

# Financial **Econometrics**

*From Basics to Advanced Modeling  
Techniques*

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**EXHIBIT 3.1** Return and Excess Return Data for S&P 500, Oracle, GM, and Portfolio<sup>a</sup>: 12/1/2000–11/1/2005

Date	S&P 500 Return	Risk-Free Rate	S&P – Risk Free Rate	Oracle Return	Oracle Excess Return	GM Return	GM Excess Return	Portfolio Return	Portfolio Excess Return
12/1/2000	0.03464	0.00473	0.02990	0.00206	-0.00267	0.05418	0.04945	0.01446	0.00973
1/1/2001	-0.09229	0.00413	-0.09642	-0.34753	-0.35165	-0.00708	-0.01120	-0.07324	-0.07736
2/1/2001	-0.06420	0.00393	-0.06813	-0.21158	-0.21550	-0.02757	-0.03149	-0.07029	-0.07421
3/1/2001	0.07681	0.00357	0.07325	0.07877	0.07521	0.05709	0.05352	0.11492	0.11135
4/1/2001	0.00509	0.00321	0.00188	-0.05322	-0.05643	0.03813	0.03492	0.01942	0.01621
5/1/2001	-0.02504	0.00302	-0.02805	0.24183	0.23881	0.13093	0.12791	-0.03050	-0.03351
6/1/2001	-0.01074	0.00288	-0.01362	-0.04842	-0.05130	-0.01166	-0.01453	-0.03901	-0.04189
7/1/2001	-0.06411	0.00288	-0.06698	-0.32467	-0.32754	-0.13915	-0.14203	-0.08264	-0.08552
8/1/2001	-0.08172	0.00274	-0.08447	0.03030	0.02756	-0.21644	-0.21918	-0.13019	-0.13293
9/1/2001	0.01810	0.00219	0.01591	0.07790	0.07571	-0.03683	-0.03902	0.05969	0.05749
10/1/2001	0.07518	0.00177	0.07341	0.03466	0.03289	0.20281	0.20104	0.11993	0.11816
11/1/2001	0.00757	0.00157	0.00601	-0.01568	-0.01725	-0.02213	-0.02370	0.02346	0.02190
12/1/2001	-0.01557	0.00148	-0.01706	0.24982	0.24834	0.05226	0.05078	0.05125	0.04976
1/1/2002	-0.02077	0.00144	-0.02221	-0.03708	-0.03852	0.03598	0.03454	0.02058	0.01914
2/1/2002	0.03674	0.00152	0.03522	-0.22984	-0.23136	0.14100	0.13948	0.02818	0.02667
3/1/2002	-0.06142	0.00168	-0.06309	-0.21563	-0.21730	0.06121	0.05953	-0.00517	-0.00684
4/1/2002	-0.00908	0.00161	-0.01069	-0.21116	-0.21276	-0.03118	-0.03279	-0.02664	-0.02825
5/1/2002	-0.07246	0.00155	-0.07401	0.19571	0.19416	-0.13998	-0.14153	-0.04080	-0.04235
6/1/2002	-0.07900	0.00149	-0.08050	0.05702	0.05553	-0.12909	-0.13058	-0.05655	-0.05804
7/1/2002	0.00488	0.00142	0.00346	-0.04196	-0.04337	0.02814	0.02673	-0.01411	-0.01553
8/1/2002	-0.11002	0.00133	-0.11136	-0.18040	-0.18173	-0.18721	-0.18855	-0.09664	-0.09797
9/1/2002	0.08645	0.00133	0.08512	0.29644	0.29510	-0.14524	-0.14658	0.06920	0.06787
10/1/2002	0.05707	0.00130	0.05577	0.19235	0.19105	0.19398	0.19268	0.08947	0.08817
11/1/2002	-0.06033	0.00106	-0.06139	-0.11111	-0.11217	-0.07154	-0.07259	-0.04623	-0.04729
12/1/2002	-0.02741	0.00103	-0.02845	0.11389	0.11286	-0.01438	-0.01541	-0.00030	-0.00134
1/1/2003	-0.01700	0.00100	-0.01800	-0.00582	-0.00682	-0.07047	-0.07147	-0.03087	-0.03187
2/1/2003	0.00836	0.00098	0.00737	-0.09365	-0.09463	-0.00444	-0.00543	-0.00951	-0.01049
3/1/2003	0.08104	0.00094	0.08010	0.09594	0.09500	0.07228	0.07134	0.06932	0.06838
4/1/2003	0.05090	0.00095	0.04995	0.09512	0.09417	-0.01997	-0.02092	0.06898	0.06803
5/1/2003	0.01132	0.00090	0.01042	-0.07686	-0.07776	0.01896	0.01806	0.00567	0.00477
6/1/2003	0.01622	0.00077	0.01546	-0.00167	-0.00243	0.03972	0.03896	0.03096	0.03019
7/1/2003	0.01787	0.00079	0.01708	0.07006	0.06927	0.09805	0.09726	0.03756	0.03677
8/1/2003	-0.01194	0.00086	-0.01280	-0.12315	-0.12401	-0.00414	-0.00499	-0.03145	-0.03231
9/1/2003	0.05496	0.00084	0.05412	0.06400	0.06316	0.04251	0.04167	0.07166	0.07082
10/1/2003	0.00713	0.00083	0.00630	0.00418	0.00334	0.00258	0.00174	0.00832	0.00749
11/1/2003	0.05077	0.00085	0.04992	0.10067	0.09982	0.24825	0.24740	0.06934	0.06849
12/1/2003	0.01728	0.00083	0.01645	0.04762	0.04679	-0.06966	-0.07049	0.00012	-0.00070
1/1/2004	0.01221	0.00081	0.01140	-0.07143	-0.07224	-0.03140	-0.03221	0.01279	0.01198
2/1/2004	-0.01636	0.00083	-0.01718	-0.06760	-0.06842	-0.01808	-0.01890	-0.03456	-0.03538
3/1/2004	-0.01679	0.00083	-0.01762	-0.06250	-0.06333	0.00360	0.00277	-0.00890	-0.00972
4/1/2004	0.01208	0.00091	0.01118	0.01333	0.01243	-0.04281	-0.04372	0.02303	0.02212
5/1/2004	0.01799	0.00109	0.01690	0.04649	0.04540	0.02644	0.02535	-0.00927	-0.01036
6/1/2004	-0.03429	0.00133	-0.03562	-0.11903	-0.12036	-0.07405	-0.07538	-0.05173	-0.05307
7/1/2004	0.00229	0.00138	0.00090	-0.05138	-0.05276	-0.04242	-0.04380	-0.00826	-0.00965
8/1/2004	0.00936	0.00143	0.00793	0.13139	0.12996	0.02832	0.02689	0.01632	0.01488

**EXHIBIT 3.1** (Continued)

Date	S&P 500 Return	Risk-Free Rate	S&P – Risk Free Rate	Oracle Return	Oracle Excess Return	GM Return	GM Excess Return	Portfolio Return	Portfolio Excess Return
9/1/2004	0.01401	0.00156	0.01246	0.12234	0.12078	-0.09251	-0.09407	0.00577	0.00421
10/1/2004	0.03859	0.00167	0.03693	0.00632	0.00465	0.00104	-0.00063	0.05326	0.05159
11/1/2004	0.03246	0.00189	0.03057	0.07692	0.07503	0.03809	0.03620	0.02507	0.02318
12/1/2004	-0.02529	0.00203	-0.02732	0.00364	0.00162	-0.08113	-0.08315	-0.03109	-0.03311
1/1/2005	0.01890	0.00218	0.01673	-0.05955	-0.06172	-0.03151	-0.03369	0.01225	0.01008
2/1/2005	-0.01912	0.00231	-0.02143	-0.03629	-0.03860	-0.17560	-0.17790	-0.01308	-0.01538
3/1/2005	-0.02011	0.00250	-0.02261	-0.07372	-0.07622	-0.09221	-0.09471	-0.03860	-0.04110
4/1/2005	0.02995	0.00254	0.02741	0.10727	0.10472	0.18178	0.17924	0.04730	0.04476
5/1/2005	-0.00014	0.00257	-0.00271	0.03125	0.02868	0.07834	0.07577	-0.02352	-0.02609
6/1/2005	0.03597	0.00261	0.03336	0.02803	0.02542	0.08294	0.08033	0.04905	0.04644
7/1/2005	-0.01122	0.00285	-0.01407	-0.04274	-0.04559	-0.07143	-0.07428	-0.02185	-0.02470
8/1/2005	0.00695	0.00305	0.00390	-0.04542	-0.04847	-0.10471	-0.10776	0.00880	0.00575
9/1/2005	-0.01774	0.00306	-0.02080	0.02258	0.01952	-0.10487	-0.10793	-0.04390	-0.04696
10/1/2005	0.03519	0.00333	0.03186	-0.00631	-0.00963	-0.20073	-0.20405	0.01649	0.01316
11/1/2005	0.01009	0.00346	0.00663	-0.00714	-0.01060	0.01050	0.00704	0.01812	0.01466

<sup>a</sup> Portfolio includes the following 20 stocks: Honeywell, Alcoa, Campbell Soup, Boeing, General Dynamics, Oracle, Sun, General Motors, Procter & Gamble, Wal-Mart, Exxon, ITT, Unilever, Hilton, Martin Marietta, Coca-Cola, Northrop Grumman, Mercury Interact, Amazon, and United Technologies.

**EXHIBIT 3.2** Characteristic Line of the Common Stock of General Motors, Oracle, and Portfolio: 12/1/2000–11/1/2005

Coefficient	Coefficient Estimate	Standard Error	<i>t</i> -statistic	<i>p</i> -value
<b>GM Oracle</b>				
$\alpha$	-0.005	0.015	-0.348	0.729
$\beta$	1.406	0.339	4.142	0.00
$R^2$	0.228			
<i>p</i> -value	0.00			
<b>Oracle GM</b>				
$\alpha$	-0.009	0.011	-0.812	0.420
$\beta$	1.157	0.257	4.501	0.000
$R^2$	0.259			
<i>p</i> -value	0.000			
<b>Portfolio</b>				
$\alpha$	0.003	0.003	1.027	0.309
$\beta$	1.026	0.070	14.711	0.000
$R^2$	0.787			
<i>p</i> -value	0.000			