Changes in Reported Data

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This article is a discussion that was prompted by an inquiry asking for an insight into how much the Multiple Listing Service Database changes over time.

In order for statistical data to remain viable and current, it is important to report this figures as close to the release date as possible. I snapshot the data on the 12th of the current month and report changes to the end of the previous month. There a number of issues connected with this:

- The MLS Database is kept current by each membership office in the system. Some companies are very fast and efficient in getting there current data into the system while others are quite the opposite. I have seen companies change data after ***two years*** from closing date!

- If I waited for the database to totally stabilize, it would never happen. I therefore snapshot the data when ***most*** of the changes have occurred. By the 12th of the current month, most of the sales and pending that occurred during the previous month have been reported to the MLS.

- But not all…

So the question arises "How much of reported trends, days-on-market, median sale prices, etc undergo ***future changes*** due to data added ***after*** the snapshot date"?

If I say for example: October's volume is down 20% over last October, and I report this in mid-November, will new volume for October continue to be added to the MLS system after the first reporting? Absolutely.

By waiting until the 12th of the current month, most of the data has been added, and we can compare changes for last month to the previous month***. You must recognize however, that the raw amounts are not 100% accurate.*** But it is close enough to be able to see if the market is up or down over last month, or a year ago and for establishing general trends.

This is not unlike government indicators that are initially reported due to their value and usefulness, knowing that these reported preliminary values can and do change.

That leaves us with the question: ***"By what amount are the reported data values from Mount Data likely to change over time?"***

To answer this question, I revived my last 12 months of database downloads. These were taken every month and after using them for the current month reportings, they were retired. ***However, by using these databases to track older months, they helped to establish changes in the database over time.***

Example: the database for October 12th shows the current volume for the month of September. It can also be used to calculate the volume for August. Since it was snapshot in October, August will show more sales in October than when first reported with the database used from September 12th .

Thinking along the same lines, the volume in July will be more in October than reported in September, and more in September than reported in August. Is there a time when the monthly changes becomes insignificant? ***I believe so.***

Exhibit A
Shows monthly volumes and unit sales obtained at various months throughout a year. The first three columns track volume and the last three, units. In September of 2006 for example, the original ***volume*** was reported at $103,275,000. With each new month, the volume increases because of the late entries into the database. At the end of October, the volume has increased by about 6%. In November, the accumulated change is about 7% and so on, until one year later it stands at 11.1%. ***It seems to stabilize after about five-months and lies within 1% of its final value.***

The second column of percent change shows the changes month-by-month. By the fifth month the monthly changes are below 1 percent becoming close to or at zero the last few months.

Units follow the same general trend, and their changes track volume changes closely.

Exhibit B
Tracks and reports pending over the same time period. While volume and units increase over time, pending ***decrease***. The reason is:

- There is a monthly gain due to late reporting. It averages 6% accumulated gain over 6 months. ***Gains appear to stabilize quickly***.

- There is a monthly loss, due to pending not closing. These averages 11% in accumulated loss over 6 months. ***Losses are not as quick to stabilize as gains.*** Sometimes pending remain active for months or even years before changing.

- The result is a net loss that builds up over subsequent months, ***averaging 5% in accumulated loss.***

Notice also, the 11% average loss tells us that within six-months about 1 home in 10 will not close after going under contract.

Exhibit C
The table does the same tracking as the tables above, for the inventory. Remember that the current inventory will change in future months due to late-entry currents, sales, pending, expires and withdrawn. Ultimately the inventory at any given time is about 3% under-reported compared to its final resting place.

Exhibit D
This is a summary page of the first 3 tables. The top table is the average ongoing accumulation. The second table is the average monthly change over the previous month.

Exhibit E
Exhibit E graphically demonstrates the trend toward zero change after 6-months of accumulation for Inventory, volume, sale units, pending gain, pending loss, and total net pending. The indication is that after 6 months all indicators are within about .5% of zero monthly change.

Exhibit F
This table uses seasonal indexes and the average changes from the bottom table of exhibit D to ***forecast the monthly changes in accumulated volume.*** The average monthly changes are listed in the top row under month number. The seasonal indexes for monthly volume in listed in the second column, next to the name of the months. The seasonal index is calculated separately.

As the months proceed, the seasonal indexes for each preceding month are adjusted by the current month's percentage change. The individual seasonal indexes are added together in the last row and represent the accumulated seasonal indexes at any particular month in the year. When these are compared to the unadjusted indexes we arrive at the ***average amount of under-reporting for accumulated volume at any time during the year.***

Accumulated volume and sale units are reported in the quarterly market video and newsletter***. At the end of the first quarter the volume is under-reported by about 4%. By mid-year it has dropped to 2%. Third quarter is within 1.5% and the accumulated report in December is under-reported by less than 1%.***

Let me stress once again, that because of the changing nature of the database, waiting for an absolute stable point in reported data, not only is impossible in practice, but the timing would put ***any trends or insights into the current market completely out-of-date.***

Here are some summary points of interest for reports of the current month compared to six-months later:

- Inventory is about 1***% under-reported*** stabilizing at about 3% in 6 months.
- Volume and sales are about ***6% under-reported*** stabilizing around 11%. Hold this in mind when comparing the current month with the same month a year ago.
- Total pending is about ***2% over-reported,*** stabilizing at about 9%.
- The ***Months of Inventory*** for any given month is the number of listings divided by the number of pending. Because inventory is ***under-reported*** and pending are ***over-reported***, the MOI is actually ***higher*** (more of a buyer's market), than stated.
- Median reports will change very little and I consider future changes in them insignificant. These includes sales price to list price ratio, median sales prices, prices per square-foot and median days on market. ***Since the median is the middle value, any additions in the future are likely to distribute equally above and below this value, thus not changing the median or affecting it very little.***

Well, there we are. An exhaustive study would use years worth of data and would be on-going. I believe this preliminary excursion into the topic will satisfy most readers need and make them feel more comfortable with the reported data. If you would like to comment on this article please click here: Comment.

I acknowledge Stephen Lewandowski for bringing his concerns to my attention and being the inspiration for this article.

Until next time and by the numbers,
Paul Bynum
October 2007

Exhibit A

12-Month Table of Changes for Volume and Units

	September 2006						October 2006						November 2006					
	Volume	%A	%M	SU	%A	%M	Volume	%A	%M	SU	%A	%M	Volume	%A	%M	SU	%A	%M
September	$103,275,000			535														
October	$109,933,000	6.4%	6.4%	570	6.5%	6.5%	$94,059,000			494								
November	$110,518,000	7.0%	0.6%	574	7.3%	0.7%	$99,356,000	5.6%	5.6%	523	5.9%	5.9%	$102,126,000			549		
December	$112,742,000	9.2%	2.2%	584	9.2%	1.9%	$101,764,000	8.2%	2.6%	534	8.1%	2.2%	$106,794,000	4.6%	4.6%	576	4.9%	4.9%
January	$113,889,699	10.3%	1.1%	591	10.5%	1.3%	$103,274,084	9.8%	1.6%	543	9.9%	1.8%	$109,913,633	7.6%	3.1%	591	7.7%	2.7%
February	$113,741,000	10.1%	-0.1%	590	10.3%	-0.2%	$104,131,000	10.7%	0.9%	547	10.7%	0.8%	$110,929,933	8.6%	1.0%	596	8.6%	0.9%
March	$114,355,299	10.7%	0.6%	593	10.8%	0.6%	$104,547,812	11.2%	0.4%	549	11.1%	0.4%	$111,605,333	9.3%	0.7%	600	9.3%	0.7%
April	$113,622,857	10.0%	-0.7%	589	10.1%	-0.7%	$103,922,207	10.5%	-0.7%	546	10.5%	-0.6%	$111,584,333	9.3%	0.0%	600	9.3%	0.0%
May	$113,622,857	10.0%	0.0%	589	10.1%	0.0%	$104,800,612	11.4%	0.9%	551	11.5%	1.0%	$112,111,333	9.8%	0.5%	603	9.8%	0.5%
June	$114,706,565	11.1%	1.0%	595	11.2%	1.1%	$104,800,612	11.4%	0.0%	551	11.5%	0.0%	$112,735,333	10.4%	0.6%	606	10.4%	0.5%
July	$114,706,565	11.1%	0.0%	595	11.2%	0.0%	$104,800,612	11.4%	0.0%	551	11.5%	0.0%	$112,735,333	10.4%	0.0%	606	10.4%	0.0%
August	$114,706,565	11.1%	0.0%	595	11.2%	0.0%	$104,800,612	11.4%	0.0%	551	11.5%	0.0%	$111,735,333	9.4%	-1.0%	602	9.7%	-0.7%
	December 2006						**January 2007**						**February 2007**					
	Volume	%A	%M	SU	%A	%M	Volume	%A	%M	SU	%A	%M	Volume	%A	%M	SU	%A	%M
December	$99,476,000			527														
January	$106,388,490	6.9%	6.9%	562	6.6%	6.6%	$69,028,015			401								
February	$107,917,990	8.5%	1.5%	570	8.2%	1.5%	$75,137,714	8.9%	8.9%	428	6.7%	6.7%	$81,774,301			425		
March	$108,665,713	9.2%	0.8%	574	8.9%	0.8%	$76,023,114	10.1%	1.3%	434	8.2%	1.5%	$89,492,551	9.4%	9.4%	469	10.4%	10.4%
April	$108,311,713	8.9%	-0.4%	572	8.5%	-0.4%	$75,872,214	9.9%	-0.2%	434	8.2%	0.0%	$91,242,526	11.6%	2.1%	478	12.5%	2.1%
May	$109,131,663	9.7%	0.8%	577	9.5%	0.9%	$76,529,514	10.9%	1.0%	438	9.2%	1.0%	$93,222,026	14.0%	2.4%	493	16.0%	3.5%
June	$109,402,063	10.0%	0.3%	579	9.9%	0.4%	$76,890,614	11.4%	0.5%	440	9.7%	0.5%	$93,682,076	14.6%	0.6%	496	16.7%	0.7%
July	$109,263,163	9.8%	-0.1%	578	9.7%	-0.2%	$76,890,614	11.4%	0.0%	440	9.7%	0.0%	$93,608,076	14.5%	-0.1%	495	16.5%	-0.2%
August	$109,085,163	9.7%	-0.2%	576	9.3%	-0.4%	$76,890,614	11.4%	0.0%	440	9.7%	0.0%	$93,933,076	14.9%	0.4%	498	17.2%	0.7%
	March 2007						**April 2007**						**May 2007**					
	Volume	%A	%M	SU	%A	%M	Volume	%A	%M	SU	%A	%M	Volume	%A	%M	SU	%A	%M
March	$101,861,010			531														
April	$109,363,287	7.4%	7.4%	578	8.9%	8.9%	$101,494,489			570								
May	$112,369,017	10.3%	3.0%	598	12.6%	3.8%	$106,031,520	4.5%	4.5%	600	5.3%	5.3%	$130,017,145			708		
June	$112,314,467	10.3%	-0.1%	597	12.4%	-0.2%	$107,150,270	5.6%	1.1%	608	6.7%	1.4%	$135,821,405	4.5%	4.5%	745	5.2%	5.2%
July	$112,663,467	10.6%	0.3%	599	12.8%	0.4%	$108,037,670	6.4%	0.9%	612	7.4%	0.7%	$136,567,805	5.0%	0.6%	749	5.8%	0.6%
August	$113,989,767	11.9%	1.3%	607	14.3%	1.5%	$108,755,670	7.2%	0.7%	616	8.1%	0.7%	$136,766,200	5.2%	0.2%	753	6.4%	0.6%
	June 2007						**July 2007**						**August 2007**					
	Volume	%A	%M	SU	%A	%M	Volume	%A	%M	SU	%A	%M	Volume	%A	%M	SU	%A	%M
June	$127,297,799			667														
July	$130,411,171	2.4%	2.4%	687	3.0%	3.0%	$110,771,178			557								
August	$133,214,573	4.6%	2.2%	703	5.4%	2.4%	$118,151,504	6.7%	6.7%	598	7.4%	7.4%	$125,215,563			615		

Source: MLS Database September 2006-August 2007.

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Exhibit B

12-Month Table of Changes for Pending 2006-2007

	September									October									November								
	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML
September	588																										
October	571	-2.9%	-2.9%	24	4.1%	4.1%	41	7.0%	7.0%	661																	
November	567	-3.6%	-0.7%	27	4.6%	0.5%	48	8.2%	1.2%	664	0.5%	0.5%	38	5.7%	5.7%	35	5.3%	5.3%	622								
December	560	-4.8%	-1.2%	27	4.6%	0.0%	55	9.4%	1.2%	654	-1.1%	-1.5%	48	7.3%	1.5%	55	8.3%	3.0%	609	-2.1%	-2.1%	29	4.7%	4.7%	42	6.8%	6.8%
January	557	-5.3%	-0.5%	32	5.4%	0.9%	63	10.7%	1.4%	657	-0.6%	0.5%	56	8.5%	1.2%	60	9.1%	0.8%	606	-2.6%	-0.5%	41	6.6%	1.9%	57	9.2%	2.4%
February	554	-5.8%	-0.5%	31	5.3%	-0.2%	65	11.1%	0.3%	657	-0.6%	0.0%	57	8.6%	0.2%	61	9.2%	0.2%	604	-2.9%	-0.3%	42	6.8%	0.2%	60	9.6%	0.5%
March	550	-6.5%	-0.7%	31	5.3%	0.0%	69	11.7%	0.7%	656	-0.8%	-0.2%	57	8.6%	0.0%	62	9.4%	0.2%	599	-3.7%	-0.8%	43	6.9%	0.2%	66	10.6%	1.0%
April	545	-7.3%	-0.9%	31	5.3%	0.0%	74	12.6%	0.9%	650	-1.7%	-0.9%	56	8.5%	-0.2%	67	10.1%	0.8%	595	-4.3%	-0.6%	42	6.8%	-0.2%	69	11.1%	0.5%
May	544	-7.5%	-0.2%	31	5.3%	0.0%	75	12.8%	0.2%	653	-1.2%	0.5%	57	8.6%	0.2%	65	9.8%	-0.3%	598	-3.9%	0.5%	44	7.1%	0.3%	68	10.9%	-0.2%
June	545	-7.3%	0.2%	31	5.3%	0.0%	74	12.6%	-0.2%	652	-1.4%	-0.2%	57	8.6%	0.0%	66	10.0%	0.2%	595	-4.3%	-0.5%	44	7.1%	0.0%	71	11.4%	0.5%
July	542	-7.8%	-0.5%	30	5.1%	-0.2%	76	12.9%	0.3%	650	-1.7%	-0.3%	57	8.6%	0.0%	68	10.3%	0.3%	593	-4.7%	-0.3%	44	7.1%	0.0%	73	11.7%	0.3%
August	538	-8.5%	-0.7%	30	5.1%	0.0%	80	13.6%	0.7%	639	-3.3%	-1.7%	56	8.5%	-0.2%	78	11.8%	1.5%	592	-4.8%	-0.2%	44	7.1%	0.0%	74	11.9%	0.2%

	December									January									February								
	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML
December	497																										
January	489	-1.6%	-1.6%	21	4.2%	4.2%	29	5.8%	5.8%	593																	
February	479	-3.6%	-2.0%	21	4.2%	0.0%	39	7.8%	2.0%	568	-4.2%	-4.2%	23	3.9%	3.9%	48	8.1%	8.1%	620								
March	476	-4.2%	-0.6%	22	4.4%	0.2%	43	8.7%	0.8%	558	-5.9%	-1.7%	24	4.2%	0.3%	59	10.4%	2.3%	599	-3.4%	-3.4%	28	4.5%	4.5%	49	7.9%	7.9%
April	470	-5.4%	-1.2%	21	4.2%	-0.2%	48	9.7%	1.0%	548	-7.6%	-1.7%	26	4.7%	0.4%	71	12.7%	2.3%	587	-5.3%	-1.9%	31	5.2%	0.7%	64	10.7%	2.8%
May	469	-5.6%	-0.2%	21	4.2%	0.0%	49	9.9%	0.2%	555	-6.4%	1.2%	27	4.9%	0.3%	65	11.9%	-0.9%	590	-4.8%	0.5%	35	6.0%	0.8%	65	11.1%	0.4%
June	468	-5.8%	-0.2%	21	4.2%	0.0%	50	10.1%	0.2%	553	-6.7%	-0.3%	28	5.0%	0.1%	68	12.3%	0.4%	588	-5.2%	-0.3%	36	6.1%	0.1%	68	11.5%	0.5%
July	467	-6.0%	-0.2%	21	4.2%	0.0%	51	10.3%	0.2%	552	-6.9%	-0.2%	28	5.1%	0.0%	69	12.5%	0.2%	587	-5.3%	-0.2%	36	6.1%	0.0%	69	11.7%	0.2%
August	466	-6.2%	-0.2%	21	4.2%	0.0%	52	10.5%	0.2%	550	-7.3%	-0.3%	28	5.1%	0.0%	71	12.9%	0.4%	586	-5.5%	-0.2%	36	6.1%	0.0%	70	11.9%	0.2%

	March									April																	
	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML
March	791																										
April	762	-3.7%	-3.7%	22	2.8%	2.8%	51	6.4%	6.4%	756																	
May	769	-2.8%	0.9%	35	4.4%	1.6%	57	7.5%	1.0%	746	-1.3%	-1.3%	30	4.0%	4.0%	40	5.3%	5.3%	739								
June	769	-2.8%	0.0%	38	4.8%	0.4%	60	7.8%	0.3%	740	-2.1%	-0.8%	35	4.7%	0.7%	51	6.8%	1.5%	725	-1.9%	-1.9%	28	3.8%	3.8%	42	5.7%	5.7%
July	761	-3.8%	-1.0%	37	4.7%	-0.1%	67	8.7%	0.9%	737	-2.5%	-0.4%	35	4.7%	0.0%	54	7.3%	0.5%	718	-2.8%	-0.9%	34	4.7%	0.9%	55	7.6%	1.9%
August	759	-4.0%	-0.3%	37	4.7%	0.0%	69	9.1%	0.4%	733	-3.0%	-0.5%	35	4.7%	0.0%	58	7.9%	0.6%	714	-3.4%	-0.5%	37	5.2%	0.5%	62	8.6%	1.0%

	June									July																	
	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML	PU	%AT	%MT	Gain	%AG	%MG	Loss	%AL	%ML
June	683																										
July	669	-2.0%	-2.0%	27	4.0%	4.0%	41	6.0%	6.0%	662																	
August	652	-4.5%	-2.5%	28	4.2%	0.2%	59	8.8%	2.8%	652	-1.5%	-1.5%	33	5.0%	5.0%	43	6.5%	6.5%	563								

6-M Ave % Gain	**6.0%**
6-M Ave % Loss	**-11.2%**
6-M Ave % Net	**-5.0%**

Source: MLS Database of NWA 2006-2007

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Exhibit C

12-Month Table of Changes for Inventory

	September 2006			October 2006			November 2006		
	Inventory	%A	%M	Inventory	%A	%M	Inventory	%A	%M
September	6,727								
October	6,776	0.7%	0.7%	6,843					
November	6,838	1.7%	0.9%	6,922	1.2%	1.2%	6,766		
December	6,851	1.8%	0.2%	6,957	1.7%	0.5%	6,844	1.2%	1.2%
January	6,882	2.3%	0.5%	6,993	2.2%	0.5%	6,886	1.8%	0.6%
February	6,890	2.4%	0.1%	7,001	2.3%	0.1%	6,905	2.1%	0.3%
March	6,906	2.7%	0.2%	7,015	2.5%	0.2%	6,923	2.3%	0.3%
April	6,916	2.8%	0.1%	7,033	2.8%	0.3%	6,939	2.6%	0.2%
May	6,937	3.1%	0.3%	7,054	3.1%	0.3%	6,961	2.9%	0.3%
June	6,941	3.2%	0.1%	7,059	3.2%	0.1%	6,967	3.0%	0.1%
July	6,945	3.2%	0.1%	7,066	3.3%	0.1%	6,976	3.1%	0.1%
August	6,898	2.5%	-0.7%	7,028	2.7%	-0.6%	6,939	2.6%	-0.5%
	December 2006			**January 2007**			**February 2007**		
	Inventory	%A	%M	Inventory	%A	%M	Inventory	%A	%M
December	6,445								
January	6,524	1.2%	1.2%	6,483					
February	6,567	1.9%	0.7%	6,582	1.5%	1.5%	6,526		
March	6,589	2.2%	0.3%	6,617	2.1%	0.5%	6,615	1.4%	1.4%
April	6,613	2.6%	0.4%	6,647	2.5%	0.5%	6,658	2.0%	0.7%
May	6,641	3.0%	0.4%	6,677	3.0%	0.5%	6,686	2.5%	0.4%
June	6,650	3.2%	0.1%	6,681	3.1%	0.1%	6,694	2.6%	0.1%
July	6,661	3.4%	0.2%	6,696	3.3%	0.2%	6,710	2.8%	0.2%
August	6,627	2.8%	-0.5%	6,664	2.8%	-0.5%	6,678	2.3%	-0.5%
	March 2007			**April 2007**			**May 2007**		
	Inventory	%A	%M	Inventory	%A	%M	Inventory	%A	%M
March	6,731								
April	6,807	1.1%	1.1%	6859					
May	6,850	1.8%	0.6%	6,940	1.2%	1.2%	6,917		
June	6,855	1.8%	0.1%	6,945	1.3%	0.1%	7,011	1.4%	1.4%
July	6,880	2.2%	0.4%	6,978	1.7%	0.5%	7,053	2.0%	0.6%
August	6,855	1.8%	-0.4%	6,965	1.5%	-0.2%	7,055	2.0%	0.0%
	June 2007			**July 2007**			**August 2007**		
	Inventory	%A	%M	Inventory	%A	%M	Inventory	%A	%M
June	7,058								
July	7,142	1.2%	1.2%	7,139					
August	7,167	1.5%	0.4%	7,222	1.2%	1.2%	7,192		

Source: MLS Database of NWA 2006-2007

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Exhibit D

Average Annual Percent Changes

% Accumulated						
	Inventory	Volume	Units	Total Pend	Gain Pend	Loss Pend
1-month	1.2%	6.1%	6.4%	-2.2%	4.2%	-6.4%
2-month	1.8%	7.9%	8.2%	-3.4%	5.0%	-8.5%
3-month	2.1%	10.3%	9.7%	-3.7%	5.5%	-9.4%
4-month	2.4%	11.8%	10.7%	-4.2%	5.7%	-10.0%
5-month	2.6%	11.1%	11.5%	-4.7%	5.8%	-10.6%
6-month	2.9%	11.2%	11.3%	-5.0%	6.0%	-11.2%
7-month	3.0%	10.6%	10.3%	-5.2%	6.1%	-11.4%
8-month	3.1%	10.4%	10.3%	-4.9%	6.3%	-11.2%
9-month	3.0%	10.6%	10.8%	-4.6%	7.0%	-11.6%
10-month	3.0%	11.2%	11.4%	-5.6%	6.8%	-12.4%
11-month	2.5%	11.1%	11.2%	-8.5%	5.1%	-13.6%

% Month to Month						
	Inventory	Volume	Units	Total Pend	Gain Pend	Loss Pend
1-month	1.2%	6.1%	6.4%	-2.2%	4.2%	-6.4%
2-Nonth	0.6%	1.7%	1.8%	-1.2%	0.8%	-2.1%
3-month	0.3%	2.5%	1.4%	-0.3%	0.5%	-0.8%
4-month	0.2%	1.4%	1.1%	-0.4%	0.2%	-0.7%
5-month	0.1%	-0.6%	0.8%	-0.5%	0.1%	-0.6%
6-month	0.1%	0.1%	-0.2%	-0.4%	0.2%	-0.6%
7-month	0.0%	-0.6%	-1.0%	-0.2%	0.0%	-0.2%
8-month	0.0%	-0.2%	0.0%	0.3%	0.2%	0.2%
9-month	-0.1%	0.3%	0.5%	0.3%	0.7%	-0.4%
10-month	-0.2%	0.6%	0.6%	-1.0%	-0.2%	-0.8%
11-month	-0.7%	-0.2%	-0.2%	-2.9%	-1.7%	-1.2%

Source: MLS Database of NWA 2006-2007

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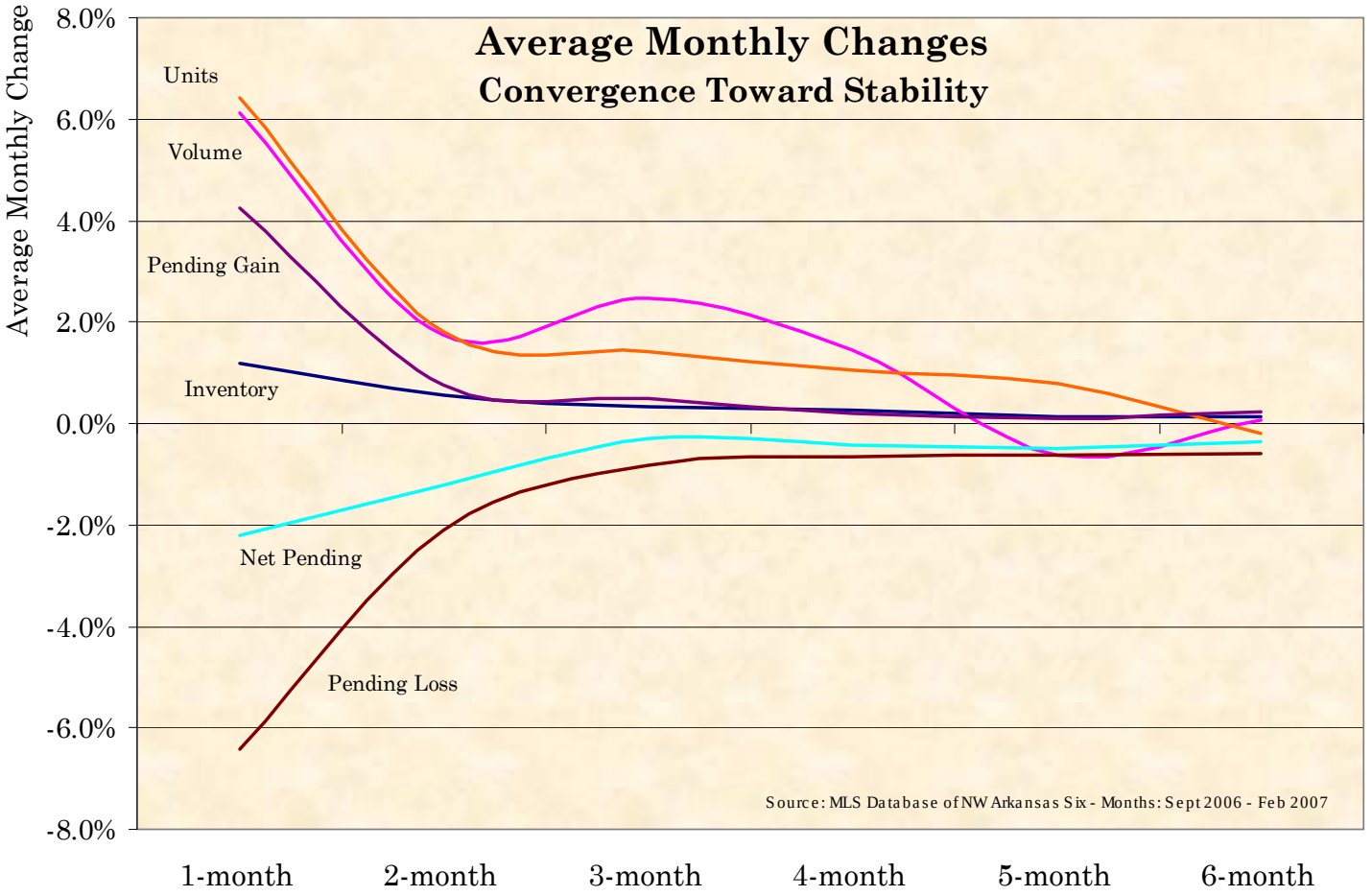
Exhibit E



All indicators tend toward zero change, and by the 6th month are within .5% of zero. Inventory has the least 1st-month change. Inventory is measuring listings available as currents. Volume and Units are measuring sales. Pending are measuring contracts placed on homes that eventually become sales, (perhaps withdrawn), or they return to current. Pending gain is late reporting. Pending loss are changes in status. Net pending is the result.

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Exhibit F

Accumulated Monthly Volume - Average Under Reported

	Averages	1-Month	2-Month	3-Month	4-Month	5-Month	6-Month	7-Month	8-Month	9-Month	10-Month	11-Month	12-Month
		6.1%	1.7%	2.5%	1.4%	-0.6%	0.1%	-0.6%	-0.2%	0.3%	0.6%	-0.2%	-0.5%
	Volume SI	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Jan	0.653	0.613	0.642	0.637	0.644	0.657	0.653	0.657	0.655	0.652	0.649	0.655	0.656
Feb	0.776		0.728	0.762	0.757	0.765	0.780	0.775	0.780	0.778	0.774	0.771	0.777
Mar	1.010			0.948	0.992	0.985	0.996	1.016	1.009	1.016	1.012	1.007	1.004
Apr	1.033				0.970	1.015	1.007	1.018	1.039	1.032	1.039	1.035	1.030
May	1.196					1.122	1.175	1.166	1.178	1.203	1.195	1.203	1.198
Jun	1.258						1.181	1.236	1.227	1.240	1.266	1.258	1.266
Jul	1.186							1.114	1.165	1.157	1.169	1.193	1.185
Aug	1.200								1.127	1.179	1.171	1.183	1.208
Sep	1.049									0.984	1.030	1.023	1.033
Oct	0.942										0.885	0.926	0.919
Nov	0.827											0.777	0.813
Dec	0.870												0.817
	SI Adj	0.613	1.370	2.348	3.362	4.544	5.792	6.983	8.182	9.241	10.190	11.030	11.907
	SI Acc	0.653	1.429	2.439	3.472	4.667	5.926	7.112	8.312	9.361	10.303	11.130	12.000
		Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
	% Under	**6.1%**	**4.1%**	**3.7%**	**3.1%**	**2.6%**	**2.3%**	**1.8%**	**1.6%**	**1.3%**	**1.1%**	**0.9%**	**0.8%**

Source: MLS Database of NWA 2006-2007

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