



# **ACADAMETRICS PRICES AND TRANSACTIONS (APAT) METHODOLOGY**

## **HOUSE PRICE DATA SERIES BY REGION, COUNTY, UNITARY DISTRICT, LONDON BOROUGH, AND PROPERTY TYPE**

This paper provides an outline of the methodology employed in creating the Acadameetrics Prices and Transactions (APAT) data.

APAT provides time series data for organisations requiring factual historic and current average house prices, together with transaction numbers, updated monthly, to assist judgement as to current house price levels and future changes. APAT prices and transactions from 1995 are based upon Land Registry data. Prices are smoothed in order to reveal trends and can be displayed in charts, prepared interactively at client's choice. APAT provides data for every region, county, unitary district and London borough in England & Wales. Optionally, we can also supply APAT data for a single region, with associated county/unitary district/London borough data and national results, for those not requiring the complete data.

Our Acadameetrics Residential Asset Calculator (ARAC), specifically designed for revaluing residential property portfolios, and our LSL Property Services/Acadameetrics House Price Index, are built upon APAT data.

**6th July 2011**

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## ACADAMETRICS PRICES AND TRANSACTIONS METHODOLOGY

6TH JULY 2011

### 1. PREAMBLE

We outline below the methodology employed in preparing the monthly Acadametrics Prices and Transactions (APAT) data.

**1.1 Average house prices** The Land Registry (LR) is the sole source of the prices at which residential properties are sold in England & Wales. Acadametrics Prices and Transactions (APAT) provides all of these true prices and transaction numbers as time series from 1995, updated monthly, at region, county and London borough and property type level.

**1.2 Data** It is important to note that APAT:

- comprises the prices reported to the Land Registry (LR) following the sale of a property in England and Wales. LR does not hold data for properties sold in Scotland and Northern Ireland, Isle of Man, Guernsey or Jersey; nor does LR hold data for properties sold prior to 1995, except for all property types and all regions combined
- includes no property characteristic data e.g. as to room numbers
- includes prices and transactions for properties bought with cash
- provides the average prices and transactions, reported monthly by LR, without adjustment of any kind, except that prices are smoothed over rolling three month periods, in order to minimise volatility and to reveal trends
- excludes commercial sales; repossessions; sales for areas and property types with fewer than three reported transactions in any given month. Otherwise, APAT comprises the entire transaction data population, as opposed to a sample

### 2. PREPARATION

**2.1 Key tasks** At each month end, LR sends us the average prices and transaction numbers for each region, county, unitary district and London borough, subdivided by each of the four property types (plus all-properties) recorded on the Land Register. We take these data and undertake:

- *data checking*, followed by any corrections required after consultation with LR
- *smoothing* (of house prices, but not of transactions)

as follows:

**2.1.1 Data Checking** Our first task is to check the data received from LR for anomalous price changes or sales numbers e.g. for a particular type of property in a particular county. Upon occasion, a price is recorded with an added zero. We report any anomalies found to LR and await their confirmation or correction.

**2.1.2 Smoothing** In order to minimise the volatility, which otherwise masks true price trends, APAT prices are calculated as the weighted average of the average prices for the three months centred on the month being reported, so that APAT prices (together with those reported by the LSL Property Services/Acadametrics House Price Index (LSL Acad HPI)) are appropriate at the stated dates. We invite any subscriber, wishing to see the non-smoothed data, to advise us by email to [information@acadametrics.co.uk](mailto:information@acadametrics.co.uk).

**2.1.3 Updating** For at least one year, LR monthly data include prices for past months which have been changed because further transactions for the month have been reported. Thus the APAT data for any given month reflect any additional transactions notified by LR for that month and are subject to change until APAT reflects every single monthly transaction in England & Wales, excluding only the data listed in **1.2** above.

**2.2 Calculating APAT data** Given the use of three month, centre month smoothing (cms) (**2.1.2**) and the fact that LR can provide only c.35% of the transactions for any current month at the month end, APAT is published one month in arrears. Thus a May APAT average house price represents the average of April, May and June and is published in July using c.90% April data, c.85% May data and c.35% June data. Most transactions are reported a month in arrears. Hence, in the August APAT release, the May prices will be based upon c.95% April data, c.90% May data and c.85% June data.

**2.3 APAT timing** APAT is normally prepared on or around the 10th working day of the month after the end of the current month.

### 3. FEATURES

**3.1 Regions, counties, unitary districts and London boroughs** APAT data are generated as distinct series and are provided for each combination of regional (10), county and unitary district (108) and London boroughs (33), together with 5 property types, being detached, semi-detached and terraced houses, flats and all properties. This is a total of 755 data series.

**3.2 Counties and unitary districts** We discuss the boundary changes affecting counties and unitary districts in 3.7 below. As a result of these changes, LR has changed its counties and unitary district classifications on four occasions, in 1996, 1997, 1998 and 2008, creating new counties and unitary districts. Since we believe that most users would wish to see back data for the new sub-divisions, we provide estimated back data. Thus, e.g. for Berkshire, divided into 6 areas in April 1998, we estimate back data matching the pre-1998 transaction totals and the average price pre-1998 for Berkshire as a whole, but divided using a weighted average procedure amongst the new areas. We invite any client, wanting further detail as to the changes and to see the calculations, to contact us at [information@acadametrics.co.uk](mailto:information@acadametrics.co.uk).

**3.3 Time series** The APAT series run from February 1995, since the January 1995 data are employed in the cms calculation of February 1995, and we lack the December 1994 data to use in calculating a January 1995 cms average.

**3.4 Data adjustment** APAT data are not seasonally adjusted, since, to amend prices according to the season, would distort the price change pattern if the series are being used for specific point in time valuations. Nor are the prices mix adjusted; mix and seasonally adjusted prices are provided within LSL Property Services/Acadametrics House Price Index available upon [request](#). Change in the all property average house price, for any given month and area, compared with the average price for the prior month may, therefore, reflect a month in which e.g. sales were mostly of detached houses, or of flats, such as to raise or lower the all property average, irrespective of real price changes. APAT average prices for e.g. detached houses in the month concerned will not, however, be affected by an increase in the number of detached houses sold in the month and users of APAT can ascertain such an increase by looking at the transaction numbers reported.

**3.5 Data scarcity** APAT data provide the average price for each property type in every county, unitary district and London borough. The number of transactions for a particular property type may be very low, even zero, in a particular area and month or months. LR itself calculates an average only if three properties of the same type have been sold in the month being reported. APAT data necessarily reflect the above in that, in some cells, data are both scarce and volatile. Our [Acadametrics Residential Asset Calculator \(ARAC\)](#) in-fills missing cells with derived data for clients wishing to use an indexation procedure for property portfolio revaluation.

**3.6 Comparative house prices** There are wide variations in the average house prices published by the six house price indices and the one survey. In particular, the two official house price indices offer different alternatives. Whilst the Communities and Local Government HPI monthly averages are very comparable to those of our own LSL Property Services/Acadametrics House Price Index, those of the Land Registry HPI are similar to those of the lender indices. The Government Statistician initiated a [survey](#) of the official indices on 30th July 2010 and is expected to issue a preliminary conclusion for further consultation soon. The LSL/Acadametrics averages are based upon and comparable to APAT averages, themselves based upon averages calculated for us by the Land Registry.

**3.7 Boundary changes** There have been no changes to the London boroughs or the regions between January 1995 and today. There are marginal differences between the sum of the London boroughs and the county data for Greater London. LR advise that this is because, where sales within a particular London borough, county or unitary district were three or fewer, the data are not included in the London borough but are included in the county analysis.

**3.7.1 APAT county and unitary district data** The Land Registry has changed its "Counties" classifications on four occasions between 1995 and today - in April 1996, April 1997, April 1998 and April 2008. For example, Bedfordshire was split into Bedford and Central Bedford. Back data employing weighted averages have been calculated for APAT and ARAC for the new classifications listed below.

**3.7.1.1 Classifications changed** When the LR records began in January 1995, LR maintained data for 54 separate counties and unitary districts. Of these, 43 classifications continue until today, with 11 areas being replaced as follows:

	Replaced April
Avon	1996
Berkshire	1998
Cleveland	1996
Clwyd	1996
Dyfed	1996
Gwent	1996
Hereford & Worcester	1998
Humber	1996
Mid Glamorgan	1996
South Glamorgan	1996
West Glamorgan	1996

**3.7.1.2 Classifications added in April 1996** LR increased the number of counties and unitary districts to 78. This was achieved by creating 33 new areas and dropping 9 previous areas as follows:

Old area dropped	Newly created areas
Avon	Bath and NE Somerset City of Bristol North Somerset South Gloucestershire
Cleveland	Hartlepool Stockton on Tees Middlesbrough Redcar & Cleveland
Clwyd	Conwy Denbighshire Flintshire

	Wrexham
Dyfed	Carmarthenshire Ceredigion Pembrokeshire
Gwent	Blaenau Gwent Caerphilly (part) Monmouthshire Newport Torfaen
Humberside	East Riding of Yorkshire City of Kingston upon Hull North East Lincolnshire North Lincolnshire
Mid Glamorgan	Bridgend Merthyr Tydfil Rhondda Cynon Taff Caerphilly (part)
South Glamorgan	Cardiff The Vale of Glamorgan
West Glamorgan	Swansea Neath Port Talbot
<b>Still existing</b>	
(Gwynedd)	Isle of Anglesey
(North Yorkshire)	York

**3.7.1.3 Classifications added in April 1997** LR increased the number of districts to 91. This was done by creating 13 new unitary districts - no areas were dropped.

<b>Still existing</b>	<b>Newly created areas</b>
(Dorset)	Bournemouth
(East Sussex)	Brighton & Hove
(Derbyshire)	City of Derby
(Durham)	Darlington
(Leicestershire)	Leicester
(Bedfordshire)	Luton
(Buckinghamshire)	Milton Keynes
(Dorset)	Poole
(Hampshire)	Portsmouth
(Leicestershire)	Rutland
(Hampshire)	Southampton
(Staffordshire)	Stoke on Trent
(Wiltshire)	Swindon

**3.7.1.4 Classifications added in April 1998** LR increased the number of districts to 109. This was done by creating 20 new unitary districts – 2 areas were dropped.

<b>Old area dropped</b>	<b>Newly created Areas</b>
Berkshire	Bracknell Forest Reading Slough

	West Berkshire Windsor & Maidenhead Wokingham
Hereford & Worcester	Herefordshire Worcestershire
<b>Still existing</b>	
(Lancashire)	Blackburn with Darwen
(Lancashire)	Blackpool
(Nottinghamshire)	City of Nottingham
(Cambridgeshire)	City of Peterborough
(Devon)	City of Plymouth
(Cheshire)	Halton
(Kent)	Medway
(Essex)	Southend on Sea
(Essex)	Thurrock
(Devon)	Torbay
(Cheshire)	Warrington
(Shropshire)	Wrekin

**3.7.1.5 Classifications added in April 2009** In April 2009 LR increased the number of districts to 111. This was done by creating 5 new unitary districts – 3 areas were dropped.

<b>Old area dropped</b>	<b>Newly created areas</b>
Bedfordshire	Bedford Central Bedfordshire
Cheshire	Cheshire East Cheshire West & Chester
Durham	County Durham

For consistency, we have not reflected the April 2009 re-classifications into APAT or ARAC.

**3.8 Subscribing to APAT** Readers interested in using APAT may find our [Academics Prices and Transactions \(APAT\) Sample](#) data, freely available upon request, helpful. Our [APAT Licence Fees and Order Form](#) and [APAT Terms and Conditions](#) provide the applicable costs and terms for using APAT .

## ABOUT ACADAMETRICS

Acadametrics is an analytics consultancy focussed upon house prices and property portfolio risk. We conduct research, led by Dr Stephen Satchell, Economics Fellow, Trinity College, University of Cambridge, develop solutions to assist lenders and are expert in the measurement of house prices, preparing our own house price index launched in 2003 by the Financial Times as FTHPI. In a step to expand coverage, LSL Property Services PLC agreed to support the index, known from June 2010 and widely published as the LSL Property Services/Acadametrics House Price Index (LSL Acad HPI). Whilst backed by LSL, the index retains its authority as independently prepared and providing an independent News Release commentary. As FTHPI, the index was chosen by the Chicago Mercantile Exchange for a possible future residential house price derivative.

Our past work has included the analysis of pre-payment risk, the pricing of mortgage books and the assessment of the performance of credit score models for mortgages, credit cards and unsecured loans under changing macroeconomic scenarios. Much of our early work involved forecasting the mortgage and MIG losses arising from the 1989-1991 housing crisis. As a result, we hold what we believe to be the largest available downturn default database, which enables our stress and scenario testing methodologies, developed by Dr Satchell.

Since early in 2009, we have worked closely with MIAC Analytics from New York. Our joint company, [MIAC | Acadametrics](#) Limited, provides our data and models on the MIAC DataRaptor data management platform with the WinOAS cash flow tool. These can now be downloaded from our secure UK server, for use in-house. Our models assist on-balance sheet lenders, together with participants in securitisations and in the sale and purchase of loan portfolios. We offer:

- **House Price Data Series** entitled Acadametrics Prices and Transactions (APAT) providing monthly house price trends from 1995 at national, county, unitary district and London borough level, based upon Land Registry data, with interactive charts for every participant in the housing sector; we offer expertise and data for all those investing in or advising on house prices and extensive analytical capability
- **Collateral Valuation** using our Acadametrics Residential Asset Calculator (ARAC) based upon APAT, incorporating data entry and calculation software to provide loan level confidence measures used in our Residential Property Portfolio Revaluation service and SST (below). The house price data are also available as a series for use by lenders and owners of residential property portfolios for their in-house revaluation use
- **Loan Level Stress and Scenario Testing** comprising our:
  - **Arrears and Possessions Forecasting (UKAPF)** using our Satchell Wongwachara model to forecast at UK level, accounting for forbearance; for benchmarking purposes and economists; our related Macro-Risk Model assesses national risk levels
  - **Stress and Scenario Testing (SST)** with ARAC revaluation as standard, or AVM revaluation, to provide forecasts of loan by loan possessions and losses, employing Macro-Risk Model output to reflect alternative scenarios
- **Custom Data and Model Development** which includes the provision of loss data from our downturn default database for client LGD benchmarking, model validation and model development, by Dr Satchell, bespoke to customers' needs. We have considerable expertise in index construction, available for clients

Our website includes numerous descriptive papers. Acadametrics services have an academic foundation in econometrics, statistics and decision theory and are developed from our own resources under our "research first" policy. Further detail is provided on our website [www.acadametrics.co.uk](http://www.acadametrics.co.uk).

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