Group	0.98	0.99	0.98	0.97	0.96	0.95	0.96	1.01	1.03	1.02	1.04	1.11

Original PMI employment and seasonally adjusted PMI employment (Ai Group and ABS)



New orders

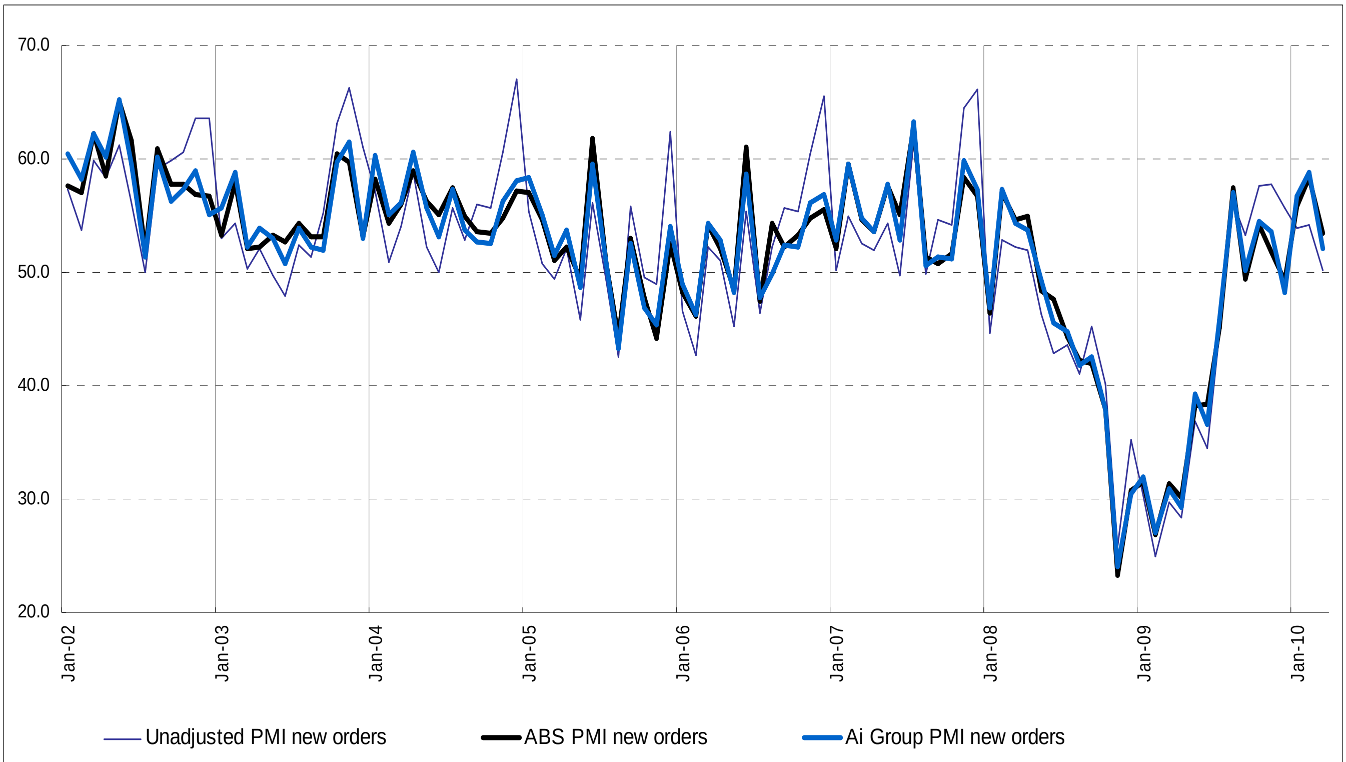
The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the new orders component of the PMI. A review of the average monthly seasonal factors points to the need for significant downward revisions in the period between September and December (most notably in November and December), to be offset by upward revisions over the first eight months of the calendar year. Particularly large upward revisions are required to remove to seasonal patterns in the months of February; May; and June.

There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PMI new orders seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI new orders_ABS	0.97	0.93	0.96	0.98	0.94	0.91	0.97	0.97	1.06	1.05	1.11	1.16
PMI new orders_Ai Group	0.95	0.92	0.96	0.97	0.94	0.94	0.97	0.99	1.06	1.06	1.08	1.15

Original PMI new orders and seasonally adjusted PMI new orders (Ai Group and ABS)



Stocks

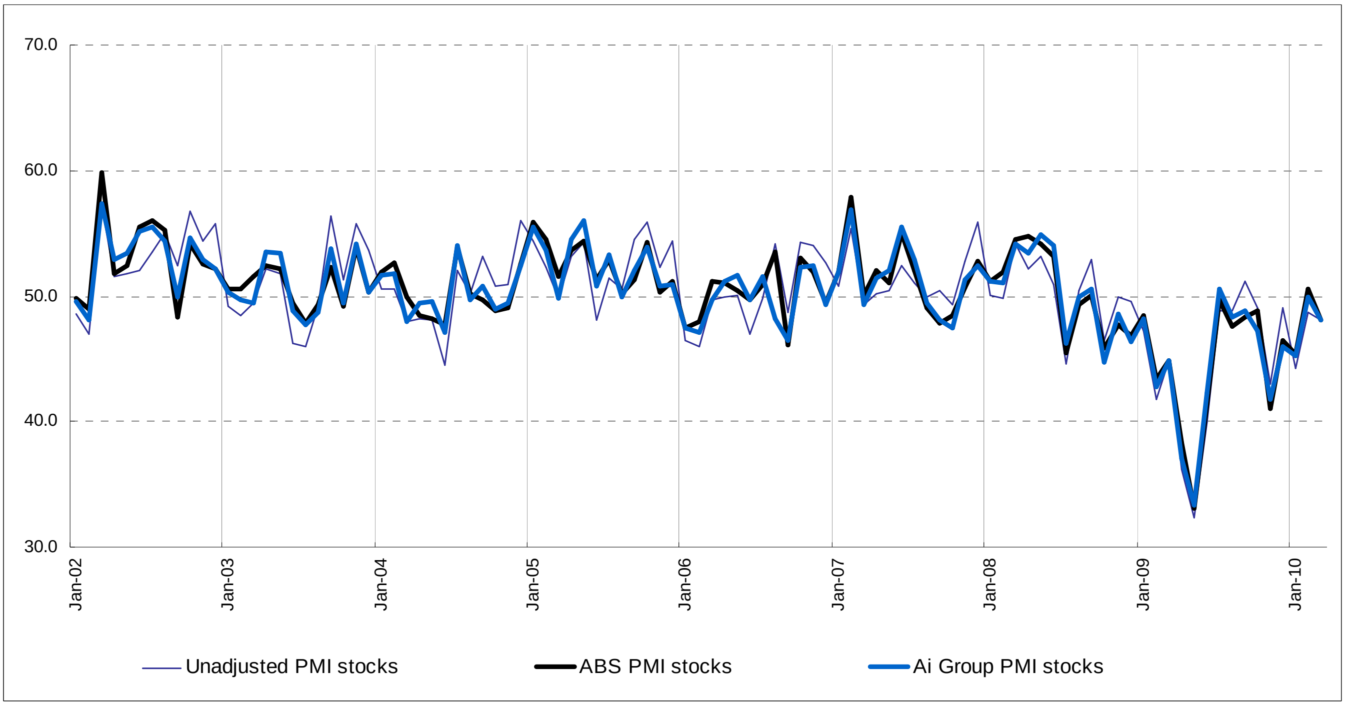
The seasonal factors generated by both Ai Group and the ABS point to a seasonal pattern in the stocks component of the PMI. A review of the average monthly seasonal factors points to the need for downward revisions in the period between August and December, to be offset by upward revisions over the first seven months of the calendar year. Particularly large upward revisions are required to remove to seasonal patterns in the month of June.

There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PMI stocks seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI stocks_ABS	0.98	0.96	0.97	0.98	0.99	0.94	0.97	1.01	1.07	1.03	1.04	1.06
PMI stocks_Ai Group	0.98	0.98	1.00	0.98	0.97	0.94	0.96	1.02	1.05	1.04	1.03	1.07

Original PMI stocks and seasonally adjusted PMI stocks (Ai Group and ABS)



Deliveries

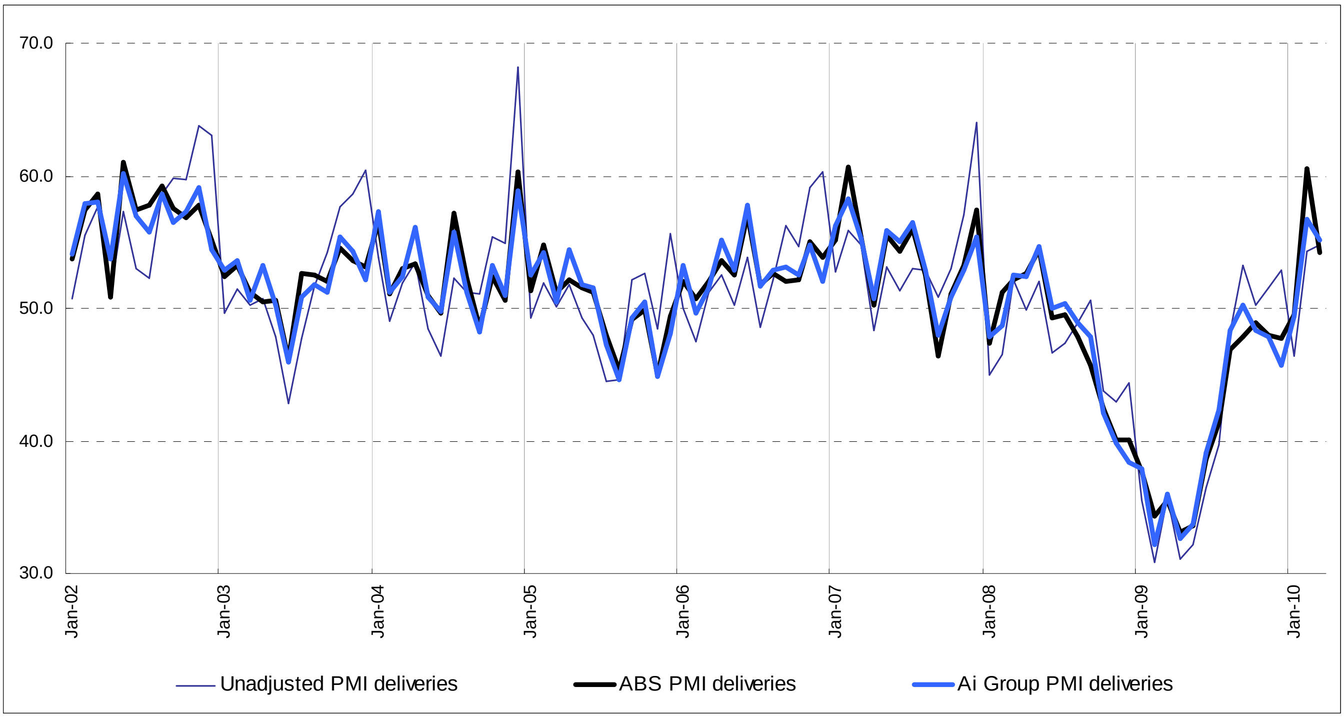
The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the deliveries component of the PMI. A review of the average monthly seasonal factors points to the need for significant downward revisions in the period between September and December (most notably in November and December), to be offset by upward revisions over the first eight months of the calendar year. Particularly large upward revisions are required to remove to seasonal patterns in the months June and July.

There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PMI deliveries seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI deliveries_ABS	0.95	0.94	0.99	0.98	0.95	0.94	0.93	1.00	1.07	1.05	1.08	1.12
PMI deliveries_Ai Group	0.94	0.96	0.99	0.95	0.95	0.93	0.94	1.00	1.06	1.04	1.08	1.16

Original PMI deliveries and seasonally adjusted PMI deliveries (Ai Group and ABS)



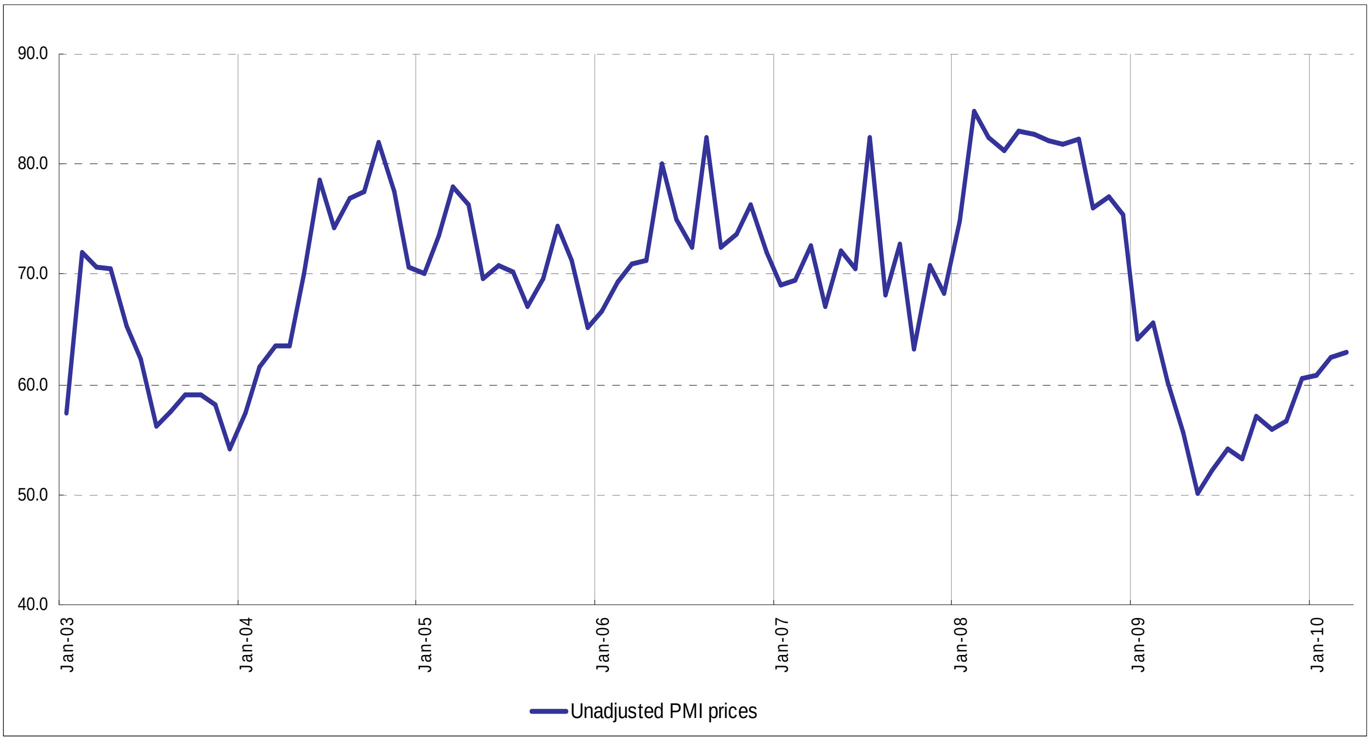
Prices

The seasonal adjustment methodologies of the ABS and Ai Group failed to detect a monthly seasonal pattern in the prices component of the PMI.

Average monthly PMI prices seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI prices_ABS	na	na	na	na	na	na	na	na	na	na	na	na
PMI prices_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PMI prices



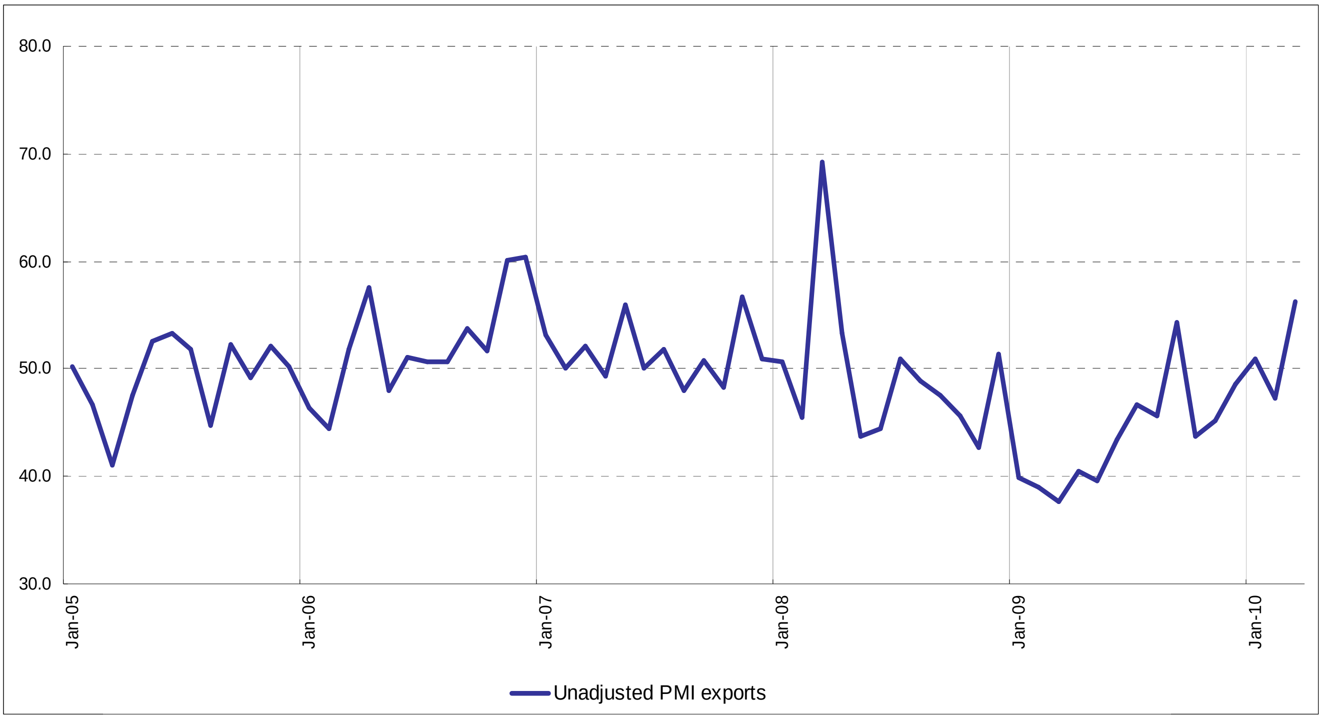
Exports

The seasonal adjustment methodologies of the ABS and Ai Group failed to detect a monthly seasonal pattern in the exports component of the PMI.

Average monthly PMI exports seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI exports_ABS	na	na	na	na	na	na	na	na	na	na	na	na
PMI exports_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PMI exports



Food & beverages

The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the food & beverages PMI sub-index.

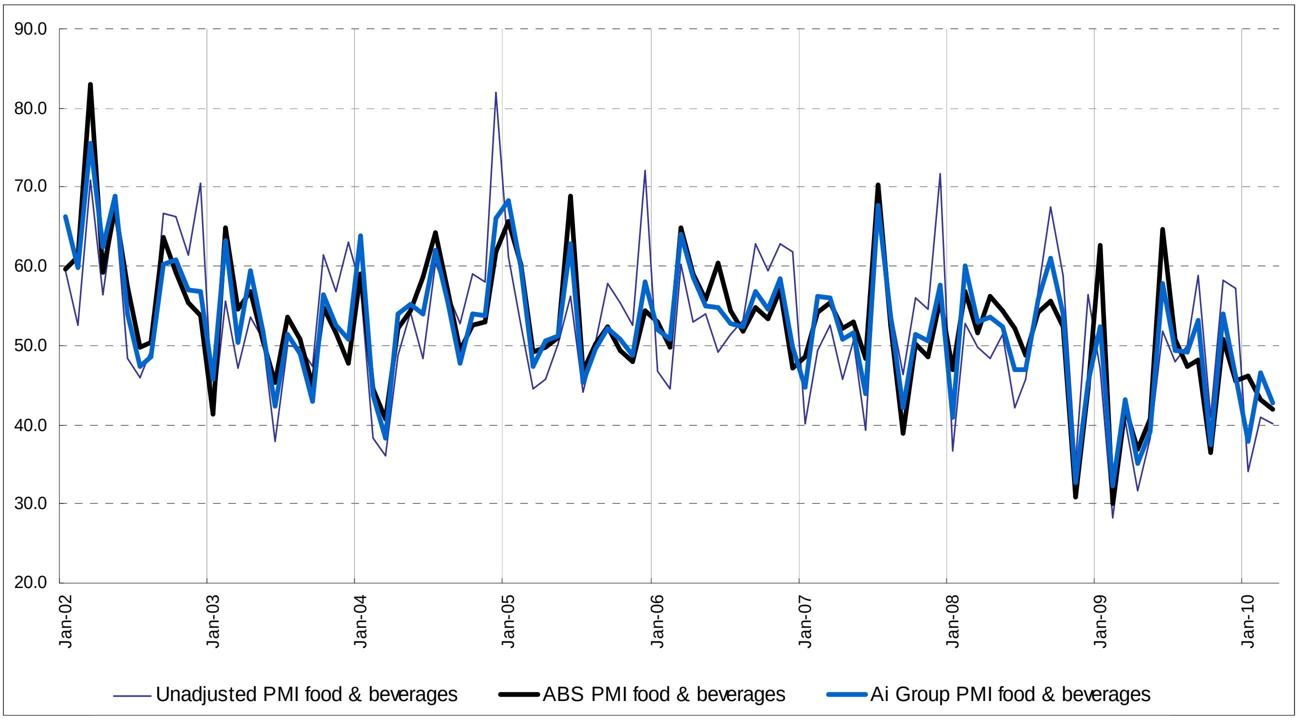
A review of the average monthly seasonal factors cites the need for significant downward revisions in the period between August and December to be offset by upward revisions over the first seven months of the calendar year. December appears to be a month of particularly strong seasonal activity in the food & beverages sector, while activity is seasonally weak in the months of January; February; April; and June.

There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector. Nevertheless, the direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PMI food & beverages seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI food & beverages_ABS	0.89	0.89	0.91	0.90	0.98	0.82	0.94	1.02	1.13	1.12	1.12	1.30
PMI food & beverages_Ai Group	0.90	0.88	0.94	0.90	0.98	0.89	0.97	1.02	1.10	1.09	1.08	1.24

Original PMI food & beverages and seasonally adjusted PMI food & beverages (Ai Group and ABS)



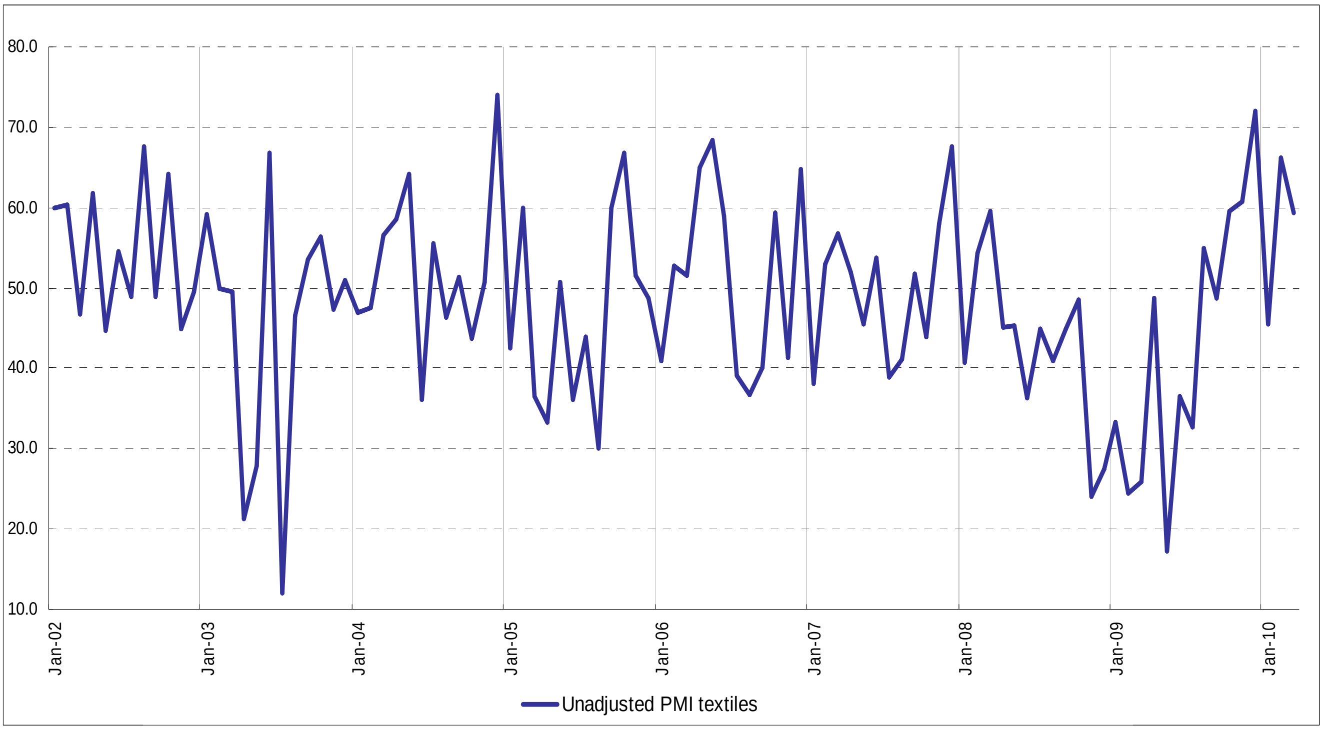
Textiles

The seasonal adjustment methodologies of the ABS and Ai Group failed to detect a monthly seasonal pattern in the textiles PMI sub-index.

Average monthly PMI textiles seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI textiles_ABS	na	na	na	na	na	na	na	na	na	na	na	na
PMI textiles_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PMI textiles



Clothing & footwear

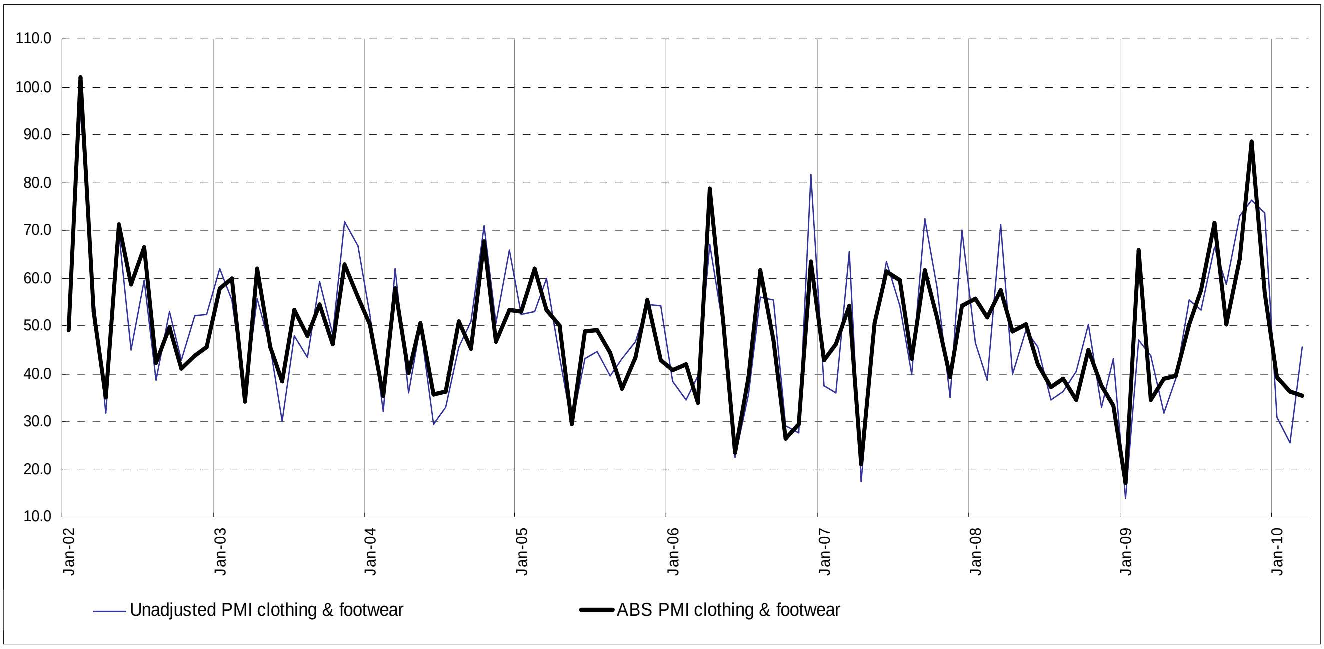
The seasonal adjustment process conducted by Ai Group failed to detect a monthly seasonal pattern in the clothing & footwear PMI sub-index, although a test for significance by the ABS did identify seasonality.

A review of the average monthly seasonal factors derived by the ABS points to stronger seasonal activity in the clothing & footwear sub-index between September and December, offset by a weaker pattern in most other months, most notably in February and April.

Average monthly PMI clothing & footwear seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI clothing & footwear_ABS	0.96	0.84	1.15	0.86	0.99	0.93	0.91	0.91	1.14	1.09	1.00	1.25
PMI clothing & footwear_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PMI food & beverages and seasonally adjusted PMI clothing & footwear (ABS)



Wood products & furniture

The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the wood products & furniture PMI sub-index.

A review of the average monthly seasonal factors cites the need for significant downward revisions in the period between September and December, to be offset by upward revisions over the first eight months of the calendar year. November and December appear to be months of particularly strong seasonal activity in the wood products & furniture sector, while activity is seasonally weak in the months of January; May; and June.

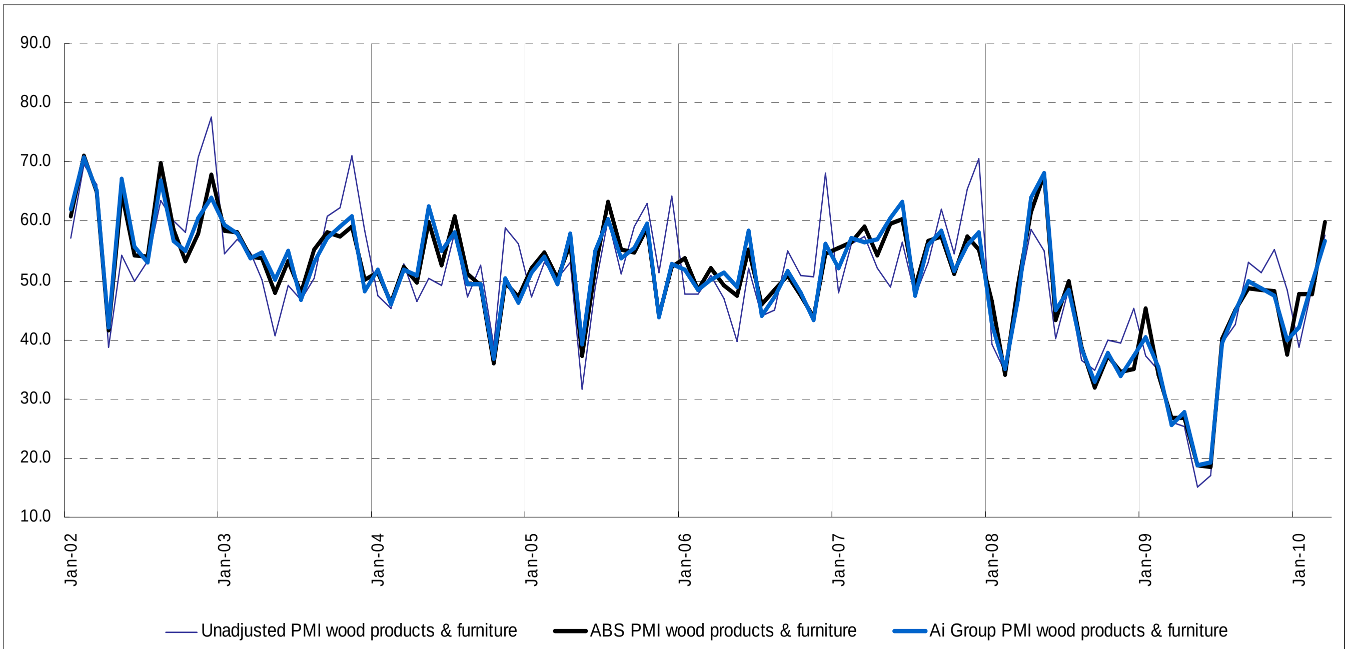
There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although for the month of March, the ABS factors point to the need for a slight upward revision, in contrast to the slight downward revision suggested by the Ai Group factors.

Average monthly PMI wood products & furniture seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI wood products & furniture_ABS	0.89	0.99	0.99	0.95	0.83	0.93	0.97	0.93	1.07	1.07	1.17	1.23
PMI wood products & furniture_Ai Group	0.92	0.98	1.02	0.92	0.81	0.89	1.00	0.95	1.06	1.06	1.17	1.21

Original PMI wood products & furniture and seasonally adjusted PMI wood products & furniture (Ai Group and ABS)



Paper, printing & publishing

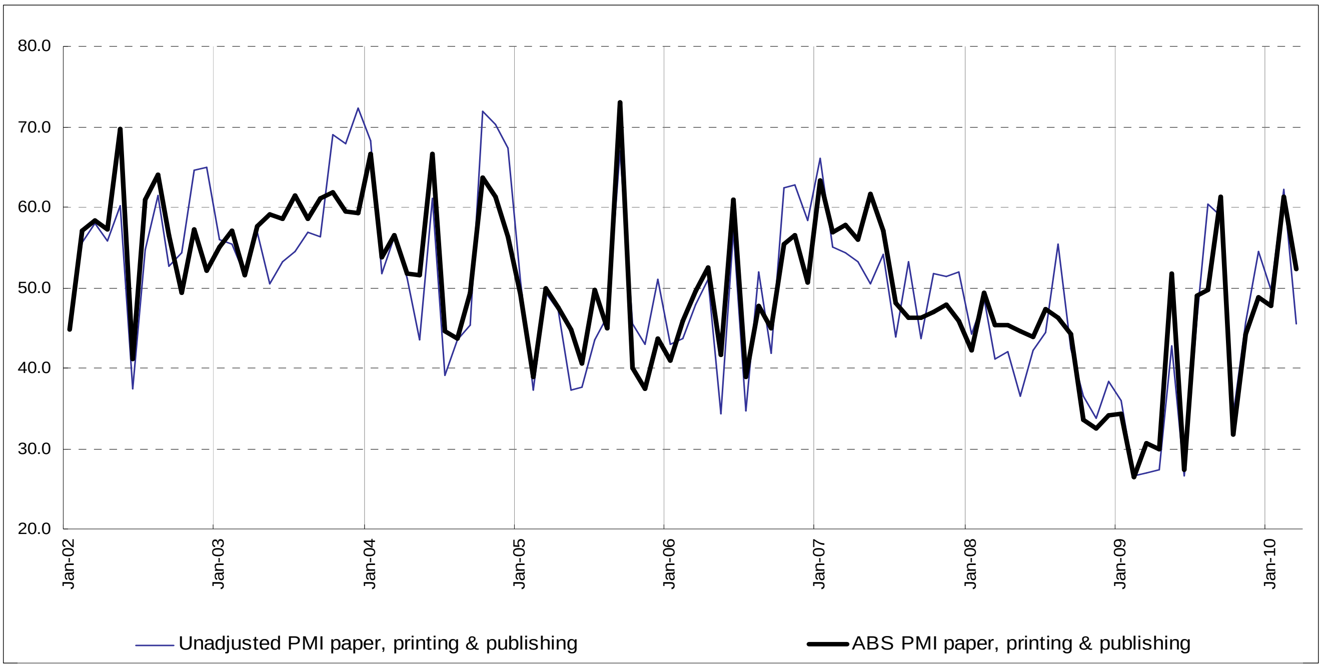
The seasonal adjustment process conducted by Ai Group failed to detect a monthly seasonal pattern in the paper, printing & publishing PMI sub-index, although a test for significance by the ABS did identify seasonality.

A review of the average monthly seasonal factors derived by the ABS points to stronger seasonal activity in the paper, printing & publishing sub-index between August and January (except in the month of September), offset by a weaker pattern in most other months, most notably in May; June and July.

Average monthly PMI paper, printing & publishing seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI paper, printing & publishing_ABS	1.02	0.97	0.96	0.95	0.85	0.93	0.93	1.05	0.96	1.11	1.11	1.16
PMI paper, printing & publishing_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PMI wood products & furniture and seasonally adjusted PMI wood products & furniture (ABS)



Chemicals, petroleum & coal products

The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the chemicals, petroleum & coal products PMI sub-index.

A review of the average monthly seasonal factors cites the need for downward revisions in the period between October and December, as well as the month of April, to be offset by large upward revisions between May and July.

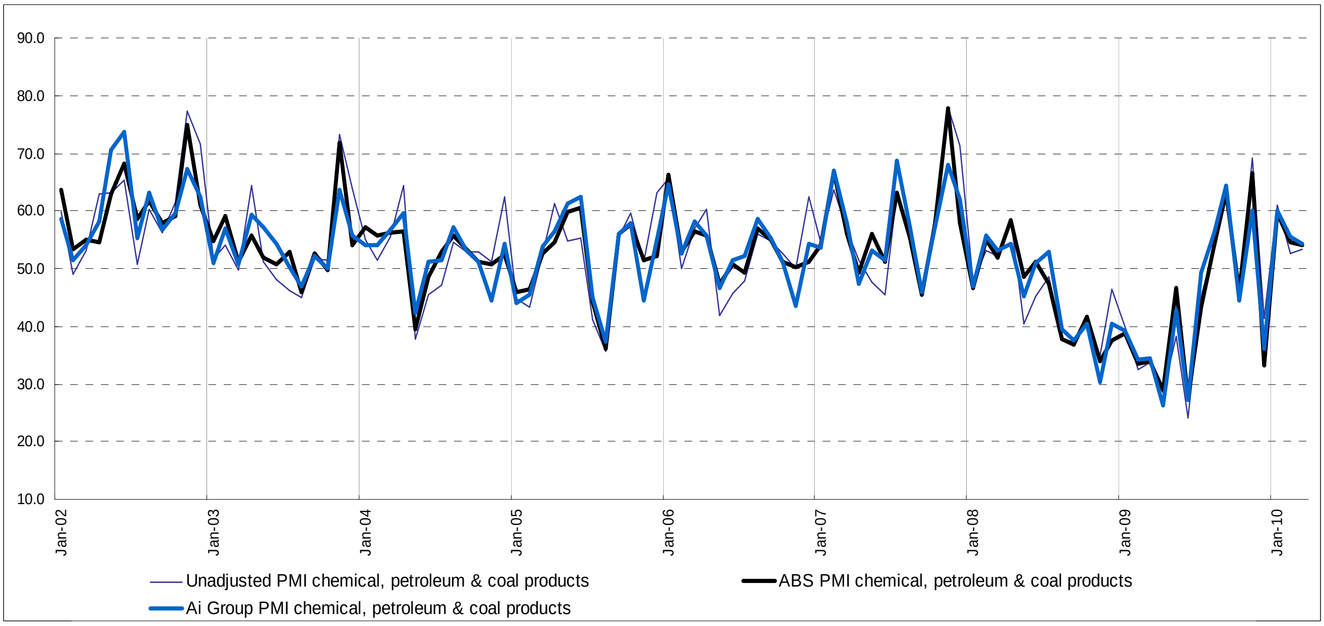
There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although for the month of January, the ABS factors point to the need for a slight upward revision, in contrast to the slight downward revision suggested by the Ai Group factors, while for November Ai Group's factors suggest a significantly higher downward adjustment for November outcomes.

Average monthly PMI chemicals, petroleum & coal products seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI chemicals_ABS	0.98	0.94	0.99	1.09	0.91	0.91	0.95	0.98	0.99	1.02	1.01	1.21
PMI chemicals_Ai Group	1.02	0.95	0.98	1.08	0.90	0.89	0.92	0.96	0.99	1.03	1.15	1.15

Original PMI chemicals, petroleum & coal products and seasonally adjusted PMI chemicals, petroleum & coal products (Ai Group and ABS)



Construction materials

The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the construction materials PMI sub-index.

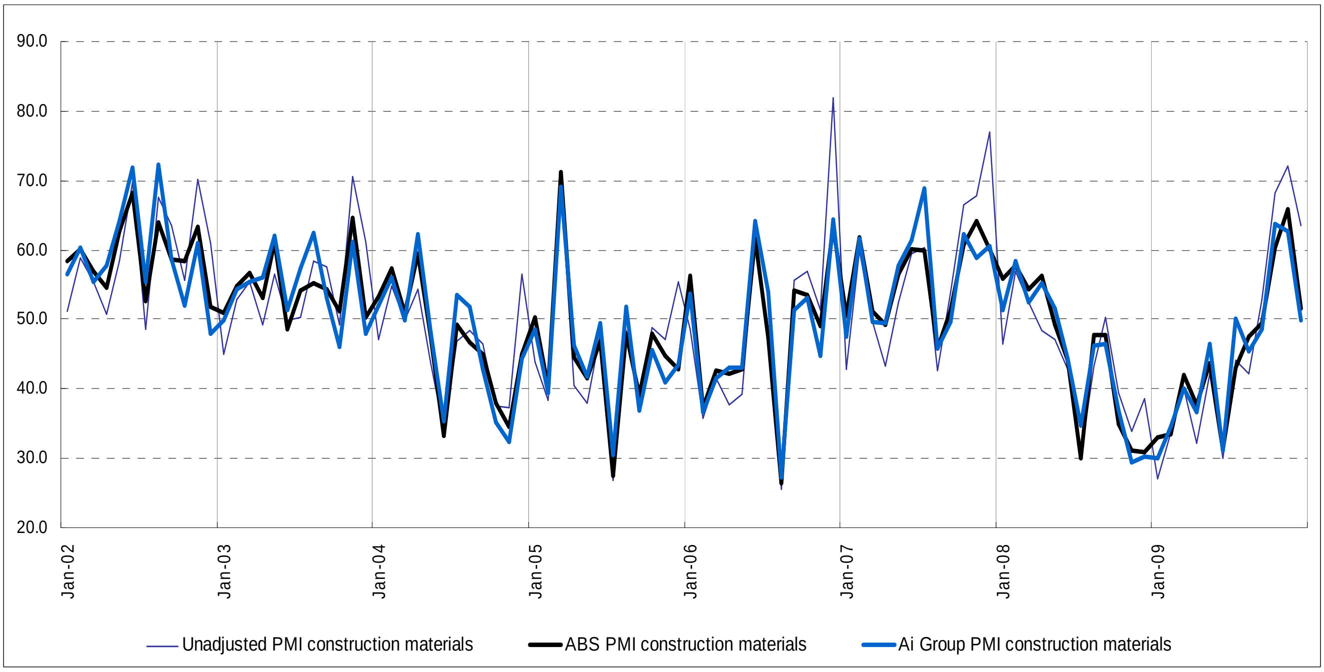
A review of the average monthly seasonal factors cites the need for significant downward revisions in the period between September and December, most notably in November and December, to be offset by large upward revisions other the other eight months of the year (most notably in January and April).

There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors (particularly in the months of March; June; July; and November) reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector.

Average monthly PMI construction materials seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI construction materials_ABS	0.86	0.97	0.97	0.89	0.93	1.00	0.98	0.98	1.05	1.04	1.08	1.25
PMI construction materials_Ai Group	0.90	0.98	1.00	0.88	0.91	0.97	0.88	0.93	1.08	1.07	1.15	1.27

Original PMI construction materials and seasonally adjusted PMI construction materials (Ai Group and ABS)



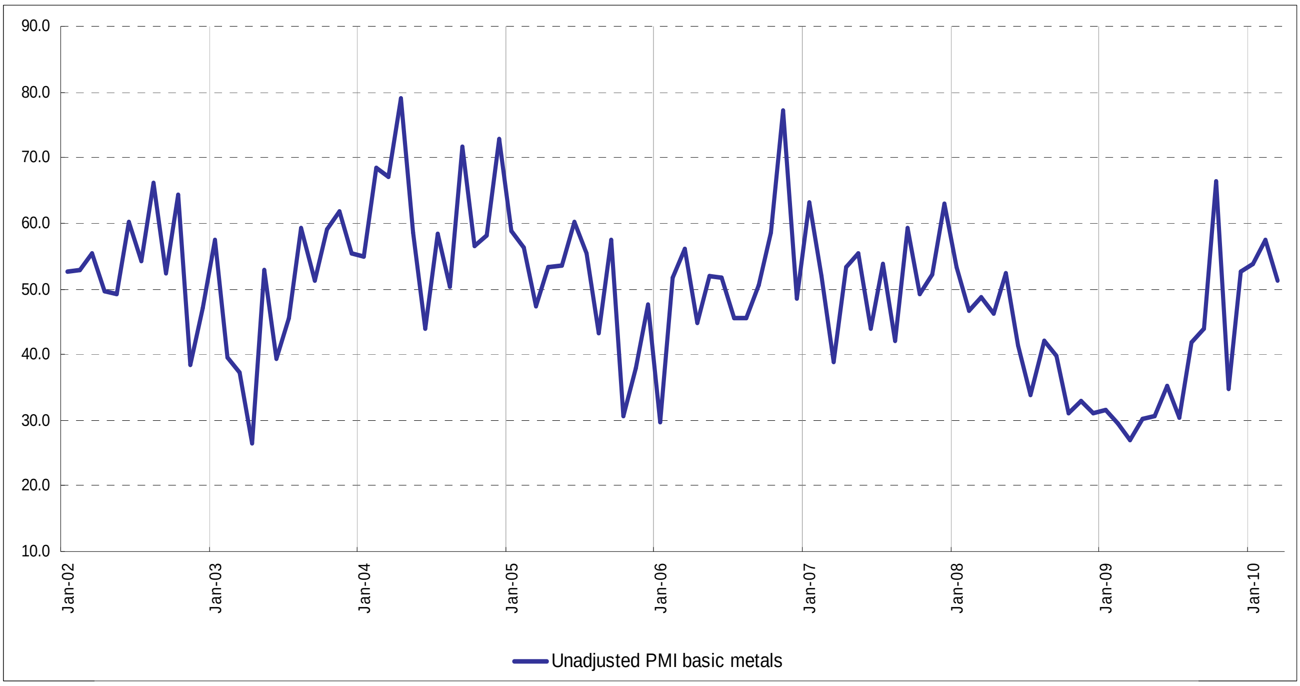
Basic metals

The seasonal adjustment methodologies of the ABS and Ai Group failed to detect a monthly seasonal pattern in the basic metals PMI sub-index.

Average monthly PMI basic metals seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI basic metals_ABS	na	na	na	na	na	na	na	na	na	na	na	na
PMI basic metals_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PMI basic metals



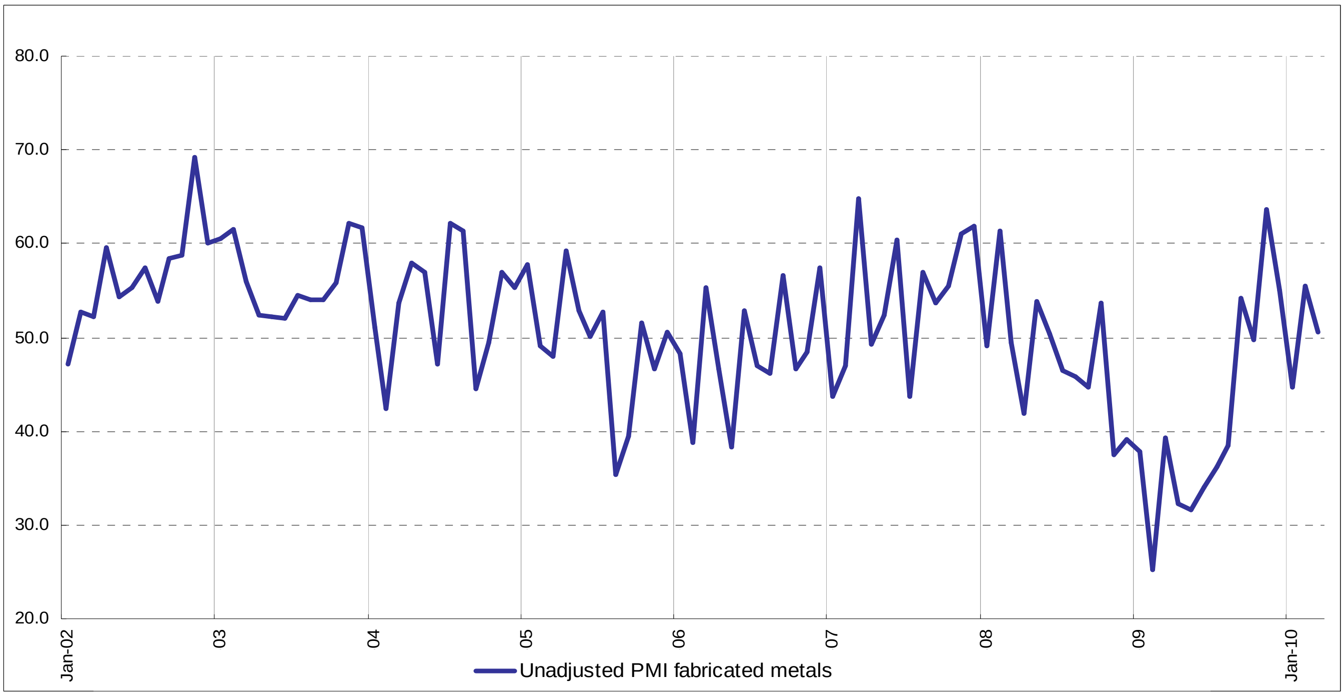
Fabricated metals

The seasonal adjustment methodologies of the ABS and Ai Group failed to detect a monthly seasonal pattern in the fabricated metals PMI sub-index.

Average monthly PMI fabricated metals seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI fabricated metals_ABS	na	na	na	na	na	na	na	na	na	na	na	na
PMI fabricated metals_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PMI fabricated metals



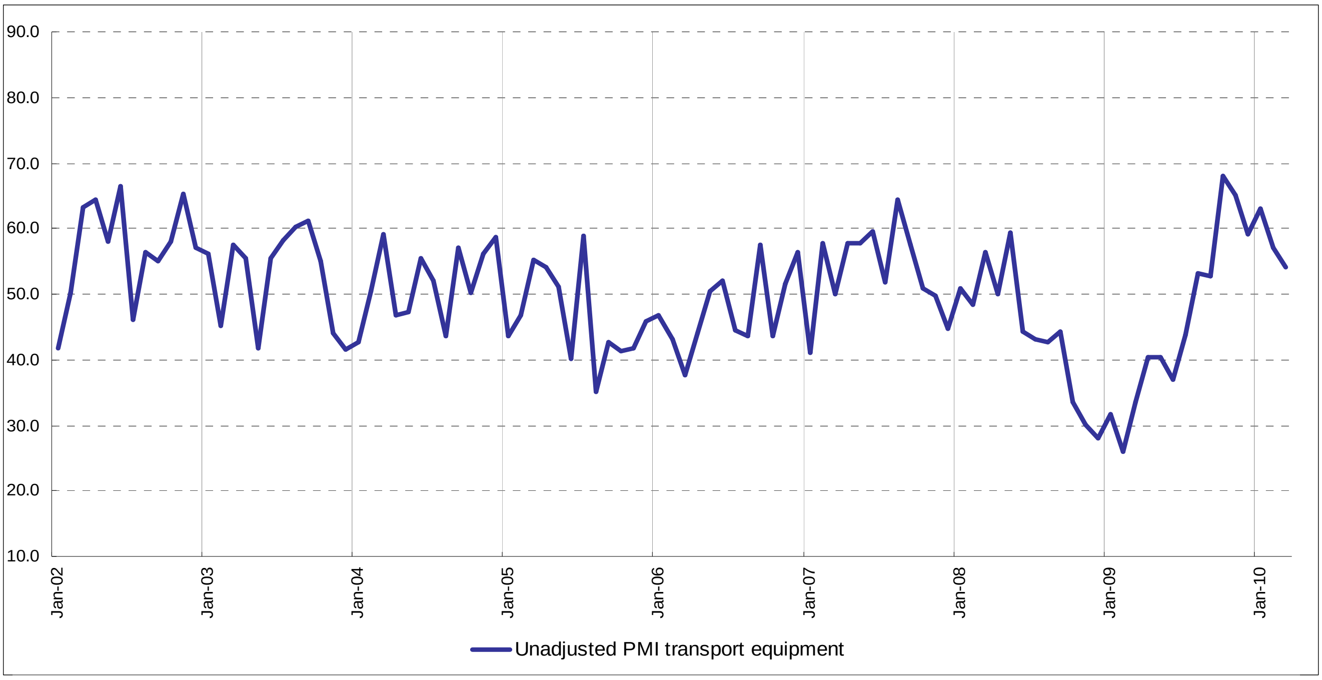
Transport equipment

The seasonal adjustment methodologies of the ABS and Ai Group failed to detect a monthly seasonal pattern in the transport equipment PMI sub-index.

Average monthly PMI transport equipment seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI transport equipment_ABS	na	na	na	na	na	na	na	na	na	na	na	na
PMI transport equipment_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PMI transport equipment



Machinery & equipment

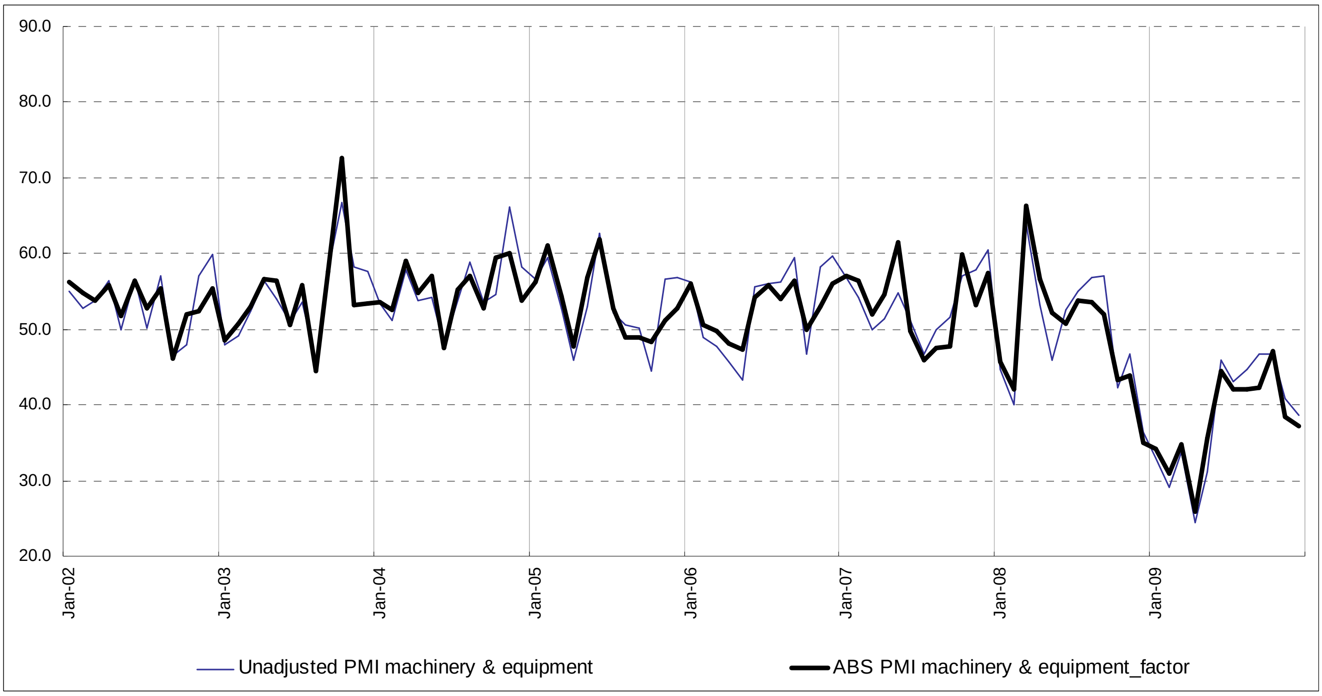
The seasonal adjustment process conducted by Ai Group failed to detect a monthly seasonal pattern in the machinery & equipment PMI sub-index, although a test for significance by the ABS did identify seasonality.

A review of the average monthly seasonal factors derived by the ABS points to stronger seasonal activity in the machinery & equipment sub-index between August and January (except in the month of October), offset by a weaker pattern in most other months, most notably in May and October.

Average monthly PMI machinery & equipment seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI machinery & equipment_ABS	0.99	0.96	0.97	0.96	0.92	1.02	0.99	1.04	1.05	0.94	1.09	1.07
PMI machinery & equipment_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PMI machinery & equipment and seasonally adjusted PMI machinery & equipment (ABS)



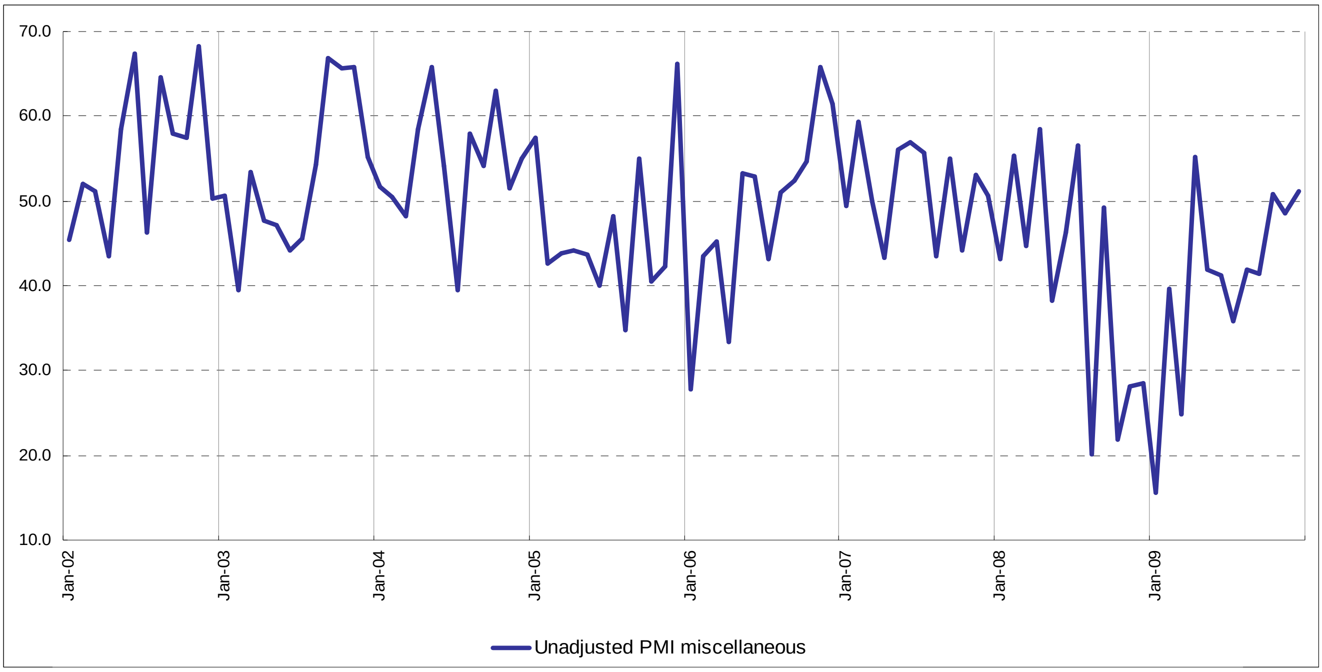
Miscellaneous manufacturing

The seasonal adjustment methodologies of the ABS and Ai Group failed to detect a monthly seasonal pattern in the miscellaneous manufacturing PMI sub-index.

Average monthly PMI miscellaneous manufacturing seasonal factors (period 2002-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PMI miscellaneous_ABS	na	na	na	na	na	na	na	na	na	na	na	na
PMI miscellaneous_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PMI miscellaneous manufacturing and seasonally adjusted PMI miscellaneous manufacturing (ABS)



Appendix 2: Seasonal adjustment of PSI components and sectors

Sales

Consistent with the outcomes for the PMI, the seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the sales component of the PSI. A review of the average monthly seasonal factors points to the need for significant downward revisions between in the period September and December (most notably in November and December), to be offset by upward revisions over the first eight months of the calendar year. Particularly large upward revisions are required to remove to seasonal patterns in the months of January; February; and June.

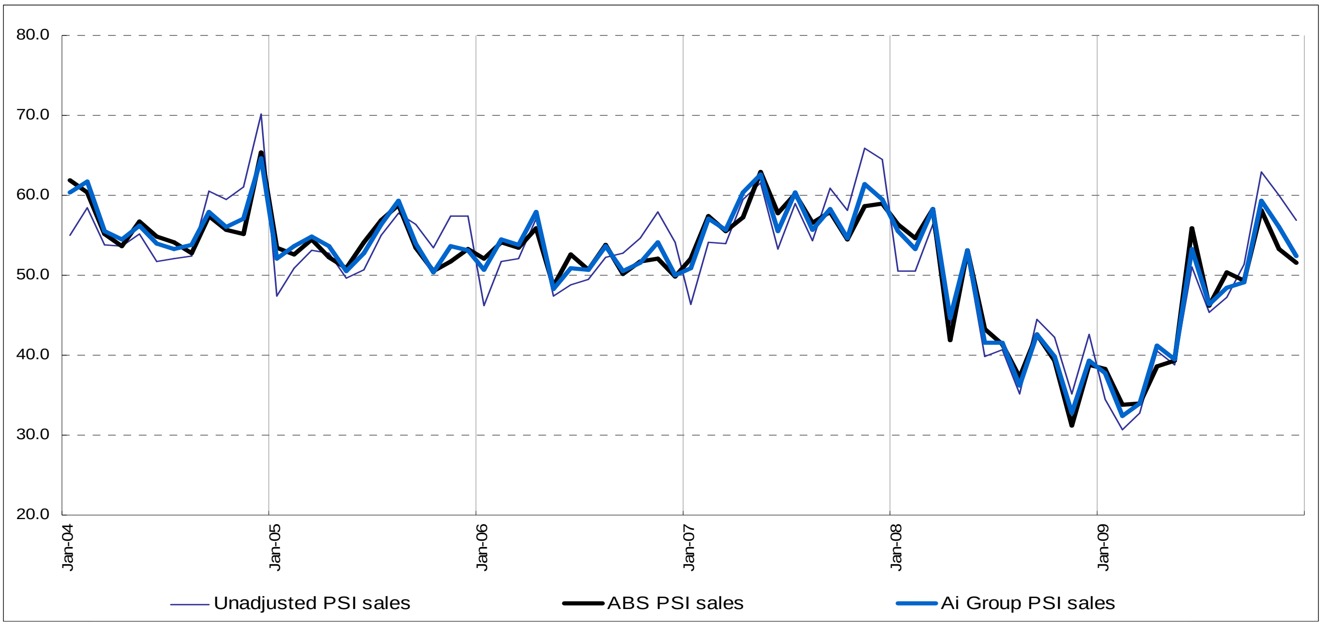
There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although for the month of April the ABS factors point to the need for a slight downward revision, in contrast to the slight upward revision suggested by the Ai Group factors.

Average monthly PSI sales seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI sales_ABS	0.89	0.94	0.97	1.03	0.98	0.93	0.98	0.96	1.05	1.07	1.12	1.09
PSI sales_Ai Group	0.91	0.95	0.97	0.98	0.98	0.96	0.98	0.97	1.05	1.06	1.07	1.08

Original PSI sales and seasonally adjusted PSI sales (Ai Group and ABS)



Employment

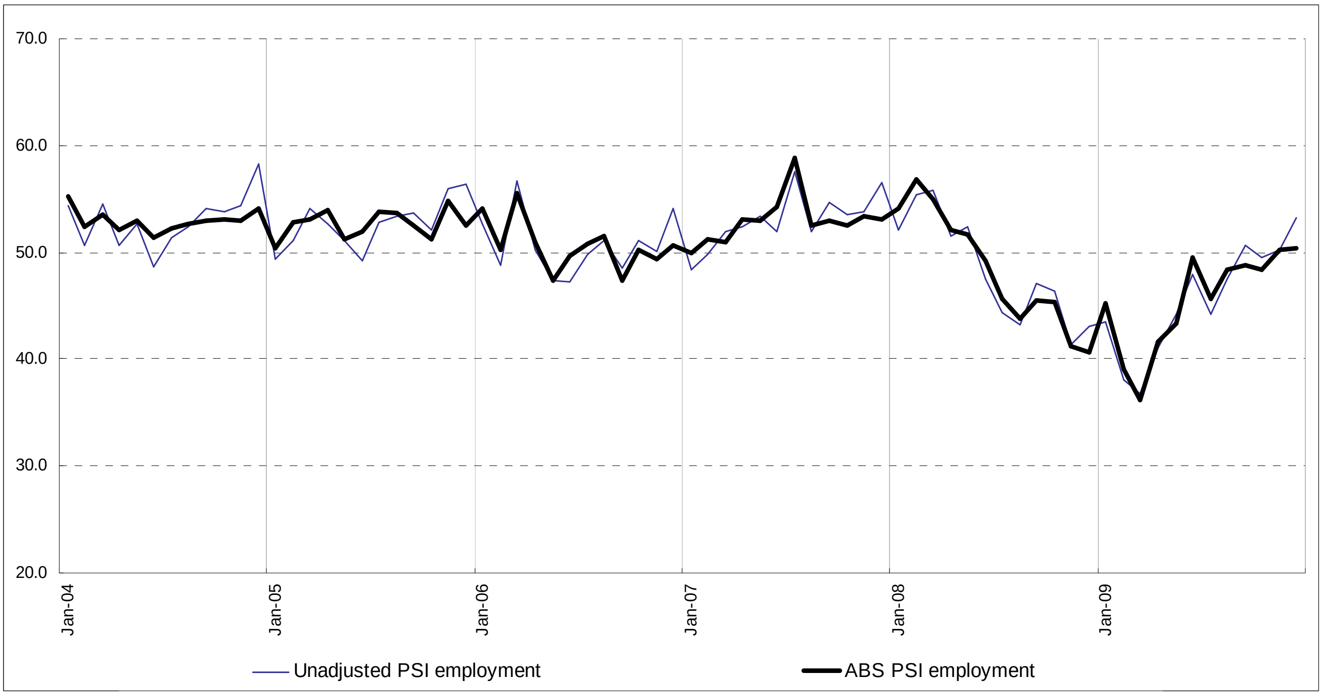
The seasonal adjustment process conducted by Ai Group failed to detect a monthly seasonal pattern in the employment component of the PSI, although a test for significance by the ABS did identify seasonality.

A review of the average monthly seasonal factors derived by the ABS points to moderately stronger seasonal employment between September and December, offset by a weaker pattern in most other months.

Average monthly PSI employment seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI employment_ABS	0.97	0.97	1.02	0.98	1.01	0.96	0.98	0.99	1.03	1.02	1.01	1.07
PSI employment_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PSI employment and seasonally adjusted PSI employment (ABS)



New orders

The seasonal factors generated by both Ai Group and the ABS identify stronger seasonal new orders in the period between September and December, offset by a weaker pattern in the first nine months of the calendar year, most notably in January and June.

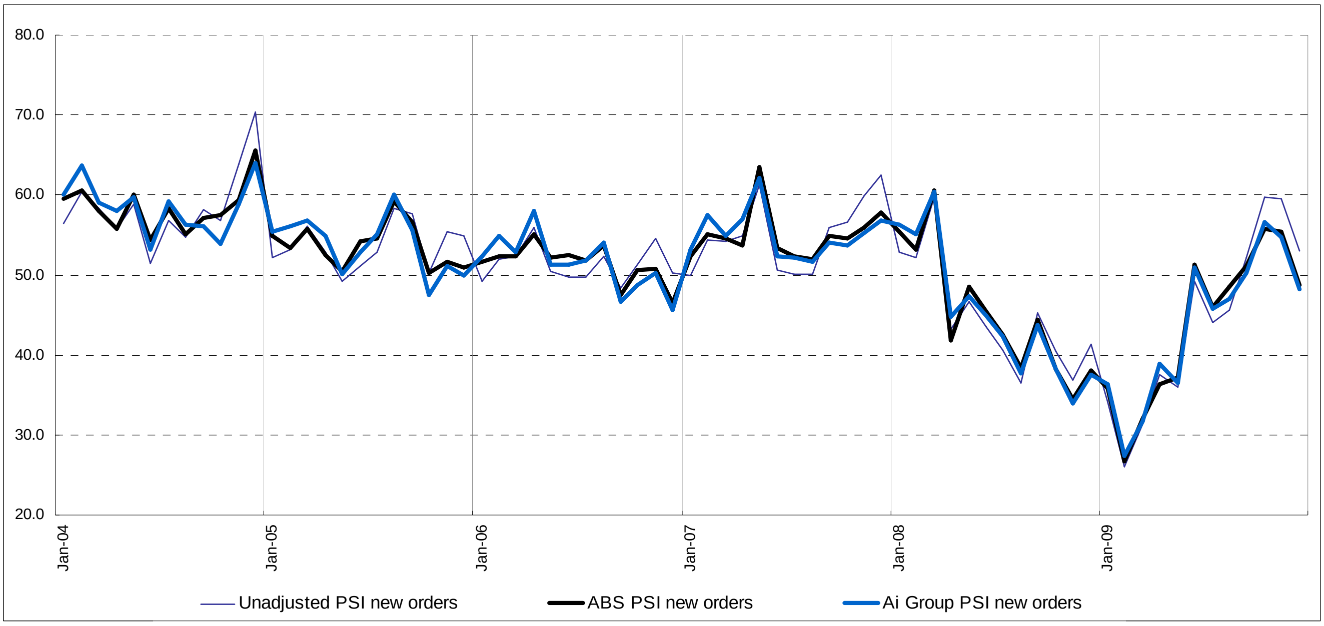
There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although for the months of March and April the ABS factors point to the need for slight downward revisions, in contrast to the slight upward revisions suggested by the Ai Group factors.

Average monthly PSI new orders seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI new orders_ABS	0.95	0.99	1.00	1.02	0.97	0.95	0.96	0.97	1.02	1.03	1.07	1.08
PSI new orders_Ai Group	0.94	0.95	0.99	0.96	0.99	0.97	0.96	0.97	1.04	1.05	1.09	1.10

Original PSI new orders and seasonally adjusted PSI new orders (Ai Group and ABS)



Stocks

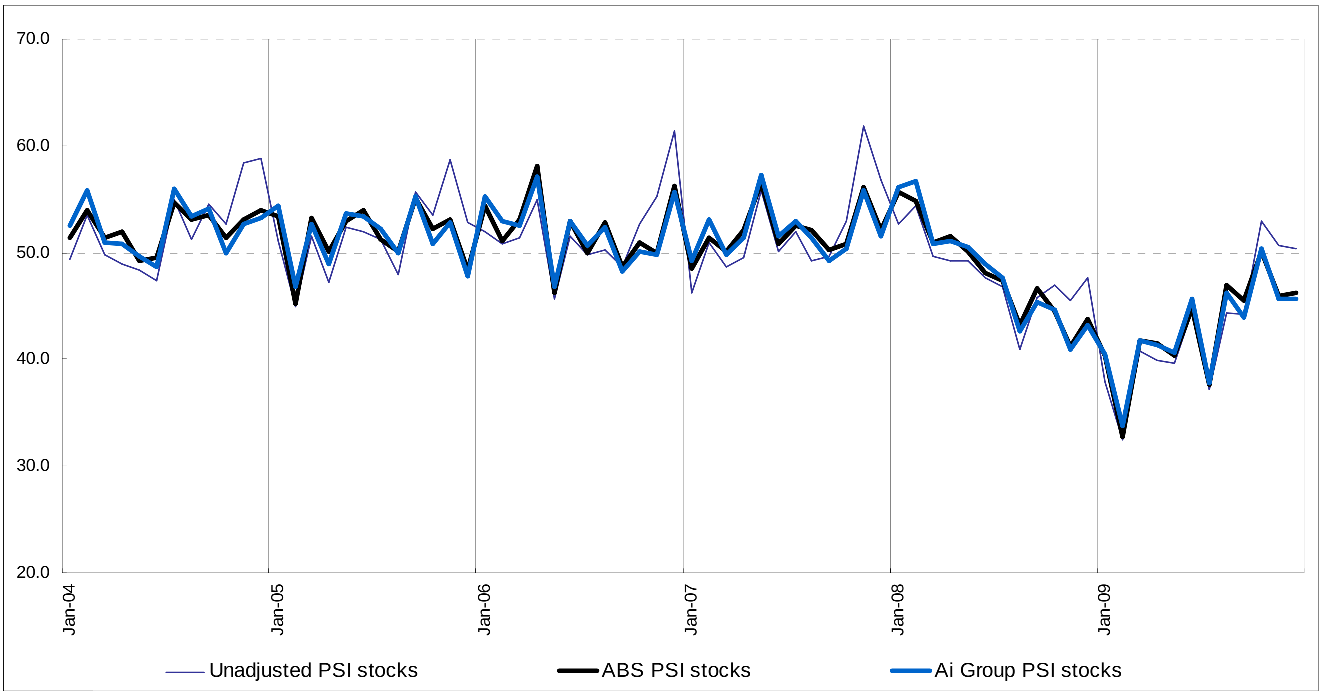
The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the stocks component of the PSI. A review of the average monthly seasonal factors cite the need for downward revisions in the period between September and December (most notably in November and December), to be offset by upward revisions over the first eight months of the calendar year. Particularly large upward revisions are required to remove to seasonal patterns in January and August.

There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PSI stocks seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI stocks_ABS	0.95	0.99	0.97	0.95	0.99	0.98	0.99	0.95	1.00	1.04	1.10	1.09
PSI stocks_Ai Group	0.94	0.96	0.98	0.96	0.98	0.97	0.98	0.96	1.01	1.05	1.11	1.10

Original PSI stocks and seasonally adjusted PSI stocks (Ai Group and ABS)



Deliveries

The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the deliveries component of the PSI. A review of the average monthly seasonal factors cite the need for downward revisions in the period between September and December, to be offset by upward revisions over the first eight months of the calendar year. Particularly large upward revisions are required to remove to seasonal patterns in the months of January; February; and May.

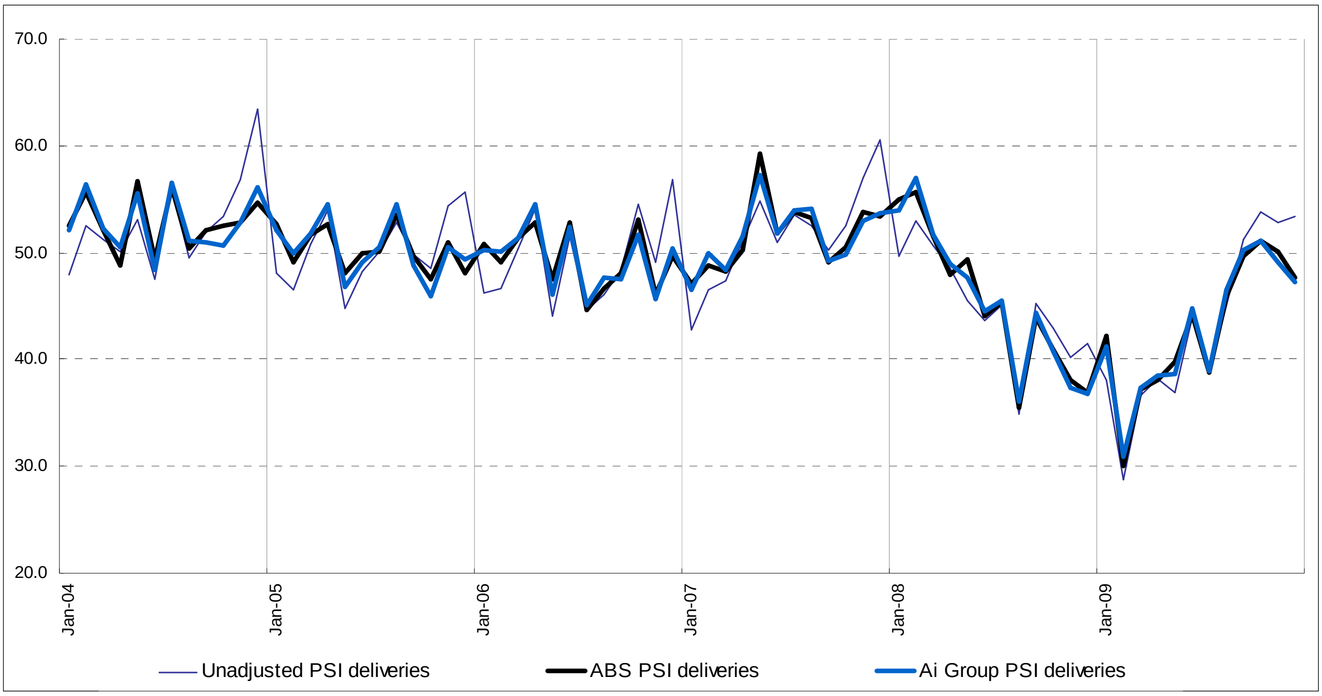
There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although for the month of April the ABS factors point to the need for a slight downward revision, in contrast to the slight upward revision suggested by the Ai Group factors.

Average monthly PSI deliveries seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI deliveries_ABS	0.91	0.95	0.98	1.02	0.93	0.98	1.00	0.98	1.01	1.03	1.06	1.14
PSI deliveries_Ai Group	0.92	0.93	0.98	0.99	0.96	0.98	0.99	0.97	1.02	1.05	1.08	1.13

Original PSI deliveries and seasonally adjusted PSI deliveries (Ai Group and ABS)



Prices

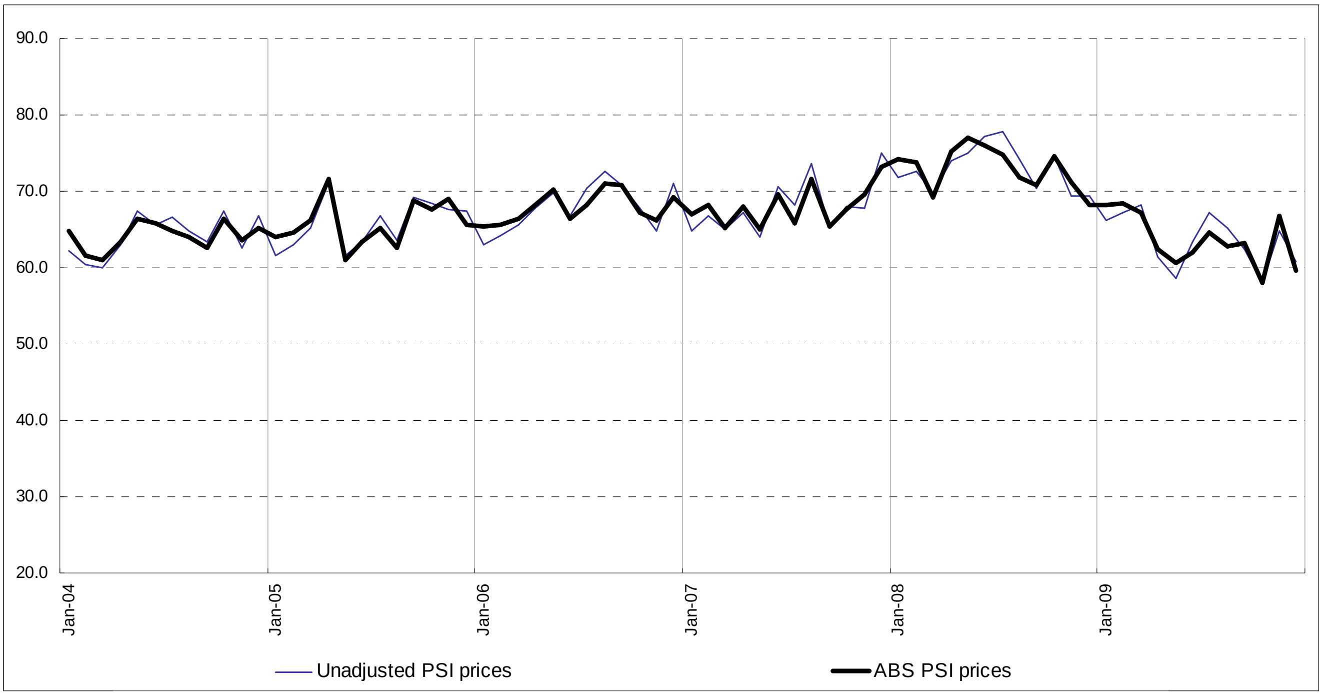
The seasonal adjustment process conducted by Ai Group failed to detect a monthly seasonal pattern in the prices component of the PSI, although a test for significance by the ABS did identify, albeit mild, seasonality.

A review of the average monthly seasonal factors derived by the ABS points to slightly stronger seasonal prices in the second half of the calendar year.

Average monthly PSI prices seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI prices_ABS	0.97	0.98	1.00	0.99	0.99	1.01	1.03	1.03	1.00	1.01	0.98	1.02
PSI prices_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PSI prices and seasonally adjusted PSI prices (ABS)



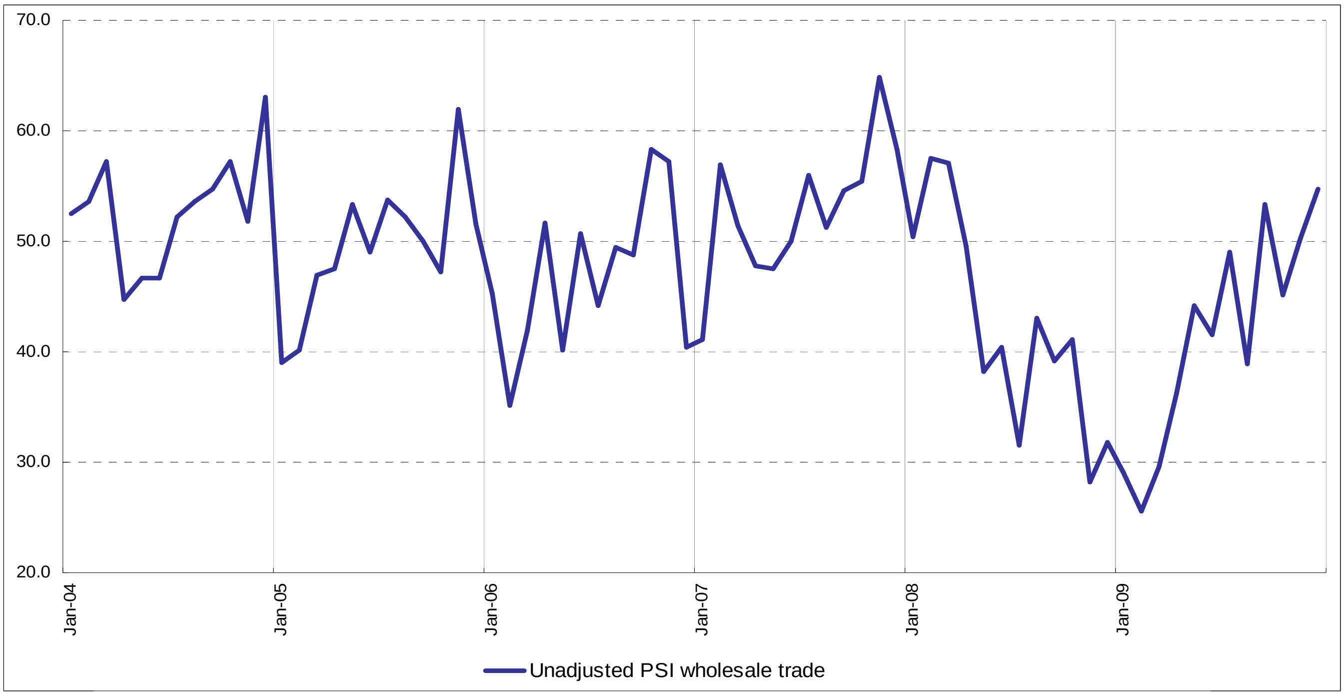
Wholesale trade

The seasonal adjustment methodologies of the ABS and Ai Group failed to detect a monthly seasonal pattern in the wholesale trade PSI sub-index.

Average monthly PSI wholesale trade seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI wholesale trade_ABS	na	na	na	na	na	na	na	na	na	na	na	na
PSI wholesale trade_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PSI wholesale trade



Retail trade

The seasonal factors generated by both Ai Group and the ABS point to a stronger seasonal pattern in retail trade activity in the period between September and December, offset by weaker activity in the first seven months of the calendar year, most notably in February and August.

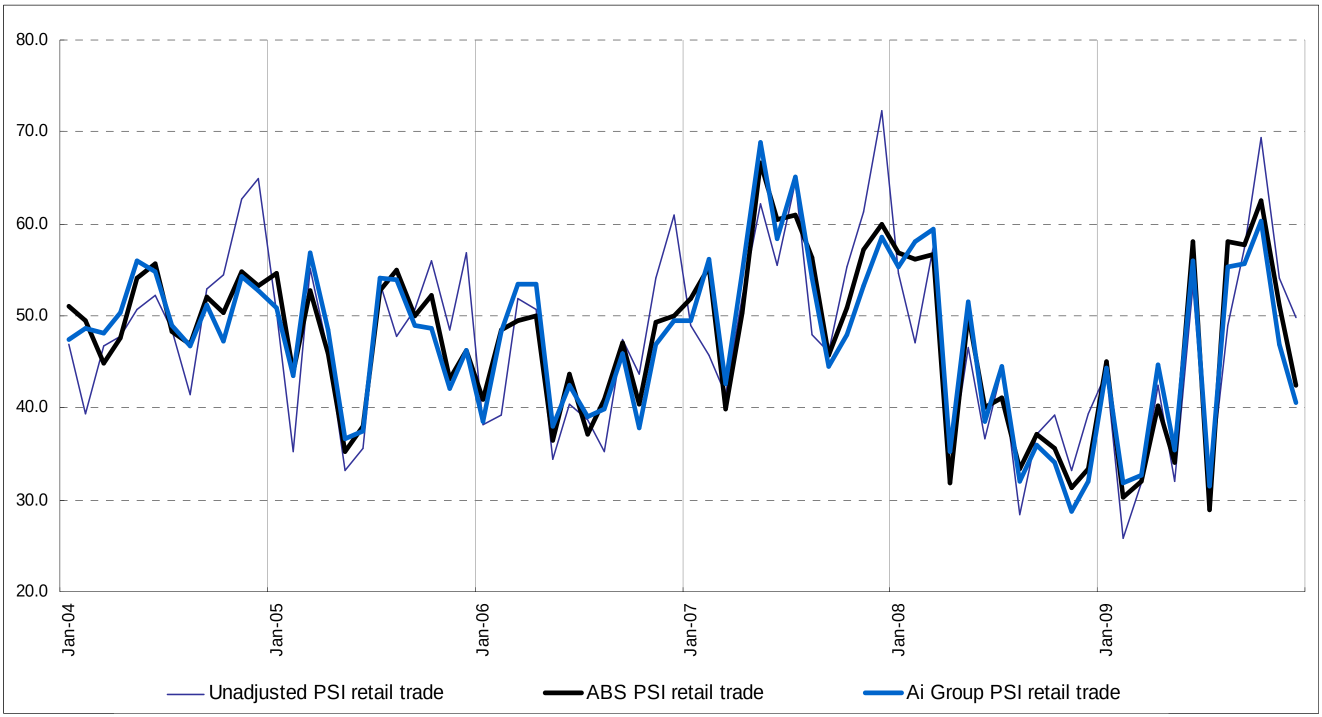
There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although for the months of March and April, the ABS factors point to the need for slight upward revisions, in contrast to the slight downward revisions suggested by the Ai Group factors.

Average monthly PSI retail trade seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI retail trade_ABS	0.94	0.82	1.03	1.03	0.94	0.92	1.05	0.86	1.01	1.09	1.09	1.21
PSI retail trade_Ai Group	0.99	0.81	0.97	0.95	0.90	0.95	0.99	0.89	1.03	1.15	1.15	1.23

Original PSI retail trade and seasonally adjusted PSI retail trade (Ai Group and ABS)



Accommodation, cafés & restaurants

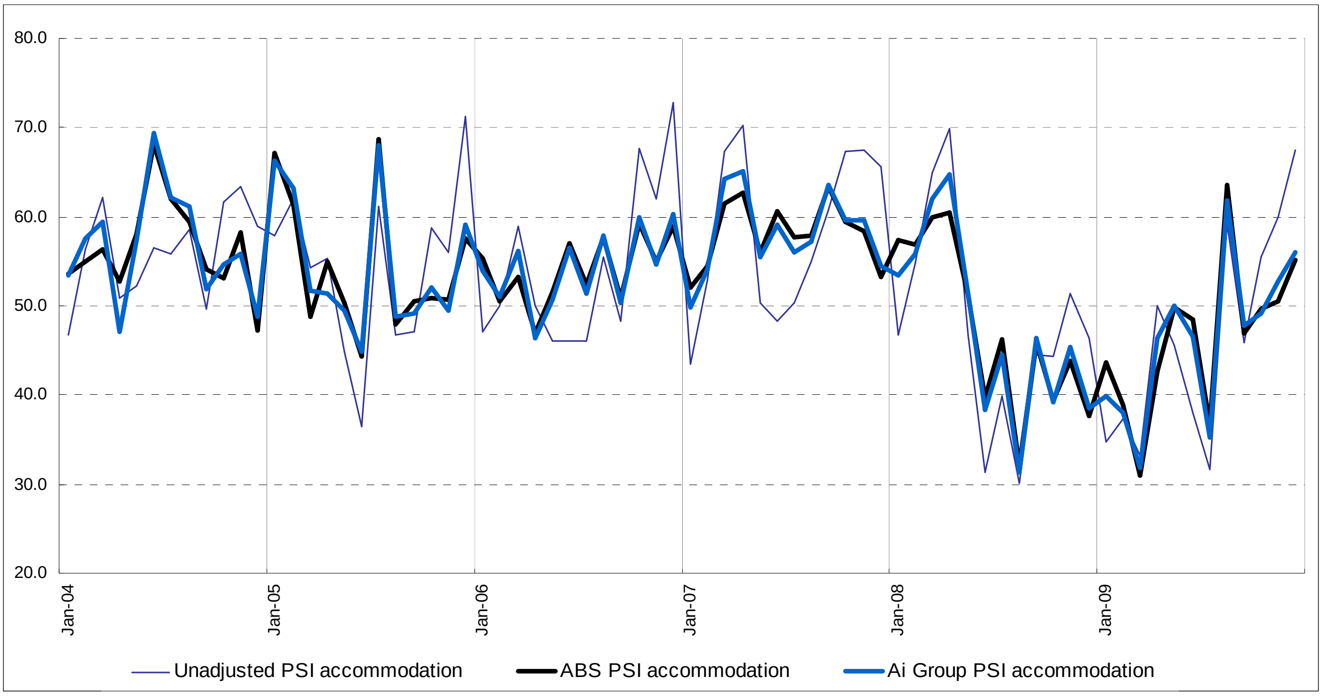
The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the accommodation, cafés & restaurants PSI sub-index. A review of the average monthly seasonal factors identify the need for significant downward revisions in the period between October and December, and to a lesser degree in the months of March and April, to be offset by large upward revisions in the other seven months of the calendar year (most notably in the months of January and June).

There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PSI accommodation, cafés & restaurants seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI accommodation_ABS	0.84	0.99	1.09	1.08	0.90	0.80	0.88	0.96	0.95	1.14	1.14	1.24
PSI accommodation_Ai Group	0.87	0.98	1.05	1.08	0.91	0.82	0.90	0.96	0.96	1.13	1.13	1.21

Original PSI accommodation, cafés & restaurants and seasonally adjusted PSI accommodation, cafés & restaurants (Ai Group and ABS)



Transport & storage

The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the transport & storage PSI sub-index. A review of the average monthly seasonal factors identify the need for significant downward revisions in the period between October and January, to be offset by large upward revisions in most other months of the calendar year (most notably in the months of May and July).

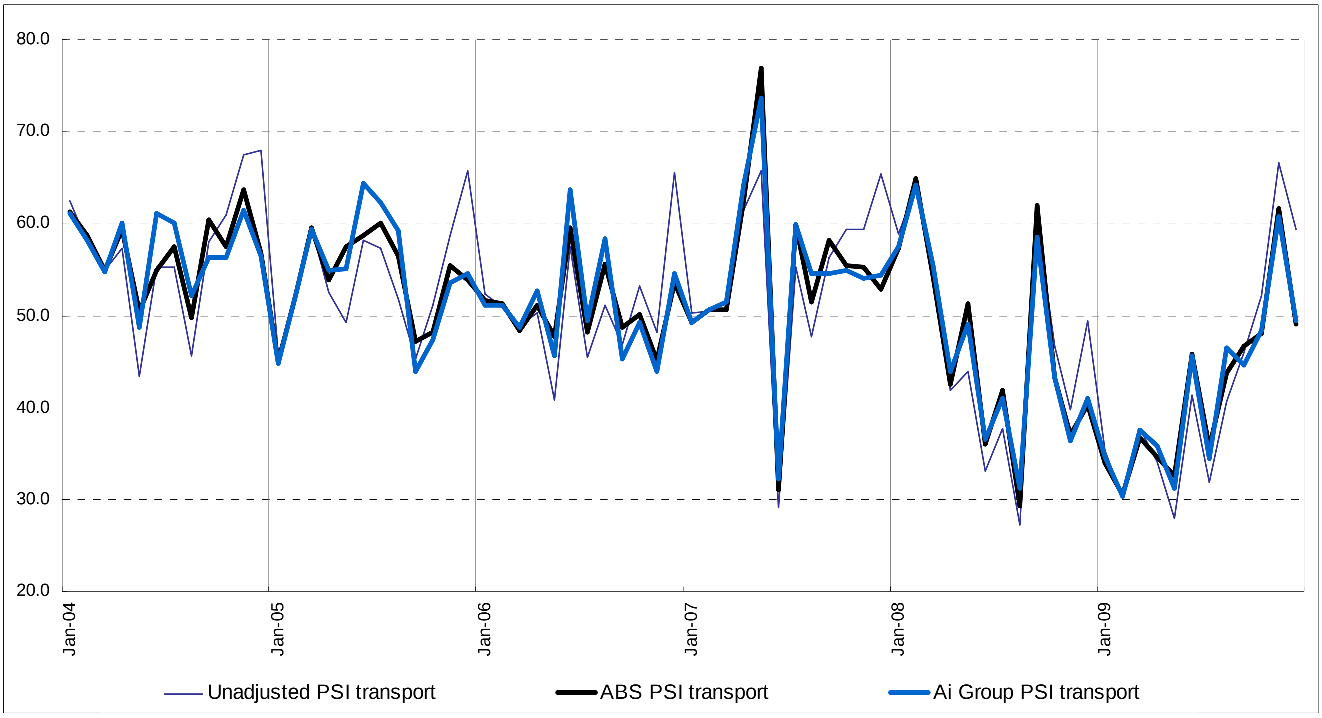
There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although for the months of February and September, the Ai Group factors point to the need for slight upward revisions, in contrast to the slight downward revisions suggested by the ABS factors.

Average monthly PSI transport & storage seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI transport_ABS	1.02	0.99	1.01	0.98	0.86	0.95	0.93	0.92	0.97	1.07	1.07	1.22
PSI transport_Ai Group	1.02	1.00	1.00	0.96	0.89	0.90	0.92	0.88	1.03	1.08	1.10	1.20

Original PSI transport & storage and seasonally adjusted PSI transport & storage (Ai Group and ABS)



Communication services

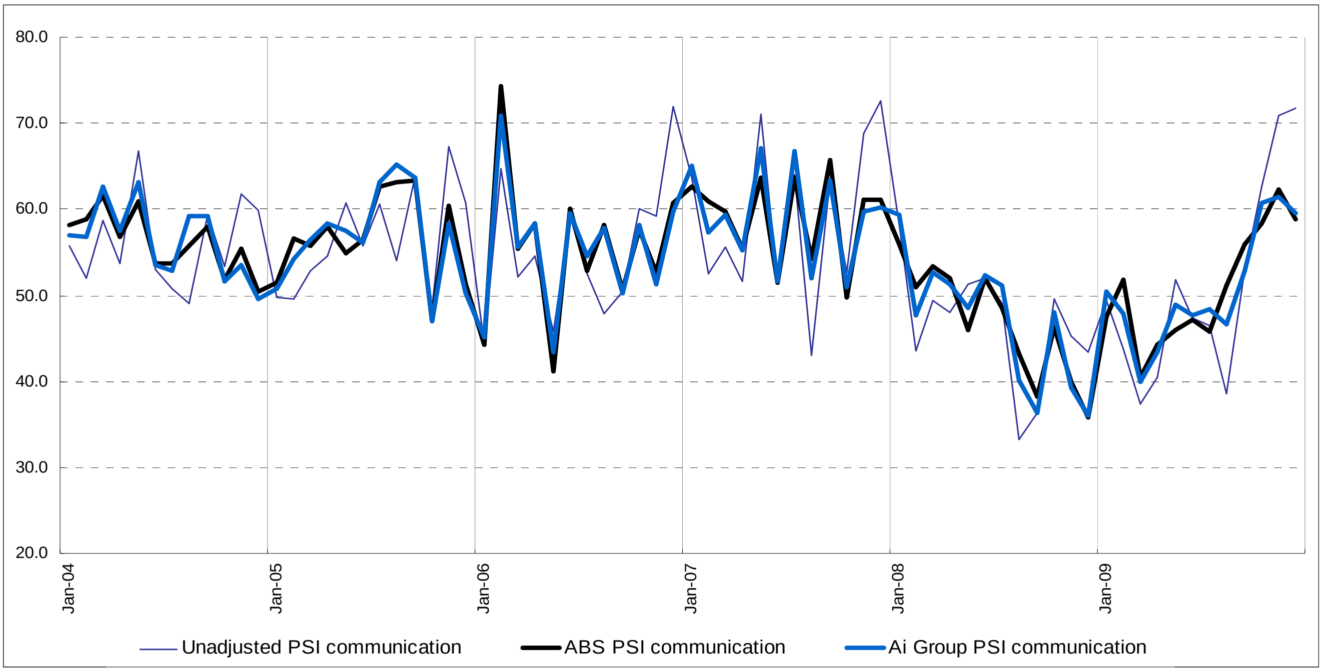
The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the communication services PSI sub-index. A review of the average monthly seasonal factors identifies the need for significant downward revisions in the months of November and December, and to a lesser degree in May and October, to be offset by large upward revisions in the other months of the calendar year (most notably in the months of February and August).

There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PSI communication services seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI communication_ABS	1.00	0.87	0.94	0.93	1.11	0.99	0.99	0.81	0.98	1.05	1.13	1.20
PSI communication_Ai Group	0.98	0.91	0.94	0.94	1.06	0.99	0.96	0.83	1.00	1.03	1.15	1.21

Original PSI communication services and seasonally adjusted PSI communication services (Ai Group and ABS)



Finance & Insurance

The seasonal factors generated by both Ai Group and the ABS point to an up and down seasonal pattern in the finance & insurance PSI sub-index. A review of the average monthly seasonal factors identify the need for significant downward revisions in the months of May and September, to be offset by large upward revisions in the month of January, and to a lesser degree February and August.

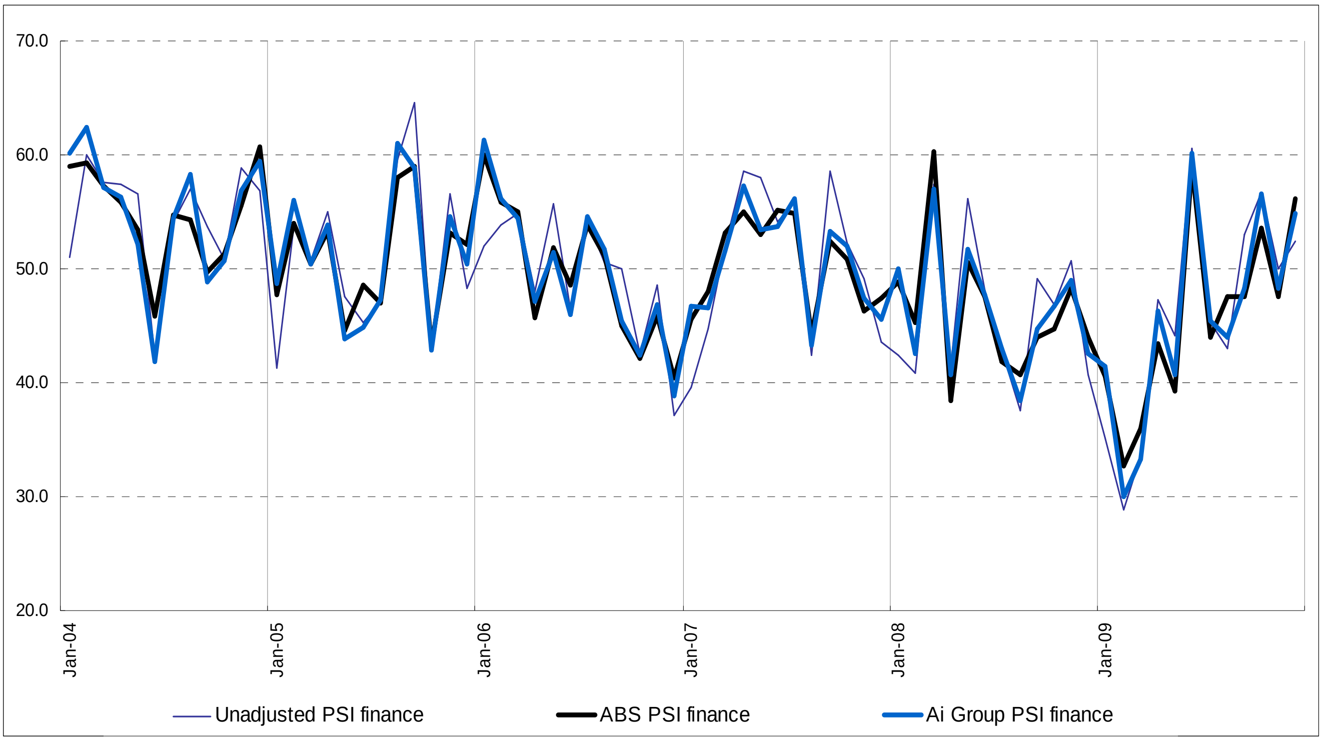
There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although for the months of March and June, the Ai Group factors point to the need for slight upward revisions, in contrast to the slight downward revisions suggested by the ABS factors.

Average monthly PSI finance & insurance seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI finance_ABS	0.87	0.95	0.98	1.06	1.09	0.97	1.01	0.98	1.11	1.02	1.06	0.93
PSI finance_Ai Group	0.85	0.96	1.01	1.02	1.08	1.01	1.00	0.98	1.10	1.00	1.03	0.96

Original PSI finance & insurance and seasonally adjusted PSI finance & insurance (Ai Group and ABS)



Property & business services

The seasonal adjustment methodologies of the ABS and Ai Group failed to detect a monthly seasonal pattern in the property & business services PSI sub-index.

Average monthly PSI property & business services seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI property_ABS	na	na	na	na	na	na	na	na	na	na	na	na
PSI property_Ai Group	na	na	na	na	na	na	na	na	na	na	na	na

Original PSI property & business services

Health & community services

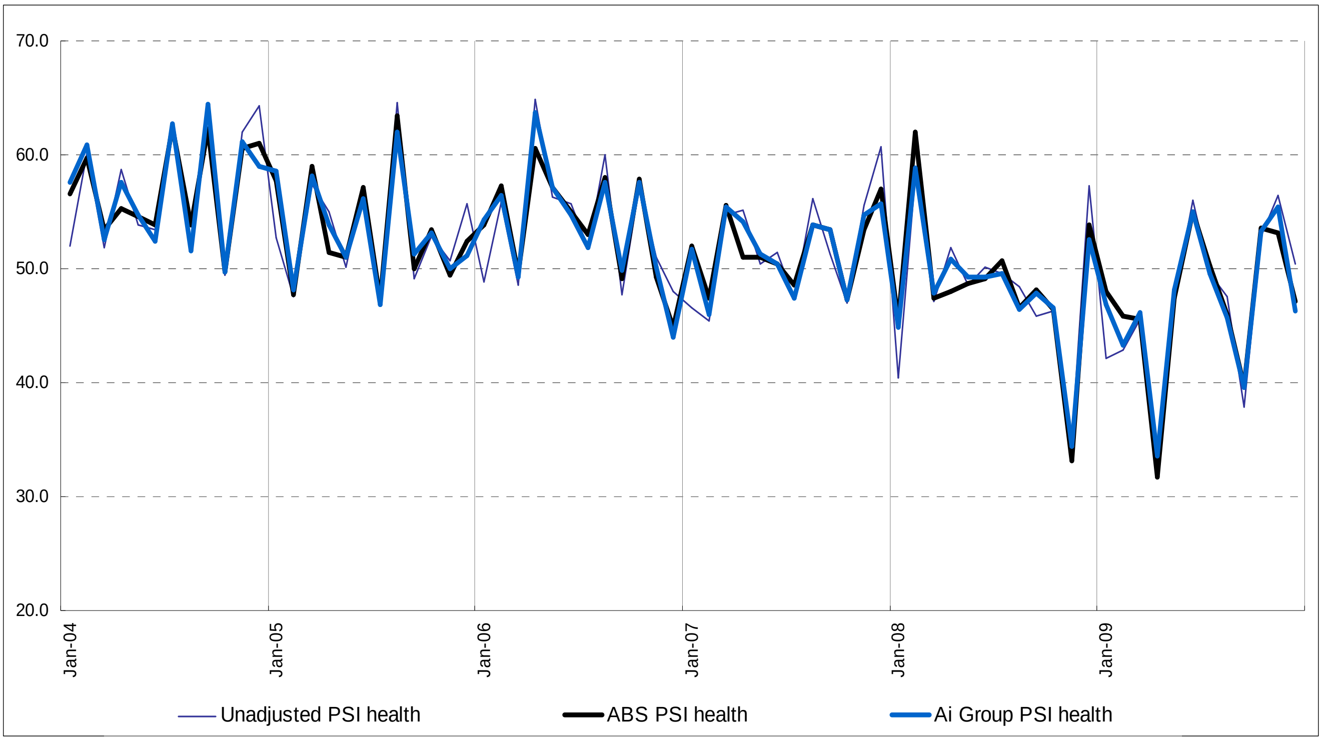
Reflecting the diverse scope of the sector, the seasonal factors generated by both Ai Group and the ABS point to an up and down seasonal pattern in the health & community PSI sub-index. A review of the average monthly seasonal factors identifies the need for downward revisions in the months of April; June; August; November; and December, to be offset by large upward revisions in the months of January, and to a lesser extent February and September.

There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PSI health & community services seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI health_ABS	0.90	0.97	0.98	1.07	0.99	1.01	0.99	1.03	0.97	0.99	1.04	1.06
PSI health_Ai Group	0.90	0.99	0.99	1.02	0.98	1.02	1.00	1.04	0.96	0.99	1.02	1.09

Original PSI health & community services and seasonally adjusted PSI health & community services (Ai Group and ABS)



Personal & recreational services

The seasonal factors generated by both Ai Group and the ABS point to stronger seasonal readings of the personal & recreational services PSI sub-index in July and in the months between September and December, offset by weaker activity in the other months of the year.

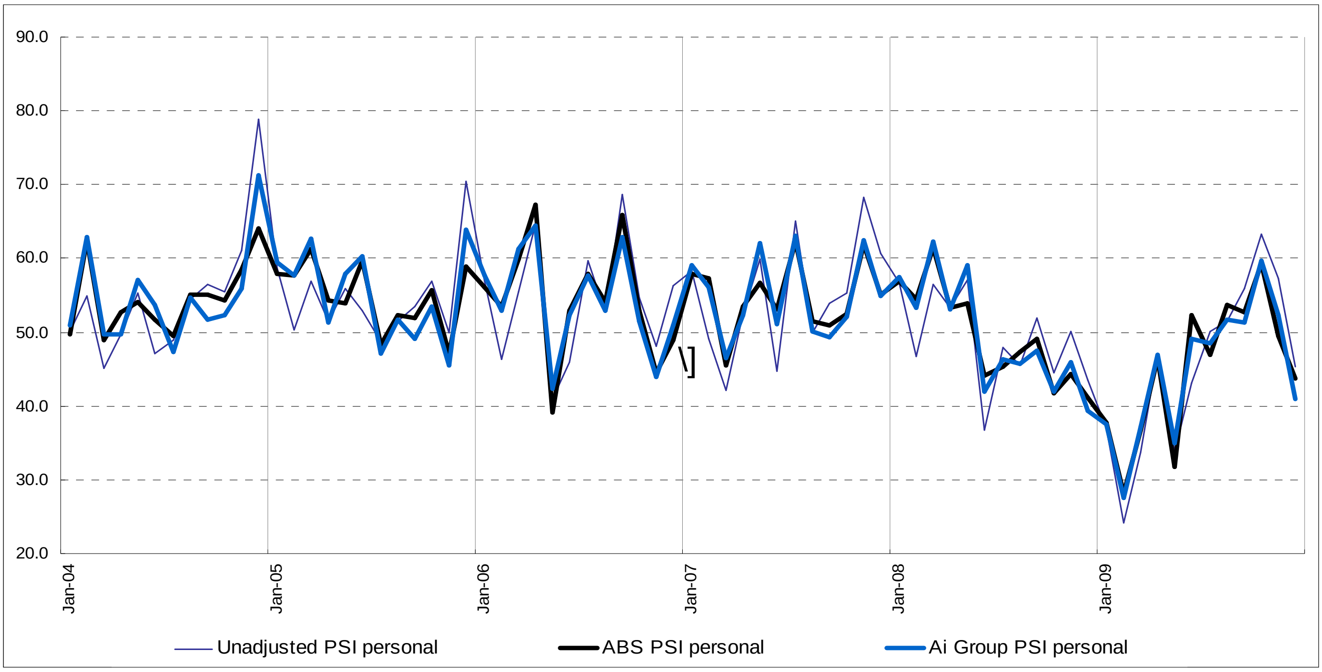
There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies; the different treatment of trading days and moving holidays; and the volatility of activity in the sector.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although for the month of May, the ABS factors point to the need for a strong upward revision, in contrast to the downward revision suggested by the ABS factors.

Average monthly PSI personal & recreational services seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PSI personal_ABS	1.00	0.86	0.92	0.97	1.05	0.86	1.03	0.97	1.05	1.04	1.10	1.13
PSI personal_Ai Group	0.99	0.87	0.91	1.00	0.97	0.88	1.03	1.00	1.09	1.06	1.09	1.11

Original PSI personal & recreational services and seasonally adjusted PSI personal & recreational services (Ai Group and ABS)



Appendix 3: Seasonal adjustment of PCI components

Total activity

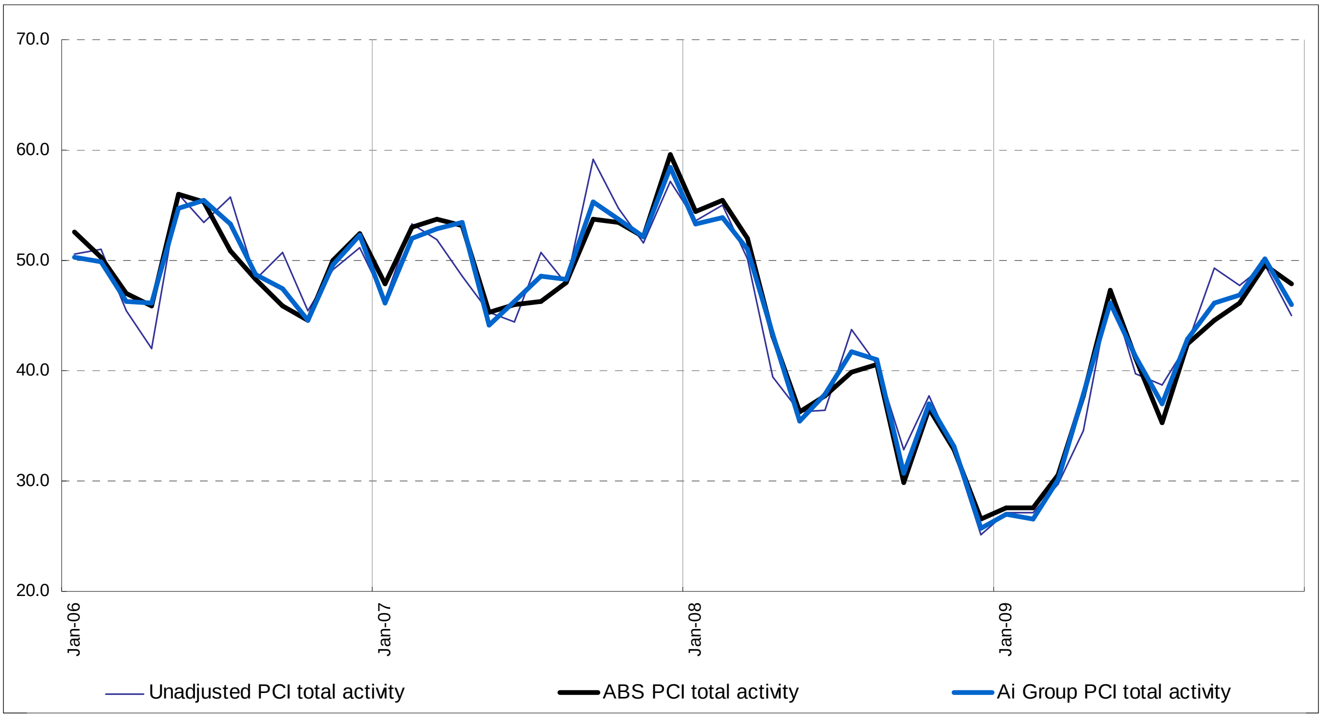
The seasonal factors generated by both Ai Group and the ABS point to the need for a significant upward revision in the reading for April, and to a lesser extent for the months of March; June; November; and December. These are to be offset by sizable downward revisions to the readings for July and September.

There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays. The direction of adjustment for each month is broadly consistent across the two sets of factors.

Average monthly PCI total activity seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PCI total activity_ABS	0.98	1.00	0.97	0.91	1.00	0.97	1.10	1.00	1.10	1.03	0.99	0.96
PCI total activity_Ai Group	1.01	1.02	0.98	0.91	1.02	0.96	1.05	0.99	1.07	1.02	0.99	0.98

Original PCI total activity and seasonally adjusted PCI total activity (Ai Group and ABS)



Housing activity

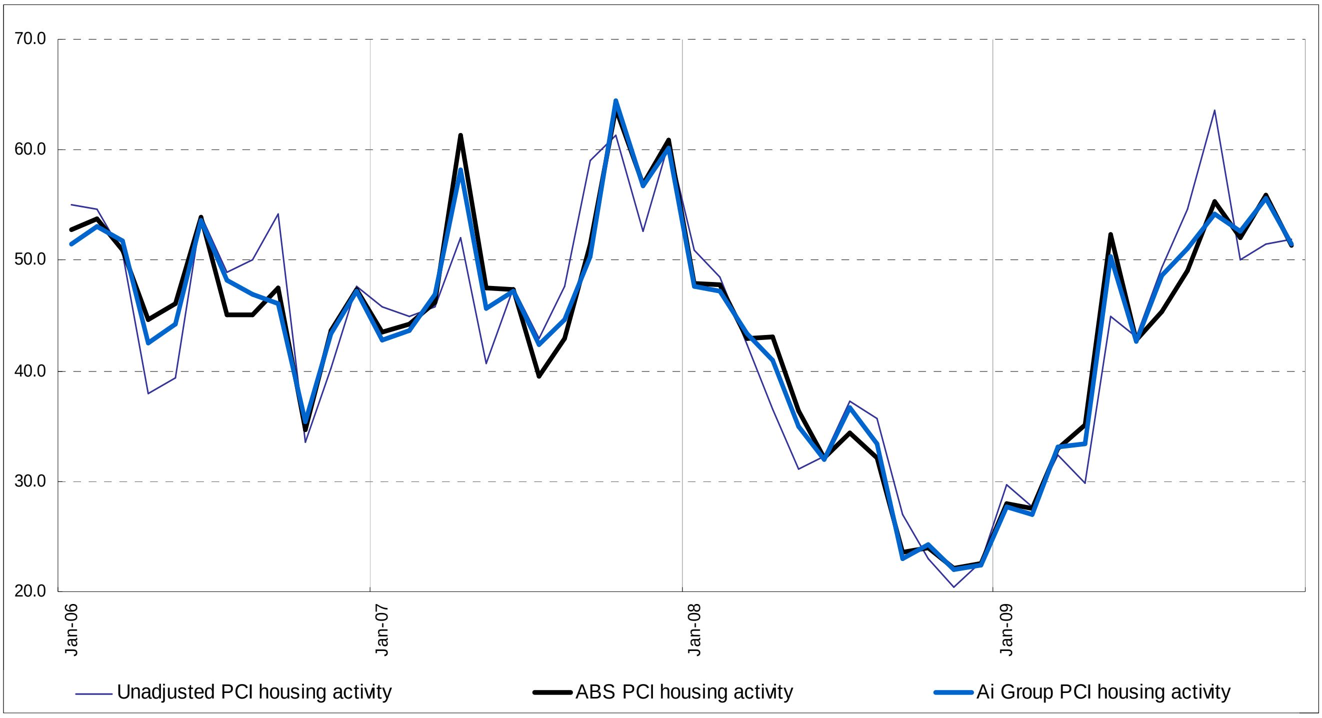
The seasonal factors generated by both Ai Group and the ABS point to a volatile pattern of seasonality, with extremely large adjustments required in the months of April; May; September; October; and November. With only a short time series to work with, making it more difficult to measure a seasonal pattern, these might reflect the significant amount of fiscal stimulus that impacted on housing construction in 2009.

There are some small differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PCI housing activity seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PCI housing_ABS	1.06	1.01	0.99	0.85	0.86	1.00	1.09	1.11	1.15	0.96	0.92	1.00
PCI housing_Ai Group	1.07	1.03	0.98	0.89	0.89	1.01	1.02	1.07	1.17	0.95	0.93	1.01

Original PCI housing activity and seasonally adjusted PCI housing activity (Ai Group and ABS)



Apartment activity

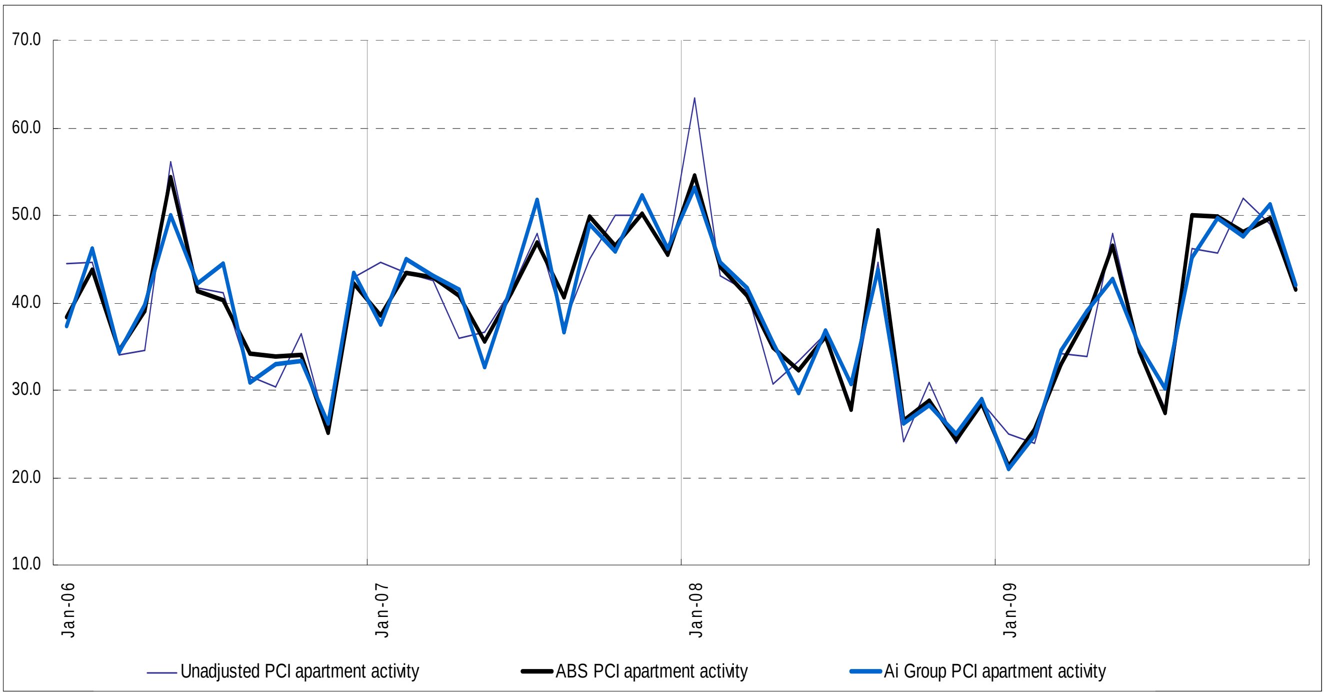
Like for housing, the seasonal factors generated by both Ai Group and the ABS point to a volatile pattern of seasonality, with extremely large adjustments required in the months of January; April; September; and October.

There are significant differences in the magnitude of adjustment implied by the two sets of seasonal factors for July and August, although together these cancel out, suggesting that timing and perhaps trading affects are having an influence. Aside from these months, the direction of adjustment for each month is broadly consistent across the two sets of factors.

Average monthly PCI apartment activity seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PCI apartments_ABS	1.16	0.98	1.01	0.88	1.03	1.01	1.02	0.92	0.91	1.08	0.99	1.01
PCI apartments_Ai Group	1.19	0.97	0.99	0.87	1.12	0.99	0.93	1.02	0.92	1.09	0.96	0.99

Original PCI apartment activity and seasonally adjusted PCI apartment activity (Ai Group and ABS)



Commercial activity

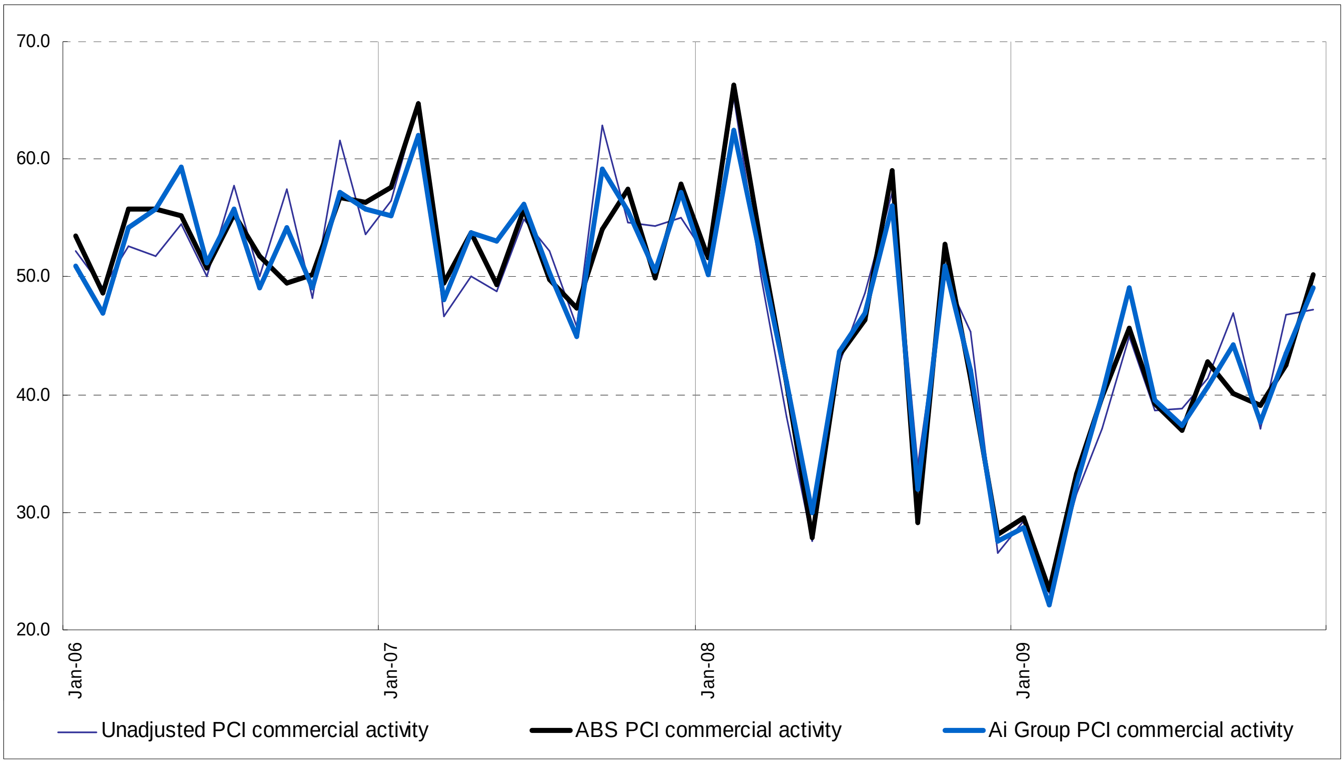
The seasonal factors generated by both Ai Group and the ABS point to a volatile pattern of seasonality for commercial construction activity, with extremely large adjustments most months, particularly April; September; and November.

There are significant differences in the magnitude of adjustment implied by the two sets of seasonal factors for February; May; August; and September, although together these cancel out, suggesting that timing and perhaps trading affects are having an influence.

Average monthly PCI commercial activity seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PCI commercial_ABS	0.99	1.00	0.95	0.93	0.99	0.98	1.05	0.97	1.17	0.95	1.09	0.95
PCI commercial_Ai Group	1.02	1.05	0.97	0.93	0.92	0.98	1.04	1.02	1.06	0.98	1.08	0.96

Original PCI commercial activity and seasonally adjusted PCI commercial activity (Ai Group and ABS)



Engineering activity

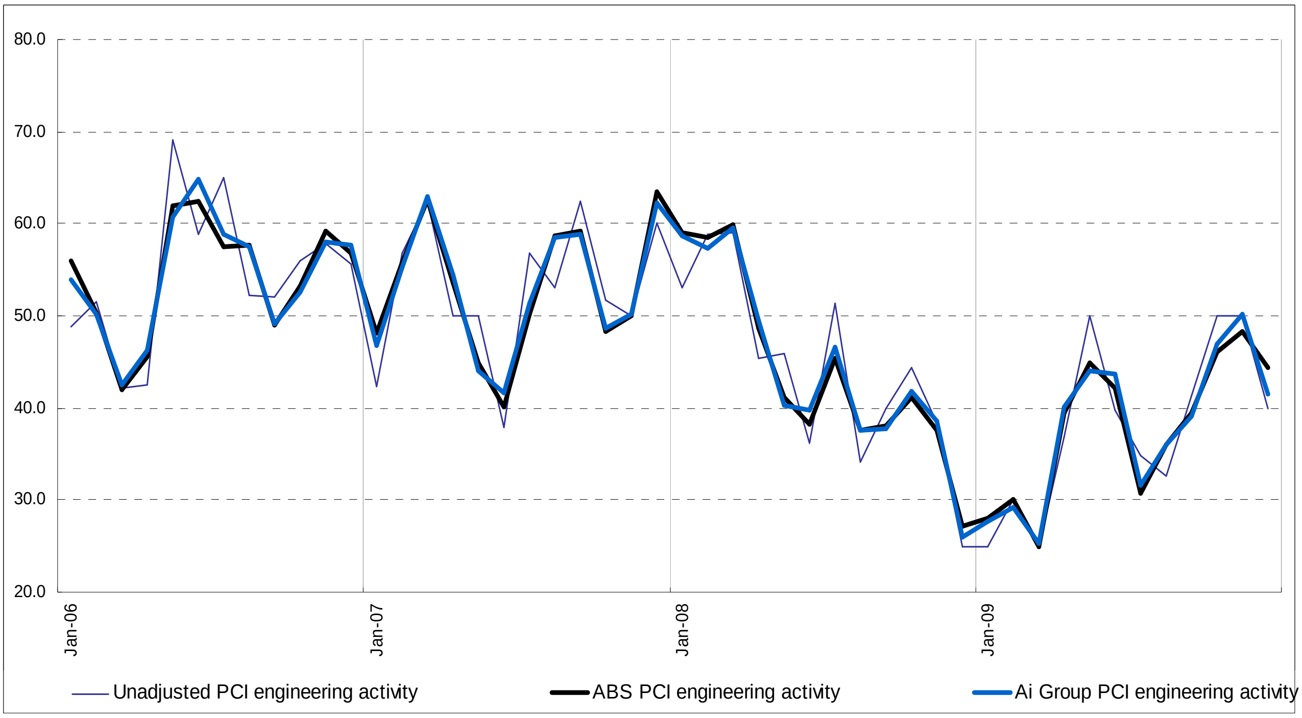
The seasonal factors generated by both Ai Group and the ABS point to a volatile pattern of seasonality for engineering construction activity, although this might partly be explained by the impacts of policy measures which took effect in 2009. Large adjustments are required for all months.

There are small differences in the magnitude of adjustment implied by the two sets of seasonal factors, suggesting that timing and perhaps trading affects are having an influence. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PCI engineering activity seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PCI engineering_ABS	0.89	1.01	1.00	0.93	1.11	0.94	1.13	0.91	1.05	1.07	1.01	0.94
PCI engineering_Ai Group	0.90	1.03	0.99	0.92	1.14	0.91	1.11	0.91	1.06	1.06	1.00	0.96

Original PCI engineering activity and seasonally adjusted PCI engineering activity (Ai Group and ABS)



New orders

The seasonal factors generated by both Ai Group and the ABS identify a volatile seasonal pattern for construction new orders, with large adjustments required for the period between April and June, and the month of September.

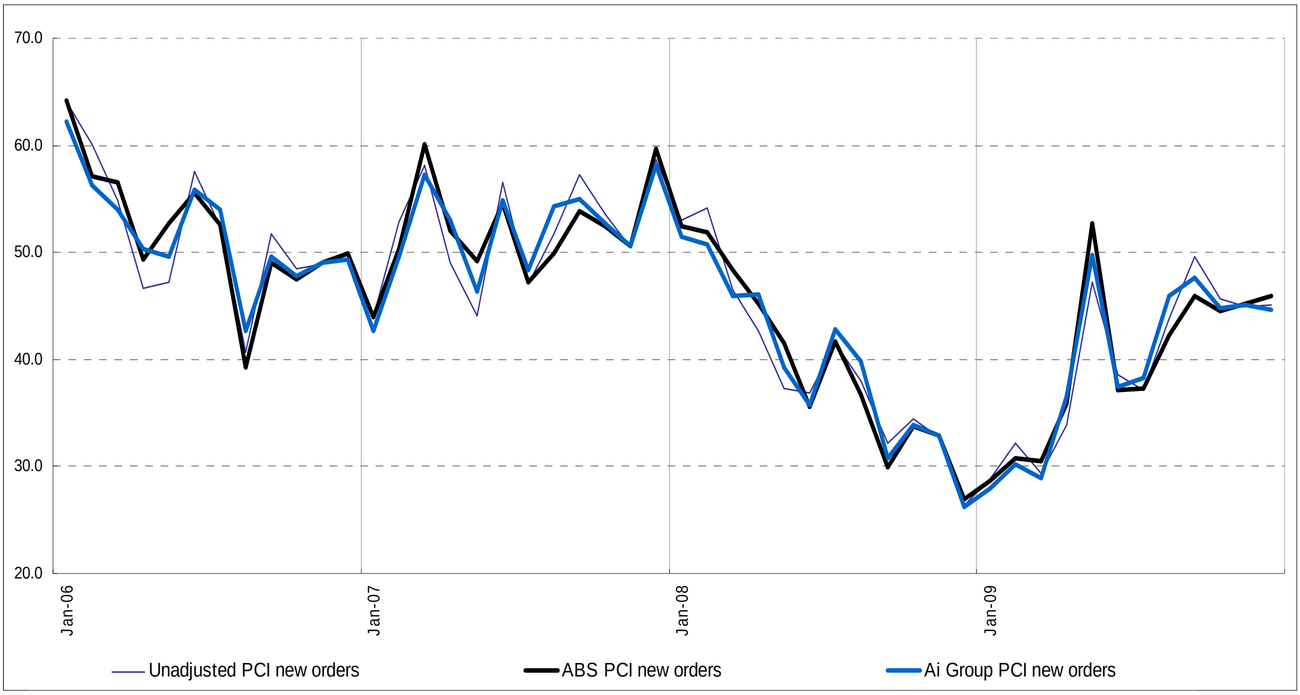
There are sizable differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although there are differences for the months of March; July; and August.

Average monthly PCI new orders seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PCI new orders_ABS	1.00	1.05	0.96	0.94	0.90	1.04	1.00	1.04	1.07	1.02	1.00	0.99
PCI new orders_Ai Group	1.03	1.07	1.01	0.93	0.95	1.03	0.97	0.95	1.04	1.02	1.00	1.01

Original PCI new orders and seasonally adjusted PCI new orders (Ai Group and ABS)



Prices

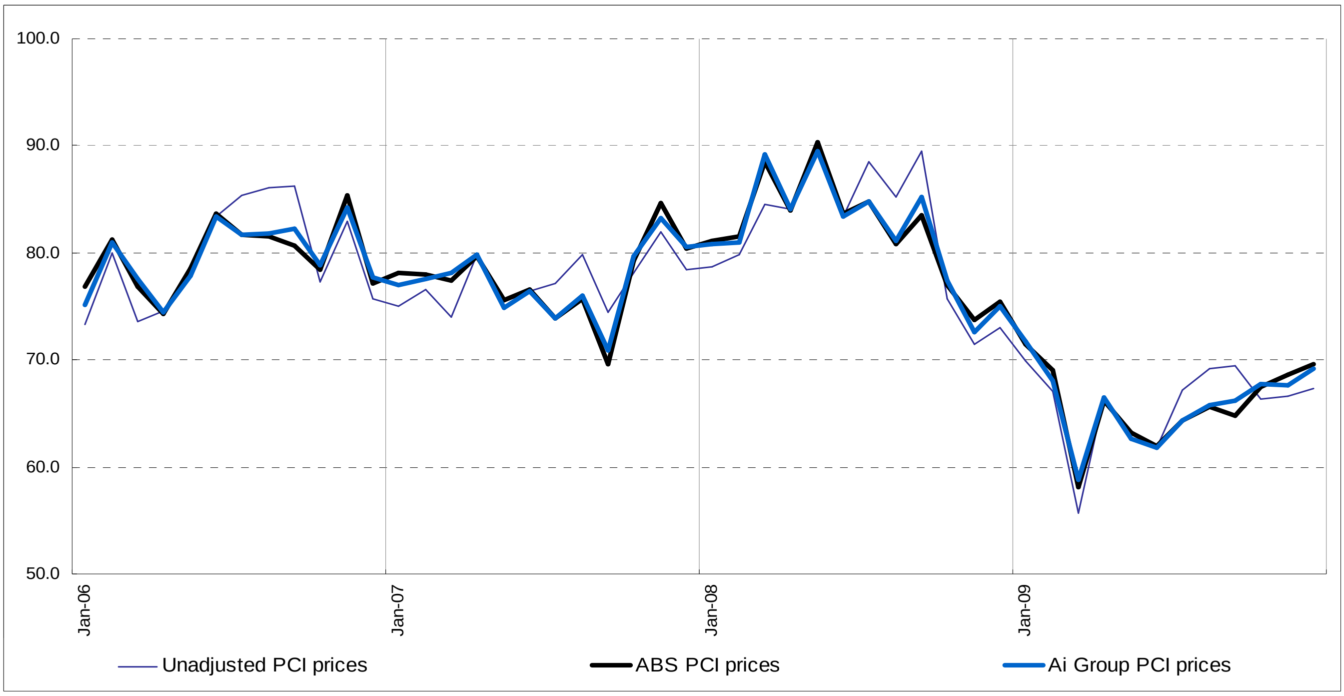
The seasonal factors generated by both Ai Group and the ABS point to a strong seasonal pattern in the prices component of the PCI. A review of the average monthly seasonal factors points to the need for downward revisions in the period between October and March to be offset by upward revisions over the remaining six months of the calendar year.

There are some slight differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays. The direction of adjustment for each month is consistent across the two sets of factors.

Average monthly PCI prices seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PCI prices_ABS	0.97	0.98	0.96	1.00	1.00	1.00	1.04	1.05	1.07	0.98	0.97	0.97
PCI prices_Ai Group	0.97	0.99	0.95	1.00	1.01	1.00	1.04	1.05	1.05	0.98	0.98	0.97

Original PCI prices and seasonally adjusted PCI prices (Ai Group and ABS)



Employment

The seasonal factors generated by both Ai Group and the ABS identify a volatile seasonal pattern for construction employment, with large adjustments required for the months of January; April; May; and November.

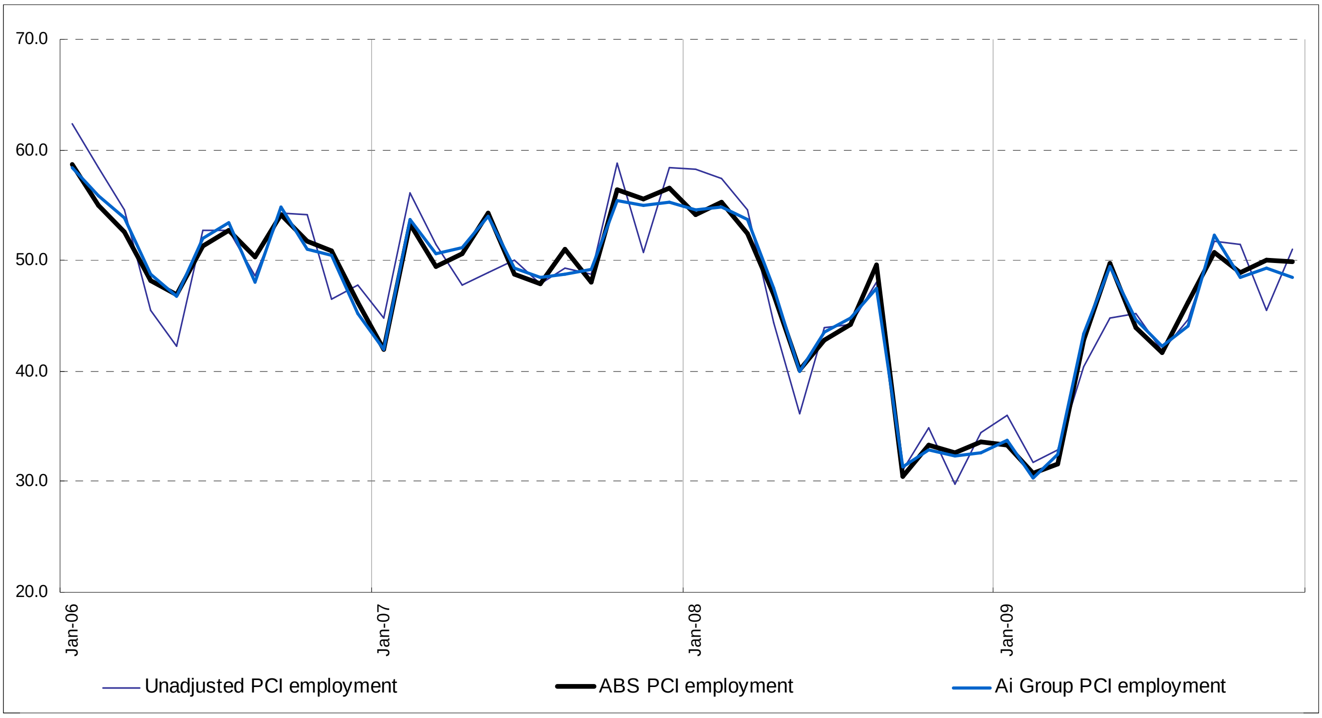
There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although there are small differences for the months August and September.

Average monthly PCI employment seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PCI employment_ABS	1.07	1.05	1.04	0.94	0.90	1.03	1.00	0.97	1.02	1.05	0.91	1.03
PCI employment_Ai Group	1.07	1.05	1.01	0.93	0.90	1.01	0.99	1.01	0.99	1.06	0.92	1.06

Original PCI employment and seasonally adjusted PCI employment (Ai Group and ABS)



Deliveries

The seasonal factors generated by both Ai Group and the ABS identify a more moderate seasonal pattern for construction deliveries, although large adjustments are required for the months of May and December.

There are some differences in the magnitude of adjustment implied by the two sets of seasonal factors, reflecting the use of different methodologies and the different treatment of trading days and moving holidays.

The direction of adjustment for each month is broadly consistent across the two sets of factors, although there are differences for the months August and September. These appear to cancel out, suggesting that timing and perhaps trading affects are having an influence.

Average monthly PCI deliveries seasonal factors (period 2004-2009)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PCI deliveries_ABS	1.00	1.00	0.98	1.01	0.93	0.99	0.99	1.00	1.05	1.02	0.97	1.06
PCI deliveries_Ai Group	1.01	0.98	0.98	1.00	0.95	0.99	0.99	1.07	1.01	1.01	0.96	1.05

Original PCI deliveries and seasonally adjusted PCI deliveries (Ai Group and ABS)