

WHITE PAPER

Protecting Your Business Assets

A Report on Spreadsheet Risk

By Nancy Faussett, CPA



21	16,371	16,834	17,297	17,760	18,223	18,686	19,149	19,612	20,075	20,538	21,001	21,464	21,927	22,390	22,853	23,316	23,779	24,242	24,705	25,168	25,631	26,094	26,557	27,020	27,483	27,946	28,409	28,872	29,335	29,798	30,261	30,724	31,187	31,650	32,113	32,576	33,039	33,502	33,965	34,428	34,891	35,354	35,817	36,280	36,743	37,206	37,669	38,132	38,595	39,058	39,521	39,984	40,447	40,910	41,373	41,836	42,299	42,762	43,225	43,688	44,151	44,614	45,077	45,540	46,003	46,466	46,929	47,392	47,855	48,318	48,781	49,244	49,707	50,170	50,633	51,096	51,559	52,022	52,485	52,948	53,411	53,874	54,337	54,800	55,263	55,726	56,189	56,652	57,115	57,578	58,041	58,504	58,967	59,430	59,893	60,356	60,819	61,282	61,745	62,208	62,671	63,134	63,597	64,060	64,523	64,986	65,449	65,912	66,375	66,838	67,301	67,764	68,227	68,690	69,153	69,616	70,079	70,542	71,005	71,468	71,931	72,394	72,857	73,320	73,783	74,246	74,709	75,172	75,635	76,098	76,561	77,024	77,487	77,950	78,413	78,876	79,339	79,802	80,265	80,728	81,191	81,654	82,117	82,580	83,043	83,506	83,969	84,432	84,895	85,358	85,821	86,284	86,747	87,210	87,673	88,136	88,599	89,062	89,525	89,988	90,451	90,914	91,377	91,840	92,303	92,766	93,229	93,692	94,155	94,618	95,081	95,544	96,007	96,470	96,933	97,396	97,859	98,322	98,785	99,248	99,711	100,174	100,637	101,100	101,563	102,026	102,489	102,952	103,415	103,878	104,341	104,804	105,267	105,730	106,193	106,656	107,119	107,582	108,045	108,508	108,971	109,434	109,897	110,360	110,823	111,286	111,749	112,212	112,675	113,138	113,601	114,064	114,527	114,990	115,453	115,916	116,379	116,842	117,305	117,768	118,231	118,694	119,157	119,620	120,083	120,546	121,009	121,472	121,935	122,398	122,861	123,324	123,787	124,250	124,713	125,176	125,639	126,102	126,565	127,028	127,491	127,954	128,417	128,880	129,343	129,806	130,269	130,732	131,195	131,658	132,121	132,584	133,047	133,510	133,973	134,436	134,899	135,362	135,825	136,288	136,751	137,214	137,677	138,140	138,603	139,066	139,529	139,992	140,455	140,918	141,381	141,844	142,307	142,770	143,233	143,696	144,159	144,622	145,085	145,548	146,011	146,474	146,937	147,400	147,863	148,326	148,789	149,252	149,715	150,178	150,641	151,104	151,567	152,030	152,493	152,956	153,419	153,882	154,345	154,808	155,271	155,734	156,197	156,660	157,123	157,586	158,049	158,512	158,975	159,438	159,901	160,364	160,827	161,290	161,753	162,216	162,679	163,142	163,605	164,068	164,531	164,994	165,457	165,920	166,383	166,846	167,309	167,772	168,235	168,698	169,161	169,624	170,087	170,550	171,013	171,476	171,939	172,402	172,865	173,328	173,791	174,254	174,717	175,180	175,643	176,106	176,569	177,032	177,495	177,958	178,421	178,884	179,347	179,810	180,273	180,736	181,199	181,662	182,125	182,588	183,051	183,514	183,977	184,440	184,903	185,366	185,829	186,292	186,755	187,218	187,681	188,144	188,607	189,070	189,533	190,096	190,559	191,022	191,485	191,948	192,411	192,874	193,337	193,800	194,263	194,726	195,189	195,652	196,115	196,578	197,041	197,504	197,967	198,430	198,893	199,356	199,819	200,282	200,745	201,208	201,671	202,134	202,597	203,060	203,523	203,986	204,449	204,912	205,375	205,838	206,301	206,764	207,227	207,690	208,153	208,616	209,079	209,542	210,005	210,468	210,931	211,394	211,857	212,320	212,783	213,246	213,709	214,172	214,635	215,098	215,561	216,024	216,487	216,950	217,413	217,876	218,339	218,802	219,265	219,728	220,191	220,654	221,117	221,580	222,043	222,506	222,969	223,432	223,895	224,358	224,821	225,284	225,747	226,210	226,673	227,136	227,599	228,062	228,525	228,988	229,451	229,914	230,377	230,840	231,303	231,766	232,229	232,692	233,155	233,618	234,081	234,544	235,007	235,470	235,933	236,396	236,859	237,322	237,785	238,248	238,711	239,174	239,637	240,100	240,563	241,026	241,489	241,952	242,415	242,878	243,341	243,804	244,267	244,730	245,193	245,656	246,119	246,582	247,045	247,508	247,971	248,434	248,897	249,360	249,823	250,286	250,749	251,212	251,675	252,138	252,601	253,064	253,527	253,990	254,453	254,916	255,379	255,842	256,305	256,768	257,231	257,694	258,157	258,620	259,083	259,546	260,009	260,472	260,935	261,398	261,861	262,324	262,787	263,250	263,713	264,176	264,639	265,102	265,565	266,028	266,491	266,954	267,417	267,880	268,343	268,806	269,269	269,732	270,195	270,658	271,121	271,584	272,047	272,510	272,973	273,436	273,899	274,362	274,825	275,288	275,751	276,214	276,677	277,140	277,603	278,066	278,529	278,992	279,455	279,918	280,381	280,844	281,307	281,770	282,233	282,696	283,159	283,622	284,085	284,548	285,011	285,474	285,937	286,400	286,863	287,326	287,789	288,252	288,715	289,178	289,641	290,104	290,567	291,030	291,493	291,956	292,419	292,882	293,345	293,808	294,271	294,734	295,197	295,660	296,123	296,586	297,049	297,512	297,975	298,438	298,901	299,364	299,827	300,290	300,753	301,216	301,679	302,142	302,605	303,068	303,531	303,994	304,457	304,920	305,383	305,846	306,309	306,772	307,235	307,698	308,161	308,624	309,087	309,550	310,013	310,476	310,939	311,402	311,865	312,328	312,791	313,254	313,717	314,180	314,643	315,106	315,569	316,032	316,495	316,958	317,421	317,884	318,347	318,810	319,273	319,736	320,199	320,662	321,125	321,588	322,051	322,514	322,977	323,440	323,903	324,366	324,829	325,292	325,755	326,218	326,681	327,144	327,607	328,070	328,533	328,996	329,459	329,922	330,385	330,848	331,311	331,774	332,237	332,700	333,163	333,626	334,089	334,552	335,015	335,478	335,941	336,404	336,867	337,330	337,793	338,256	338,719	339,182	339,645	340,108	340,571	341,034	341,497	341,960	342,423	342,886	343,349	343,812	344,275	344,738	345,201	345,664	346,127	346,590	347,053	347,516	347,979	348,442	348,905	349,368	349,831	350,294	350,757	351,220	351,683	352,146	352,609	353,072	353,535	353,998	354,461	354,924	355,387	355,850	356,313	356,776	357,239	357,702	358,165	358,628	359,091	359,554	360,017	360,480	360,943	361,406	361,869	362,332	362,795	363,258	363,721	364,184	364,647	365,110	365,573	366,036	366,499	366,962	367,425	367,888	368,351	368,814	369,277	369,740	370,203	370,666	371,129	371,592	372,055	372,518	372,981	373,444	373,907	374,370	374,833	375,296	375,759	376,222	376,685	377,148	377,611	378,074	378,537	378,900	379,363	379,826	380,289	380,752	381,215	381,678	382,141	382,604	383,067	383,530	383,993	384,456	384,919	385,382	385,845	386,308	386,771	387,234	387,697	388,160	388,623	389,086	389,549	390,012	390,475	390,938	391,401	391,864	392,327	392,790	393,253	393,716	394,179	394,642	395,105	395,568	396,031	396,494	396,957	397,420	397,883	398,346	398,809	399,272	399,735	400,198	400,661	401,124	401,587	402,050	402,513	402,976	403,439	403,902	404,365	404,828	405,291	405,754	406,217	406,680	407,143	407,606	408,069	408,532	408,995	409,458	409,921	410,384	410,847	411,310	411,773	412,236	412,699	413,162	413,625	414,088	414,551	415,014	415,477	415,940	416,403	416,866	417,329	417,792	418,255	418,718	419,181	419,644	420,107	420,570	421,033	421,496	421,959	422,422	422,885	423,348	423,811	424,274	424,737	425,200	425,663	426,126	426,589	427,052	427,515	427,978	428,441	428,904	429,367	429,830	430,293	430,756	431,219	431,682	432,145	432,608	433,071	433,534	433,997	434,460	434,923	435,386	435,849	436,312	436,775	437,238	437,701	438,164	438,627	439,090	439,553	440,016	440,479	440,942	441,405	441,868	442,331	442,794	443,257	443,720	444,183	444,646	445,109	445,572	446,035	446,498	446,961	447,424	447,887	448,350	448,813	449,276	449,739	450,202	450,665	451,128	451,591	452,054	452,517	452,980	453,443	453,906	454,369	454,832	455,295	455,758	456,221	456,684	457,147	457,610	458,073	458,536	458,999	459,462	459,925	460,388	460,851	461,314	461,777	462,240	462,703	463,166	463,629	464,092	464,555	465,018	465,481	465,944	466,407	466,870	467,333	467,796	468,259	468,722	469,185	469,648	470,111	470,574	471,037	471,500	471,963	472,426	472,889	473,352	473,815	474,278	474,741	475,204	475,667	476,130	476,593	477,056	477,519	477,982	478,445	478,908	479,371	479,834	480,297	480,760	481,223	481,686	482,149	482,612	483,075	483,538	483,901	484,364	484,827	485,290	485,753	486,216	486,679	487,142	487,605	488,068	488,531</
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Introduction

Over the last 25 years, the spreadsheet has become the de facto tool within organizations of all sizes and shapes. Nowhere is usage more widespread than in the finance, tax, and accounting departments. Seen as easy to use, low cost, and more productive than manual efforts, spreadsheet software is the reporting and analysis tool of choice for many professionals.

Unfortunately, the use of spreadsheets—and, more importantly, the lack of controls over spreadsheets—has been a contributing factor in financial reporting errors at a number of companies. In today's world of compliance, audits, and lawsuits, this is one major area of risk within organizations, both public and private, that is surprisingly often overlooked.

A great many spreadsheets in use today are complex systems of linked workbooks, macros, and program logic -- they are, in end effect, an application. However, these “applications” lack nearly all of the controls of typical IT applications: security, data integrity checks and balances, change management, audit trails, back-ups, quality control, and documentation.

Without these types of controls, complex spreadsheets can put companies at major risk for faulty decision-making, lack of compliance with tax regulations and GAAP rules, audit problems, fraud, the loss of historical data, and even the loss of the spreadsheet application itself. Providing an audit trail for changes to financial data is a major compliance issue for Sarbanes-Oxley.

Secondary to the risk, but also vastly underestimated, is the productivity drain of maintaining complex spreadsheets. The creators of the spreadsheets may spend more time “programming” the spreadsheets than they do performing their principal job function.

“Anecdotal evidence suggests that 20-40% of spreadsheets have errors, but recent audits of 54 spreadsheets found that 49 (or 91%) had errors, according to research by Raymond R. Panko, a professor at the University of Hawaii.”

Computer World,
May 24, 2004

Spreadsheet Risk — The Stakes Are High

Whether your company is small or large, public or private, or you work for a government agency, uncontrolled spreadsheet use can result in not only significant financial loss, but loss of reputation and goodwill.

Spreadsheet Errors

Part of the risk of using spreadsheets is the probability of error. As spreadsheets become more complex, the chance for error increases from a simple data entry mistake to incorrect formulas and macros. The cost of errors can be enormously high depending upon the criticality of the spreadsheet.

In addition to the explicit costs associated with the manpower necessary to locate and fix spreadsheet errors, there are the more far-reaching and serious costs. The media is rife with examples of spreadsheet errors being blamed for companies having to restate financials, losing business deals, getting fined by regulatory agencies, and losing credibility in the marketplace. For an exhaustive list of examples, view the list on the Website of the European Spreadsheet Risks Interest Group (www.eusprig.org/stories.htm).

Business Continuity

Another major risk is the lack of business continuity should the person who is maintaining the spreadsheet leave the company. Unlike the use of packaged applications, where an organization can hire a replacement who has experience using a specific system, it can be extremely difficult for someone else to understand how a spreadsheet is designed to be used.

Fraud

White collar criminals have found that spreadsheets are an excellent tool for perpetrating and covering up fraud. The Enron, Paramalat, and WorldCom scandals all included spreadsheet fraud. According to a survey conducted by the Association of Certified Fraud Examiners, the median fraud loss for financial fraud is a million dollars, compared to a median loss of only \$100,000 for frauds in general.¹

Non-Compliance

Finally, the cost of non-compliance should not be taken lightly. Sarbanes-Oxley penalties for non-compliance can be severe, ranging from delisting the company from the stock exchange to multi-million dollar fines and imprisonment.

Which Spreadsheets Are at Risk?

The major reason for these problems is that spreadsheets are not treated as a business resource -- with the control and oversight normally associated with a company asset. So how does a company go about evaluating which spreadsheets are the most at risk and have the highest impact on the company?

¹ Association of Certified Fraud Examiners, Study, 2004

“As the importance of the information being generated by a spreadsheet increases and the complexity increases, reliance on manual controls and processes may not be sufficient to satisfy the requirements under Sarbanes-Oxley Section 404.”

PricewaterhouseCoopers,
“The Use of
Spreadsheets:
Considerations for
Section 404 of the
Sarbanes-Oxley Act,”
2004

Ad-hoc spreadsheets are typically employed throughout an organization to organize and present all types of data. This ad hoc usage, where reported financial data is not involved, is most likely a lower risk/lower impact type of spreadsheet. For these spreadsheets, manual, self-policed controls are probably sufficient.

However, a significant number of companies depend upon spreadsheets as a key tool in financial reporting and other financial processes. In fact, many of the spreadsheets within the financial area are quite complex, with logic and dependencies being defined, data being imported and exported, and extensive calculations created. Spreadsheet usage that involves financial reporting, forecasting, and other handling of reported financial data should be subject to stricter controls than self-policing and even spreadsheet best practices.

If an organization determines that stricter controls on spreadsheet use should be applied, then it will first need to establish best practices and policies to address these controls. These policies and procedures will need to be communicated thoroughly to all employees involved in using and creating spreadsheets. The company must then monitor and enforce the policies.

However, high impact/high risk spreadsheets are ideal candidates for being replaced by formal IT applications and, at the very least, the company will benefit from having the much stricter controls in place normally found within IT applications.

Ensuring Adequate Control of Spreadsheets

The following controls are normally used to ensure accuracy, availability, and security for IT applications. These same controls are what must be implemented for higher risk/higher impact spreadsheets.

- **Security** - Preventing unauthorized access to corporate data is not only important to protect against fraud, but is a mandatory component of compliance with many regulations.
- **Audit/archiving** - In addition to being a best practice for any type of corporate financial data, public companies are required by the Sarbanes-Oxley Act to document changes made to financial data.
- **Data integrity** - Spreadsheets are notorious for containing mistakes. There needs to be systematic verification and validation of calculations and functionality.
- **Documentation** - When the creator of a spreadsheet leaves the company, other employees are often left with undocumented spreadsheets with no idea how to correctly use and maintain them.
- **Back-ups** - This should be part of best practices for all corporate data to prevent loss of corporate information assets.
- **Change control and quality assurance** - All changes should be verified before they are implemented, including structured testing to ensure accuracy of logic and calculations.

“The range in error rates depends on the complexity of the spreadsheet being tested... none of the tests included spreadsheets with more than 200 line items, where the probability of error approaches 100 percent.”

The Journal of Property Management, July 2002

The Impact on Productivity

For complex spreadsheets, implementing and maintaining the above controls will most certainly be a time-consuming, if not impossible, effort. Since most business professionals are not trained in the methodology of the software development lifecycle, implementing these controls will likely require IT resources and potentially additional software to monitor and enforce the control policies relative to spreadsheets.

This effort is, of course, in addition to the already significant amount of resources required to maintain the spreadsheets as changes in the business occur. While spreadsheets are widely viewed as low-cost, personal productivity tools, more complex usage can lead to the opposite: a productivity drain, as business analysts and accountants become application programmers. Very often, maintaining these large, complex spreadsheets can eat up a significant portion of time and take away from core business tasks. While there are no formal studies to date on the costs to an organization of creating and maintaining massive, complex spreadsheets, based on all of the components that go into developing and maintaining them, one has to assume the costs are high.

A Complex Spreadsheet Example — Fixed Assets and Depreciation

Back when the straight-line method was all that was required for depreciation, using a spreadsheet for this was simple. In the past, one could easily keep track of company assets and depreciate them correctly with the use of a spreadsheet. Today, the situation is dramatically different.

Multiple Ways to Depreciate an Asset

Each asset now has the possibility of being depreciated in six (or more) different ways—GAAP, regular tax, AMT, ACE, E&P, and state(s)—and all at the same moment in time. Remarkably enough, it's not unusual for an asset to be depreciated in six different ways for six different purposes.

In addition, changing GAAP rules and tax laws add to the burden. The person responsible for the fixed assets spreadsheet must track all the new relevant laws (after first interpreting and understanding the changes), program the calculations into the spreadsheet, and test the changes to make sure they are accurate. These rules and regulations also have specific dates of applicability that must be programmed into the spreadsheet or else kept in the head of the person tracking the asset.

Other Tax and Accounting Rules

In addition to depreciation rules, other tax and accounting rules that affect fixed assets, and for which calculations and programming logic could be necessary, include:

- The computation of gain and loss on asset disposals
- The breakdown of gain between capital and ordinary income
- The recapture of depreciation and certain credits when assets are no longer used in a business

- The correct treatment of like-kind exchanges and how to calculate the basis of the new asset(s) received
- Tax credits allowed for certain types of assets

Reporting Requirements

Another source of complexity when using spreadsheets to manage and depreciate fixed assets is the need to develop reports and conduct analysis in order to answer relevant business questions. Each time the situation arises where the spreadsheet is not designed to answer the question at hand, the person in charge of the spreadsheet needs to build new logic in order to create reports. This takes time and is prone to errors, making the business open to operating on less than perfect information as key decisions are made.

Increasing Number of Assets

As businesses grow, the number of assets can increase dramatically. What was once a small, manageable spreadsheet can grow to thousands of lines to support several thousand assets. Independent research shows that spreadsheets with more than 200 lines almost always contain errors. Tracking and handling a several thousand line spreadsheet is cumbersome and certainly error-prone.

Total Cost of Ownership

While the perception is that spreadsheets are a low cost option, the total cost of ownership can be deceiving. The cost comparison of off-the-shelf software designed to handle complex functions such as fixed assets management versus in-house spreadsheet use should take into consideration not only the cost of the software, but the total cost of ownership. For spreadsheets, this should include the following:

- Cost to create, test, and document the spreadsheet
- Cost to maintain the spreadsheet as changes occur
- Cost to research tax law and accounting rule changes
- Software required to secure and back-up the spreadsheet and the data
- Time/costs spent documenting changes and creating a manual audit trail

There is also the “soft” cost or opportunity cost of not having time to perform the principal job tasks of the person who is creating and maintaining the spreadsheet. For example, this could mean not having time to perform an analysis that could save the company tax dollars.

Finally, there are the resulting costs of business risks that must be considered: non-compliance fines, financial losses caused by faulty decision-making, and incorrect results causing interest and penalties to be assessed.

All in all, anyone using a spreadsheet to manage and track fixed assets today is undoubtedly dealing with an extremely complex spreadsheet and must invest significant hours to maintain and validate its accuracy.

BNA Fixed Assets™ software is a comprehensive fixed assets management and depreciation system with a built-in validation engine that enforces compliance with GAAP and tax rules.

Fixed Assets Software — The Safer Alternative

To eliminate the burden and risk of maintaining spreadsheets for important tax and accounting work such as fixed assets management, a packaged application from a reputable vendor will provide the program logic and calculations necessary to accurately and efficiently manage, depreciate, and report on fixed assets. Good fixed assets software has all the tax code and GAAP rules embedded within the product and has thoroughly-tested logic that ensures the rules are applied correctly. Frequent updates by the vendor guarantee that all changes and new laws are included in the software automatically.

Increased Efficiency and Productivity

With a fixed assets software package, the professionals responsible for fixed assets management and depreciation can focus on the job at hand and not have to worry about programming the latest tax law changes into the spreadsheet and then wondering if their interpretation and calculations are correct. Reports can be generated easily and quickly.

Quality Assurance and Accuracy

A good software package has been validated for accuracy not only by the vendor's quality assurance team, but by the thousands of customers using the software. Leading vendors also have a tremendous number of resources available with in-depth expertise in all matters related to tax law and accounting rules for fixed assets.

Reduced Risk

The risk of error, unauthorized access, and data loss is greatly reduced by using a fixed assets software package. Good fixed assets software provides all the controls and protections necessary for compliance and financial data best practices: security, back-ups, audit trail, and documentation.

Grows With the Company

Unlike spreadsheets, fixed assets software can easily handle a large number of fixed assets without an impact on efficiency, performance, and accuracy.

Summary

Many companies rely on spreadsheets as a key component in their financial reporting and operational processes. However, it is clear that there is considerable risk inherent in spreadsheet use that should be evaluated and mitigated to avoid the negative consequences of faulty business decisions, lawsuits, decreased productivity, fraud, and non-compliance fines.

It is important that companies determine which spreadsheets require further controls and whether, in fact, it is possible to implement and enforce controls that are adequate. For many enterprises, the preferable and lower risk alternative would be to migrate to a software package or application within a controlled IT environment.



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